

# ZEF

Bonn 2008

Working  
Paper  
Series

32

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Center for Development  
Research

Department of  
Political and  
Cultural Change

  
universität**bonn**



Zentrum für Entwicklungsforschung  
Center for Development Research

ISSN 1864-6638

ZEF Working Paper Series, ISSN 1864-6638  
Department of Political and Cultural Change  
Center for Development Research, University of Bonn  
Editors: H.-D. Evers, Solvay Gerke, Peter P. Mollinga, Conrad Schetter

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## Abstract

To counteract low water productivity in many developing countries, international donors promote community-based management. This practice was meant to replace top-down governmental approaches. In Ghana, the water sector has come under review in the 1990s. Institutions have been decentralized, and management tasks transferred to communities, associations, and private-sector entities.

While assigning ownership and responsibilities to communities is feasible for rural water management, the paper shows, that policy makers and practitioners tend to ignore the historical background of existing structures and antagonisms of traditional and present management systems. Implementation strategies are thus prone to failure.

The paper analyses the administrative history of water governance in Ghana, and related problems to date. The case study on fisheries management has its setting in the Upper East Region of Ghana, where people use reservoirs to improve their livelihoods through irrigation, cattle watering, and fisheries. In the course of rehabilitation projects, rights and responsibilities of management have been handed over to user groups or associations and village committees. Clashing traditional, governmental, and participatory management strategies overtax communities to cope with responsibilities. Conflicts, mistrust and overexploitation are some of the consequences.

## Keywords

Historic coherences, water conflicts, Ghana, community based management

# 1. INTRODUCTION

Participatory decision-making and community-based management, practices that are theoretically well established in the western world, comprise basic components associated with sustainable development. Very often the advocates of public participation do not take into consideration that it not just a right but also a burden, especially when participation is understood as co-management at community level. While there is little doubt that development efforts should encourage participatory decision-making and, where possible, community based management, it is not possible implement this strategy effectively without taking the complex socio-political and cultural histories into consideration.

Looking at Ghana and northern Ghana in particular, we can find water governance structures that are characterized by an antagonism of traditional and present management systems. On the one hand, traditional, patriarchic practices, which are partly based on indigenous belief systems, still dominate water governance at the local level. On the other hand, international guidelines and national programs promote policies, which are often contradicting the traditionally grown but insufficient water management structures. Twenty years ago, the first decentralization measures were taken and participatory decision making in the management of natural resources was promoted. In this process, the rural water sector came under review and legal as well as administrative changes have been realized to enhance the participation of local stakeholders and their inclusion in self-reliant resources governance. Unfortunately, in many cases, water productivity is still very low, and the level of inefficiency in the rural water sector is still high.

Failures of the new water governance strategies have many reasons, which can only be understood when looking at historical contexts. History connects water related issues to political contexts and social conditions. This holds especially true for the analysis of water related conflicts as demonstrated in the Transboundary Freshwater Dispute Database<sup>1</sup> of the Oregon State University. Thus, the analysis of basin wide water management structures and practices has to look at the social and political implications, the institutional set up, legal arrangements, conflicts, as part of historical processes of the region. A closer look into history and the emergence of current governance structures, which are interrelated with other spheres of society, may also help to explain why certain development approaches are accepted while others are not. Considering that history has a tendency to repeat itself, and that water is a highly political and politicised tool (Turton, 2005, Mollinga et al., 2007), it is of major importance to put it into the political and socio-cultural context. For development practitioners it is therefore indispensable to take that historical view following Cooke (2004) who states: "There is also a broader and equally important concern that we need to take a historical perspective to be able to put the role and function of participatory development into perspective and context".

The first part of this paper contains the methodological approach and theoretical considerations to the study. Afterwards the Upper East Region (UER) of Ghana is introduced. In the next section, we examine some of the obstacles for community based water management by looking at the legal and administrative history of water governance in Ghana, as well as related problems to date. Subsequently we focus on a case study, which examines local fisheries management. In the concluding chapter clashing customary, governmental and participatory management strategies are discussed.

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<sup>1</sup> For more information, see <http://www.transboundarywaters.orst.edu/database/>

## 2. THEORETICAL CONSIDERATIONS

Community participation and community based management, accompanying administrative decentralization processes, have become the dominant strategy for reforming inefficient rural water allocation in developing countries. Participatory approaches to development, understood as a prerequisite for community based management, are preferentially used by donor organizations and implementing agencies to improve the management of rural water resources. Unfortunately, these strategies have not always led to more sustainable management systems as thoroughly described for the example of rural water supplies in Sub-Saharan Africa (e.g. Schouten and Moriarty, 2003, Harvey and Reed, 2006). Reasons for failures are ascribed to internal and external factors, which constrain community participation and management. According to Botes and van Rensburg (2000) and Njoh (2002) the paternalistic posture of authorities and/or development professionals as well as local interest groups like elders or gate keeping practices by local elites may have negative influence on dynamics of community participation.

Other factors that limit participatory approaches in development practice can be found by Harvey and Reed (2006), who criticise that community members are often incorporated in voluntary work, which lack long term incentives for individuals. Likewise, a lack of transparency and accountability, community coherence and leadership may affect and constrain community participation.

Cleaver (2001) points out, that participatory approaches linked to institutional reforms do not acknowledge the fact that many decisions are negotiated and made outside formal organizations, during daily interactions which dominate social exchange and political decisions. Saravanan (2008) adds that decision-making processes do not represent communicative and consensual partnerships or strategic actions, but rather combines diverse social communicative skills over a period, making water management a socio-political process. The political nature of water management is also stressed by Mollinga et al. (2007). The authors point at the importance of context specificity and processes for institutional reform and underline the path dependency of institutional change<sup>2</sup>. In contrast, 'social engineering approaches', and blueprints with a general set of solutions are applied by development practitioners, who overlook the socio-political and cultural embeddedness of water management systems. The authors conclude that one size, often suggested in toolboxes for 'integrated natural resources management' or 'co-management of natural resources', does not fit all. They suggest a strategic approach to water management around the notions 'problemshed' and 'issue network' rather than a single purposive watershed perspective (Mollinga et al., 2007).

Another set of issues revolves around the question of what is understood by the term 'community'. Agrawal and Gibson (1999) points out that the concept of community is rarely defined or carefully examined by those concerned with resource use and management. Five years later Lund (2003) still criticizes, that there is neither a common understanding of the terminology "population/ local people" nor a precise idea of the model of participatory collaboration or cooperation. Instead, a variety of definitions, models, and context-depending meanings as well as an incoherent terminology are applied. Schouten und Moriarty (2003), who looked at participatory practices in drinking water supply, identify the complex mix of social, technical, and financial realities as factors responsible for water system failure. According to the authors, many water development projects tend to homogenize the target group by pretending that conditions are the same everywhere.

It seems that participation has turned out to be an indispensable but not reflected ingredient for development projects. Participation can be understood as a political strategy to empower underprivileged groups. However, power issues, the redistribution of property rights, transfer of authority as well as the reallocation of natural and social resources may also lead to a reassertion of powerful interest groups and to resource capture by old or new elites as Kothari (2001) points out.

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<sup>2</sup> Taking the example of fisheries, Viswanathan and Ahmed (2002) are stressing the need to study processes by which workable solutions are developed to manage common property.

The theoretical considerations on participatory approaches emphasize once more, how historical processes and path dependency are shaping current practices, decisions, arrangements and conflicts in water governance.

### 3. RESEARCH DESIGN AND METHODOLOGY

The underlying study of this paper is part of the GLOWA Volta research project (2000-2009), an interdisciplinary and international oriented research project funded by the German Federal Ministry of Education and Research and the state North Rhine Westphalia. Based on hydrological, meteorological, socio-economic, and socio-anthropological studies the overall project objective is to design and implement a scientifically sound decision support system (DSS) for the sustainable allocation and management of water resources in the West-African Volta river basin under the condition of global climate change.<sup>3</sup> The Upper East Region (UER) is one of the focus areas as its population is poor and highly vulnerable to environmental change.

The research agenda of the presented study was driven by an interest in the impact of historical derived water governance structures for today's rural water sector. Additionally, problems related to participatory approaches and community based water management strategies are put into focus. The historical part of the study is largely based on a review of relevant literature on the topic. The case study on rural fisheries is predominantly based on empirical data collected between February and August 2007. However, for the historical parts information was drawn from literature and semi-official as well as official documents from the Ministry of Fisheries (MoFi), NGOs and district councils. The data collection focused on two reservoirs, associated user communities and nearby markets in the UER. The reservoirs were selected based on an exploratory survey accomplished in 2006. The survey was conducted to assess the extent to which small reservoirs are used for fisheries and how the fisheries resources are managed within the communities. Therefore 72 reservoirs, dugouts and rivers were visited and 59 interviews were conducted with fishermen, fish mongers, Ghanaian fisheries scientists and staff of the MoFi. Results of the survey showed that very few fishermen were somehow organized to manage the fish stocks. This came to a surprise, since many of the visited dams had undergone rehabilitation projects in the last decade, were it was envisaged to transfer management responsibilities to communities.

Based on the outcome of this survey, the main question "How does community based fisheries management work?" had to be re-formulated into "What are the reasons for the weak performance of community based management?". In order to answer this question, two communities that had at least rudiments of a fishermen organization were selected, namely Kajelo community using Kajelo reservoir in the Kassena-Nankana district and Binduri reservoir used by the Bawku municipality. The reservoirs had the typical small reservoir size of about 15 ha and held water through out the year.

The investigations started with an open group discussion at which every fisherman of the village was invited. Subject of the discussion was the current fisheries management. It is often a challenge to capture comprehensive information when larger groups come together. Opinion leaders usually voice their perception of the situation. They often belong to the wealthier segment of a population and poorer fellows may not want to take the risk to upset them by articulating their own, often contradicting opinions. This so-called elite bias can often be found in Ghana and extends to exclude opinions of younger people, who are not allowed to contradict elders. In order to level this problem, small, rather homogenous groups were assembled later on and interviews were conducted at the homes of the interview partners to avoid onlookers, unwished comments and the spread sensitive information.

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<sup>3</sup> For more information, see project homepage [www.glowa-volta.de](http://www.glowa-volta.de)

Apart from the group discussions a number of semi-structured and open-ended expert interviews were conducted. The interview partners were sampled, relying on purposive sampling to include multiple perspectives on fisheries issues. Two fisheries scientists from the Ghanaian Water Research Institute were interviewed. They were not familiar with the selected villages, but provided an extensive knowledge about fisheries issues in the UER. Five active and two retired staff members of the MoFi were repeatedly interviewed. They provided information on present and past fisheries development policies gave an overview of past and present activities in the UER, and provided extensive insights in their work and experience with the reservoir communities.

On the village level *tendanas* and elders were a vital source for village history, ancestral live and traditional rules and regulations. Fish mongers provided insights of the market developments and an overview of the development of the demand for fish. A number of cattle owners, WUA executives, NGO staff and teachers provided an external view on the development of fisheries activities. Some of the interview partners were selected to draw influence network maps (Schiffer, 2007) for the last five years. In total 16 influence network were drawn. The Net-Map tool proved to be helpful in a more unexpected way with the problem of strategic answering (Steinberg, 2004). This problem was experienced repeatedly with PRA tools as well as within expert interviews, because of the respondents' familiarity with PRA approaches. A large number of NGOs working in the region, which are involved in a long history of development projects, are making use of these tools. Many people tend to think of PRA methods as part of aid interventions and thus respond in a strategic way to increase their chances of being selected for development projects. However the drawing of networks was new to the interview partners and answers did clearly not have the arranged character experienced earlier. Information was cross-checked and triangulated with extensive observations and field notes taken during eight month of stay in the village as well as with the literature of other research accomplished in the area (e.g. Roncoli, 1994, Lund 2006, Hesselberg and Yaro, 2006, Laube, 2007, Eguavoen, 2008), and the above mentioned documents from MoFI and other sources.

All data contributed to an analysis, which follows a process tracing procedure described by George and Bennett (2005) and Bennett and Elman (2006). Bennett and Elman pay special attention to the concept of path dependence and its component elements of causal possibility, contingency, closure of alternatives, and constraints to the current path. Both stress the importance of comparative case studies for the analysis of complex causal relations. Following these suggestions, a chronicle for each of the selected villages is presented to throw light on how the current situation of fisheries management came about. Thereby the four time categories pre-colonial, colonial, and post-colonial and contemporary was retained. Afterwards the cases are compared in order to filter the causes for the failure of the implemented management strategies.

#### 4. BACKGROUND INFORMATION ABOUT THE UPPER EAST REGION IN GHANA

The Upper East Region occupies the north-eastern part of Ghana, sharing borders with Togo and Burkina Faso. The region was and remains one of the most vulnerable and poor areas in Ghana. It covers 8800 km<sup>2</sup> with a population around 1.000.000 inhabitants and a population growth of 3%. The area is rather densely populated compared to other regions in Ghana, even though migration to the resource rich and industrialized south seems to regulate the comparable high birth rates in the region (Bacho and Bonye, 2006, Laube, 2007). Although there is some export-oriented agriculture, such as peanut farming, the overwhelmingly rural population lives on rain-fed subsistence agriculture, livestock rearing, and to some extent, fisheries and dry season gardening. This is possible due to more than 200 multipurpose reservoirs, which were built over the past five decades to store rainwater.

The region is part of the White Volta basin, a river basin that is part of the semi-arid West African savannah zone, characterized by environmental changes and unreliable rainfall patterns (Rodgers et al., 2007). During the rainy season, which typically starts in May and lasts until October, water is abundant. The precipitation naturally feeds a large number of streams, creeks, shallow ditches and floodplains, which dry up during the prolonged dry season. Evaporation rates are high and soon after the end of the rainy season, the population in the North begins to suffer from water scarcity. The lack of water makes the dry season a critical time, since the majority of the livelihood strategies are based on agriculture and in spite of the reservoirs food shortages occur frequently.

Due to historical patterns of in-migration during hundreds of years, the region is home to a number of ethnic groups organized in different social systems, mainly segmented social groups and/or centralized political structures (Crook, 2005; Laube, 2007). This complex situation is sharpened by conflicts around scarce natural resources, creating disputes and warfare between families, clans, and different kinds of invaders (Massing, 1994; Lund, 2003; Bacho and Bonye, 2006; Kusimi et al., 2006; Laube, 2007).

## 5. HISTORY OF RURAL WATER GOVERNANCE IN NORTH GHANA – FROM CUSTOMARY LAW TO WATER USER ASSOCIATIONS

In order to better understand the ambiguity of local natural resources regimes it is necessary to briefly describe how customary laws, colonial legacy, and reforms after the formation of the nation state have influenced current land and water governance in northern Ghana. The advent of different water governance structures also portrays how public participation and administrative involvement of the population in the study area has evolved in the face of historical developments and why traditional governance structures could partly persist.

### 5.1 PRE-COLONIAL TIMES

Before the colonization by the British, the governance of natural resources such as land, water or fish stocks in the region was determined by customary principles, reflecting the beliefs and practices of the different ethnic groups (Adjewodah and Beier, 2004; Opoku-Ankomah et al., 2006). Main actors in customary land and water governance were on the one hand earth priests, or so called tendanas, descendants of the first settlers of an area (Lund, 2006). Until today earth priests are regarded as the custodians of the land. Through their ancestors, earth priests develop a relationship with the natural spirits that inhabit land and water. They perform specific rituals and sacrifices to ensure the responsible use of natural resources (Opoku-Agyemang, 2005; Kusimi et al., 2006; Laube, 2007). On the other hand, chieftaincy, a more political, rather than religious manifestation of control over natural resources, became important with the ongoing settlement of people from "outside" the region. According to the literature, "chieftaincy", a new institution established by migrants or "newcomers", did not affect the responsibilities of the regional earth priests (Lund, 2006; Laube, 2007). According to Lund (2006) the two institutions seem to be complementary, as the chief constitutes political authority, while the earth priest carries out more religious and spiritual functions.

In order to protect the earth and to regulate the use of natural resources, priests and chiefs enforced a set of rules, including the imposition of sanctions and taboos on land and water use (Adjewodah and Beier, 2004). For example, farming on riverbanks, areas considered home to river gods and their children, and human activities in certain sacred forest areas and groves were prohibited. Water gathering was mainly allowed upstream from areas of other activities and during certain days of the week

activities such as washing clothes, water abstraction, and fishing were prohibited (MoWH, 1998; Lautze et al., 2008). Surface water was publicly available and any user had the right to carry as much water as needed for private use. However, larger natural water bodies that could keep water throughout the dry season were scarce, and it seems that people at that time were not yet familiar with water harvesting techniques by means of reservoirs.

Groundwater was mainly tapped by the person to whom the land belonged. Surface as well as groundwater resources were considered as a public good and could therefore be used free (Opoku-Ankomah et al., 2006; Sarpong, 2007 after Boateng, 1977; Lautze et al., 2008). Pre-colonial tenure arrangements formed complex indigenous systems, which allowed local communities to continue their traditional practices of subsistence farming and cattle herding (Lentz, 2006). Fishing in rivers, and other mostly seasonal water bodies, has a long tradition in the UER as well. Most waterbodies were fished out before drying up completely either with traditional gear or even by hand. In the next rainy season, these water bodies were filled and naturally stocked again. The harvesting of fishing was practiced for a number of centuries in pre-colonial Ghana. Besides this rather exploitative approach, MacPherson and Agyenim-Boateng (1991) found traditional management strategies, such as closed seasons, restrictions on fishing rights, auctioning of fishing rights and the retention of shares of catch for local traditional leaders.

It is important to note that the management of natural resources like land and water was not as homogenous and harmonic as often described. Conflicts over resources were also issues in pre-colonial management regimes of the region and widely contested between lineages and clans (Lentz, 2006).

## 5.2 UNDER COLONIAL RULE

After the Congo Conference, held in Berlin in 1885, the Europeans colonized and regulated trade in Africa. The British, French, and Germans colonized West Africa without consideration of ethnic or natural boundaries such as rivers, watersheds, and mountain ranges. The Volta basin as part of West Africa was partly colonized by the British, who built an enclave called Gold Coast, surrounded by French colonies. The only exception was today's Togo, which was temporarily German Togoland (Buah, 1998; Lautze et al., 2008). Consequently, new legislations and administrative principles influenced the Colonies institutional and political landscape. As a British colony, the Gold Coast was subject to a common law legal system. Because of the Gold Coasts long tradition of powerful monarchs and chiefs the British preferred to exercise power with the assistance of the countries traditional rulers. By creating Native Councils and Houses of Chiefs the British shifted certain responsibility and duties to local authorities, which also helped to meet the requirements of the National Congress of British West Africa. This accommodated the requests for political participation and administrative involvement of the African population in the British West African Colonies (Cooke, 2004; Laube, 2007). Due to the legacy of indirect colonial rule, Ghana was governed by a dual system, the central government and regional governments, being dominated by chiefs and their councils (Rathbone, 2000). Consequently, chiefs were made a major element in colonial government, both at the local level (Native Council), and in central institutions such as the Joint Provincial Council (Crook, 2005). In this process, the political authority and leverage of the *tendanas* diminished as a result of their marginalization brought about by the chieftaincy rule. This regards especially to northern Ghana, where colonial legislation often led to the ignorance of traditional land tenure regimes and the misappropriation of land (Roncoli, 1994; Akrong, 2006). As a consequence local resource management structures were partly disrupted and earth priest disregarded as the custodian of land. The advent of Christianity further devalued and denigrated the authority of what was by the missionaries called fetish priests and pagan worshippers of the devil (Akrong, 2006).

Although earth priests lost much of their power, traditional land and water management practices could partly persist under colonial rule (Lund, 2006). This was also the case in the then called Northern Territories, where traditional forms of landholding were not necessarily linked to political jurisdiction, but to lineages. Hence, in many societies in the North land and other natural resources were held and governed by the earth priest.

Colonial water legislation was mainly driven by two key documents, the Rivers Ordinance of 1903 and the Forrest Ordinance of 1949. The former was the first attempt to comprehensively regulate the use of water other than for domestic use (Opoku-Ankomah et al., 2006). The Ordinance regulated river navigation and declared that the colonial government must approve water use for fishing, irrigation, mines, and power generation (Lautze et al., 2008). The Forrest Ordinance regulated water development and management activities such as infrastructure development, the construction of dams and weirs, etc. In the course of water conservation programmes, initiated in the northern regions of the country by the colonial administration in the 1940s, reservoirs and dugouts were built to provide water for humans and livestock. In addition, these dams and dug outs are serving as a source of water for irrigated crop production, and fish (MacPherson and Agyenim-Boateng, 1991). The ownership of these reservoirs however remained unclear, but tasks such as water and land distribution, dam maintenance or measures to prevent soil erosion were originally retained by the local communities. They were put into effect through traditional local authorities, either earth priests or chiefs (MacPherson and Agyenim-Boateng, 1991). Fisheries activities in the North were limited to traditional gear for shallow water bodies, which according the retired extension agents proved to be useless for the reservoirs.

Apart from half-hearted infrastructural and institutional developments mentioned above, the British had a rather little interest in developing the vast and resource poor regions of the Northern Territories. Even though some attempts were made to develop the agricultural potential, the expansion and intensification of the agricultural productivity failed, partly due to farmer's refusal to cooperate with the imposed authorities (Laube, 2007). However, in some areas, for example, Bawku district in today's UER, the taxation policy of the colonial government uncovered the potential revenue extractable from local markets, and locals were forced to expand peanut farming, in the region by far the most important cash crop in the beginning of the 20th century (Roncoli, 1994). Desertification became apparent and a mixed farming program, aimed at environmental conservation, was implemented throughout the 1950s. However, a lack of political continuity and attention to local conditions aggravated problems of land pressure and ecological deterioration (Roncoli, 1994).

The picture for the fisheries sector looked much alike. Although the British government of the Gold Coast started to develop an interest in fishing along the coast as a potentially lucrative industry for the colony in the beginning of the 20th century, efforts of fisheries development in the North only began in the late 1940s with the stocking of some newly created reservoirs in the region. New kinds of fishing equipment began to appear shortly thereafter (Atta-Kesson and Atuguba, 2007).

### 5.3 POST-INDEPENDENT DEVELOPMENTS

After independence in 1957 natural resources management regimes underwent major changes. Many nation wide water management institutions were created in the course of the formation of the new state of Ghana. The first of these national water institutions was the Volta River Authority (VRA) established in 1961. The VRA has been responsible for the operation and maintenance of the then newly built Akosombo dam, which created the Volta lake.<sup>4</sup> The VRA was followed by the establishment of the Ghana Water and Sewerage Corporation – founded in 1965 - which was in charge of the provision, distribution and conservation of the country's water resources for public, domestic and industrial purposes. Another major water-related institution was the Irrigation Development Authority (IDA), established in 1977 to develop irrigation for farming, livestock improvement, and fish culture (van Edig et al., 2002; Opoku-Ankomah et al., 2006; Lautze et al., 2008). Although the Department of Fisheries existed already under colonial rule, major changes occurred in the fisheries management. Responsibilities for fisheries administration, development and regulation were formally passed into the hands of the government (MacPherson and Agyenim-Boateng, 1991), and more precisely into the hands of the fisheries officers.

In contrast, many governing instruments were carried over from colonial times in order to avoid rising opposition against Nkrumah's one-party state. The first president of Ghana Kwame Nkrumah kept hold of political power from 1957 until 1966 by cooperating with local chiefs and thus reduced their distrust

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<sup>4</sup> The hydropower plant is still the main source of electricity for contemporary Ghana.

against the newly independent state. Land and water management was dominated by Nkrumah's vision to industrialize the country and develop the economic value of its natural resources. Consequently, the misappropriation of land, which had its onset during the colonial administration, was not repealed but replaced by the State Property and Contracts Act of 1960. This act allowed Nkrumah to access land for development purposes (Laube, 2007). In the northern regions, the politics surrounding land appropriation were accompanied by economic development programs, amongst others through the construction of medium-scale dams for irrigation purposes. Additionally, a significant number of small-scale irrigation schemes were developed throughout the area. Unfortunately, Nkrumah's politics of integration of the economically lesser developed North failed and with it the increased political control over the northern regions he was aiming at. Regional conflicts between ethnic groups could not be reduced, but were rather intensified (Lentz, 1993; Massing, 1994; Laube, 2007). The role of the chief in natural resources management became even stronger in some areas after Nkrumah's fall. According to Laube (2007), political patronage dominated pragmatic and opportunistic strategies to keep up control over land and related resources.

#### 5.4 REFORM PROCESSES AND LAND AND WATER GOVERNANCE TODAY

Under President Rawlings, who took over power in 1981, the constitution of the PNDC (Provisional National Defence Council) was put in place and decentralization and political participation became an outspoken subject to governance. By declaring the Local Government Law in 1988, district, municipal, and metropolitan assemblies were created with deliberative, legislative, and executive powers. As a result, chiefs and traditional rulers had henceforward no seats in the assemblies of the new local government system (Buah, 1998).<sup>5</sup> In spite of legislative and administrative efforts made by Rawlings to include the marginalized into political decision making there were mayor drawbacks connected with decentralization. While on the one hand political power was shared through decentralization, the empowerment of elected local representatives and governmental bodies were called into question as funds were not shared with local governments, but mainly remained in the hands of the central government (Holtkamp, 1993; Massing, 1994). Thus, incentives for the rural population to participate in political decision-making remained inadequate even though the foundation for more public participation was set.

Decentralization efforts were extended to include the rural water sector in Ghana in the early 1990s. Under the auspices of the World Bank and the International Monetary Fund (IMF), the formal organizational and institutional set-up of the water sector was revised according to international policy recommendations and principles of decentralization. As a cornerstone of the water sector reforms the Water Resources Commission (WRC Act 522) was created in 1996, which is currently the major instrument that governs water use and management in Ghana. The Commission's main tasks are to coordinate the water sector, guarantee access to safe drinking water and sanitation, supervise water quality, and integrate different stakeholders in the water sector while respecting traditional norms and practices (van Edig et al., 2002). Consequently, water use for irrigation, mining, hydropower generation etc. must first be confirmed by user licenses, which are granted by the WRC. Additionally, detailed water use regulations are supposed to make sure that registration procedures and investigations are progressed in a transparent manner through e.g. public hearings and River Basin Pilot projects (van Edig et al., 2002; Laube and van de Giesen, 2005). The WRC is composed as an umbrella organization, linking different user groups and stakeholders, including traditional authorities into its organizational structure. By that means, more public participation in water governance is targeted.

Administrative decentralisation to reduce public spending (Kyei, 2000) encompassed the fisheries sector as well. In that course fisheries and agricultural service provision was put together in the beginning of the 1990s (Kapetsky, 1991). All fisheries offices were closed down and officers were either transferred to the Ministry of Food and Agriculture (MoFA), or retired. In 2005, the DoF was transformed again into a

<sup>5</sup> Even though the slightly altered Local Government Act of 1993 (Act 4) gave chiefs seats as nonvoting members in assemblies, big chiefs and their supporters were pressing for a restoration of chiefs role by giving them formal representation in the rural District Assemblies.

separate Ministry of Fisheries (MoFI). Extension officers could once again focus on the development of fisheries and their management. However, the number of staff as well as funds and thus development interventions remained limited.

In rural water governance the role and responsibilities of the District Assemblies for infrastructural developments has also experienced significant extension. Ghana switched to participatory approaches for irrigation management and fisheries, by transferring the rights and responsibilities for the operation and maintenance of small-scale irrigation schemes and reservoirs to water user associations (WUAs). International donor directives suggested that increased community participation in decision-making processes would result in a "sense of ownership". It was and still is expected that community "owned" resources lead to more reliability and responsibility. In the UER, the WUAs were developed under projects such as the Land Conservation and Smallholder Rehabilitation Projects (LACOSREP) I (1994–1998) and II (2000–2006) initiated by the International Fund for Agricultural Development (IFAD). The project aimed at the construction and rehabilitation of small reservoirs and attached irrigation schemes as well as the development of participatory management strategies (Abukari et al., 2007) for the infrastructure. Since the beginning of the first project in 1994, management responsibilities of the WUAs at the dam sites include for example regular operation and maintenance of the infrastructure, fair (seasonal) distribution, and allocation of land and water, conflict mitigation between different user groups or collection of water user fees. The WUAs were envisaged as a membership organization following participatory decision-making processes. Amongst others, they were ideally supposed to take over control of the irrigable land in the dry season (from November to April) from the original landowners through negotiated access rights. However, in the rainy season (from May to October) the old/original landowners would mostly take back control over the land and cultivate it until the next dry season.

The projects had a fisheries component as well and WUAs were meant to include a fishermen association. The fishermen associations were made responsible for participatory and sustainable use of the aquatic resources in the reservoirs. A chief fisherman was to be elected to represent the fishermen group, a secretary was supposed to record the discussions during regular meetings and a treasurer was to be responsible for the collection of the water levies from the fishermen to contribute to the maintenance of the infrastructure. MoFA extension officers, supposed to be trained in fisheries management, were responsible for the establishment and functioning of these so-called fishermen associations. The reservoirs, where the communities were able to build up fishermen associations, at least on paper, were stocked with fish – a procedure that has proved to be very helpful for the development of catches.

The long-term aim for the WUAs is to ensure sustainable management of this established and rehabilitated infrastructure, and thereby enhance the livelihoods of the WUA members (IFAD, 2001). This more western conception of resources management contradicts the hierarchical/paternalistic traditional governance of resources, as well as the top-down approaches carried out during the first decades following Ghana's independence. Furthermore, WUAs often face the problem that members do not follow their instructions, because the WUA executives boards did not receive any district level backing, such as by-laws (van Edig et al., 2002), that would enable them to enforce management rules.

The legal framework for the enforcement of fisheries management rules is rather weak, too. Although there was a new fisheries Act (Act 625) in the year 2002, addressing the prohibition of the use of explosives, gear restrictions and prohibition of the landing of juvenile fish, definitions are vague. The existing amendments and additional regulations are focussing on marine fisheries and aquaculture issues. Even if rules and regulations were more concrete, the current head of the regional MoFI in the Upper East Region sees no way how to properly enforce the rules, since the ministry is understaffed.

The following chapter supports the complex character of natural resources management in the region by providing examples of historical and contemporary fisheries management of different communities that differ significantly from each other even within a small area.

## 6. THE CASE OF FISHERIES IN THE UPPER EAST REGION

In-depth studies of two reservoirs and attached communities in the UER provide some insights into how fisheries management, as one aspect of water governance, developed. Thereby fishery is understood as a livelihood strategy devoted to catch fish for income generation as well as home consumption.

### 6.1 HISTORICAL DEVELOPMENT OF FISHERIES MANAGEMENT IN RESERVOIRS

#### Binduri

One of the few sources of historical information about Binduri is a detailed study, done by Roncoli (1996) who documents the general decline of power of earth priests and little interest of the colonials to develop the region. According to the interviewees, no fisheries rules or taboos were passed down from pre-colonial or colonial time - apart from some evidence of dry season fishing, in form of traditional fishing gear.

The old fishermen reported that the reservoir could not be used after its construction, shortly before independence, because the right gear was not available. Only after independence the men from the village were taught, how to use the reservoir for fisheries. The Department of Fisheries (DoF) opened one of the first offices in the Upper East Region in Binduri in the late 1960s. New, modern fishing gear and methods were introduced, and the first few fishponds in the region were constructed to supply fingerlings for the dams. Fishermen from the Ewe tribe in the Volta region were employed as trainers and the first batches of local fishermen were taught how to use and construct the modern gear. Old fishermen and retired fisheries officers, who were amongst the first to be trained by the Ewe, had a big interest to participate in the trainings at that time. The management of the fish stocks was taken over by the DoF. The DoF restricted fishing to men who had successfully completed the training and knew how to use the gear, which was borrowed from the DoF. Fishermen were officially registered alongside a limited amount of gear, with mesh that had a minimum size (Lenseilik, 2002). Catches were accurately recorded by the DoF staff. Catch figures from these early days confirm the statements of the old fishermen in the village, who report rich catches in those days. This new income activity gained popularity very fast and the number of fishermen as well as fish mongers increased quickly.

In the course of decentralization the offices of the DoF closed down. The fishermen groups split-up under different chief fishermen in different sub-villages. As a consequence the management collapsed and fish catches declined. The former head of the DoF and a retired extension officer explained that the formation of self sustaining fishermen groups was never a priority. Moreover, the extension staff had no skills and intentions to form these groups. Fishermen stated that they felt abandoned by the state, since they perceived management of the reservoir to be state responsibility. At that time fishing was open to everybody who could buy gear now available in the markets. The rising number of fishermen and inappropriate fishing gear led to overexploitation. The earth priest, who realized the problem, admitted that he did not have the knowledge to establish a management regime. However, a number of fishermen interviewed did not assign him much influence on fisheries activities, neither at that time nor today.

The current extension officer reported that he tried to reform a fishermen association after the reservoir was rehabilitated in the first phase of LACOSREP. He urged the fishermen to save some money as a group in order to become credit-worthy and to contribute to the maintenance of the reservoir. Furthermore, he asked them to elect one chief fisherman and have regular meetings on their own in order to discuss management issues. After a few rounds of meetings, it was discovered that the contributed money went missing and the group gave up again.

When this issue was addressed in the interviews, a number of reasons were given by the fishermen to explain, why the treasurer was not called to account. The most important was the close kinship ties in the village. One fisherman brought it to the point: "He is a close relative. If I am bringing him to jail I am

also the one to bail him out". Other fishermen reported the increase of mistrust and disappointment amongst fishermen. Another reasons why the treasurers was not held accountable was his and the other fishermen's inability to read and write and thus keep track of the money and control the bookkeeping. The fact, that some fishermen paid and some did not undermined the moral and contribute to the breakdown of the new management system.

Fishermen also regarded the behaviour of the extension officers as inappropriate. According to them, the officer only dealt with the chief fisherman, who, although officially elected, was not fully accepted. His legitimacy decreased when it was discovered that he kept good company with the treasurer. Furthermore, the fishermen assumed that the enforcement of the management laws was still in the responsibility of the extension officer. Since he hardly made an appearance in the village he was perceived as a man who did not fulfil his duties. The extension officer and formal chief fishermen, of course, had a different story to report. According to them, fishermen from the other sub-villages refused to cooperate. Moreover they neither contributed any financial means nor did they show up for group meetings.

A sampling of the reservoir fish stock showed (Hauck, 2008), that the massive fishing pressure in the past years diminished the size of the fish stock in general as well as the sizes of fish in particular. Although a local NGO tried to establish new income generating activities and improved agricultural techniques, poverty prevailed and fishing pressure remained. This is encouraged by fish mongers who are buying but the smallest fish, since there is still some profit due to high demands.

#### Kajelo

One of the few traditional laws, passed down from pre-colonial and colonial times, is the strict taboo to hunt crocodiles as they are seen to be hosts of the ancestors. The enforcement of this taboo is under the responsibility of the local chief and not, like in other villages, under that of the earth priest. In Kajelo community every sub-village has an elder, who have only some of the rights and duties of a *tendana*, such as conflict mediation or sacrifices. Another rule is connected to the belief, that a water body, fished empty, causes the disappearance of the water.

In the year 1969 a DoF office was opened in Kajelo as well mainly to train fishermen and manage fish stocks in the reservoir. The old fishermen and retired fisheries officers reported, that the villagers expressed there interest to learn new fishing methods. At that time, the restrictions on fisheries activities implemented by the DoF were accepted throughout the Kajelo reservoir. The old fishermen stated that these restrictions were very useful, not least because the catch per day was much higher and the size of the fishes was a multiple of that of today. According to the interviewees fisheries staff did not pay attention to group dynamics or sustainability of the group structures. After the DoF was retrieved from the village in the course of decentralization processes the group split-up into camps around three chief fishermen.

Apart from the governmental control, the elders of the sub-villages of Kajelo around the reservoir played a role in management. Before entering the water body for fishing permission had to be requested from the elders.<sup>6</sup> However, the elders stated that they did not have much of a choice to grant permission. According to them they were forced to cooperate by the extension officer, who had the option to shift his attention and regular supply of fishing gear to other communities. The elders expressed, that this procedure undermined their authority.

The fisherman group in Kajelo community was tried to be revived by a new extension officer in 2004, who entered the village in the course of the dam rehabilitation under LACOSREP II. Like in Binduri, the attempts to rehabilitate the fisheries management failed, because of discrepancies in handling the financial contributions and the disagreement amongst the fishermen about the choice of their leader. According to the interviewed fishermen another reason for failure was the disagreement about what to do with those who violated the management rules. Most fishermen expected the extension officer to assist in enforcing rules, by sanctioning violators. The extension officer, in contrary, stated that the lack of manpower and means bars him from assisting the villagers.

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<sup>6</sup> During the research their advice and permission for research interventions was repeatedly obtained.

Apart from the conflicts about leadership a loose group of young fishermen formed. This group, so the complaints of the older fishermen and elders, refused to stick to any management rule, refused to pay their contribution and could not even be disciplined by traditional authorities. During the interviews livestock owners explained, that they urged the elders to try and stop the young fishermen from fishing the reservoir empty by the end of the dry season. They were afraid, that the water would disappear when the fish was all caught and the cattle would have to die from thirst. The young fishermen in turn argued that fishermen and elders tried to stop them, without giving a proper explanation or providing them with income alternatives. Furthermore, the young fishermen accused the older ones of breaking their own rules and peculating the contributed money.

The situation consolidated, when the reservoir was involved in trials with breeding *Hapas*<sup>7</sup> in the course of the Challenge Program on Water and Food (CP6). This international project, introduced by the Consultative Group on International Agriculture (CGIAR) initially succeeded, at least according to the fishermen who could increase their catches. After a while however, the chief fishermen and the extension agent accused each other of misusing the donated gear for private uses.

As a result the reservoir is now open for everybody and the communication between the various sub-groups came to a complete hold. Mongers in the village took advantage of the conflicts amongst the fishermen, by forming a group and pushing the wholesale prices to a minimum.

## 6.2 COMPARING SUMMARY OF THE TWO CASES

The cases show that limited knowledge about modern management techniques was not the main reason for failure of the management. In both villages fishermen were familiar with gear constrains, recovery periods and other passive management methods. Yet, the reservoirs were over-exploited because of heavy, unrestricted fishing pressure.

One reason, why rules were not realized, can be assigned to the loss of traditional authority over parts of the villagers. As shown in the case of Kajelo local authorities had lost their influence on younger fishermen. Local knowledge about preservation of the resource fish was lost, too. The paternalistic posture of the DoF extension agents, for example, who worked with the villages after independence, led to a decreasing influence of local earth, who are customarily responsible for the management of water use, including fisheries. Moreover the top-down approach of the extension staff prevented the formation of a participatory, self-governing fishermen group from the very beginning.

Chances to make a difference in fisheries management emerged in the last ten years from the LACOSREP projects, from the new MoFi as well as from the CP6. However, the reformation of the fishermen groups, where participatory decision making was envisaged, turned out to have little impact on the management structure. A number of reasons kept the fishermen on their path. First of all, fishing developed to be a viable income source in the past 50 years (Hauck, 2008). Alternatives are still rare and it proved to be difficult to stop people from earning an income with fishing, even for short periods. Secondly, the extension officers treated the fishermen group as a homogenous entity, being led by a single person. In fact several fishermen groups and leaders, who behaved competitive to each other, did exist. By favouring one fishermen group, the extension officer actually increased conflict potentials. Consequently, the communication between these sub-groups broke down.

The fact, that saving was started without having opened an account or agreed on certain transparency rules to monitor the treasurer led to mistrust among the fishermen. Weak, unaccountable leaders, who were breaking the rules and peculated money, did not provide incentives for others to participate in decision making and management tasks. The lack of financial means, and the assumption that people volunteer for management tasks created a situation, where finally no one felt responsible for the resources.

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<sup>7</sup> *Hapas* are small fine-meshed bags suspended inside ponds or enclosures, in this case used to provide a number of *Oreochromis niloticus* brood stock a "undisturbed" environment to reproduce. Fish offspring was released after reaching a considerable size.

## 7. CONCLUSION: PARTICIPATORY RURAL WATER GOVERNANCE IN NORTH GHANA – A PRACTICE UNDER REVIEW

The analysis of the historical process of rural water and fisheries governance in northern Ghana could provide some evidence for the big gap between the theory of community-based, participatory management on the one hand and its effects on the ground on the other. The attempts of different external agents to transform the complex institutional landscape by building WUAs did not lead to an overcoming of the historical derived partly authoritarian structures. They became manifest in conflicts between elders and younger fishermen, as well as external agents and local authorities. This can be ascribed to the fact that legitimate leadership could not be established and processes were imposed rather than discussed. As appropriate leadership on the ground level is missing, water users, such as fishermen, still do not have a voice at higher level, where most decisions on new policies are taken.

After decades of top-down paternalism, as described in chapter 5, water users were unable to establish the new idea of participatory decision making without proper guidance and intensive training. Looking at the example of fisheries management, this guidance and training should have been provided by the agricultural and later by fisheries extension staff. However, those were neither properly trained nor familiar with participatory approaches. Therefore, they still acted in a top-down manner and thereby increased resistance against change.

In Ghana, the gap evolved from administrative decentralization on the one hand and remaining financial dependence of communities, on the other, still cause problems for the implementation of community based management. As described for the water sector villages lack the financial means to manage their resources. In addition, management capacities are still low and communities, standing at the bottom of governmental assignments and programs, are often overstretched with the rather difficult nature of the demanded management tasks with low personal rewards. The example of the fisheries management also showed, that incentives, like the distribution of gear, can also have the opposite effect when it is given out to certain interest groups. Here, the widespread and naive conception of 'the community' being seen as a group of people with socially equal premises and influence can be regarded as the main reason for conflicts and system failure.

There is no doubt that communities need to participate in decision making in order to be able to manage their resources in a sustainable way. Nevertheless, the implementation of community based management is not as easy as often assumed, as we could show with our example. The fact that community assessments and feasibility studies do not go far beyond the financial, institutional and technical requirements of development projects, is often responsible for failures. The socio-political complexity and the heterogeneity of actors and institutions in communities are rarely considered. Furthermore, external actors, such as colonial rulers, state authorities and development experts are usually coming from a different socio-cultural background than the communities they work with. Even though this alone does not disqualify them from introducing innovations, they often fail to understand or even recognize existing decision-making processes and path dependent structures which are very resistant to change.

In spite of the usual time constraints for development projects it is crucial to invest the time and get to know the people who are using the resources. Information on local arenas of decision-making (e.g. in public or private spheres, formal organizations, traditional structures) and other details such as the size of the user community as well as the intensity and nature of interactions within the community are important indicators for the course of a project. Apart from the targeted community it is important to take those into consideration who are not immediately involved but still have an influence on the studied activities, such as traders, assembly people or civil society groups.

The Net-Map tool provided a useful overview of the composition of the fishermen community, its periphery and the courses for conflicts within the community. Furthermore it provided an overview of actors that can or in fact do influence fisheries activities and those who only pretend. The process tracing procedure (George and Bennett, 2005; Bennett and Elman, 2006) applied to the compared

villages provided very useful insights into the origins of the conflicts and their path dependencies. By comparing the processes in water governance in the two villages and relate the developments to the histories at national level we could disclose the plurality of actors/institutions and interests, that determine water management structures. Likewise, the network of issues (Mollinga et al, 2007), and the complex causal relations (Bennett and Elman, 2006) related to water governance could be identified.

Since participatory and community-based management is first and foremost an additional responsibility and thus a new burden for communities, much time must be devoted to build up the capacity within the community to handle the complex tasks. We do agree with Mollinga et al. (2007) that much too simplified approaches that are applied to all without considering the socio-political complexity are actually responsible for the drawbacks of progress. Development practitioners, providing encouragement and motivation, capacity building, and specialised technical assistance, need to accompany group formation and group dynamics, enhance communication and social control in order to avoid conflict and thus, project failure.

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