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Perspectives from Northern Ghana

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Promise and Perils of Water Reform: Perspectives from Northern Ghana

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Abstract

In 1996, the Ghanaian government has started a water reform process, which put the countries water resources under the control of the Water Resources Commission (WRC). This appointed commission consists of representatives of water providers, statutory regulatory agencies, irrigation officials, NGOs, women and traditional authorities. This commission has been assigned the task to ensure the economically efficient, ecologically sustainable, socially equitable and gender sensitive development of the country's water resources.

Using patterns of resource management in the irrigation sector of northern Ghana as example, this article shows that serious obstacles towards the local implementation of the water reform exist. Currently the management and allocation of resources is largely disobeying the regulations, rules and laws set out by various official agencies. Competing local authorities and institutions, lacking legitimacy and enforceability of official rules, as well as corruption, nepotism and political clientelism make resource management prone to conflicts, contestations and renegotiations. Non-transparent and irresponsible resource management compromises the efficiency, sustainability and equity of the irrigation sector. As the WRC lacks the competencies and resources to manage water resources at the local level, but has to rely on already existing structures the prospects for the implementation the water reform remains therefore questionable.

1. Introduction

Since the 1990s successive Ghanaian governments, have pushed forward the reform of the water sector in Ghana. Prior to the reform, various user agencies controlled resource management within their sectors and water use was ruled by multiple—partly overlapping and partly conflicting—laws, rules and regulations, and local norms and values. Water rights were held by the owners of the land adjacent to the water source in accordance with a "riparian doctrine," which gave those land owners access rights to that water. As a result, water resources management had been highly uncoordinated.

The reform—the Water Resources Commission Act (Act 522, 1996)—brought about a rupture of those rights and vested all the nation's water resources in the hands of the President, to administer in the interest of the people of Ghana via a Water Resources Commission (WRC). The creation of that coordinating body is central to Ghana's attempt to implement the principles of integrated water resource management (IWRM).

To ensure the greatest degree of cooperation, membership on the WRC was made available to all interested and involved parties, which included the various water user agencies, water research institutions, NGOs, women representative, and traditional authorities. The WRC has the task of setting up management structures and information systems that enable an economically efficient, environmentally sustainable, socially equitable and gender sensitive use of the country's water resources. This task is to be achieved through a harmonisation of the countries water legislation, the coordination of water sector activities and the development of a National Water Master Plan under the participation of all relevant stakeholders (Ghana 1996).

Central to the effort to monitor and coordinate the water sector, is the local implementation of Water Use Regulations and Water Abstraction Fees (Ghana 2001). Through a registration and permission process all the country's raw water extractions -excluding those for domestic, as well as industrial and agricultural purposes beneath a certain threshold- are to be registered and billed by the WRC. This process has started as water providers and major industrial water users have been approached by the WRC and have started to obtain water use permissions.

The purpose for the registration is to provide a sound database that could be used for the development of water-use plans. The purpose for the billing is twofold; (1) to pose a disincentive to wasteful water uses and (2) to contribute toward the financial viability of the WRC.

To capture smaller water users, efficient management structures will have to be established at the local level throughout Ghana. As reform implementation has somewhat delayed due to budgetary problems of the WRC, local implementation is still in its initial phase. The WRC plans to establish Basin Secretariats and River Basin Boards, consisting of the main stakeholders, in all major river basins and major sub-basins of the country. The basin boards will have to implement the Water Use Regulations and to create action- and development plans for the basin's water resources, still subject to the Basin Secretariat's and the WRC's scrutiny (WRC, 1999).

Nevertheless, the local implementation of the Ghanaian water reforms is going to pose some serious problems for the WRC. The WRC lacks the mandate, as well as the financial and human capacities, to push forward the widespread implementation of water management plans and to engage in the local implementation and control of the water use regulations and the registration procedures. Therefore these crucial administrative tasks are going to be assigned to the District Assemblies (DAs) of the various river basins.

The plans for the implementation of the Ghanaian water reforms raise some fundamental questions: How to prioritise the different normative propositions of the new water policy, namely equity, economic efficiency, environmental sustainability, gender sensitivity? How to outweigh conflicting spatial (rural-urban, North-South) or sectoral (agricultural/ domestic/ industrial/ hydropower) water demands and competing interests at different levels (local/regional/national)? How to compensate for the dissappropriation of water rights? Who are stakeholders and what power is going to be assigned to them?

Most of these questions will only be answered if the reform process gains momentum, and when conflicting water uses will have to be negotiated. Experience will be gained as the WRC gets the pilot implementation going within the Densu river basin in Southern Ghana and the White Volta basin in Northern Ghana.

Nevertheless, prior experiences with reform processes in developing countries and results from research in local resource governance in Northern Ghana point at possible constraints for the implementation of IWRM at the local level. These constraints derive from the governance structures and the institutional set up of local arenas, as they are frequently encountered in the developing world.

Developing states have a limited ability to implement and enforce policies and reforms at the local level. Social control in 'weak' states is highly fragmented (Migdal 1988), and policy implementation, if sincerely attempted at all, takes place in a context of multiple foci of power and multiple institutions, often characterised by problematic relationships between the local population and administration (Benda-Beckmann 1989; Long 1989; Moore 1978).

For many parts of (West-) Africa it has been shown that the post-colonial local state is often characterised by incomplete decentralisation and defective democratisation, which makes local politics highly intransparent and open to party-polarisation and political opportunism directed at the control of strategic resources. (Spittler 1981; Mamdani 1996; Rösel 1996; Bierschenk 1997; Boone 1998).

More insecurity for local citizens is brought about through legal pluralism and struggles of local authorities for power and resources. The legitimacy of these local authorities ranges from traditional to neo-traditional to modern. (The legitimacy of neo-traditional authorities is based on the invention or redefinition of indigenous institutions, that have not existed like this before, but are presented as timeless traditions.) But legal pluralism and local power struggles open room for manipulation, too. Local actors may engage in 'fora-shopping'(Benda-Beckmann 1981). They seek out those institutions to legitimise their claims, and present their cases before those authorities, which promise the most benefits. They try to find institutional loopholes and out-manoeuvre various authorities.

To arrive at a certain degree of security and to realise advantages actors do not commonly invest in institutional change but rather in networks (Berry 1993). Thus a situation arises, in which the negotiation of rules and rule deviance become frequent and socially acceptable practices and clientelism, nepotism and corruption are fairly widespread phenomena.

Actors with greater social, economic or political capital are advantaged as they enjoy greater bargaining power in the negotiation and transformation of rules, are less likely to face sanctions, and are more likely to arrive at beneficial distributional outcomes or transaction costs, often to the detriment of less influential parts of society (Ensminger 1992; Knight 1992).

In such a setting, the outcomes of reforms and policy implementation are difficult to predict and institutional changes, meant to enhance the efficiency, sustainability and equity of water use, might well turn out to achieve the contrary as they are implemented on the ground.

Land reforms and exercises in the formalisation of land rights in Sub-Saharan Africa are examples of these processes (Lund 1998; Manji 2001; Platteau 1997).

This article attempts to shed some light on these issues and to exemplify some of the above mentioned institutional constraints by discussing results from an institutional analysis of natural resource management within the irrigation sector in Northern Ghana.

2. Objectives, Design and Methodological Approaches of the Research

The research that provided the empirical basis for this article has been part of the GLOWA-Volta research agenda. It is necessary, therefore, to give a brief explanation of the position of this research within the project's wider framework.

The objective of the GLOWA-Volta research project is to arrive at conclusions, as how to establish a sustainable water use under changing land use, rainfall reliability and water demands in the Volta basin. From the beginning it has been clear, that apart from environmental and economic factors, institutions regarding natural resource management and its integration into the wider societal context will have to be accounted for. Sustainable water use hinges largely on the way the available resources are managed, allocated and protected at various levels of decision making. Apart from the international and national level of resource management, local resource regimes play an important role for the sustainable management of natural resources, as this is the level where water- and landuse[1] decisions are de-facto taken.

This article offers some results some results from an in-depth study of the relevant institutions and actors in Northern Ghana, which was undertaken between 2001 and 2003, to understand how local resource management takes place, which institutions and actors are involved, and how the institutional framework influences the sustainability as well as the social and economic outcomes of the existing resource regimes.

The study has been undertaken in Northern Ghana, because water resources are not only scarce in the semi-arid Sudan-Savannah of this part of the country, those resources are increasingly coming under stress as population growth brings about a concomitant growth in water consumption for domestic and agricultural uses. Because the demand for water in irrigated agriculture is constantly on the rise and accounts for the largest portion of water use within the study area, institutional issues of natural resource management within irrigated agriculture were the main focus of research.

The irrigation sector is characterized by different technical and institutional outfits. Medium-scale, parastatal irrigation schemes consist of large dams and large networks of channels, laterals and sublaterals and resources are managed by statuary irrigation companies and farmer committees. Small dam projects usually consist of a rather small irrigable area served by channel from a small dam. In these small-scale schemes the management of water and land is in the hands of water user associations (WUAs). Along the dry river beds of the area hundreds of small-scale farmers irrigate vegetable gardens from shallow hand dug wells. Natural resources are managed by traditional authorities and the farmers themselves. Along the dry river beds, at places where plenty water can be pumped from dugouts and along the rivers that have perennial water flow from the irrigation scheme's waste water, commercial farmers

[1] Landuse patterns have a crucial influence on the hydrological dynamics within river basins.

irrigate larger tomato and pepper fields with mechanized pumps. Natural resources are negotiated by commercial farmers, landowners and traditional authorities.

Although formal and informal[2] institutions for the management of natural resources exist, other factors such as corruption, nepotism, clientelism and political affiliation determine the actual resource management, too. As many of the actions and decisions taken by local actors, disobey existing official and informal sets of rules, actors tend to obscure their practices when confronted with formal research approaches. In the face of questionnaires and audio tapes they feel uneasy. To gain access to actors and to gather as reliable information as possible, a qualitative research approach was taken. Participant observation, informal interviewing and cordial investigation proved to be the appropriate research methodologies. After rapport between the researcher and the informants has been established through frequent encounters over a long period of time, informants were less inclined to give false information. Furthermore, it became possible to crosscheck information from other informants and through observation. Long-term qualitative research coupled with the evaluation of relevant literature and archival resources led to following results.

3. Natural Resources Management within Northern Ghana's Irrigation Sector

3.1 Irrigation in the Upper East Region

In Northern Ghana about 70% of the rural households depend largely on agriculture for their livelihoods (GSS 2000).

Traditionally, families engage in the rainfed cultivation of foodcrops such as millet, guinea corn, ground nuts, beans and a variety of local vegetables. Furthermore they make use of fruit trees such as the shea nut tree, the dawa dawa tree or the baobab. The settlement structure within the study area is characterised by dispersed compounds consisting of the rooms, barns and storerooms of most often a number of households related by agnatic bonds. Cultivation takes place on farms surrounding these compounds[3], on family land some distance from these rural homesteads and on bush farms even farther away.

Land is allocated by tindanas. Tindanas are perceived as the successors of the settlers who first inhabited a certain portion of land. They are held in high regard, since they are being able to communicate with the natural spirits of an area through the medium of their ancestors. They perform regular rituals to ensure purification of land and water resources, for the well being of the crops, and for the fertility of the land, the livestock and the human population of their respective territory. Land distributed by the tindanas may become non-revertible family property after years of continuous cultivation or can revert to the tindanas, as it is the case with periodically used bushfarms, farms that are situated some distance from the dispersed villages.

As population density was very low up to the 1960s, and land was available in abundance, soil fertility could be sustained through fallow systems. But population growth, which is still as high as 3 % per annum, has led to a situation in which the fallow systems can not be

[2] The dichotomy of formal and informal institutions has been criticized for being artificial and not taking account of the various processes of informal formalization and formal informalization to be encountered in various settings (Cleaver 2002) Nevertheless I still use the terms here to distinguish between codified and state-backed institutions and local or customary institutions.

maintained any longer. With a population density of up to 100 persons per km², the rather poor soils of the area are continuously used. This has already led to soil degradation and to declining yields. Furthermore, freely available bushland is hardly available within the reach of the villages as more and more land is continuously farmed. Where it is still available, distances to travel are ever growing (Blench 1999).

Local agriculture has long been exposed to climatic risks. Rainfall patterns, with an average of 700-1000 mm of precipitation falling in a single rainy season between April and October, are very unreliable. Therefore, droughts and seasonal variations in precipitation frequently affect local production (van Edig 2002). According to local farmers the situation has worsened sine the 1980s, as early and late rains, which are very important for their agricultural activities, become less reliable.

Farmers do not only focus on rainfed cultivation but more and more engage in irrigated agriculture. The development is largely caused by the following factors:

- High population densities render traditional agricultural practices insufficient and unsustainable
- Climatic conditions make rainfed agriculture a highly risky business
- Irrigation techniques have been widely proliferated and adopted
- Irrigation offers the opportunity to produce cash crops for the national market
- Market production opens an alternative to seasonal or long-term migration

Irrigation techniques have been introduced in the area since colonial times. After independence in 1957 the Nkrumah government designed agricultural policies that aimed at the transformation of Northern Ghana's agriculture. The ambitious plan was to make local subsistence-oriented production patterns more market oriented and thereby transform Northern Ghana into the country's bread basket. Apart from the propagation of an intensified input-oriented rainfed agriculture and the construction of centrally located agro-industrial processing plants, the promotion of irrigated agriculture became one of the main features of the modernist development vision of that time (Konings 1986).

Irrigation proliferation followed two paths: (1) small dams were constructed for vegetable cultivation, and (2) medium-scale irrigation schemes for commercial agriculture were kicked off with funds from the government, FAO, and international donor agencies.

Paralleling this development migrants returning from the South introduced vegetable gardening along the dry riverbeds, where groundwater is easily accessible through dugouts and wells. Additionally, commercial vegetable cultivation with motorized pumps has spread along the perennial rivers and waste water channels of the irrigation schemes. As traditional landuse patterns came increasingly under pressure and demand for products such as rice, tomato and pepper rose, irrigation proved to be profitable and to be an viable alternative to migration in supplementing the scarce livelihoods of small scale farmers. Furthermore, it proved to be an avenue for investment on the side of commercial farmers.

Despite its more or less forceful introduction, the initial exclusion of small-scale farmers in the larger schemes, adverse social practices and values, and some financial disasters, the area under irrigation has increased enormously, especially since the beginning of the 1990s.

One of the major initial problems was that irrigation changed many of the habitual patterns of the rural people. The dry season traditionally had been the time when they built or repaired their homesteads and engaged in such social activities as weddings and funerals. The dry season

also was the time of the year when families would spend substantial amounts of time together telling stories and passing on knowledge between generations.

As well as those social changes, irrigation brought with it the high risks of vegetable marketing and the prevalence of unsustainable management patterns, which led to the collapse of many of the small dam projects. After all, the local population did not have any prior experience with irrigation farming.

As irrigation proved to be a profitable alternative and farmers got used to the required techniques, land that was formerly lying idle has become scarce and access to it has already caused conflicts. Along dry riverbeds of the area hundreds of farmers engage in vegetable gardening. And wherever larger quantities of water are available for mechanical abstraction commercial farmers try to establish their farms.

The widespread dissemination and adoption of irrigation techniques has not only affected local production and livelihoods but has resulted in new, externally introduced and internally adjusted or developed natural resource regimes. How natural resource regimes developed and which institutions and actors shaped these processes will be shown in the in the coming section using the example of resource allocation within a medium scale irrigation scheme in the Upper East Region of Ghana.

3.2 Land Management within a Medium Scale Irrigation Scheme

From the late 1960s up to the mid-1980s the development of commercialised irrigation schemes was promoted within the Upper East Region of Ghana. Two Schemes, Tono and Vea, were constructed. Due to the political and fiscal instabilities of the time, some constructional flaws and the problematic topography, the completion of the schemes took a very long time, and the construction cost amounted to an record 50.000 US$ per hectare (MoWH 1998).

As the construction of one of the irrigation schemes was being planned, the local paramount chief was approached to coordinate the acquisition and compensation procedures for the necessary land. Land in Northern Ghana, from colonial times up to the 1979 constitution, which reverted it back to the “traditional landowners”, was state property and could be dissappropriated without compensation for the original landowners (Konings 1986). Compensation had to be paid only for houses, crops or fruit trees destroyed during the development of the scheme. As most of the land taken had been formerly cultivated, and trees and to a lesser extent compounds fell victim to the construction, the forceful dissappropriation of land proved to be a traumatic experience to those, who lost their farms and homesteads. Although entitled to compensations for buildings and fruit trees none of those peasants who lost property was compensated. The local paramount chief (chiefs are officially recognised political traditional authorities), who had formerly abstracted powers in land matters from the tindanas as his illegitimate claims were covered by the reigning military regime, never released any of the compensations given to him for redistribution. Furthermore, expropriated lands were not redistributed amongst the local subsistence farmers but given to agricultural enterprises and commercial farmers, who were largely members of the local, regional and even national political, military, bureaucratic and economic elites, affiliated with the ruling regime (Konings 1986).

Only after a couple of years, when commercial farming under the auspices of mostly absent commercial farmers proved to be not profitable, and parts of the irrigable land lay fallow, the project management decided to involve the small scale farmers of the area. Having been deprived and excluded, local subsistence farmers were slow to involve themselves with the

project. Therefore the project management provided free land preparation, seed and agricultural inputs to entice the rural population. But to assure their participation, land had to be reallocated again.

This time, land was partially allocated to the nine villages surrounding the scheme. The remaining land is directly allocated by the parastatal irrigation management company, which had replaced the expatriate project management initially contracted by the IDA (Irrigation Development Authority) to run the project.

During the reallocation of land those farmers, who were dispossessed during the construction of the scheme, were to be favoured. But due to the fact, that many farmers were lacking capital to engage into irrigation farming, and many of those who had been dispossessed and excluded were reluctant to cooperate with the project, plots were only partly allocated to the original owners. Instead, rather young and adventurous farmers who had seen the benefits of irrigation farming and had gathered experience as farm boys for commercial farmers, took over vacant plots on lands formerly owned by others.

The irrigation management proved to be incapable to effectively control hundreds of small scale farmers and to collect of irrigation fees and repayment for disbursed input loans. Therefore, village committees (VC's) were established in 1987. The village committees consist of all irrigation farmers of one village and are headed by an executive, which should ideally be democratically elected. These executives of the village committees have to oversee land and water allocation within the project zones allocated to the respective villages, collect payments and inform the local communities about current irrigation policies and schedules.

By 2004 the irrigation company still saw itself as the owner of all the project lands, but many of the original landowners understandably maintained that the lands were theirs and should either revert to them or they should be compensated for their loss of that land. Such claims were a constant source of dispute as irrigable land became increasingly scarce and some of the original landholders had access only to small and inferior plots and feared their children might not get access to any irrigable land at all.

The following formal institutional situation regarding land allocation within the scheme was in place by the time this was written. The allocation of the land within the project is revised every five years by the land allocation committee, which is chaired by the head of the district administration and consist of representatives of the project management, Ministry of Food and Agriculture and farmers. According to an assessment of maintenance activities, cultivation efficiency and payment records, land was given to the various villages and their VC's. By 2002 the project management claimed that 80% of the land was under control of the VC's.

Within the villages the VC allocated plots to farmers, who in turn had to pay water levies according to the size of their plot and the crop they are cultivating. Land allocated to individual farmers by the VC could not be withdrawn, unless the farmer failed to pay his water levies or other inputs derived from the project.

The project management allocated the lands within the zone it still managed and within the upland areas that had not been allocated by the various VCs. The main use for uplands was the cultivation of tomatoes during the dry season. Such production is both capital intensive and risky because of threats from diseases and market failures. Only rather wealthy farmers who can afford to speculate on the sometimes-high profit margins engage in tomato cultivation.

Therefore, VCs frequently do not allocate all upland areas during a dry season. When that is the case the project management will allocate those plots to farmers from the outside. Lowland plots, which are used for rice cultivation during the dry season, are highly popular with local farmers, as rice needs less inputs, risk is low and produce can be consumed locally, if marketing is difficult. Within the lowland areas land is usually distributed within the villages by the VCs and individual plot holders.

Although the formal institutions and organisation of land allocation seem to be clear, traditional and neo-traditional authorities and a high degree of informal arrangements and rule deviance make for a much more complex picture.

The executive committee of the VC'S, which is meant to be democratically elected by the local irrigation farmers, usually comprises of selected representatives of the various local clans of the respective village, headed by a representative of the tindana's family. The selection is based on negotiation processes between local chiefs and opinion leaders.

What might at first glance appear as an interesting adaptation of local tradition into the formal project structure may often in actuality turn out to be a flaw with regard to the effectiveness and accountability of local resource management. It is rather origins than merits and selection rather than election, which qualify VC executive members. The result is that members of the VC executive board not only lack competence, know-how, and administrative skills they need, they also are often representatives of local factions.

As land issues frequently becomes an arena for local disputes, with original landholders competing with those who showed initial interest in irrigation farming, and locals clans blaming each other for trying to monopolize scarce resources, the functionality of VCs is often compromised and decisions become non-transparent und unaccounted for. This may well cause conflicts.

The legitimacy of and respect for the VC executives' decisions is diminished when local chiefs—who are local authorities acknowledged by government but with little traditional legitimacy[4]—tend to bypass the VCs in favour of themselves and their clientele. This often happens with the project managements' approval, as the irrigation company frequently utilises the chiefs to control or bill the farmers of their respective villages.

The VC executive themselves don't always abide to he formal rules in place. The fact that members of the VC executive may compromise the interests of the farmers they are supposed to represent by allocating lands to outsiders willing to bribe their way in further diminishes the legitimacy and the respect for the VC executives' decisions.

As all irrigable plots have been allocated, but not all lands within the project area have been developed, the areas that have been left undeveloped for reasons of soil inferiority and topography, or that have been earmarked for drainage and environmental protection, become increasingly under pressure. Whereas in the developed areas the dependence on irrigation water and services makes it difficult for the locals to directly contest the ownership claims of the irrigation company, this varies in the undeveloped areas. In such areas, which have never been allocated before tindanas or original landholders have, to the resentment of the project management, started to allocate the undeveloped lands.

[4] Chieftaincy is an institution externally introduced into formerly rather acephalous societies in this part of Northern Ghana during the reign of the British and has been further propagated after independence—although some big men may well have dominated local arenas for a longer time.

The irrigation management tried to interfere but found it difficult. Especially plots along the drainage channels, which should not be farmed to prevent erosion and the siltation of the channels provide easy access to wastewater. It is often commercial farmers with the necessary capital to run pumps to make this water productive who engage in such activities. Commercial farmers are often liaised with local politicians and have tight (business) relations to the project administration itself, which makes it impossible to effectively control their encroachments. Encroaching small scale farmers are often supported by chiefs, who give backing to satisfy their clientele.

Not only in the zones managed by VCs but within the zones under ICOUR management land allocation procedures do not seem to follow clear cut rules, as well. Large amounts of land are allocated to politicians, members of administration, project personnel and a number of large commercial farmers who established good business relationships with the project management. Within these areas, only few small scale farmers, those with good relationships to project management, get access to plots. As these allocation practices, which are often based on clientelism, nepotism and outright rent seeking activities, are clearly perceived by all farmers, they severely undermine the precarious legitimacy and enforcement power of the project management.

A complex setting unfolds when one looks at the allocation of land within a medium scale irrigation scheme. Formal and informal sets of rules and a number of actors are involved in the allocation of land and the disputes and negotiations that go with it. Different actors invoke different formal as well as informal institutions, but may themselves breach the same set of rules. Furthermore, it is not only the project management and the VC that take land allocation decisions, but politicians, commercial farmers, chiefs, tindanas, as well as some small scale farmers being original landholders in formerly undeveloped areas, engage themselves in this domain.

Water allocation practices are less complex than land allocation, but are characterized by a similar lack of institutional legitimacy and enforceability and a high degree of rule deviance.

Nevertheless, the ownership of the water is uncontested. Because the dam, which stores the water for the irrigation scheme has been constructed by the government, most informants agreed that the water belongs to the irrigation company. To cover the cost for the operation and maintenance of the scheme, the irrigation company collects water levies according to the plot sizes and the crops cultivated. Small scale farmers have to pay their levies through the VCs, while commercial farmers pay to the project management directly.

The irrigation company employs two engineers who are responsible for the irrigation schedules of the project. Water bailiffs serve all zones and laterals with water at fixed intervals according to these schedules. The water bailiffs oversee chief irrigators who are responsible for the opening of laterals and the allocation of water within the lateral. Within the lateral the fields at the tail end of the lateral are supposed to be irrigated first, while the other farms will be successively irrigated until the plots at the mouth have received water.

Chief irrigators, who are volunteering farmers from the local community, lack the power and incentive to effectively supervise water allocation within the lateral. Farmers serve themselves as they see fit and disputes over water allocation frequently arise. If demand for water arises out of the scheduled intervals, farmers frequently break the locks at the valves of the laterals and serve themselves. This practice should be fined, but sanctions are hardly imposed.

Commercial farmers and project personnel can easily influence the water bailiffs to open additional water for them as they are often co-farmers and colleagues or water bailiffs might be inclined to accept bribes for extra services. Self-interest, disrespect for institutions and the lack of sanctions is extending so far, that project personnel is even able to destroy project infrastructure in order to direct water to their own farms or those of farming buddies, without really being held responsible.

This short description of the natural resource management within a medium-scale irrigation project shows, how in a situation, where government formally established control over the natural resources within a clearly defined area, actual control is still contested and informally renegotiated. Within these processes of contestation and renegotiation, different actors invoke different sets of official and/or local rules, as they pursue their individual benefits. Furthermore, the overall legitimacy and enforceability of institutions is low and rule deviance and administrative malpractices make for an institutional setting, were the self-interest of actor's accounts for many of the resource management decisions taken. Low institutional legitimacy and enforceability, as well as the fact that it is indeed those actors, which are well endowed with social, economic and political capital, who manage to manipulate and circumvent institutions most effectively, compromises the equity, economic efficiency and environmental sustainability of the overall project.

4. Conclusion

Within the irrigation sector of Northern Ghana multiple institutions and actors are involved in the management of water resources. Irrigation administration, small-scale farmers and their committees, commercial farmers, local administration and politicians as well as traditional and neo-traditional authorities have often overlapping and conflicting responsibilities and objectives. They are engaged in continuing processes in which access rights to irrigated land and water resources are frequently renegotiated and contested. Within this processes different institutional frameworks, such as national laws and policies, project rules and regulations as well as local norms and values, are reference points for argumentation but not necessarily the guidelines for action. Institutional complexity is further complicated by a fundamental lack of institutional legitimacy, enforcement power and rule compliance. Corruption, political loyalties, nepotism, and clientelistic networks influence the outcomes of resource management decisions often more than the various rules applicable. This context makes it difficult for the propagators of the water-reform program to institute the new resource regimes they envision.

These difficulties are acerbated by the fact that the various District Assemblies are meant to be the agencies of IWRM implementation. The DAs are already overburdened with responsibilities and suffer from a lack of sufficient funding as well as qualified staff (Crook and Manor 1998; Asibuo 2000; UNEP 2001). Furthermore, District Assemblies is often ridden by party politics, and - much like the irrigation management – is prone to the various forms of informal activities mentioned above.

The question remains whether the DAs will be able to implement water reforms in a transparent, accountable and participatory manner that heeds the normative propositions underlying the reforms against the background of vested interest that vested actors on the ground hold in natural resources. And interests are strong indeed. Small-scale farmers increasingly depend on irrigation farming for their livelihoods. At the same time commercial irrigated cultivation of cash crops such as rice and vegetables is a profitable business, which

many members of the local and regional political, administrative and economic elites are investing in.

Experiences in northern Ghana and elsewhere have shown that defective implementation of well-meant reforms in the context of conflicting interests and weak local governance structures might easily compromise the underlying objectives of the new resource regimes.

Registration procedures with their concomitant transactional cost pose an disincentive to cooperation and might arouse the suspicion of farmers that water resources, which are an indispensable asset of their livelihoods and business activities, may be reallocated to their disadvantage. The current approach of IWRM implementation seems to exclude the actual water users from participation in decision making processes, which will further enhance this suspicion.

Therefore, withdrawal from and resistance to any new resource regime by water users is very likely to be met, and might easily lead to the failure of attempts to locally implement the water reforms. But disengagement of small-scale water users from the reform process might easily backfire on themselves. The failure to get involved in the reform process might open up opportunities for their exclusion from vital resources and create the setting for new inequalities and conflicts.

To avoid such outcomes Ghanaian water reformers would be well advised to intensively study the local context in which implementation takes place. Institutional patterns, vested interests and their conflictive potential needs to be accounted for. This calls for information and communication processes which truly involve local water users instead of a rhetorical commitment to essentially flawed approaches of stakeholder participation. Only if sufficient political will exists to create mechanism to involve local water users and to effectively mediate conflicting interests under the current institutional, administrative and political conditions water reforms will turn out to be a success and mirror the principles and objectives of IWRM.

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