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WATER USER ASSOCIATIONS IN NORTHERN GHANA: FROM INSTITUTIONAL PANACEA TO REALITY CHECK

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Abstract

Small reservoirs development in Ghana dates back to the post-independence era. Small reservoirs were meant at providing water for livestock, mitigating the impacts of recurrent drought, increasing food security, and reducing poverty. These small reservoirs are mostly located in Northern Ghana and have become an integral component of the communities they serve by supporting multiple livelihood strategies (livestock, fishing, irrigation and domestic use). In the mid-1990s and early 2000s, several donor-led development projects invested in rehabilitating and upgrading these small reservoirs through the inclusion of canal irrigation infrastructures. Most projects established water users associations (WUAs) that were aimed at ensuring sustainable management of the upgraded schemes. The underlying hypothesis was that local communities tend to have greater incentives than external actors to maintain their natural resources base. Organizing local farmers in a WUA would then increase their sense of ownership, leading to better performance of the system. Evidence from northern Ghana showed that WUAs have had mixed results. There is evidence of some WUAs having positive impacts. However, it is also clear that most WUAs fail to live up to expectation. This paper argues that the relative failure of WUAs is mostly due to the implementation approach that was adopted for their establishment during past development projects, specifically, the lack of attention given to the complex social fabric and the multiple actors and livelihood strategies that organized around small reservoirs. Past development projects re-iterated the model of “technology transfer” but, this time, by promoting an “institutional fix”. Government and donors should not only invest in infrastructure rehabilitation but also in soft components (organization, capacity, extension) that need to be embedded in the local social fabric.

Key words: livelihood strategies, irrigation, development projects, technology transfer, Ghana

Introduction

The 1980s witnessed a major shift from a centralized approach to development projects to more user-centered interventions, based on the participation of local communities (Burkey, 1993; Cernea, 1991; Chambers, 1997). This shift occurred against the backdrop of Structural Adjustment Programmes calling for a progressive withdrawal of the State. In the water sector, international donors notably pressed for Irrigation Management Transfer (IMT) and Participatory Irrigation Management (PIM) in state-led irrigation schemes (Svendsen and Meinzen-Dick, 1997). In the same time, the underperformance of large-scale irrigation schemes, usually under the control of government agencies, lead to further attention being given to small-scale irrigation projects, seen as more attune to community management.

The call towards local participation and community management is based on the assumption that local communities have greater incentives than external actors to maintain their natural resources base and can devise collective action mechanisms leading to their effective and sustainable management (Ostrom, 1990). In the irrigation sector, Water Users Associations (WUAs) exemplify these collective institutional arrangements meant as conduits for reform (Khanal, 2002; Meinzen-Dick et al., 2002; Vermillion and Sagardoy, 1999).

Some scholars have highlighted the advantages of bottom-up decentralized management approach to common property resource over conventional bureaucracy-led interventions (Ascher, 1995; Lam, 1998). Vermillion (1997) study of 29 irrigation projects where IMT reforms were implemented, for example, suggests that participatory management of irrigation systems could improve their efficiency, prevent them from deterioration, and help to ease governments financial burden. On another hand, other authors highlight the extraordinary “sway it [PIM] has continued to hold [...] despite virtually no evidence of having succeeded anywhere in the developing world except on an experimental basis, and only with facilitation of un-replicable quality and scale” (Shah, 2009). Whilst acknowledging that participatory irrigation management – and its organizational translation: the Water User Association- has achieved some level of success, this paper argues that the approach is flawed with several deficiencies notably in the way institutional arrangements are shaped and “imposed” by implementing agencies, regardless of the local dynamics of management of natural resources.

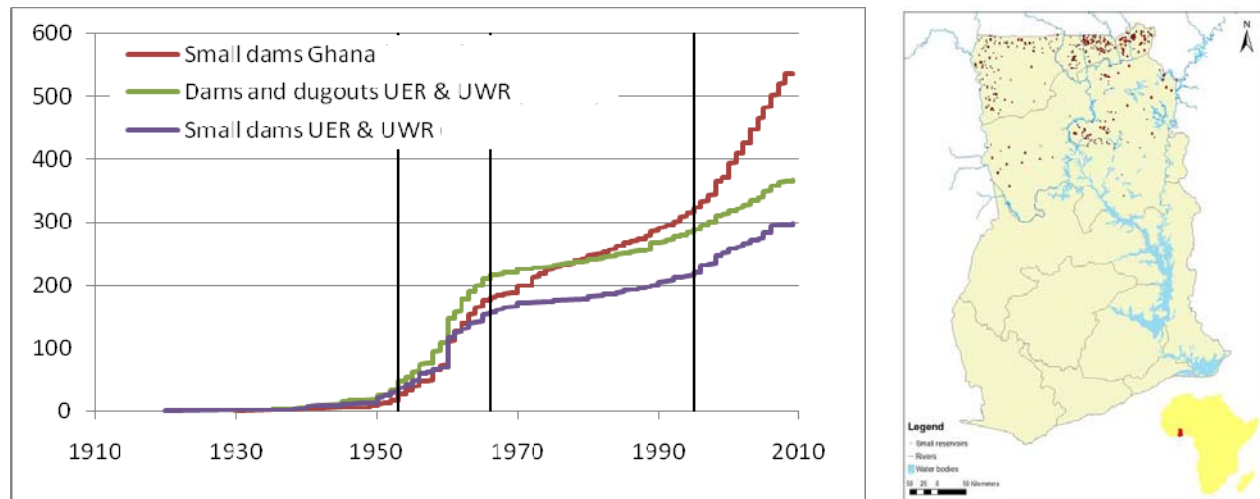
This paper focuses on small reservoirs in northern Ghana. It highlights that WUAs have yielded mixed results and identify conditions under which they can contribute to robust collective action for the sustainable use and management of small reservoirs. Section 2 describes the historical development of small reservoirs in Ghana. Section 3 investigates the linkages between small reservoir performance and the presence of WUAs; it then engages with the multiple institutional arrangements that govern small reservoir. In the discussion section, the paper highlights the need to consider the complex socio-political dynamics in which small reservoir projects are implemented to better assess the possible role of WUAs.

Small Reservoir Development in Ghana

Small reservoirs were first constructed when Ghana gained Independence (late 1950s-mid 1960s). At that time, they were meant at providing water for livestock, mitigating the impacts of recurrent drought

and served as soil and water conservation measures. Between the late 1960s and early 1990s, only few small reservoirs were constructed (Fig. 1). In the mid-1990s and 2000s, several donor-led development projects (IFAD's UWADEP and LACOSREP I & 2, World Bank's CBRDP and VIP) triggered substantial investment in the construction, rehabilitation and upgrading of old small reservoirs to boost agricultural production. Today approximately 3,500 small reservoirs (1,000 small dams and 2,500 smaller excavation called dug-outs) with an irrigation potential of 5,000 to 10,000 ha are distributed across the country.

Fig. 1 History and Spatial distribution of Small Dams in Ghana



Source: Adapted from MoFA/GIDA Database (2008)

Most of the small dams (354 out of 1000) are concentrated in the Upper East (UE) and Upper West (UW) regions) of Ghana that are prone to high climate variability and extreme weather. Small reservoirs were therefore promoted to deal with inter-annual rainfall variation and provide water storage for supporting multiple uses (irrigation, livestock watering, domestic, construction etc.) during the dry-season.

Small Reservoirs: Performance and institutional arrangements

Methodology

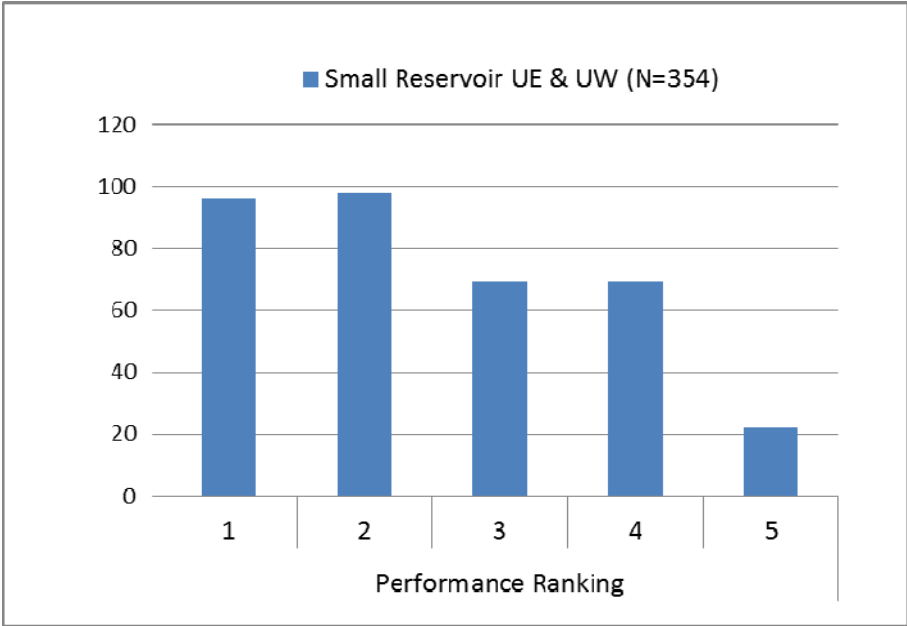
This paper focuses on the Upper East and West regions where most small reservoirs can be found (see above). Qualitative data was collected during a sequential process. First, a participatory appraisal was organized with agricultural extension agents of the Ministry of Food and Agriculture (MoFA) in each district capital of the two regions to complement the existing inventory of MoFA. Detailed information on: (1) the characteristics of the dams; (2) their design purposes and actual uses; (3) their level of performance; (4) the constraints faced by the communities; (5) the benefits derived from using the small reservoirs; (6) the local institutional arrangements and modes of management were gathered. A total of 354 dams were documented in the study area. Second, 24 detailed case studies were done. Small reservoirs were randomly selected. In each site, the detailed case studies involved participatory exercises (focus group discussion, transect walks), semi-structured interviews with individual small

reservoir users (rainfed and livestock farmers, irrigators, fishermen, women, etc.) and key informants interviews in the community (local elected representative, customary authorities, representative of Water User Associations). The detailed case studies aimed at gaining a qualitative understanding of the multiple uses and perceptions of small reservoirs. In addition, key informant interviews were conducted with policy-makers (in Ministries of Water Resources, Agriculture, Irrigation and Environment at the local, regional and national level), donors and technical development partners, districts and municipal executives, and other key informants to explore the governance structure, and the implementation and planning processes of small reservoirs projects in Ghana (Venot and Hirvonen, 2010).

Water User Associations and Small Reservoir Performance

Agricultural Extension Agents considered that more than 50% of the reservoirs in the study area were performing poorly (rating of 1 and 2 on a scale from 1 [very poor] to 5 [very good]; Fig. 2). Low scores reveal technical and infrastructural challenges. Local users, on another hand, considered that small reservoirs performed better, due to the social benefits they derive from them (field data, not shown)

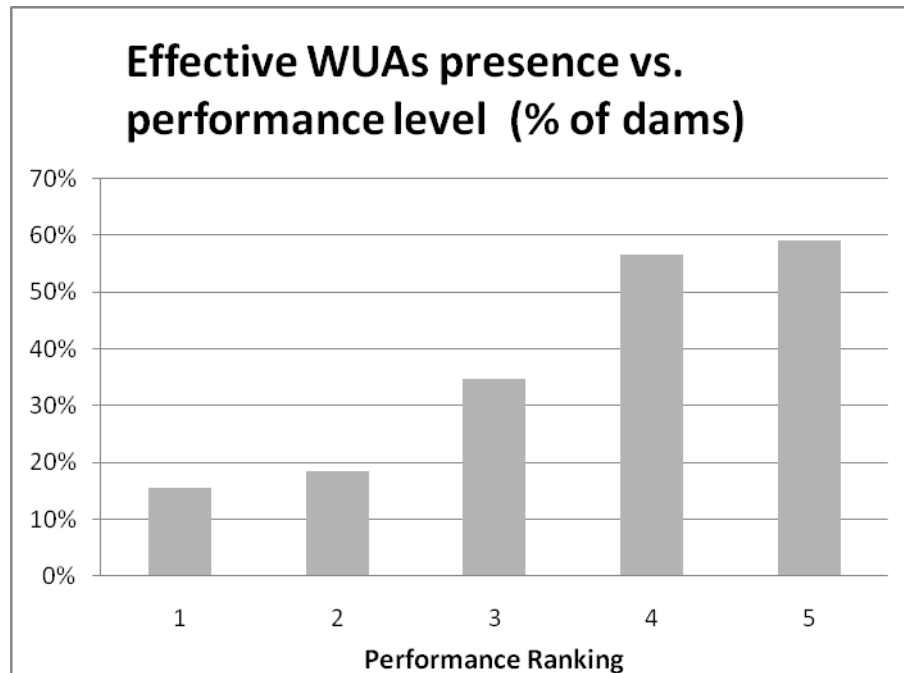
Fig 2. Performance of small reservoirs in the UE and UW region (survey data)



From the mid-1990s onwards, small reservoir projects promoted the establishment of Water Users Associations (WUAs) as a way to operate and manage small reservoirs sustainably. Whilst some WUAs still exist, many of them have disappeared or remained dormant. Out of 354 reservoirs in the UE and UW regions, 163 have a WUA. Out of this number 103 WUAs were considered as effective in small reservoir management by the extension agents. Fig. 3 highlights a correlation between the performance of small reservoir and the presence of a WUA. Over 70% of the dams performing very well [rank 5] have a WUA against 30% for dam performing very poorly [rank 1]. This seems to corroborate the assertion held by donor agencies about the positive impact of WUAs. However while donors often consider the presence of WUAs as a prerequisite for intervention and pledge for good performance; they should

rather be seen as partners of other actors (Uphoff et al., 1991). Whilst acknowledging the positive impact of effective WUAs, we contend that their success or “failure” is dependent on their ability to link with other pre-existing institutional arrangements. Considered and established as blue-print solutions, they are likely to become yet another failed institutional panacea (Meinzen-Dick, 2007; Ostrom, 2007).

Fig 3. Performance rating and WUAs presence (survey data)



Acknowledging the Diversity of Local Institutional Arrangements

Local water management institutions are multiple, connected one to another, and to other levels of decision making (Eguavoen, 2007). For example, respondents listed 5 to 10 institutions that contributed to different and complementary roles in the governance of small reservoirs (Fig. 4). WUAs were identified as the main decision maker in less than one third of the cases (Fig. 4) with their main tasks revolving around minor maintenance and daily management activities (Table 1). Traditional authorities seem to play a crucial role notably for settling disputes, resolving conflicts and maintain social cohesion (Table 1). They were mentioned as the main decision makers in about 25% of the cases (Fig 4). Line ministries and government agencies are rarely considered as the main decision makers (Fig. 4) but their role in the design and construction processes and in supporting farmers (extension, marketing) remains very important (table 1). It also appears that many decisions are reached through consensus building at the community level (the community as such was considered the main decision maker in 22% of the cases; Fig. 4) without a specific organization being singled out. General meetings –called or not by the WUA- remain common platform to make decisions that are crucial to reservoirs use and management.

Fig 4. Small reservoirs: Diversity of decision makers (adapted from Venot and Hirvonen, 2010)

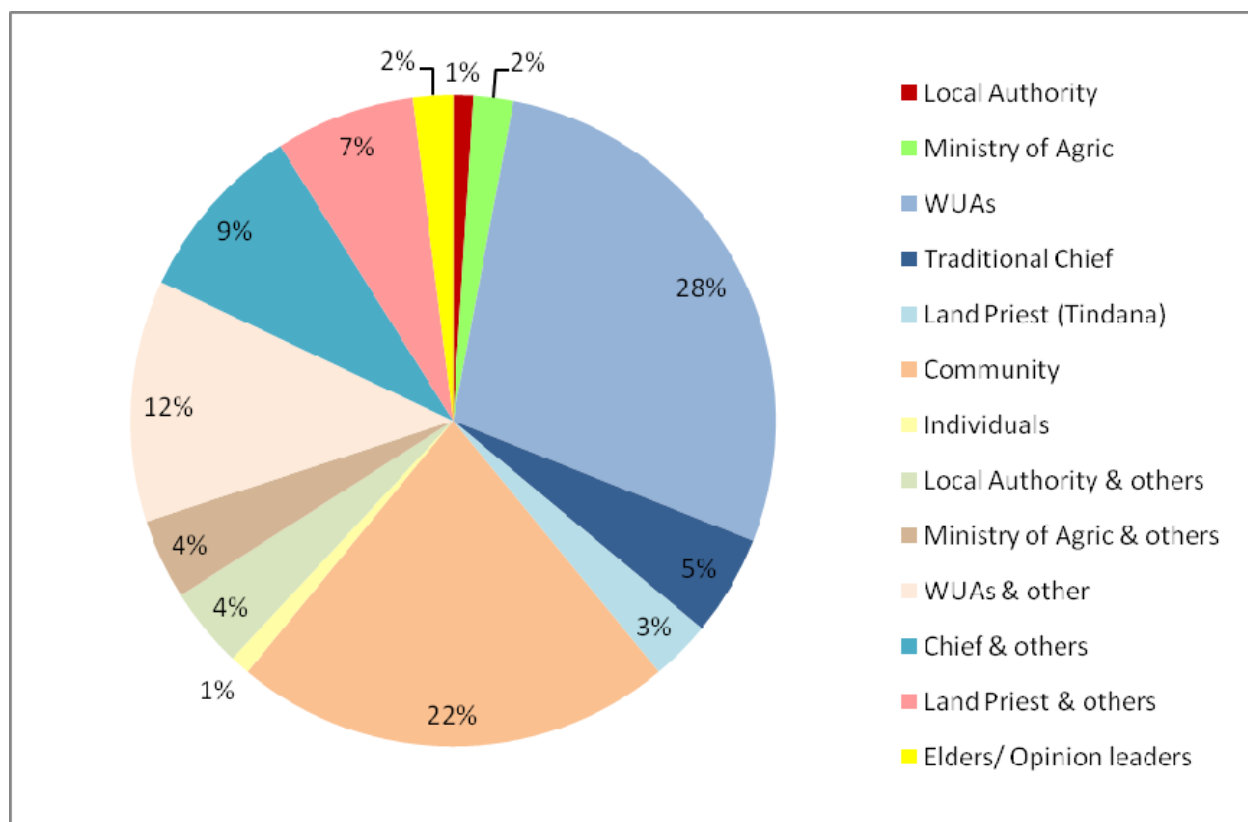


Table1. Small reservoirs: Roles and responsibilities (survey data)

| Roles | MoFA | GIDA | Donors | Contractors | District Assemblies | Traditional Authorities | WUA | Community | Individual farmers | Others |
|---|------|------|--------|-------------|---------------------|-------------------------|-----|-----------|--------------------|--------|
| Construction | 17% | 51% | 4% | 29% | 12% | 1% | 2% | 1% | 0% | 1% |
| Major Maintenance | 22% | 38% | 10% | 5% | 36% | 1% | 2% | 2% | 0% | 2% |
| Minor maintenance | 3% | 4% | 1% | 0% | 6% | 6% | 52% | 31% | 3% | 1% |
| Setting of management rules | 7% | 2% | 1% | 0% | 3% | 18% | 60% | 12% | 5% | 1% |
| Implementation & monitoring of management | 6% | 2% | 0% | 0% | 3% | 14% | 66% | 13% | 2% | 2% |
| Relation with other actors (MoFA, DA) | 14% | 1% | 0% | 0% | 6% | 17% | 54% | 13% | 3% | 2% |
| Conflict resolution | 12% | 1% | 0% | 0% | 9% | 68% | 31% | 7% | 0% | 0% |
| Environmental protection | 4% | 2% | 1% | 0% | 4% | 14% | 49% | 32% | 4% | 1% |
| Extension role | 65% | 21% | 3% | 0% | 2% | 1% | 5% | 3% | 0% | 8% |
| Agricultural practices and marketing | 26% | 3% | 0% | 0% | 2% | 7% | 23% | 7% | 29% | 7% |

Discussion

During the 1970s and 1980s, studies of low-performing large-scale irrigation systems highlighted the shortcomings of technological interventions alone to resolve the issues the irrigation sector was facing (Chambers, 1988; Svendsen et al., 1997; Meinzen-Dick, 2007; Uphoff, 1986). A surge in participatory strategies followed (for instance, Uphoff, 1986; Vermilion, 1994). But one of the main rationales for the transfer of irrigation management to user groups was, in fact, to reduce operational and maintenance costs that contributed to State’s fiscal deficits rather than to strengthen the role of users. Transfer of responsibilities seldom included devolution of power; WUAs were seen as operating in an apolitical institutional vacuum and hardly acknowledged the multiple claims that irrigation projects induced.

For example, whilst small reservoirs in the study area are associated with multiple uses such as livestock watering, fishing, breweries, domestic uses and irrigation, WUAs remain mostly composed of irrigators. Most of the focus is on “productive” irrigation water, thereby reinforcing the notion that collective action is driven by economic motive. Using such model might however be counter-productive where reproductive concerns –illustrated by livestock activities, fisheries, breweries, domestic water needs– may predominate (Cleaver, 2000). It also opens the way to elite capture. WUA are often viewed as opportunities for political mobilization. In the study area, for instance, it is not rare that local politicians of the district assemblies are members of the executive body of the WUA. Their interest lies less in promoting sustainable irrigation management than in creating a “vote-bank” to secure a seat in the district, regional or even national assembly (the national elections of 2008 for example triggered changes in the leadership of many WUAs in the study area).

Though, in principle, WUAs are deemed as bottom-up, user-centered and participatory, we contend that they still exhibit the characteristics of a top-down approach to designing and implementing policy and institutional reforms, which Kloezen (2002) refers to as “institutional engineering”. In the case of small reservoirs, donors and governments enter rural communities, construct or rehabilitate small reservoirs and irrigation systems and impose a specific configuration (the WUA) deemed at triggering collective action for sustainable management of natural resources. But, as highlighted by Skjølvold (2008), water users are seldom involved in the process or are they explained what the objectives are. In the case of small reservoirs in Northern Ghana, WUAs do not account for pre-existing socio-environmental conditions and cultural norms that influence decision-making, limiting their scope to contribute to sustainable management. Only by recognizing that WUAs are partisan, political and heterogeneous bodies, will it be possible to understand their dynamics and avoid dysfunction (Khanal, 2003).

Conclusion

Whilst acknowledging that WUAs may have positive impacts, this paper highlights that they embody “social engineering” thinking and convey it as the new panacea for solving water management issues in northern Ghana. Hence, the scope WUA offer for enhancing small reservoir use for poverty alleviation is limited. Rather than a blue print, WUAs should be seen as one component of multiple institutional arrangements that govern access to and management of small reservoirs. Linking WUAs to agricultural groups and cooperatives could be an interesting option to facilitate access to market and inputs. This paper contends that local concerns are best addressed by enhancing multiple institutional relationships rather than by assuming that an externally defined and “apolitical” organization can embody them.

Small reservoirs management reforms need to go beyond the promotion of an “institution fix” such as the Water User Association. Donors, development and government agencies need to recognize that the institutional reforms they promote might be at loggerhead with pre-existing local institutional and socio-ecological systems (Skjølvold, 2008) and adjust their approach correspondingly. A diagnostic approach to understand this complexity holds the promise of going beyond a search for panacea, which has proven to be illusory (Ostrom, 2007). Beyond the understanding of local conditions and institutional arrangements, the State –from the national to the district level– will still have to play a supporting and

regulatory role by facilitating social learning and the establishment of effective accountability mechanisms that are prerequisites to active participation in small reservoir management.

References

Burkey, S. 1993. *People First: A Guide to Self Reliant Participatory Rural Development*. ZED books limited: London and New Jersey.

Cerneia, M. 1991. *Putting people first. Sociological Variables in Rural Development*. Oxford University Press: Oxford.

Chambers, R. 1988. *Managing canal irrigation: Practical analysis from South Asia*. Cambridge University Press: Cambridge.

Chambers, R. 1997. *Putting the First Last. Whose Reality Counts?* Intermediate Technology Publications: London.

Cleaver, F. 2000. Moral Ecological Rationality, Institutions and the Management of Common Property Resources. *Development and Change* Vol.31 (2000), 361±383.

Eguavoan, I. 2007. Now you have a new pump, you have to manage it. Household water management, water rights and institutional change in Northern Ghana. PhD thesis. University of Cologne.

Hafner, J. 1987. View from the Village: Participatory Rural Development in North East Thailand. *Community Development Journal* 22(2): 87-97.

Meinzen-Dick, R. 2007. Beyond panaceas in water institutions. *Proceedings of the National Academy of Science* 104:15200-15205.

Meinzen-Dick, R.; Raju KV.; Gulati A. 2002. What affects organization and collective action for managing resources? Evidence from canal irrigation systems in India. *World Development* 30 (4): 649-666.

Ostrom, E.; Burger, J.; Field, CB.; Norgaard, RB.; Policansky, D. 1999. Revisiting the Commons: Local Lessons. *Science* 284:278-282.

Khanal, P. R. 2003. Participation and governance in Local water Management. PhD Thesis. Wageningen University.

Kloezen, W. H. 2002. Accounting for Water: Institutional Viability and Impacts of Market-Oriented Irrigation Intervention in Central Mexico. PhD Thesis. Wageningen University, the Netherlands.

Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

Shah T, 2009. *Taming the anarchy: groundwater governance in South Asia*. The Resources for the Future Press: Washington DC.

Skjølvold, T. M. 2008. The institutional reality of common pool resources. Institute for Sociology and Political Science, Norwegian University of Science and Technology. MA-thesis.

Svendsen, M.; Meinzen-Dick, R. 1997. Irrigation management institutions in transition: a look back, a look forward. *Irrigation Drainage Systems* 11:139–156

Uphoff, N. 1986. Getting the process right: improving irrigation management with farmers' organization and participation. Working paper, Cornell University, Ithaca New York.

Uphoff, NT, Ramamurthy, P.; Steiner R. 1991. *Managing Irrigation*. Sage> New Delhi.

Venot, JP.; Hirvonen, M. 2010. Can Small Reservoir Enhance Sustainable Agricultural Development in Saharan Africa? Broadening the Analytical Horizons. Paper presented at the Innovation and Sustainable Development in Agriculture and Food, Montpellier, June 28-30, 2010

Vermillion, D.L. 1994. Entrusting Irrigation to Water Users: International Experiences with Management Turnover, *Economic Review*.

Vermillion, DL. 1997. Impacts of irrigation management transfer: a review of the evidence. Research Report 11, International Irrigation Management Institute: Colombo, Sri Lanka.

Vermillion, D.; Sagardoy, J. 1999. Transfer of Irrigation Management Services. *FAO Irrigation and Drainage Paper* 58.