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Rethinking commons management in Sub-Saharan West Africa : public authority and participation in the agricultural water sector

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6 **Rethinking Commons Management in sub-Saharan West Africa: Public**
7 **Authority and Participation in the Agricultural Water Sector**

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13 **Abstract:** Promoted for over three decades, Participatory Irrigation Management (PIM)
14 and its organisational upshot, the Water User Association (WUA), has been framed as a
15 solution to the sector's problems. Based on a case study of small reservoirs in two
16 countries of West Africa, Burkina Faso and Ghana, this paper shows that the PIM/WUA
17 model is based on narrow visions of the commons and participation and do not account for
18 the de-facto pluralism and institutional *bricolage* that characterize natural resources
19 management. Attempts at institutional intervention should be based on better understanding
20 of social relationships and existing processes of decision-making.

21 **Key words:** governance, institutions, pluralism, water user associations, West Africa

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25 **Introduction**

26 Over the past fifty years, a series of institutional arrangements have been presented as remedies
27 to the water sector's problems. Strong government agencies, participation and user organisations,
28 and water markets have been alternatively or simultaneously promoted as new panaceas
29 (Meinzen-Dick 2007). Since the early 2000s, this attention to policy and institutional reforms is
30 greater than ever as 'water governance' emerged as one of the most important topics for the
31 international water community in the 21st century (for instance, UNESCO-WWAP, 2006).

32 But if the addition of 'governance' to the water resources vocabulary certainly is a step
33 forward (Mollinga 2008), the term tends to be used in technical and depoliticized ways in
34 mainstream development discourse (Jenkins 2001). Building on the idea of institutional crafting,
35 as epitomized by the early work of Elinor Ostrom who describes design principles for robust and
36 enduring institutions for common property resource management (Ostrom 1992), the attention is
37 on 'getting the institutions right,' though Ostrom herself warns against an elusive search for
38 panaceas (Ostrom et al. 2007).

39 Drawing from a mounting literature (see for instance Mollinga et al. 2004, Rap 2006,
40 Wegerich, 2008), this paper critiques one such elusive panacea. We engage with the approach to
41 commons management and participation as embedded in participatory irrigation management
42 (PIM) reforms and their organisational upshot, the Water User Association (WUA), through a
43 case study in two countries of sub-Saharan West Africa: Burkina Faso and Ghana. We do not
44 attempt to understand the factors that explain the success or failure of collective action
45 arrangements such as WUAs (on this topic, see Uphoff 1986, Meinzen-Dick 1996, IFAD 2001,
46 Garces-Restrepo et al. 2007, and Gyasi 2005 on the specific case of Ghana). Rather, our
47 argument is that WUA need to be understood and planned as part and parcel of a broader

48 ‘institutional bricolage’ (Cleaver 2000, Cleaver and Franks 2005, Merrey and Cook 2012)
49 whereby multiple institutions and group of actors take an active interest in the shaping of (water)
50 governance and in attempting to define and enforce collectively-binding decisions.

51 The second section of the paper sets the context and provides the analytical lens of the
52 study. It critically examines the emergence of PIM (and WUA) as a panacea in the irrigation
53 sector and briefly presents the notions of ‘pluralism’ and ‘institutional bricolage’ as useful
54 analytical tools to understand the dynamics of agricultural water governance in sub-Saharan
55 Africa. Section 3 briefly presents the methodology and data sources of the study. Section 4 gives
56 some background information on small reservoirs (the specific research object) in the two study-
57 countries, Burkina Faso and Ghana. Section 5 highlights that perceived benefits, risks and
58 performance of small reservoirs depend on the vantage point considered; this is important as
59 multiple understandings of small reservoirs have implication in terms of governance and
60 commons management. Section 6 describes the organisational set-up promoted by recent small
61 reservoir projects and highlights its disconnect with the messy reality of local practices. The
62 conclusion highlights the need to account for the local complexity and pluralism that characterize
63 any development intervention geared at natural resources management.

64 **From social-engineering to pluralism and institutional bricolage**

65 In the 1950s and 1960s, the conventional wisdom that dominated the irrigation sector was one of
66 centralized planning, development and management (Meinzen-Dick 1996). The documentation
67 of elaborate farmer-managed irrigation systems (FMIS) in the 1970s and 1980s (Martin and
68 Yoder 1986, Yoder, 1994), disillusion towards poor-performing state-led interventions, and
69 controversies around large scale projects provided the basis for a paradigm shift towards so-
70 called participatory approaches (for instance, Chambers et al. 1989).

71 The shift from technology-oriented, top-down development towards an approach that
72 recognized the role of users and institutions was certainly encouraging. However, similar long-
73 held concerns of projects failing to match expectations despite theoretical promises and early
74 records of success have been widely documented in the irrigation sector and beyond (Blaikie
75 2006, Rap 2006, Andersson and Ostrom 2008). This, we argue, is because policy and
76 institutional reforms that promote users' participation and organisations replicate a linear model
77 of how development (should) take place and *via* which institutions. Engineering would have
78 simply given way to a social-engineering approach, which still largely reins unquestioned in
79 development circles (Mollinga 2008, Merrey and Cook 2012).²

80 In the irrigation sector, Merrey and Cook (2012:6) argue that “*this adherence to a social-*
81 *engineering perspective is perhaps best illustrated by more than than three decades of efforts to*
82 *create water user associations (WUAs) and transfer [irrigation] management responsibilities to*
83 *these new entities.*” This reform movement started in the Philippines in the mid-1970s and
84 quickly expanded to other major irrigation countries (Indonesia, India, Mexico, Turkey, Egypt)
85 before being promoted in sub-Saharan Africa (on Africa, see Abernethy and Sally 2000, Shah et
86 al. 2002). Mukherji et al. (2009) highlight that two main development discourses underpinned
87 this trend. One, neoliberal, of cost-recovery and improved performance, the other, of
88 democratisation and decentralisation of decision making. This coalescence of justifying
89 discourses might explain why PIM, and its organisational upshot, the WUA, continue to hold
90 tremendous traction among development partners even though it faces mounting critiques among
91 researchers who highlight the extraordinary sway it has continued to hold “*despite virtually no*

² The term social engineering is used here to refer to linear models of change, whereby blueprints are used to replicate in a new context a structure that may have worked elsewhere (Merrey et al. 2007).

92 *evidence of having succeeded anywhere in the developing world except on an experimental*
93 *basis, and only with facilitation of un-replicable quality and scale”* (Shah 2011). Early
94 proponents of WUA join the critique by attributing mixed results to a lack of political support,
95 the inadequacy of broader legal frameworks that have remained untouched, a narrow vision of
96 the reform (focused on the farmer level – the WUA) on the part of the funding agencies, and a
97 lack of managerial skills on the part of the users. They go on advocating better monitoring and
98 evaluation systems for lessons learned from the process to be fed-back in a flexible way during
99 implementation (Garces-Restrepo et al. 2007). However, the core principle of clarifying the legal
100 status, the roles and responsibilities, the authority structure and membership, the (water) rights
101 and sanctions, and the budgeting of WUAs through means of formal institutional arrangements
102 such as constitutions and by laws, remain unquestioned.

103 Four deeper critiques of PIM (Mukherji et al. 2009) acquire specific relevance regarding
104 small-scale irrigation in the African context and call for a more fundamental rethink of what is
105 still framed as a panacea. First, ironically and maybe the most significant in procedural terms,
106 PIM is supposed to promote farmers’ decision making and assumes their preparedness and
107 willingness to act as agent of reform even though farmers have rarely (if ever) been consulted
108 prior to the implementation of the reform. Second, PIM reforms do not address chronic problems
109 of the sector such as the dynamics of rent seeking and corruption that are due to continuous
110 channelling of funds for rehabilitation and new construction (Venot et al. 2011 on the case of
111 small reservoirs in Ghana). Third, and in relation to the second point, PIM reforms focus on
112 changing farmers’ behaviour alone. The reforms rarely tackle the works and attitudes of the
113 irrigation bureaucracy even though they imply a redistribution of power between the
114 administration and the newly formed WUAs. This tendency has been forcefully critiqued in the

115 Asian context where powerful bureaucracies dominate the sector (Chambers 1988, Suhardiman
116 2008) but is no less important in a context where public organisations in charge of agricultural
117 water management are smaller in size, dispersed over several ministries, and more remote from
118 the ground. Fourth, the analogy between FMIS, which generally have evolved over centuries,
119 and WUAs, set up to manage recently introduced small-scale multipurpose water systems
120 (including small reservoirs) overlooks the historical dimension of institutional dynamics.

121 These critiques call for a fresh look on institutional formation. As no universal models can
122 be applied or adapted to solve institutional problems (Merrey et al. 2007), there is a need to look
123 beyond a one-mode-fits-all (in this case, the WUA) and to recognize that institution formation is
124 a socially embedded process that accommodates a variety of partial and contingent solutions.

125 Two notions appear useful here. First, the idea of *radical pluralism*, which highlight the co-
126 existence and beneficial nature of multiples (and incompatible) values, interests and positions
127 among different groups (Wollenberg et al. 2005) but also the fact that ‘groups’ and ‘collective
128 agreements’ are not easily bounded and subject to continuous and unstable representation and
129 definition (Edmunds and Wollenberg 2001). Second, the notion of *institutional bricolage* first
130 coined by Frances Cleaver (Cleaver 2000), which is a way to conceptualize how mechanisms for
131 collective action and resource management are borrowed or reconstructed from multiple existing
132 sources (Merrey and Cook 2012). Both notions allow moving away from simplistic dichotomies
133 such as ‘formal/informal’, ‘modern/traditional’, or ‘success/failure’. Institutional innovation then
134 becomes an ad-hoc, approximate process brought about by ‘bricoleurs’, that is, actors able to
135 navigate shifting boundaries and pick and choose from multiple frames of reference. The next
136 sections adopt such an analytical lens to shed light on the institutional dynamics of small
137 reservoirs projects in two countries of sub-Saharan Africa.

138 **Methodology and data sources**

139 This paper focuses on two countries of sub-Saharan West Africa, Burkina Faso and Ghana,
140 which have witnessed significant investments in small reservoirs. We collected data over a
141 period that spanned April 2009 and October 2011. First, an inventory of all small reservoirs in
142 these countries was prepared using existing secondary data. Second, a rapid regional appraisal
143 was conducted in specific regions with a high concentration of small reservoirs: the two northern
144 regions of Ghana (the Upper East and Upper West regions; all 364 reservoirs in the area were
145 documented) and the centre-south region of Burkina Faso (all 249 reservoirs in the area were
146 documented). This consisted in administering a questionnaire to agricultural extension agents, in
147 their offices, during collective working sessions (about 40 working sessions with a total of nearly
148 200 different extension agents were organized). Questionnaires allowed collecting information
149 on the design purposes, actual uses, level of performance, and institutional arrangements
150 governing the management of small reservoirs in their area they oversaw. Third, we sought in-
151 depth information on the multiple uses, and perceived benefits and constraints of small reservoirs
152 by carrying out field visits, focus group discussions and semi-structured interviews with users of
153 37 (24 in Ghana, 13 in Burkina Faso) randomly sampled reservoirs and other key informants in
154 the communities. For each of the 37 small reservoirs, we conducted one focus group discussion
155 per type of user (i.e., male irrigators, male livestock farmers, male fishermen, male rainfed
156 agriculturalist, women farmers, and young people)³ and interviewed another twenty individual

³ We characterized small reservoir users according to their main farming activity to facilitate data collection but fully recognize that rural households are engaged in diverse activities at the same time

157 users, representative of the diversity of uses (about 5 people for each type of use). Key
158 informants in communities included elected representatives, customary authorities, agricultural
159 extension agents and representatives of Water User Associations and other local groups).

160 **Shifting rationales: A history of small reservoirs in Burkina Faso and Ghana**

161 Small reservoirs have long been envisioned as soil and water conservation and drought-proofing
162 measures. Over the last decades they have been increasingly seen as a way to develop small-
163 scale irrigation (Venot et al. 2012), especially in sub-Saharan Africa where irrigation is again
164 seen as a potential driver of agricultural development (World Bank 2007).

165 In Burkina Faso, most small reservoirs were constructed between 1974 and 1987, within
166 the framework of the national agricultural hydraulic policy of 1975, and largely in response to
167 the Sahel droughts of the 1970s and 1980s that caused losses in human life and had dramatic
168 impact on livestock. The 1983-1987 period also corresponded to the Sankara socialist revolution
169 when the political leadership of Burkina Faso undertook large infrastructure construction
170 projects (including roads, railways, small reservoirs) while promoting mass mobilisation of the
171 Burkinabè population (Sally et al. 2011). Since then, there has been a continuous commitment to
172 build more small-scale irrigation infrastructure. On average, more than 30 small reservoirs were
173 built annually during the period 1985-2001 and a department of the Ministry of Agriculture and
174 Water was set up in the early 2000s to coordinate the development and monitoring of small scale

(for instance, most irrigators will also have rainfed plots as well as a small herd). Fishing was not
observed in all small reservoirs sites nor were young people using the small reservoir in all instances.

175 irrigation. Currently, several externally-funded projects⁴ invest in rehabilitating and/or
176 constructing new small reservoirs to store water and develop small scale irrigation as an adaptive
177 strategy to the vagaries of climate. The total numbers of small reservoirs and dug-outs is
178 evaluated at about than 1,200 (Venot et al. 2012).⁵

179 In Ghana, considerable investments were made following independence in the 1960s, after
180 which construction slowed down in the 1970s and 1980s. Since the mid-1990s, there has been
181 renewed interest in small reservoir projects. This is mainly due to large donor-driven investments
182 in the north of the country among which the World Bank funded Village Infrastructure Project
183 (VIP) and the IFAD funded Upper West Agricultural Development Project (UWADEP) and
184 Land Conservation and Smallholder Rehabilitation Projects (LACOSREP phase 1 and 2).
185 Between 1995 and 2009, more than 200 small reservoirs were constructed in the country, almost
186 half of which in the three northern regions. At least another 80 reservoirs were rehabilitated in
187 the north of the country during the same period. The International Fund for Agricultural
188 Development (IFAD) and the Africa Development Bank (AfDB) plan to invest a further \$30
189 million by 2015 to build or rehabilitate an additional 50 small reservoirs for irrigation purposes

⁴ Donors include the International Fund for Agriculture development, the Swedish international Development Agency, the Islamic Bank of Development, the West African Development Bank, the African Development Bank, and the Arab Bank for Economic Development in Africa for a total amount of more than US\$50 million to be invested by 2015.

⁵ Their irrigation potential would be more than 10,000 hectares (i.e., one third of the country's irrigation potential); this figure does not account for spontaneous irrigation upstream of reservoirs.

190 (Venot et al. 2012). As per 2010, there are more than 1,000 small reservoirs in Ghana, half of
191 which are located in the three northern regions of the country (Venot et al. 2011).⁶

192 **Performance: Common culprit or multiple vantage points?**

193 Irrigation performance assessment is presented as an important management tool to aid irrigation
194 projects to deliver on their promises. Long limited to hydraulic, agronomic and economic
195 indicators; performance assessments have been broadened to account for multiple uses of water,
196 environmental, institutional and gender dynamics (Molden et al. 2007).

197 Regarding small reservoirs, most technical performance assessments point to a grim picture
198 of less than expected irrigated area, damaged infrastructure, and low water or agricultural
199 productivity (Faulkner et al. 2008, Mdemu et al. 2009). These shortcomings are generally
200 attributed to the lack of robust institutions for the management of common property resources
201 partly because of a non-conducive environment for collective action (Gyasi 2005, Birner et al.
202 2010). But the performance of small reservoirs can assume multiple meanings for different
203 people (Venot et al. 2012). In this section we engage with the meaning and assessment of small
204 reservoir performance for two types of actors –the agricultural extension agents, and the local
205 users. The former act as brokers between policy making and project implementation; their
206 interpretation of events is passed on to higher levels of decision making through the state system.
207 Local users, on the other hand, are the stewards and so-called ‘beneficiaries’ of small reservoirs.

208 During the regional appraisal, agricultural extension agents were asked to assess the
209 performance of small reservoirs on a scale from one (very poor) to five (very good).⁷ In Burkina

⁶ Together, it is evaluated that they have an irrigation potential of more than 5,000 hectares (public irrigation in Ghana is evaluated at about 9,000 hectares; GoG 2010) and allow watering more than 1 million of livestock, thus benefiting a population well above 2.5 million persons.

210 Faso, more than a third of the small reservoirs surveyed were said to be performing very poorly
211 (score=1) or poorly (score=2); a proportion increasing to 56% in the case of Ghana (Figure 1).

212 *Insert Figure 1 around here*

213 Agricultural extension agents gave a lot of importance to criteria such as the extent of the
214 irrigated area, the number of irrigators, the water and agricultural water productivity and the
215 physical condition of the infrastructure. They assessed the performance of small reservoirs
216 through an engineering lens and in line with the objective of irrigation development. In both
217 countries, poor performance was mostly attributed to design and infrastructure problems in
218 relation to lack of technical knowhow and inadequate supervision but also to corrupt practices
219 that pervade project planning (Venot et al. 2011, 2012). These shortcomings do not only render
220 small reservoirs unusable but also prove to be costly; within a time span of 10 years, some small
221 reservoirs have been rehabilitated twice or thrice due to the poorly executed projects. Extension
222 agents identified the lack of community management in the form of Water User Association as
223 the second cause for low performance of small reservoirs (see discussion in next section).

224 Another level of complexity emerges from investigating the perceptions of local users in
225 regard to small reservoir performance. In all the communities studied, the local population
226 expressed a level of satisfaction similar or higher than the extension agents. We explored users'
227 satisfaction regarding 4 main aspects: the physical infrastructure, modes of management, benefits
228 derived, and equity aspects of small reservoirs. Like extension agents, local users pointed to poor

⁷ Though individual extension agents may have considered slightly differing criteria to judge performance, the consistency of the explanations they gave to justify their scoring during the collective working sessions gives us confidence to compare the scores given.

229 technical and managerial performance. They, however, showed a higher level of satisfaction
230 regarding the benefits they derived and the equity aspects of small reservoirs.

231 Table 1 presents the results of a free listing exercise during which local users of small
232 reservoirs were asked to identify the three main benefits they derived from small reservoirs.
233 Some benefits are clearly linked to irrigation development (e.g. improved food security,
234 enhanced productive activities, and improved income) but the local population value small
235 reservoirs for other reasons too. For instance, small reservoirs are said to improve water
236 availability for livestock and domestic uses, thus limiting migration, and to play a positive role
237 on women's position within their household –notably because they can spend less time fetching
238 water and turn towards other activities. The surveys revealed that small-scale water users and
239 most marginal groups (e.g. the poor, youth, women, and fishermen) tend to derive and value
240 basic benefits (such as bathing, small handicraft activities and improved domestic water supply)
241 more than livestock farmers and agriculturalists. They also face difficulties to reap direct benefits
242 from small reservoirs when intensive cultivation becomes the main goal and give relatively
243 lower satisfaction scores when irrigation takes place. Performance ratings and satisfaction levels
244 depend on the vantage point of the actor considered and are a reminder of the need and
245 difficulties to coordinate multiple users and social groups around a common resource such as a
246 small reservoir. To address this issue of equity and integration, Water User Associations have
247 long been promoted as the legitimate entities to manage and maintain small reservoirs.

248 *Insert table 1 around here*

249 **Water User Associations: Way forward or sideways?**

250 To counter problems associated with alleged poor performance, the current blueprint for small-
251 scale irrigation development is one of participatory community-led projects. In many instances,

252 this has been equated by development partners and national governments to the establishment of
253 Water User Associations (WUA), which, by overseeing the maintenance and management of
254 small reservoirs would enhance their performance and guarantee their long term sustainability
255 (for instance, IFAD 2001, 2009). In most cases, however, WUAs remain promoted by outsiders,
256 on the basis of (inter)national policy reforms, rather than being the expression of a collective
257 decision making process emerging from the community (Garces-Restrepo et al. 2007). The
258 performance and success of small-reservoir projects is now partly determined by the numbers of
259 WUA that are set up alongside construction/rehabilitation works. Extension agents support the
260 view that the presence of a WUA is positively correlated to good performance of small reservoirs
261 (the proportion of WUAs among well performing reservoirs is higher than among poor
262 performing ones; Figure 2, left panel). On the other hand, in absolute terms and among the good
263 performing reservoirs (a score equal to or greater than 3), there are as many small reservoirs with
264 as without WUAs. This implies that the presence of a WUA is neither a pre-requisite nor a
265 guarantee for good performance, as often assumed by development projects that consider the
266 existence of a user organisation as a precondition to further intervention (see for instance IFAD
267 2001). Further, figure 2 (right panel) shows that, on average, the same extension agents consider
268 that only one to two thirds of the existing WUAs are effective in terms of small reservoir
269 management and as an arena to express and voice the concerns of local users. Finally, among the
270 24 detailed Ghanaian case studies, there was no clear correlation between the level of satisfaction
271 of local users and the presence or absence of a WUA. Despite conflicting evidence, WUAs (as
272 all development models) have acquired a positive discursive resonance that contributes to
273 framing the perception of agricultural extension agents. Rather than creating the conditions for
274 collective action and sustainable management of infrastructure, the WUA has become an

275 institutional fix. WUAs are inherently good and a testimony of good performance, regardless of
276 the processes followed for their establishment and of their outcomes. By articulating a positive
277 view of WUAs, extension agents provide a rationale for national governments and development
278 partners (who are themselves embedded in a rhetoric of participation) to fund further small
279 reservoir projects from which they will ultimately benefit too through the activities they induce
280 such as awareness building, training, farmers field school, etc.

281 *Insert Figure 2 around here*

282 We suggest here that in their insistence to establish “one-mode-fits-all” (the WUA) as a
283 panacea, small reservoir projects embody narrow visions of the commons and participation as
284 they overlook the pluralist nature (i.e. multiple institutions and co existence of value-systems) of
285 common property resource management. This is not to say that WUAs do not have a role to play,
286 but that major shortcomings (both procedural and structural) still remain for them to fully
287 contribute to the sustainable governance of small reservoirs. For instance, development partners
288 still consider local actors as recipients or ‘beneficiaries’ rather than participants with agency in a
289 community-led project. When stating that “*the failure to complete the appraisal target [was]*
290 *partly due to the time wasted ‘sensitizing’ the communities*” (IFAD 2009:291), project designers
291 show the little value they give to interacting with communities and considering local priorities
292 over the need to achieve targets.

293 Structurally, WUAs appear to convey the experiences, perceptions and priorities of some
294 segments of the population only. 85% of the existing WUAs were centred on downstream

295 irrigators; less than half accounted for other small-scale water users or women⁸ –who rarely hold
296 any executive position. This is because the establishment of WUA is generally handled by
297 agricultural extension agents or development project workers who value intensive irrigation over
298 less productive small scale water uses (see above) and tend to use already structured groups
299 (such as farmer based organisations) to facilitate the process. Further, downstream irrigated areas
300 with their water intakes and network of canals visibly structure the landscape. This makes them
301 appealing as a basis to set up social organisations whose membership mimics the infrastructure.
302 Involving other users who operate on a more individual basis (upstream irrigators) or use small
303 reservoir water with a less clear pattern (livestock farmers who often belong to different ethnic
304 groups and are more mobile) or to a lesser extent (fishermen, brick makers, craft men and
305 women) and have less clout within the community would require an in-depth understanding of
306 local rural systems. This is made difficult given the tight schedule externally imposed by project
307 design. In Burkina Faso, spontaneous irrigation upstream of small reservoirs likely accrues a
308 larger aggregated area than the official (and planned) small reservoir based gravity irrigation
309 downstream of dams (Venot et al. 2012). Yet, upstream irrigation (which is generally pump
310 based) mostly remains ‘un-institutionalized’ and spontaneous irrigators are seen as ‘pirates’
311 deriving water they are not entitled too. Like other small scale water users, upstream irrigators
312 are rarely members of, nor do they feel accountable to, the WUA (if it exists). Typically, they do
313 not contribute to maintenance activities or meetings and do not pay water fees. As they remain
314 centred on downstream irrigation, WUAs appear ill-equipped to deal with the crucial issue of

⁸ Land ‘ownership’ (rather than land access and use right) remains a major criteria (whether officially or not) to determine WUA membership, thus de facto excluding women in many cases.

315 water allocation in multipurpose water systems such as small reservoirs. This, in turn, makes
316 them little attractive to downstream irrigators themselves.

317 At a broader level, the current approach to the establishment of WUAs largely overlooks
318 the pluralist nature of common property resources management even though agricultural
319 extension agents identify no fewer than seven types of actors contributing to the management of
320 small reservoirs. These actors, organisations and institutions are said to assume different and
321 complementary roles along the project cycle (Figure 3, Table 2).

322 *Insert figure 3 around here*

323 That extension agents consider the management of small reservoirs to be pluralistic appears
324 clearly in the answer to the question ‘*who is the main decision maker regarding the small*
325 *reservoirs located in the community?*’ In 60% of the cases extension agents singled out one type
326 of actor but also mentioned that others had a role to play; only 40% of the extension agents
327 identified a single actor when answering to the question. Water committees (e.g. WUAs) were
328 identified as the main decision making body over small reservoirs in about one third of the cases
329 (alone or with others), and their main tasks were considered as minor maintenance and daily
330 management (Table 2) once small reservoirs are built/rehabilitated. Though they often exist
331 ‘prior’ to construction works, WUAs and water users appear to have little say in the early stages
332 of the projects when issues such as design and siting are discussed (these remain the remit of
333 line ministries and contractors; Table 2). Line ministries and government agencies are rarely
334 identified as the main decision makers (5%) but their role in procurement and construction
335 processes and in supporting farmers (extension, marketing) is seen as crucial (Table 2). In
336 Ghana, extension agents are statutory members of WUAs hence providing an instance of
337 institutional *bricolage* in which administrative and consultative frameworks are negotiated

338 (given the caveat of WUAs discussed above). The importance conferred to traditional authorities
339 and the community as a whole, identified as the main decision makers over small reservoirs in
340 23% and 22% of the cases, respectively, is another example of institutional *bricolage* at play.
341 WUAs often count (officially or not) a member of the traditional authorities among their
342 executive members hence providing for a continuous negotiation between so-called ‘traditional’
343 and ‘modern’ institutions and values. On the one hand this can lend power to the WUA when it
344 comes to settling disputes, resolving conflicts, maintaining social cohesion, and dealing with
345 land allocation and redistribution issues (Table 2; see Lund,2009). On the other hand, this might
346 lead to elites cornering responsibilities and associated benefits. Finally, local government
347 institutions appear to be marginally involved in small reservoir matters –mostly in relation to the
348 very political issue of site selection. They officially have a role to play in supervising project
349 implementation as a way to ensure downward accountability but this rarely happens.

350 *Insert table 2 around here*

351 **Conclusion**

352 The renewed attention to the agricultural sector as a driving force of development, notably in
353 sub-Saharan Africa, has led to a restored interest of the international community in agricultural
354 water management, and more specifically in irrigation, as an option for poverty alleviation and
355 livelihood improvement. Multipurpose water systems such as small reservoirs are now geared
356 towards the efficient use of land and water resources. This is exemplified by the priority given to
357 irrigation over other practices such as livestock watering, fishing, small handicraft, and domestic
358 uses that are generally considered as less productive, yet, are central to rural livelihoods.

359 Drawing lessons from past shortcomings partly due to too narrow a focus on infrastructure
360 construction, development projects have adopted a much broader approach deemed at being

361 inclusive of participation and institution building. Drawing from new institutional economics
362 (Ostrom 1992), development practitioners have associated participation processes with clearly
363 defined groups of resource users and structures of authority, rigorous application of graduated
364 sanctions, and transparent decision-making that is codified in written records (Cleaver 2000). In
365 the irrigation sector, these principles have been embedded in a specific form of organisation, the
366 Water User Association, which has been framed as a true panacea over the last 30 years despite
367 mounting critiques and mixed results (Mollinga 2004, Meinzen-Dick 2007, Shah, 2011).

368 We argue that Water User Associations mostly remain conduits serving the efficiency and
369 productivity paradigms, hence specific actors (generally downstream irrigators). Current
370 practices to the establishment of WUAs (for the sake of meeting pre-defined targets, as is still
371 too often the case) convey an over-formalized approach to water resources governance that
372 overlooks the pluralist nature of common property resources management and the multiple
373 arenas through which participation, authority, legitimacy and accountability are continuously
374 negotiated among multiple actors. Understanding and enhancing relationships between WUAs
375 and other entities has been identified as crucial early on (Uphoff 1986, Chambers 1988), but the
376 Burkinabe and Ghanaian case studies discussed in this paper show that this is still rarely the case.
377 There is, for example, a major disconnect along the project cycle. WUAs and more generally
378 users seem to be restricted to routine operations while external actors (government, donors and
379 NGOs staff) keep the upper hand on project's design hence de-facto deciding 'what is good for
380 the communities'. Local government institutions appear very little involved in small reservoir
381 matters and mostly for political reasons rather than to ensure downward accountability.
382 Development projects tend to overlook complexity and pluralism, yet, organisations and
383 institutions involved in the management of small reservoirs appear to be intertwined as

384 illustrated by the fact that agricultural extension agents and traditional authorities are part and
385 parcel of the workings of WUAs hence defining an institutional landscape that challenges
386 dichotomies such as ‘administration/consultation’ or ‘modern/traditional’.

387 Based on the existing literature, section 2 of the paper identified four core shortcomings of
388 current approaches to PIM/WUA, that is, that they remain externally triggered, fail to address
389 rent-seeking behaviours, adopt a too narrow focus on farmers and overlook the interplay between
390 water users and the administration, and lack context specificity. Small reservoir projects in
391 Ghana and Burkina Faso make no exception. We do not suggest here that attempts at institutional
392 building are doomed to failure. Rather, following Cleaver and Franks (2005) who diagnose that
393 institutions partly elude design, we argue that addressing the four above shortcomings starts by
394 better understanding social relationships and existing processes of decision-making. This implies
395 triggering co-learning among different actors as a basis of a polycentric accountability structure
396 that would create the conditions for genuine involvement of rural communities at project design
397 (when multiple agricultural water management options can be discussed), during implementation
398 monitoring (supervision of works), and finally for the elaboration of institutional arrangements
399 for the management of multi-purpose water systems such as small reservoirs.

400 Multi-purpose water systems appear to be embedded in competing institutional dynamics
401 such as decentralisation reforms, the formalisation of participation and the changing roles of
402 traditional authorities and public administration. Understanding this pluralism, and the *bricolage*
403 it gives rise to, acquires a singular significance in the African context where public authority is
404 not the exclusive possession of government or other formal institutions but is rather shaped
405 through the day-to-day encounters between multiple actors.

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413 **References**

- 414 Abernethy, C. L. and Sally, H., 2000. Experiences of some government-sponsored organisations
415 of irrigators in Niger and Burkina Faso, West Africa. *Journal of Applied Irrigation*
416 *Science*, 35 (2), 177-205.
- 417 Andersson, K. and Ostrom, E., 2008. Analyzing decentralized resource regimes from a
418 polycentric perspective. *Policy Sciences*, 41(1), 71-93.
- 419 Birner, R.; McCarthy, N.; Robertson, R.; Waale, D. and Schiffer, E., 2010. Increasing access to
420 irrigation: lessons learned from investing in small reservoirs in Ghana. *Agricultural*
421 *services, Decentralization, and Local Governance*. June 3, 2010, Accra-Ghana.
- 422 Blaikie, P., 2006. Is small really beautiful? Community-based natural resource management in
423 Malawi and Botswana. *World Development*, 34 (11), 1942-1957.
- 424 Chambers, R., 1988. *Managing canal irrigation*. New Delhi: Oxford and IBH Publishing Co.
- 425 Chambers, R.; Pacey, A. and Thrupp, L.A., 1989. *Farmer first*. London: Intermediate
426 Technology Publications.
- 427 Cleaver, F., 2000 .Moral ecological rationality, institutions and the management of common
428 property resources. *Development and Change*, 31, 361-383.
- 429 Cleaver, F. and Franks, T., 2005. *How institutions elude design: River basin management and*
430 *sustainable livelihoods* [online]. Bradford Centre for International Development Research
431 Paper 12. Bradford, UK: University of Bradford.
- 432 Edmunds, D. and Wollenberg, E., 2001. A Strategic Approach to Multistakeholder Negotiations.
433 *Development and Change*, 32, 231-253

- 434 Faulkner, J.W.; Steenhuis, T. ; van de Giesen, N. ; Andreini, M. and Liebe, J., 2008. Water use
435 and productivity of two small reservoir irrigation schemes in Ghana's Upper East Region.
436 *Irrigation and Drainage*, 57, 151-163.
- 437 Garces-Restrepo, C.; Vermillion, D. and Muñoz, G., 2007. *Irrigation management transfer:
438 Worldwide efforts and results*. FAO Water Reports 32. Rome: FAO.
- 439 GoG (Government of Ghana). 2010. National irrigation policy, strategy and regulatory measures.
440 Accra, Ghana: Government of Ghana.
- 441 Gyasi, K.O., 2005. Determinants of success of collective action on local commons-An empirical
442 analysis of community-based irrigation management in Northern Ghana. Frankfurt,
443 Germany: Peter Lang.
- 444 IFAD (International Fund for Agricultural Development), 2001. *Thematic study on water user
445 associations in IFAD projects- Volume I: Main Report*. Rome: IFAD.
- 446 IFAD., 2009. *The republic of Ghana Northern Rural Growth Programme (NRGP)-Design
447 document appraisal- Volume 2: Working Papers 1-5*. Rome: IFAD.
- 448 Jenkins, R., 2001. Mistaking "governance" for "politics": Foreign aid, democracy and the
449 construction of civil society. In S. Kaviraj and S. Khilnani, eds. *Civil society: History and
450 possibilities*. Cambridge: Cambridge University Press, 250-268.
- 451 Lund, C., 2009. Recategorizing 'public' and 'private' property in Ghana. *Development and
452 Change*, 40(1), 131–148.
- 453 Martin, E. and Yoder, B., 1986. *Institutions for irrigation management in farmer-managed
454 systems: Examples from the hills of Nepal, Digana village*. IWMI Research Report 5.
455 Colombo, Sri Lanka: IIMI.
- 456 Mdemu, M.V.; Rodgers, C.; Vlek, P.L.G. and Borgadi, J.J., 2009. Water productivity (WP) in
457 reservoir irrigated schemes in the upper east region (UER) of Ghana. *Physics and
458 Chemistry of the Earth*, 34, 324-328.
- 459 Meinzen-Dick, R., 1996. Farmer participation in irrigation: 20 years of experience and lessons
460 for the future. *Irrigation and Drainage Systems*, 11, 103-118.

461 Meinzen-Dick, R., 2007. Beyond panaceas in water institutions. *Proceedings of the National*
462 *Academy for Sciences*, 104(39), 15200-15205.

463 Merrey, D.J., Meinzen-Dick, R., Mollinga, P.P. and Karar, E., 2007. Policy and institutional
464 reform: The art of the possible. In D. Molden, eds. *Water for Food, Water for Life: A*
465 *Comprehensive Assessment of Water Management in Agriculture*. London: Earthscan;
466 Colombo: IWMI, 193-231.

467 Merrey, D. and Cook, S., 2012. Fostering institutional creativity at multiple levels: Towards
468 facilitated institutional bricolage. *Water Alternatives*, 5(1), 1-19

469 Molden, D., Burton, M. and Bos, M.G., 2007. Performance assessment, irrigation service
470 delivery and poverty reduction: Benefits of improved system management. *Irrigation and*
471 *Drainage*, 56, 306-320

472 Mollinga, P.P., 2008. Water, politics and development: Framing a political sociology of water
473 resources management. *Water Alternatives*, 1(1), 7-23.

474 Mollinga, P.P.; Doraiswamy, R. and Engbersen, K., 2004. Capture and transformation:
475 participatory irrigation management in Andhra Pradesh, India. In: P.P. Mollinga and A.
476 Bolding, eds. *The politics of irrigation reform: Contested policy formulation and*
477 *implementation in Asia, Africa and Latin America*. The Netherlands: Ashgate.

478 Mukherji, A.; Fuleki, B.; Shah, T.; Suhardiman, D.; Giordano, M.; and Weligamage, P., 2009.
479 Irrigation reforms in Asia: A review of 108 cases of irrigation management transfer. Final
480 report to Asian Development Bank. Colombo, Sri-Lanka: IWMI.

481 Ostrom, E., 1992. *Crafting institutions for self-governing irrigation systems*. San Francisco, CA:
482 Institute for Contemporary Studies.

483 Ostrom, E.; Janssen, M.A. and Anderies, J.M., 2007. Going beyond panaceas. *Proceedings of the*
484 *National Academy for Sciences*, 104(39), 15176-15178.

485 Rap, E., 2006. The success of a policy model: Irrigation management transfer in Mexico. *Journal*
486 *of Development Studies*, 42 (8), 1301-1324.

487 Sally, H.; Léville, H. and Cour, J., 2011. Local water management of small reservoirs: lessons
488 from two case studies in Burkina Faso. *Water Alternatives*, 4(3), 365-382.

489 Shah, T., 2011. Past, present, and the future of canal irrigation in India. *In* India Infrastructure
490 Report 2011 –Water: Policy and performance for sustainable development. New Delhi:
491 Oxford University Press.

492 Shah, T.; van Koppen, B.; Merrey, D.; de Lange, M. and Samad, M., 2002. Institutional
493 alternatives in African smallholder irrigation: Lessons from international experience with
494 irrigation management transfer. IWMI Research Report 60. Colombo, Sri Lanka: IWMI.

495 Suhardiman, D., 2008. Bureaucratic designs: The paradox of irrigation management transfer in
496 Indonesia. Thesis (PhD). Wageningen University.

497 UNESCO-WWAP, 2006. Water a shared responsibility. Paris, France: UNESCO; New York,
498 USA: Berghahn Books.

499 Uphoff, N., 1986. *Improving international irrigation management with farmer participation:
500 Getting the process right*. Boulder, CO: Westview Press.

501 Venot, J.P.; Andreini, M. and Pinkstaff, C.B., 2011. The political economy of water resources
502 development: The case of small reservoirs in Ghana. *Water Alternatives*, 4(3), 399-423.

503 Venot, J.P.; de Fraiture, C. and Nti-Acheampong, E., 2012. *Revisiting dominant notions: A
504 review of costs, performance and institutions of small reservoirs in sub-Saharan Africa*.
505 IWMI Research Report No. 144. Colombo, Sri-Lanka: IWMI.

506 Wollenberg, E.; Anderson, J. and López, C., 2005. *Though all things differ: pluralism as a basis
507 for cooperation in forests*. Bogor, Indonesia: CIFOR.

508 World Bank, 2007. *World Development Report 2008*. Washington D.C.: The World Bank.

509 Wegerich, K., 2008. Blueprints for water user associations' accountability versus local reality:
510 evidence from South Kazakhstan. *Water International*, 33(1), 43-54.

511 Yoder, R., 1994. *Locally managed irrigation systems: Essential tasks and implications for
512 assistance, management transfer and turnover programs*. Colombo, Sri-Lanka: IIMI.
513

514 Table 1. Multiple benefits of small reservoirs in Northern Ghana

Three highest ranked “benefits” per category	Frequency
Basic benefits	
<i>Improved food security</i>	58%
<i>Bathing</i>	58%
<i>Improved access to domestic water (drinking/cooking)</i>	55%
Social benefits	
<i>Enhance women’s position within the household</i>	45%
<i>Recreation</i>	41%
<i>Reduced migration (for domestic/livestock watering)</i>	40%
Economic benefits	
<i>Improved water availability for livestock</i>	70%
<i>Enhanced productive activities (fisheries, brick making, irrigation)</i>	58%
<i>Improved income from productive activities</i>	49%
Environmental benefits	
<i>Limiting floods</i>	38%
<i>Improved greenness and increase bio-diversity</i>	38%
<i>Improved weather conditions (freshness)</i>	29%

515 Note: Results are based on 338 interviews with users (livestock farmers; men, women and young

516 agriculturalists, and fishermen) of 16 small reservoirs located in the north of Ghana.

517 Source: This study

518 Table 2. Repartition of responsibilities regarding small reservoirs management

	Line ministries	Donors	Contractors	Local government	Traditional authorities	User committees /WUA	Community	Farmers	Others
Sitting/Design/Construction	39%	5%	30%	6%	3%	2%	4%	2%	3%
Major maintenance	41%	13%	6%	18%	2%	8%	4%	3%	3%
Minor maintenance	4%			5%	4%	34%	46%	6%	3%
Setting of management rules	4%			4%	23%	40%	23%	6%	2%
Implementing/monitoring rules	5%			4%	12%	47%	24%	6%	4%
Relation with other actors	14%	1%		10%	11%	39%	19%	3%	5%
Conflict resolution	6%			9%	60%	22%	13%	1%	2%
Environmental protection	9%			4%	9%	33%	34%	10%	3%
Extension role	69%	2%		2%	2%	5%	2%		6%
Agricultural practices and marketing	12%			1%	4%	12%	13%	49%	6%

519 Note: Extension agents identified several actors as having some sort of responsibilities regarding
 520 each specific task hence the sum of percentages exceeds 1 for any specific tasks (lines). Data was
 521 collected for 197 and 321 small reservoirs in Burkina Faso and Ghana, respectively.

522 Source: This study

523

524 **Figure captions**

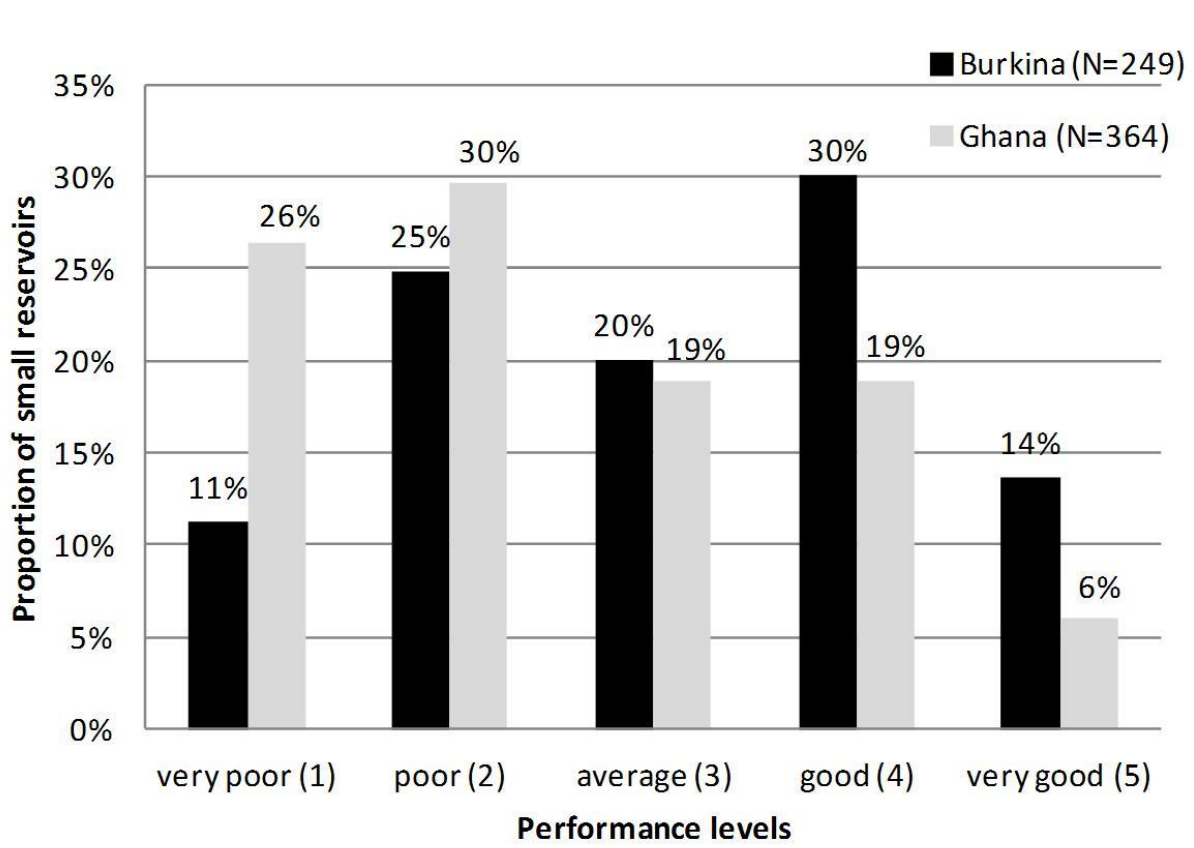
525 Figure 1. Small reservoirs performance levels: The point of view of extension agents.

526 Figure 2. Linking Water User Associations and performance of small reservoirs

527 Figure 3. Pluralism in the governance of small reservoirs in Ghana and Burkina Faso (N=410)

528

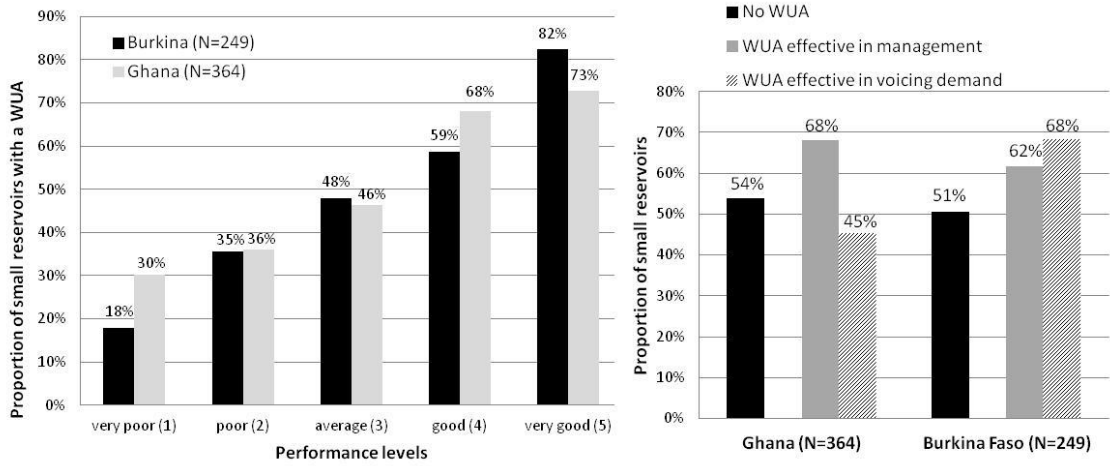
529 **Figure 1**



530

531 Source: This study

532 **Figure 2**

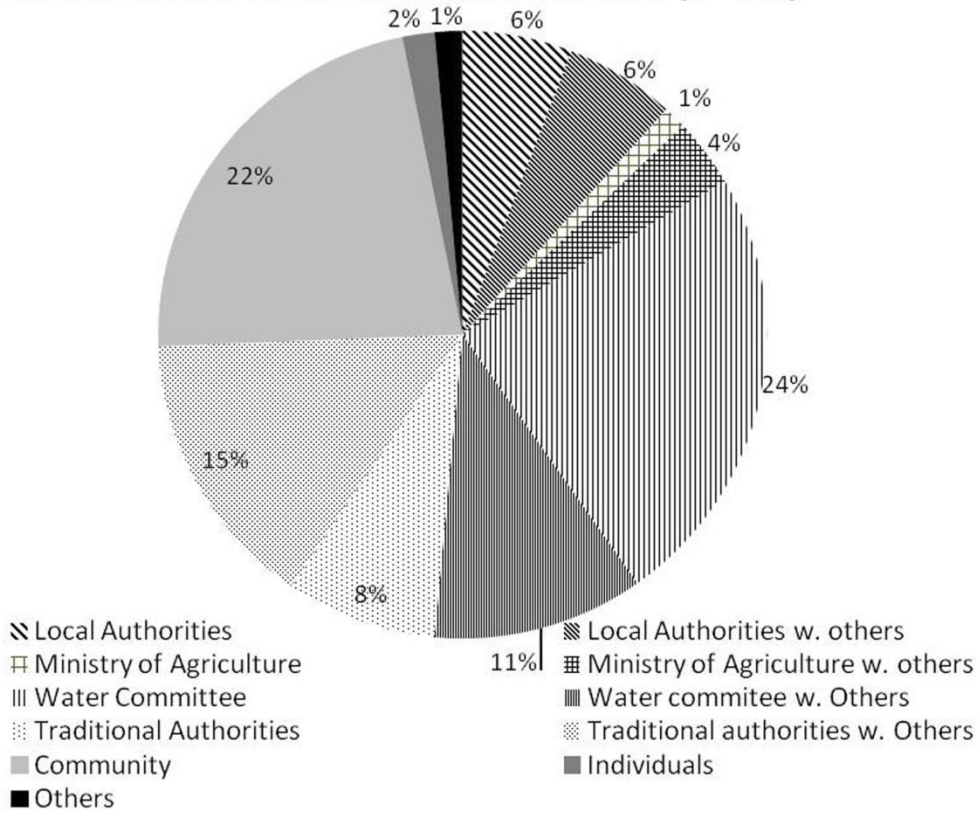


533

534 Source: This study

535

Actors deemed important regarding the management of small reservoirs in Ghana and Burkina Faso (N=410)



537

538 Source: This study