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GRADATION OF STAKEHOLDER PARTICIPATION IN WATER RESOURCES MANAGEMENT IN THE DENSU BASIN IN GHANA¹

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Abstract

The literature shows that degrading water resources is partly due to the lack of stakeholder participation in its management. It also underscores that intensive stakeholder participation is vital for democracy, good governance, and sustainable development in water resources management. However, the gradation of stakeholder participation in water resources management has not been widely studied. I applied the extended ladder of participation in water resource management in the Densu Basin in Ghana. I collected data through 123 interviews and 26 focus group discussions in addition to an examination of policy and legal documents on water resource management. My findings show that the activities that affect the lives of the communities influence the intensity of their participation in the Densu Basin. I therefore recommend that for local people to manage their water resources sustainably

and intensively, government and non-governmental agencies must link management activities with local livelihoods and create awareness of the importance of the ecosystem to community sustenance. My findings again show that inducing communities through economic incentives is only appropriate for short term water resource management needs as such incentives cannot be sustained. However, an approach that stimulates communities to participate through their own initiatives after being helped to identify their needs is likely to lead to intensive and sustainable participation in water resource management.

Keywords: community participation; Densu Basin; participation intensity; water policy; water resources management.

Introduction

Despite several global events such as the World Water Forums, culminating in several declarations and agreements, water resources continue to be degraded (Islam, Ahmed, Raknuzzaman, Habibullah -Al- Mamun & Islam, 2014; Su, Xiao, Mi, Xu, Zhang & Wu, 2013). Examples are the polluted rivers of Pasir and Juru in Malaysia (Al-Shami, Rawi, Ahmad, & Nor, 2010) and the Haihe River in China (Grung et al., 2015). The degradation of water resources is believed to be partly due to the top-down approach to water resources management process (Pahl-Wostl, 2007). Carmona, Varela-Ortega and Bromley (2011); Neef (2008); Özerol and Newig (2008); Reed (2008); Von Korff, d'Aquino, Daniell and Bijlsma (2010) see that public or stakeholder participation is important in the management of water resources. Also, water resource management-related policies require the knowledge, experience, and opinions of local communities who are the 'key stakeholders' in resource conservation (Neef, 2008; Reed, 2008). Nalweyiso, Waswa, Namiyingo and Nangoli (2015); Nangoli, Namiyingo, Kabagambe, Namono, Jaaza

and Ngoma (2016); Usadolo and Caldwe (2016) argue that the extent of participation of different stakeholders in projects is important irrespective of the type of project. This has resulted in the call for stakeholder participation in both the policy and scientific worlds as a way to enhance the effectiveness of the management of water resources.

Degrading water resources is also an issue in Ghana. Ghana has adopted the subsidiarity principle, which requires that decision making in water management commences at the lowest appropriate level, as one of the guiding principles of her National Water Policy (MWRWH, 2007).² Hence, the Water Resource Commission (WRC) in Ghana, as part of its mandate, transferred specific water management functions to a lower level and established river basin boards.

I selected the Densu Basin as a case study due to several reasons. The reasons relate to the fact that Densu was the first basin to have a water resource management board in Ghana, established in March 2004 (WRC, 2011). The WRC used the basin as a pilot project on stakeholder participation in decentralised water resources management to

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² The subsidiarity principle is contained in the second Integrated Water Resources Management principle of the participatory approach adopted by the Dublin Conference on Water and Environment in 1992 (Fatch et al., 2010).

be replicated in other basins in the country (WRC, 2007). Aside being the first basin, Densu is the second most significant source of water supply for the largest city and the capital of Ghana, Accra; and it is one of the most exploited river basins in Ghana. Various activities including clearing of spaces for human settlements, agricultural, commercial and industrial activities degrade the river and the land in the basin (Abrahams & Ampomah, 2011; Afful, Anim, & Serfor-Armah, 2010; Amoako, Karikari & Ansa-Asare, 2011; Hagan et al., 2011; Karikari & Ansa-Asare, 2009; Kusimi, 2008; Tay & Kortatsi, 2008). I, therefore, seek to examine how stakeholder participation is carried out in the management of water resources in the Densu Basin. I also examine the extent of community participation in the management of water resources in the Densu Basin using the extended ladder of participation. The extended ladder is an integration of related concepts of participation (Anokye, 2013). This gives me multiple ways of analysing levels of engagement concurrently. Besides, I assess the effectiveness of stakeholder participation in water resource management in the Densu Basin.

The Densu River is part of the coastal river system in Ghana, and it covers an area of about 2600km² (Abrahams & Ampomah, 2011). Geographically, the basin spans the Eastern, Greater Accra, and Central regions and provides water for domestic, industrial, and agricultural purposes. It also provides income and food for most people (WRC, 2007). Small-scale gold mining activities are common in the East Akim District; and stone quarrying, and sand winning operations are carried out around Koforidua in the New Juaben Municipality, Nsawam in the Akwapim South Municipality and many localities in the Ga West and South Districts (Amoako et al., 2011). A study on this basin can be integrated into policy efforts in the replication of stakeholder participation in water resource management elsewhere in the country. Of importance is the possible lessons that experiences in the Densu Basin might offer concerning how stakeholder participation enhances water resource management.

I have put the paper into six main sections; in the next part of the article, the second section, I relate the concepts of participation. I follow this up with the methodology in the third section. I discuss the regulatory framework in the water sector in section four by analysing the water policy under the structure of the extended ladder of participation. I then present the experience of participation in water

management in the Densu Basin in section five before concluding in the last section.

Concepts of stakeholder participation

Some authors refer to stakeholder participation as the provision of inputs such as knowledge, values, and preferences into the decision and policy-making processes (De Stefano, 2010; Rowe & Frewer, 2016; 2004). Others see participation as the power in the hands of stakeholders (Arnstein, 1969; Soneryd, 2004; World Bank, 1996) and as the provision of tangible resources such as money, labour or materials in implementation processes of development projects (Lise, 2000; Prokopy, 2005; Resurreccion, Real, & Pantana, 2004). Another aspect is sharing in the benefits of the outcome (Lise, 2000; United Nation, 1979 as cited in Desai, 2008) or sharing resources (Blackburn, Chambers, & Gaventa, 2002). I regard stakeholder participation, in this paper, as a contribution of inputs into decision/policy-making processes. I also consider participation as the act of influencing decision-making and implementation processes; as involvement in the sharing of benefits or costs of outcomes; or as the contribution of physical inputs into implementation processes.

There are different gradations of stakeholder participation (Barreteau, Bots, & Daniell, 2010; Rowe & Frewer, 2016). However, Arnstein's (1969) ladder of participation is the most often cited. It consists of three primary levels further divided into eight sub-levels. It is Arnstein's (1969) ladder that I derive the different levels of participation because it is based on power differentials where power held by stakeholders increases from the level of receiving information to citizen control. I put the gradation into four levels: mis-participation, tokenism, less intensive participation, and intensive participation.

The intensity or level of participation is dictated by the power level of the stakeholders (Buchy & Hoverman, 2000), the role they play (Hare, Letcher & Jakeman, 2003) or the degree to which they are involved in decision/policy making and implementation processes (De Stefano, 2010). Generally, the intensity increases along a continuum from mis-participation to intensive participation (see Table 1).

Participation is intensive when stakeholders have greater involvement and power over decision-making processes (Reed, 2008); making final decision (Nangoli et al., 2016; Yee, 2010); playing active role (Nangoli et al., 2016); initiating and/or taking actions that are stimulated by the stakeholders' own thinking and deliberations (Chukwuma, 2016).

As power to influence decision making reduces, participation is said to be less intensive (De Stefano, 2010). That is, middle-level participation includes consultation to obtain feedback (AccountAbility, 2015; Arnstein, 1969; Nangoli et al., 2016; Yee, 2010).

The next significant level down the ladder of participation is tokenism. It involves the provision of information (Yee, 2010). The 'information' level includes a one-way flow of information, top-down, from decision-makers to the public. Tokenism is also associated with the definition

of participation where stakeholders participate in minor tasks (Chukwuma, 2016) or provide physical inputs such as labour and security into the implementation process (Chukwuma, 2016; Prokopy, 2005). Participation is misapplied at the mis-participation level where stakeholders are persuaded to adopt specific decisions with no opportunity to engage in the decision-making processes (Arnstein, 1969; Kerkhof, 2004). The lower levels of participation, such as tokenism and mis-participation, grant stakeholders limited and no involvement in decision making respectively.

Table 1. Extended ladder of stakeholder participation

Intensity of participation	Indicators	Features of stakeholder participation			
		Goals	Characteristics of the participatory process	Approaches	Outcome
Intensive	Making the final/influencing decision, playing an active part, initiating	Democracy, good governance, ecological Sustainability	Accountability, transparency, inclusiveness, effectiveness	Transformative	Empowerment Ecological improvement
Less intensive	Consultation/providing knowledge	Ecological sustainability	Economic efficiency	Transformative/ instrumental mix	Short-term empowerment
Tokenism	Provision of information, tangible inputs & minor tasks	Project goal	Economic efficiency	Instrumental	Short-term empowerment
Mis-participation		Project goal	No accountability, transparency, inclusiveness	Instrumental	No empowerment

Source: First column adapted from Arnstein (1969). Other sources are: Bekbolotov (2007); Carr et al. (2012); Desai (2008); Enserink and Koppenjan (2007); Hoffet et al. (2012); Kuper et al. (2009); Rabe et al. (2016); Rockman et al. (2015); Von Korff, et al., (2010); Yee (2010).

The goals associated with intensive participation are democracy, good governance, and sustainable development. Participation enhances proper management (Enserink & Koppenjan, 2007) and sustainable development (which has three aspects: environmental/ecological sustainability, economic sustainability, and socio-political sustainability). Good governance and sustainable development, in turn, re-enforce participation (Von Korff, d'Aquino, Daniell, & Bijlsma, 2010). Participation also aims to empower citizens and stakeholders with an appropriate degree of voice to shape the decisions that affect them. Therefore, intensive stakeholder participation is likely to enhance democracy (Rockman, Leeuwen, Goldsborough, Kraan & Piet, 2015), good governance and promote ecological sustainability.

The characteristics of participatory processes include accountability (Carr, Blöschl, & Loucks, 2012), transparency (Kuper, Dionnet,

Hammani, Bekka, Garin & Bluemling, 2009), inclusiveness (Rabe, Osman, & Bachok, 2016) and economic efficiency. These are associated with intensive participation (Office for Coastal Management, 2015). Less intense and token participatory processes are often justified by economic reasons as cost-effective (economic efficiency) (Carr et al., 2012).

One other characteristic of participation is effectiveness. Four main issues stand out in determining participation effectiveness. These are the levels of success (Oakley, 1991); quality of the decision-making process (Van Asselt Marjolein & Rijkens-Klomp, 2002); ownership (Bekbolotov, 2007); and ability to meet the needs of stakeholders (ASTSWMO, 2011; Narayan, 1995). The extent to which an intervention has been successful in achieving its objectives is believed to underscore its effectiveness. Participation enhances project success by allowing stakeholders to make available inputs

of resources such as labour, skills, and knowledge (Oakley, 1991). If stakeholders participate actively in project planning and implementation, they become committed to its success and their acceptance of new policies and technologies outsiders promote increases (ASTSWMO, 2011). Others, for example Bamba (2006) and Bekbolotov (2007), equate effectiveness with an increased sense of ownership. Stakeholders' contribution of resources develops their understanding of project ownership. Finally, effectiveness means meeting the needs of stakeholders. This includes identifying and incorporating community needs (ASTSWMO, 2011). Participation allows (empowers) stakeholders to have a voice in decision-making or in determining project objectives; their involvement, direct or indirect, then may result in a better match between what stakeholders want and what the authorities or projects offer (Narayan, 1995).

The two main approaches to participation are the transformative and instrumental approaches. The transformative approach empowers stakeholders since it entails decision-making autonomy and is associated with intensive participation. This is different from the instrumental approach, which employs participation as a tool for achieving predetermined objectives or enhancing policy outcomes (Hooper, 2005; Neef, 2008). The instrumental approach tends to bring about economic efficiency because there is reduction in project costs as stakeholders expend their energy, monies and other materials. Transformative and instrumental approaches are not mutually exclusive and can co-exist. At a less intensive level, the participatory approach is a mixture of transformative and instrumental approaches. The instrumental approach is employed at low levels of participation – tokenism, and mis-participation.

The outcome of stakeholder participation in water resources management includes socio-political and economic empowerment of stakeholders (Desai, 2008). The socio-political empowerment allows stakeholders to gain some control over policy processes (Garande & Dagg, 2005; Irvin & Stansbury, 2004), thereby rendering participation intensive. It also enables stakeholders to decide and act (Hoffet, Daoud, Alary, Tourrand, & Moselhy, 2012). Economic empowerment increases productive capacity, income or material benefits of stakeholders; and improves livelihoods (Oakley, 1991). Intensive participation of stakeholders is likely to have empowerment outcomes and environmental improvement. Less intensive

participation empowers stakeholders on a short-term basis, and their inputs may or may not influence decisions. Mis-participation has no empowering effect. The integration of the features of participation results in an extended ladder of participation presented in Table 1.

In this paper, I have used the features or concepts of participation (Table 1) to provide a descriptive scale to measure the intensity of participation. I associate intensive participation with stakeholders making final/influencing decision/policy or initiating action; less intensive participation with stakeholders providing knowledge (as a result of consultation) or implementing decisions; and tokenism with stakeholders giving labour.

Methodology

I base this paper on a larger research I carried out in 2009 and 2010. I conducted follow up interviews to update the data in 2016. I used qualitative research methods. The primary data collection methods I used were individual and in-depth key informant interviews, focus group discussions (FGDs), and observation. I also reviewed the national water policy and other legal documents on water management. Other sources of data I used were annual reports and brochures from governmental organisations.

I held in-depth interviews with officials from the WRC and the Densu Basin Office. I also interviewed officials from Community Water and Sanitation Agency (CWSA) and four environmental non-governmental organisations (NGOs) using semi-structured interview guides. I purposively selected the CWSA and the NGOs because they were the principal agencies involved in participatory water resources management in the Densu Basin. Other agencies I selected included the Ghana Irrigation Development Authority (GIDA), the Ghana Water Company Limited (GWCL), the Water Research Institute (WRI), the Forestry Commission (FC), Forestry Services Division (FSD), the Environmental Protection Agency (EPA) and the Agricultural Extension Services. These are government organisations/agencies whose activities have some bearing on water and its resources at the national or basin level. I also interviewed representatives of three District Assemblies (DAs) on the Densu Basin Board.

The WRC, NGOs, DAs, and CWSA organise water resource management activities involving many communities in the Densu Basin so I selected eighteen of these communities. I took into consideration the types of activities that these

communities, agencies, and organisations organised to have a fair representation of the kinds of events. Other variables that influenced my selection were the geographical location (thus upper, middle and lower basins) and the administrative districts.

I covered two regions which occupy a more significant part of the basin in the fieldwork. These are the Eastern and Greater Accra Regions. I selected four districts from the Eastern Region namely: East Akim; New Juaben; Suhum-Krabo-Coaltar (upper basin); and Akwapim South (middle basin). From the Greater Accra Region in the lower basin, I selected Ga West Municipal and Ga South District. The communities I selected were Adderma, Adoagyiri, Adwumapa, Afuaman, Akwadum, Akwatsri, Akyem Asafo, Apedwa-Tema, Densuano, Densuso, Djankama, Kibi Apapam, Miawani, Nankese, Nsakina, Ntaabea, Sakyikrom, and Weija

My key informants were assembly members and the president of the Weija Lake Protection Association (WLPA).³ I interviewed household heads/representatives in the communities individually to find out their perceptions on engaging in participatory activities of water resources management. I also held several FGDs with traditional authorities, community-based organisations (CBOs) such as youth, farmers and fishermen groups, Water and Sanitation Development Boards (WSDBs) and Water and Sanitation (WATSAN) committees. In all, I held 123 interviews and 26 FGDs. Table 2 presents the details of the methodology I used. I processed and analysed the data by transcribing and interpreting the interviews and FGDs. I reviewed policy documents by examining the extent to which stakeholder participation has penetrated the water policy in Ghana.

Table 2. Respondents, sampling and data collection

Categories of respondents	Sampling and sample/group size	Data collection	
		Method & instrument	Year
DBB members	Purposive - 7 representatives of government organisations two at the national level, five at the regional level; 3 representatives of municipal/district assemblies	Interviews using semi-structured interview guides	2010 & 2016
Government organisations	Purposive - 11 national level, seven regional levels, ten district level	Interviews using semi-structured interview guides	2010
NGOs	Purposive - 5 officers from 4 environmental NGOs	Interviews using interview guides	2009 & 2010
Key informants	Purposive - WRC Executive Secretary, Densu Basin Officer, two assembly members, president of WLPA	In-depth interviews using interview guides	2009, 2010 & 2016
Large-scale industrial and commercial water users	Purposive - 8 fruit farms & processors, mineral water producers	Interviews using semi-structured interview guides	2010
Household heads/representatives	67 from 18 purposive selected communities	Interviews using semi-structured interview schedules	2009 & 2010
Total of 123			
FGDs			
4 small-scale vegetable farmers' groups	Purposive: 8-12	FGDs using FGD guide	2010
2 Fishermen's groups	Purposive: 9&12	FGDs using FGD guide	2010
6 WSDBs/WATSAN committees	Purposive: 8-12	FGDs using FGD guide	2010
9 Chiefs & elders; 1 Queen mother & elders	Purposive: 8-12	FGDs using FGD guide	2010 & 2016
4 Environmental youth groups	Purposive: 8-12	FGDs using FGD guide	2010 & 2016 (leaders)
Total of 26			

Source: Field data, 2010; 2016.

³ WLPA is a community-based association at Weija that focuses on protecting the Weija Lake (interview and FGD, 2010). The Weija Lake is an artificial lake created by damming the Densu River at Weija just before it enters the sea. It supplies water to Accra.

The regulatory framework for stakeholder participation in water resources management in Ghana

I applied the extended ladder of participation to analyse the content of the existing regulatory framework and the goals of participation which are democracy, good governance, and sustainable development. As I discussed earlier, participation enhances proper management and sustainable development (ecological sustainability). It is likely also to strengthen democracy. These form part of the extended ladder of participation.

The WRC Act 522, 1996, and a comprehensive national water policy provide the regulatory framework for water resources management in Ghana. The WRC Act 522, section 2(1), requires the WRC to regulate and manage the water resources in Ghana and coordinate government water policies. It needs the engagement of stakeholders in water management at all levels, and it assures participation by authorising the WRC to collaborate with other government agencies, the public, and the private sector. Section 3 of the Act provides for a wide range of stakeholders as members of the WRC Board. These are the primary water user agencies - GIDA, GWCL, CWSA, Volta River Authority (VRA) and Minerals Commission (MC). Others are regulatory agencies - EPA, FC and MC; and water resources planning input providers - Hydrological Services Department (HSD) and WRI. The Act also allows for a representation of traditional leaders, NGOs, and women. However, government representatives and appointees (twelve) far outnumber other representatives (three) (WRC, 2015).

The domestic water policy came into effect in 2007. I examined the water policy to ascertain the inclusion of stakeholder participation and other goals of participation. I note that the policy sees the WRC as the coordinating and regulating body of the water sector. I also note that the policy prioritises efficient management and protection of Ghana's water resources in the light of future development plans. It aims "to reduce vulnerability while assuring good governance for present and future generations" (Ministry of Water Resources, Works and Housing [MWRWH], 2007, p. 16) and "to ensure availability of water in adequate quantities and quality to sustain nature, biodiversity and the aquatic ecosystem" (WRC, 2008, p. 31). Thus, the policy aims at ensuring good governance and ecological sustainability, and these are associated with intensive participation (see Table 1).

I find that eight of the 14 guiding principles

of the national water policy focus on ecological sustainability, participation, good governance, and democracy. These include recognising water as a finite and vulnerable resource, given its multiple uses; improving equity and gender sensitivity; integrating water resources management and development with environmental management to promote sustainability of water resources; adopting the river basin as a planning unit; the polluter pays principle; the subsidiarity principle; the principle of solidarity; and the precautionary principle (MWRWH, 2007).

I realise that the policy proposes measures and strategic actions under various focus areas. I examined them and determined which ones are for promoting: stakeholder participation for sustainable management; good governance and democracy; and ecological sustainability. I have summarised these in Table 3. I conclude that the Ghana water policy recognises intensive stakeholder participation as necessary in water resource management. It accepts the need to ensure ecological sustainability, good governance, and democracy in the use and development of water resources and these are associated with intensive participation.

The experience of stakeholder participation in water resources management in the Densu Basin

I have divided this section into two subsections. In the first subsection, I discuss the interactions among the stakeholders and the practice and intensity of stakeholder participation in water management activities in the basin. Then I assess the effectiveness of the participatory processes in the basin in the second subsection.

The practice and intensity of stakeholder participation

I notice that the national water policy promotes subsidiarity, management at the lowest appropriate level as well as usage of river basins as planning units (MWRWH, 2007). As at 2017, the WRC had established five more river basin boards in other river basins in Ghana besides the Densu Basin Board (DBB). The DBB brings together 16 stakeholders from the public sector. These are relevant government agencies (including the DAs whose jurisdiction covers the more significant part of the basin) working on water or water problems. NGOs and traditional authorities have three positions on the DBB (WRC, 2011). This is supposed to be in line with the policy measure of promoting the participation of local communities

Table 3. Policy measures for sustainable water management in Ghana

Measures promoting the participation of stakeholders	Measures fostering good governance and democracy	Measures promoting ecological sustainability
<ul style="list-style-type: none"> Public participatory mechanism - disadvantaged groups, youth, and local communities Representation of women at all levels Interdisciplinary and participatory research Link data collection & regulatory agencies on water Coordination between MWRWH and Ministry of Local Government & Rural Development 	<ul style="list-style-type: none"> The democratisation of society, through transparent & accountable leadership Adherence to the rule of law and access to information Water Use Regulations, 2001 (L.I. 1692) Cost-effectiveness at all levels in the water sector Accountability and transparency through timely reporting and participatory discussion 	<ul style="list-style-type: none"> Practices that avoid damage to critical natural capital Water resource planning Public-private partnerships for protection and conservation Use of cleaner and efficient technologies Effective waste management and agricultural practices Land degradation control to reduce soil loss and siltation of water bodies

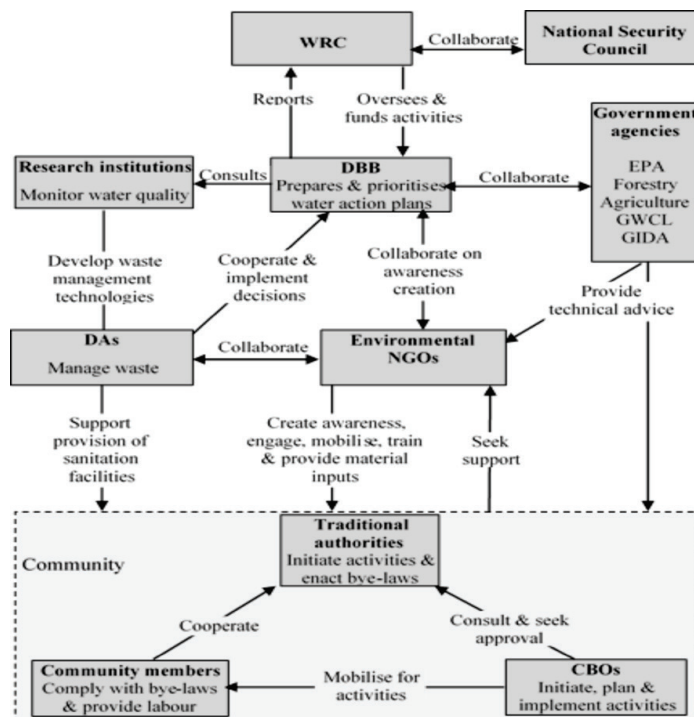
Source: Based on information from MWRWH (2007).

(through their leaders) and inclusiveness (see column one of Table 3, first bullet). However, only one chief is representing all the communities in the basin which has two main ethnic groups: Akans and Gas. The principal agency in the rural water supply is not represented on the DBB. In-depth interviews (2010, 2016) I conducted indicated that the cost of including stakeholders in the participatory processes, in terms of logistics, constrains the DBB's quest for broadening participation.

I discovered that several actors address water pollution and catchment degradation in the basin. They include community leaders (assembly members, chiefs and elders), CBOs, households, the

DAs, NGOs, EPA, GWCL, Forest Services Division (FSD), and the DBB and DBB's Waste Management and Land Use Management Sub-Committees (WMS-C and LUMS-C). Their activities are in agreement with the policy measure of promoting ecological sustainability (Table 3 third column).

I have summarised and illustrated the interactions of the stakeholders in managing water resources in the Densu Basin in Figure 1. The figure shows that DBB reports to WRC at the national level. This conforms with the policy measure of promoting good governance as well as accountability (Table 3 second column).

Figure 1. Interactions of stakeholders in managing water resources in the Densu Basin.

Source: Updated from Anokye (2013).

I examined the intensity of participation using the descriptive scale I mentioned at the end of the second section as well as the participatory approaches and type of empowerment outcome as in the extended ladder of participation in Table 4. I applied the extended ladder of participation to water resource management activities in the Densu Basin. The authorities are those who have power and are also initiators of the projects/activities. The participants are those with less power and the primary stakeholders (the communities, the ones the project/activity or decision affects (Mikkelsen, 2005)).⁴ I assessed the role they performed by using the concepts (features) of participatory approaches and empowerment of the extended ladder of participation as indicators, which tell the

intensity of their involvement.

I learnt that the WMS-C prepares action plans to manage urban waste in particular to reduce water pollution. The LUMS-C oversees the development of work plans to minimise land and water resource degradation and sustain livelihoods (interviews, 2010, 2016). There is a joint decision making by government agencies represented on the sub-committees of the DBB. I infer that the participation of the DBB and its sub-committees is intensive because Rabe, Osman, and Bachok (2016) consider the taking of decisions directly as full participation (see Table 4). The DBB members contribute and share experiences and learn from each other in decision-making processes.

Table 4. Application of the extended ladder to water resource protection activities at Densu Basin level

Activity/project	Key stakeholders			Indicators		Intensity of participation of participants
	Authorities	Participants	Role of participants	Participatory approach & outcome	Criteria	
Tree planting	OCEPB/ CBAG	Communities	Deliberated at meetings to take the decision, provided labour	Transformative, empowerment	Took decisions, initiated action	Intensive
Relocating & evacuation of waste dumps away from water bodies	WRC/DBB	DBB WMS-C	Prepares action plans to manage urban waste	Transformative	Took decisions	Intensive
		DAs	Relocated & evacuated waste dumps away from water bodies	Transformative/ instrumental mix	Implemented decisions	Less intensive
Establishment of commercial tree/fruit crop plantations	ADRA-Ghana	Farmers	Received training & established commercial tree/fruit crop plantation	Transformative/ instrumental-mix Economic empowerment	Long-term economic gain	Less intensive
Communal work - de-silting & clearing weeds around rivers	Traditional authorities	Communities	Provided communal labour	Transformative/ instrumental-mix, no empowerment	Implement decisions	Less intensive
WAC II project - provision of sanitation facilities	UNCHS, WRC	Government agencies, DA, WLPA, community leaders	Identified problems & took decisions at meetings	Transformative Empowerment	Took decisions	Intensive
		Communities	Provided unskilled labour	Instrumental	Provided labour	Tokenism
Afforestation	GOFA/ ADRA-Ghana	Community members	Provided unskilled labour	Instrumental, Short-term empowered	Provided labour	Tokenism
Clearing water weeds to protect the reservoir of water supply	GOFA	Swimmers (communities)	Provided skilled labour	Instrumental Short-term empowerment	Provided labour	Tokenism

Source: Based on field data, 2010.

I learnt that, at the district level, the DAs undertake environmental management. They implement most of the decisions of the DBB (interviews, 2010, 2016). They relocate and evacuate waste dumps away from water bodies. A monitoring team comprising the WRC and the Environmental

Health Officer of Ewutu-Efutu-Senya District obliged the DA to move a refuse dump near the Weija dam at Amezokokpe within six months (interview, 2010). The Akwapim South Municipal Assembly in collaboration with the Ministry of Local Government and Rural Development

⁴Primary stakeholders are the people ultimately affected or expected to benefit from a decision or project directly; or those affected by the problem or its solution (they are usually local communities), while secondary stakeholders are those that influence the decision (Mikkelsen, 2005).

evacuated a massive heap of refuse along the banks of the Densu River at Nsawam (interviews, 2010). I note that the DAs, by representation, legitimise the decisions of the DBB and efficiently comply with the arrangements. This is in tandem with Rabe et al.'s (2016) view that involving stakeholders enhances the acceptance of decisions. I have illustrated the interactions in Figure 1. DAs' participation, I infer, is less intensive (see Table 4). They implement decisions and the participatory approach for them is a transformative/instrumental mix. However, there was a severe water shortage in the Nsawam Adoagyiri Municipality and its environs (lower basin) early 2016 (WRC/Rocha Ghana, 2016). An interview I had with a WRC official (2016) revealed that there had been an increase in indiscriminate activities in the lower basin such as dumping of waste, building in waterways, indiscriminate harvesting of wood, and sand winning. The WRC now collaborates with the National Security Council to undertake regulatory activities in the basin (see Figure 1).

As part of the Water for African Cities (WAC) II project sponsored by the United Nations Centre for Human Settlement (UNCHS [UN HABITAT])⁵, the WRC organised programmes for the Weija Lake communities. These programmes involved the chiefs, the elders and the assembly members of the communities, the WLPA, the Ga West/South Municipal Assembly, and GWCL in taking decisions at meetings on reducing pollution from dumping of liquid and solid waste into the lake. The stakeholders agreed to the provision of covered waste containers to every home; water closets for selected homes; and Kumasi Ventilated Improved Pits (KVIPs)⁶ for public use in four communities around the Weija Lake (interview and FGDs, 2010, 2016). The community representatives agreed that the beneficiary households should provide labour in excavating the septic tanks. The communities participated indirectly through representatives with whom they had regular meetings (interviews and FGD, 2010, 2016). The WRC implemented this project for over two years (2008 to 2010) in partnership with the Ga West Municipal Assembly's waste management department.

The government agencies and the communities in the WAC II project provided inputs that enriched the decisions that were taken, and all the actors embraced these decisions. I consider the community leaders' participation as intensive (see Table 4) because they were empowered to have a say in the decision thereby enhancing democracy which

is in line with Rockman et al.'s (2015) argument.

I find the institutional arrangement at the basin not to promote power-sharing with the communities because the lowest formal level of decision making is the DBB. I realise that the NGOs and government agencies are not inclined to share power with the communities; they believe that community members may not understand issues at that level (interviews, 2010; 2016). They plan and take decisions without the communities. The WAC II project was an exception.

The WRC/DBB partners with NGOs by funding some of the NGOs' activities (e.g. awareness creation and tree planting) to conserve water resources (interviews, 2010) (see Figure 1). An example of such an NGO is the Global Organisation for Fundamental Aid (GOFA), which aims at river protection in the central basin of the Densu. GOFA hires local swimmers with their canoes to clear water weeds from a reservoir at the intake point of the GWCL waterworks at Ntoaso which supplies water to Nsawam and its environs in the central basin. One young man, in an FGD session, commented that "they use to give us money to collect water weeds from the reservoir, but they have stopped. I wish they are coming back". I gather that payments motivate the swimmers, but resources for such payments are limited. The swimmers benefit economically for short-term periods. GOFA's engagement of stakeholders to achieve their project goals is similar to the instrumental approach discussed by Neef (2008). Therefore, I consider the level of participation of the swimmers as tokenism (Table 4). Nevertheless, the removal of water weeds enhances fish production and can benefit fishing communities (interviews, 2010). GOFA's activities may lead to sustainable resource protection if the communities become aware of this issue as this could motivate them to control the weeds long after the payment ceases.

Another example of a short-term, unsustainable project, besides GOFA hiring local swimmers to clear water weeds, was when GOFA organised volunteers (youth groups) from Adoagyiri and Nsawam in the Akwapim South Municipality for a tree planting exercise on weekends between 2001 and 2005 in return for food. It obtained seedlings from the FSD (FGD, interview, 2010). I deduce that GOFA used an instrumental participatory approach to involve the youth and the participation level of the youth was tokenism (Table 4). GOFA could not sustain this approach because of inadequate funding for feeding the volunteers and for obtaining

⁵ The UNCHS' project aims to improve urban water resources management practices in African cities by enhancing awareness, promoting effective policies, programmes and investments at the city level and in critical national and regional institutions (UN HABITAT, 2003).

⁶ Kumasi Ventilation Improved Pit (KVIP) is a pair of pit latrines dug side by side. When the first one gets full the second one is used; allowing the first to decompose and become reusable by the time the second one gets full.

seedlings. The outcome of such participation is akin to the findings of Nangoli et al. (2016). They concluded that stakeholders were not actively involved in a health project in the form of not being consulted, taking up roles and making decisions and this negatively affected sustainability of the project. Notwithstanding, Chukwuma (2016); Nakano and Otsuka (2011); Imoro and Fielmua (2011) established the critical role of high-level community participation in sustainable community projects.

I learned the Adventist Development and Relief Agency (ADRA)-Ghana ran two projects concurrently in the Densu Basin. In the first project (1997-2003), ADRA provided community volunteers, from Densuano and Akwadum in the New Juaben Municipality, in groups of 60 with tree seedlings for planting on the riverside in return for food. ADRA monitored the project. The tree planting ended when the project came to a completion (interviews & FGDs, 2010). In the second project (2003), ADRA assisted groups of 20-25 farmers in the Densu Basin in establishing tree/fruit crop plantations in the Densu area in the Suhum-Krabo-Coaltar District. The farmers received crop seedlings on loan and training on how to plant and care for trees. They intercropped the seedlings with food crops and sold the food crops to pay off the loans. They established the plantations for commercial purposes. The trees were harvested for firewood and for the making of charcoal (interviews & FGDs, 2010).

I realised that the farmers were empowered economically as they could sell the fruits, firewood, and charcoal after harvesting (interviews & FGDs, 2010). The groups of farmers in the second project made a livelihood from the tree/fruit crop plantations. One farmer, a household head commented, "my fruit crop plantation has been of immense support to my family and me. That is what we live on". The trees for firewood and charcoal were the type that grows again at a fast rate after harvesting, so the farmers depended on these as well. I conclude that the project addressed the long-term needs of the farmers by giving them a livelihood. The economic empowerment of these farmers was maintained. However, that of those who were given food-for-work (in the first ADRA project) could not be sustained after the project ended. The design of projects is thus critical for enabling sustainability and empowerment.

The key stakeholders, mainly government agencies (DBB) and NGOs, I note, participate intensively, and the outcome of their participation is

empowerment because they initiate the projects, plan and take decisions (interviews, 2010, 2016). NGOs engage CBOs, community leaders and members in participatory processes using instrumental approaches in achieving project objectives. They were not deciding with the communities; the communities were told what to do. An FGD (2010) confirmed this at Adogyiri that GOFA organised meetings with them and briefed them on what they were to do. This results in low forms of participation by the communities. However, Nangoli et al. (2016) have shown that engaging people in joint decision making leads to the strengthening of existing local institutions. I also note that community participation in the NGO-led activities occurs in the form of provision of inputs (often labour) into projects for protecting water resources, attending meetings and training programs. The intensity of such participation is tokenism. Labour provision is similar to the contractual involvement Barreteau et al. (2010) identified. The NGOs 'contract' the communities leading to token participation. The community members' participation is directly linked to immediate material and economic benefit. Rational choice theory (Scott, 2000) explains this type of participation especially where society is concerned with its immediate needs.

I realise the DBB in collaboration with environmental NGOs such as the Earth Service has been creating awareness and sensitising communities and CBOs on the vulnerability of water resources and why they are to be protected. Few CBOs (e.g. Okyeman Community Environmental Protection Brigade (OCEPB) and Community Biodiversity Advisory Group (CBAG) based at Kibi Apapam) in the Densu Basin take initiatives and are sometimes assisted by NGOs to focus on water resource protection, through tree planting. The OCEPB receives free seedlings, boots, uniforms and other inputs from the Okyehene Environmental Foundation (OEF) (FGDs, 2010). The OCEPB together with CBAG does spot planting of trees in the open spaces of the Atewa forest (the Densu river takes its source from this forest) after consultation and approval from the local chiefs (interviews and FGDs, 2010). The CBOs act based on their thinking and deliberations; I therefore consider their participation as intensive (Table 4). They also collaborate with the Densu Basin office. This is indicated in a quote from the Principal Densu Basin Officer (2016) "The communities are determined to assist in discouraging illegal mining practices which are hurting the Atewa forest." All these practices

relate to the promotion of ecological sustainability demanded by the national water policy (see Table 3 third column, MWRWH, 2007).

I learn there are indigenous ways of managing water resources at the community level through customary practices. Usually, traditional authorities initiate policies to meet locally felt needs and priorities. They organise communal labour often on rest days to de-silt the streams and weed around the rivers. They institute bye-laws that do not allow the dumping of refuse into water bodies and felling of trees along the river banks (FGDs, 2010; interviews, 2016). Community leaders' (traditional authorities) participation is intensive while that of the community members who implement the decision of the leaders is less intensive (see Table 4).

I infer from the findings that, where initiatives are from the communities such as community leaders and CBO initiated projects/activities, the leaders and CBOs are engaged in intensive decision-making processes as they plan and implement their own decisions and learn over time. Their actions, therefore, result from their thinking and deliberations, leading to their empowerment. There is a beneficial learning outcome for CBOs in the participatory processes and that the avenues to create the enabling environment for this to proceed should be encouraged. The community members participate indirectly in decision-making processes through their leaders. The intensity of community participation in this study ranges between tokenism

and intensive participation in the basin.

The effectiveness of participatory processes

An overarching question is whether stakeholder participation has been helpful in water resources management in the Densu Basin. I answer this in reference to earlier review which indicates that participation effectiveness is determined by (a) the level of success - the extent to which a project/activity has been successful in achieving its objectives; (b) the improvement in the quality of the decision-making process; (c) increased sense of ownership; or (d) ability to meet the needs of stakeholders. I use these criteria to determine whether stakeholder participation has been effective in the management of water resources in Table 5.

I show in Table 5 that few of the participatory processes were not helpful in water resources management outcome in the basin. In the WAC II project, I find stakeholder participation not effective in terms of the level of project success due to inadequate financial resources. One interviewee commented that "...the funds were not enough to build an adequate number of toilet facilities for the communities, so indiscriminate defaecation continues" (interview, 2016). In this regard, stakeholder participation does not matter in water resources management outcomes concerning improved water resource protection and water quality when funds are limited.

Table 5. The effectiveness of participatory processes in the Densu Basin

Project/Activity	Effectiveness indicators	Findings/Experiences	Effectiveness
Tree planting - community initiated activities	Quality of the decision-making process	CBOs, chiefs (representing communities) take decisions	Effective
	Meeting the needs of stakeholders	Yes, demand was to protect the water resource	Effective
De-silting small rivers – community, initiated activity	Quality of the decision-making process	Community leaders take decisions	Effective
	Sense of ownership	Increased understanding of ownership	Effective
	Meeting the needs of stakeholders	Yes, prevents flooding	Effective
Tree planting - NGO initiated projects	Level of success in achieving objectives	Trees planted protect rivers from drying up	Effective
	Meeting the needs of stakeholders	Yes, economic empowerment – short & long term	Effective
	Quality of the decision-making process	Not improved	Not effective
Clearing of water weeds - NGO initiated	Level of success in achieving objectives	Successful but not sustainable	Short-term effective
	Quality of the decision-making process	Swimmers not engaged	Not effective
	Sense of ownership	Nil	Not effective
Water for African Cities (WAC) II project - provision of sanitation facilities	Quality of the decision-making process	Inclusive of key stakeholders	Effective
	Level of success in achieving objectives	Pollution reduction expected to be low	Not effective

Source: Based on fieldwork, 2010, 2016.

Notwithstanding the above achievements, I find challenges with these participatory processes. First, the proportion of government stakeholders compared to public stakeholders serving on WRC's board is high, which could tilt decision making in favour of the government (interview, 2010). The membership of the decision-making body in the Densu Basin, the DBB, does not correspond to democratic representation. Of the 18 board members, only three are not from government agencies representing NGOs and traditional authorities. Second, there is no established formal platform for local people to channel their problems and needs and assume their environmental responsibilities. Some are not aware of the need to protect the resource. Hence, they do not demand the incorporation of their interests in the planning agenda as a matter of right. Most community members I interviewed are not even aware of the existence of a basin board and the WRC (interviews, 2010).

Conclusions

I applied the extended ladder of stakeholder participation to the water resource management in Ghana to examine the content of the regulatory framework and management practices in the Densu Basin. Besides, I assessed the effectiveness of stakeholder participation in water resource management in the Densu Basin.

I realise the content of the policy documents shows that the government recognises the importance of stakeholder participation in water management. In the Densu Basin, government agencies and NGOs participate intensively as they play decision-making roles. However, the intensity of community participation in externally (NGO) initiated projects is low and not sustained except when the projects

are linked to their livelihoods. Where management activities target the local interest or concern local livelihoods as in the second ADRA project, community participation is comparatively enhanced and sustained. Self-initiated projects/activities on locally felt needs and priorities such as CBO initiated tree planting activities promote intensive participation of the communities. Economic incentives motivate local people but where they are short-lived participation is not sustained. Therefore, the policy implication is that government agencies and NGOs are to secure processes and practices that can stimulate community initiatives beyond economic inducement.

Based on the findings, I recommend that identification of the collective needs of local people should precede participatory management efforts which should also concentrate on linking management activities with livelihood activities to sustain the participation of various interest groups within the basin. I believe this approach has the potential of empowering people economically. It may also stimulate community interest, initiative and collective action in the long-term protection of the water resources, which in turn will provide them continually with a series of ecosystem services. On a different note, if NGOs (and the state) want local people to manage their resources continuously, it will require the creation of greater awareness of the ecosystem. However, if NGOs want to protect water resources on a short-term basis, then instrumentally engaging local communities is enough. The extended ladder has helped me to assess and link the intensity of stakeholder participation with the empowerment of local communities in water management.

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