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Determinants of Conflicts in Local Water Governance and Implications for Peacebuilding in Water Development

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Abstract

Recent years have witnessed an increasing focus on water as a source of explicit and implicit conflicts. Water-related conflicts are partly attributed to water mismanagement that escalates water stress and conflicts. Despite this development, our current knowledge on local water conflicts within the context of water policy reforms in developing countries is limited. Given the implications of water-related conflicts on human and water security, it is essential to consider the factors influencing local water conflicts as a means to improve conflict prevention and peacebuilding in water development. Using a transdisciplinary mixed methodological approach, this article analyses variables influencing local water conflicts under community-based water management. The variables, found to influence conflicts, are broadly categorized as institutional related factors. Drawing from the results, devolution of responsibilities to local users is necessary but not a sufficient condition to guarantee cooperation and peacebuilding towards sustainable safe water security.

Keywords: *natural resource conflict; peacebuilding; water security; collective action; community-based water management, rural Uganda*

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Determinants of Conflicts in Local Water Governance and Implications for Peacebuilding in Water Development

Resty Naiga

Water insecurity is globally considered structural violence that manifests in the form of illness resulting in deaths; low productivity; and loss of educational opportunities and livelihoods (Gehrig & Rogers, 2009). Not having access to safe water is therefore a form of deprivation that threatens life, destroys opportunities, and undermines human dignity (United Nations Development Programme [UNDP], 2006). Notwithstanding the universal centrality of water to human well-being, water access is still highly unequal between and within countries and much of the world's population lives in places where demand for water exceeds supply and poor quality limits its use (Gehrig & Rogers, 2009). For example, 43% of all people who lack access to drinking water live in sub-Saharan Africa (World Health Organisation & United Nations Children's Fund [UNICEF], 2014), and consequently, 115 people die per hour from hygiene and drinking water-related diseases (WHO & UNICEF, 2014).

In Uganda, national safe water coverage—that is the percentage of the rural population with access to a safe water source within a walking distance of 1.5 kilometers—is estimated at 66% with 42% coverage in rural areas (Directorate of Water Development [DWD], 2011a). Water scarcity and inequalities in access, use, and decision-making not only diminish the quality of life but is also a risk factor for violent conflicts. Water-related violence is already witnessed in many parts of the world. For example, violent water conflicts occurred in China where farmers clashed with police in response to government plans to divert irrigation water to cities and industries. Similarly, in Bolivia, violent protests occurred following the privatization of municipal water services (Gehrig & Rogers, 2009).

The continued water insecurity, both in Uganda and elsewhere, has been generally attributed to water governance crises partly manifested in the form of increased water-related conflicts; failure to incorporate peacebuilding into the development and implementation of water projects; lack of conflict resolution mechanisms especially at a local level; and poor operation and maintenance of the water infrastructure (Naiga, 2020a; Eberhard et al., 2017; Global Water Partnership [GWP], 2002; Naiga, 2018). Cognizant of the widely documented vicious circle of water governance challenges (see Taylor & Sonnenfeld, 2017; Naiga et al., 2015; Asingwire, 2008), local water conflicts and lack of conflict resolution mechanisms have in recent years been

highlighted as key governance aspects, challenging efforts to achieve water users' cooperation towards sustainable water security by most governments in developing countries (Naiga, 2018; Mweemba et al., 2010; Gehrig & Rogers, 2009). More still, there is fear that increased competition will escalate water-related conflicts among users and actors within as well as among different sectors (Eberhard et al., 2017; Mweemba et al., 2010). Hence, greater efforts are needed to promote water-related conflict transformation and peacebuilding in water development endeavors as a means of preventing and mitigating conflicts at all levels of governance. As a result, tensions may subside, and a renewed sense of communal dignity and cooperation may reign (Gehrig & Rogers, 2009).

The term “water-related conflicts” as used in this article, refers to conflicts arising between two or more parties holding competing claims over water resources allocation or their use (Organization for Economic Cooperation and Development/Development Assistance Committee, 2005). I use the term conflict to include a range of patterns of interaction among stakeholder groups at different levels of water governance such as national, district, community, and village levels. This extends from short-term confrontations among competing resource users where violence is implicit, to sustained and explicit violent clashes involving diverse actors in the water sector such as local end users; private, civil society, donors, and state actors. Therefore, in the context of this article, a water event is considered conflictual if one or more parties are discontented with service provision including water quality, quantity, management, location, and distance to the water source or if one's access rights are challenged, for example, denied water or non-existence or non-functionality of the water infrastructure (Swain, 2016; Van Laerhoven & Andersson, 2013; Naiga, 2020a, 2020b).

Peacebuilding and Water Governance

The term peacebuilding is defined as a process of transforming the way in which people, communities, and societies live, heal, and structure their relationships and create a space in which mutual trust, respect, unity, cooperation, and interdependence can grow. Peacebuilding involves a process of changing unjust social and political structures through cooperation (Gehrig & Rogers, 2009). The governance of water-related conflicts and peacebuilding involves a system of institutions, including rules, laws, regulations, policies, social norms, and organizations involved in governing resource use and protection (Chaffin et al., 2014). The efficient management of scarce water resources plays a critical role in the socio-economic development and security of any state,

particularly in the context of global climate change (Swain, 2016). Water-management issues cut across all sectors of governance and have a critical bearing on peacebuilding processes and sustainable peace. From the generic approach to peacebuilding perspective, efficient water management has the potential to avert conflicts by integrating peacebuilding into the entire spectrum of water development processes—right from the pre-construction phase through the implementation phase, and ultimately the post-construction phase (Omeje, 2018). The generic or maximalist approach to peacebuilding can thus help prevent potential conflicts at each phase of water development and is therefore a prerequisite for establishing the socio-economic foundations for sustainable peace and water security (Omeje, 2018; Swain, 2016). Hence, the effectiveness of governance arrangements to address growing conflicts over water and making peacebuilding an integral part of water development processes is a critical question for research, policy, and practice.

To date, much of the research in the domestic water sector in developing countries in general and Uganda in particular, focus on other governance aspects such as access, sustainability, gender, and financing (Imoro & Fielmua, 2011; Foster, 2013; Naiga et al., 2017). Most literature on natural resources governance in developing countries focuses on oil-induced and transboundary water conflicts, and less attention has been focused on local water conflicts and water as a source of cooperation among users and actors. (Obi, 2010; Ross, 2006; Lujala, 2010; Diamond & Mosbacher, 2013; Hanasz, 2014). Hence the problem of nonviolent conflicts and disputes over water at the community level is largely ignored. More so, the role of governance has not been empirically studied in most developing countries confronted with local water conflicts, in particular, and water management crises, in general (Ananga et al., 2021; Naiga, 2020a). Hence, our current knowledge of local water conflicts and the implications of water-related conflicts on sustainable water security and peacebuilding in water development processes is limited and tends to be based on sporadic accounts rather than on systematic empirical evidence (Mweemba et al., 2010; Naiga, 2018). The proposed study aims to bridge these knowledge gaps by interrogating local water conflicts and the role of governance in transforming competition; mitigating conflicts; strengthening resilience; as well as promoting cooperation and peacebuilding towards the sustainable and equitable use of water under the community-based model of water service delivery in Uganda. Overall, the novelty of the paper lies in its focus on local water conflicts given the tendency of most research to focus on transboundary water resources and other natural resources such as the oil resource curse in developing countries.

Continued lack of knowledge and attention on local water-related conflicts jeopardizes current initiatives taken in many developing countries to achieve sustainable water security and the ability of development practitioners and policymakers to incorporate peacebuilding into water development programs and management processes. In addition, most of the literature on water governance in general and local water conflicts, in particular, are based on single-case or small-N studies (Eberhard et al., 2017; Mweemba et al., 2010; Poteete et al., 2010). While this literature provides insights, the explanatory value of each of the factors influencing local water-related conflicts within demand-driven water governance remains largely unclear and missing.

As a contribution towards narrowing this knowledge gap, this article provides empirical evidence regarding the determinants of local water-related conflicts and the implications for peacebuilding within the context of community-based water management in rural Uganda. The key question guiding this article is: What are the determinants of local water-related conflicts? The major contribution of this article is to quantify and provide explanatory value for different factors influencing local water conflicts in rural Uganda.

This article is organized into eight sections: The next section describes the policy changes in rural water provision in Uganda, and section three presents the current community-based water management arrangements. In section four, the Institutional Analysis and Development Analytical Framework (Ostrom et al., 1994) is presented and its suitability for the study is justified. Section five presents the research design and discusses the study area, sampling criteria, data collection, and methods of analysis respectively. The results on factors influencing local water conflicts are presented in section six, while the discussion and implications of the results on peacebuilding are presented in section seven, followed by a conclusion in section eight.

Paradigm Shift in Water Provision

In response to the ever-growing demand and competition for water services, the Ugandan government has struggled with different policy approaches under different regimes. For example, during the pre-colonial era, local and clan leaders effectively organized community members to participate in self-help projects such as road and water source construction and maintenance (Asingwire, 2008). Robust local self-governance institutions characterized by trust, unity, cooperation, local rules, sanctions, and high levels of social cohesion inspired community members to support each other towards improved service delivery (Naiga et al., 2015; Asingwire, 2008). This collective action towards problem-solving persisted till the onset of colonialism which

introduced a centralized welfare state-controlled model of water governance in the last quarter of the 19th century (Manyire & Asingwire, 1998; Nabuguzi, 1995). Uganda's post-independence regimes inherited this welfare state model from their former colonial masters (Manyire & Asingwire, 1998; Muhangi, 1996). Under the welfare state model, safe water provision was the sole responsibility of the government, and the communities had no obligations to fulfil towards water provision. The intention of the welfare state model of water provision was to overcome socio-economic disparities and achieve universal access to water services in the country (Asingwire, 2008).

However, areas of concern arose under the welfare state model: how to increase safe water coverage in rural areas, and how to ensure long-term sustainability in terms of operation and maintenance of the water infrastructure (Naiga et al., 2015). These concerns caused the paradigm shift from the welfare state model to a demand-driven approach also commonly known as community-based water management (CBWM) that was implemented in 1990 (Asingwire, 2008). Essentially, CBWM in developing countries is influenced by the neo-liberal traditions of a reduced role of the state, emphasis on demand-driven service provision and community participation (Asiimwe & Naiga, 2015; Naiga et al., 2015; Mcgranahan & Owen, 2006). Therefore, CBWM is envisaged as a remedy to the state bureaucratic mechanism of top-down management to a system of nested self-governance branded with participation and cooperation, where transparency and accountability to the governed is central (Faguet, 2014; World Bank, 1999). At the international and national levels, CBWM is seen as a solution to state inefficiency, promotion of good governance, addressing water infrastructure sustainability challenges, and achieving equitable access to safe water (Goldin, 2010; Golooba-Mutebi, 2005; World Bank, 2002).

Water Access and Management in Rural Uganda

Over 80% of the population in Uganda lives in rural areas and 76% of the rural population receives water from commonly used and managed water sources (DWD, 2010b). Six types of water sources are commonly used in rural Uganda. These are broadly categorized into safe and unsafe sources. The safe water sources include the borehole, shallow well, protected spring, gravity flow, and public tap stands, while unsafe water sources are those not protected from outside contamination such as open wells or ponds (DWD, 2011a). The six types of water sources are collectively owned, used, and managed by communities. Rural water governance in Uganda is characterized by common-pool resources' problems of limited resource supply; competition;

contestation and rivalry among users; overuse; and free riding, as the exclusion of non-legitimate users is difficult due to lack of clearly defined boundaries of the resource and its legitimate users (Ostrom, 1990; Poteete et al., 2010; Naiga, 2018). Hence, embedding self-governance and conflict resolution are critical for the ability of the community to organize and mobilize resources to operate and maintain the infrastructure as well as enforce user rules (Baland & Platteau, 1999; Ostrom, 1990, World Bank, 1999). However, not all communities are equally successful in protecting and managing their common-pool resources in a sustainable manner (Gautam & Shivakoti, 2005).

Response to water crisis has taken different forms in Uganda, the most prominent being the Community-Based Water Management system (CBWM). With CBWM, a locally elected Water User Committee (WUC) at a village level is the managerial and decision-making organ of the water users to oversee the day-to-day operations and maintenance of the water infrastructure. The national operation and maintenance guidelines mandate the WUC together with the users to develop and enforce user rules, determine user fees, and supervise the day-to-day use of the water infrastructure (DWD, 2011a). The formulation of the WUC for each safe water source is a key requirement before water infrastructure installation. To promote the participation of different user groups, women are supposed to occupy 50% of the WUC positions and take up key positions on the committee such as Chairperson, Treasurer, and Secretary (DWD, 2011a; Naiga & Penker, 2014).

The users are expected to contribute five percent of the initial capital costs of the water infrastructure and participate in major water-related decisions and activities including expressing the need for the water infrastructure through a formal application to the district local government; choosing the type of technology; selecting the water source location; providing the land for the water infrastructure; providing a two-year operation and maintenance plan; signing a contract with a hand-pump mechanic; collecting funds for operation and maintenance; reporting breakdowns; ensuring proper sanitation and hygiene at the water sources formulating and enforcing user rules (DWD, 2011a; Naiga & Penker, 2014).

Analytical Framework

The study applied the Institutional Analysis and Development framework (IAD) [see figure 1] to data interpretation. The framework is considered suitable for the study due to its focus on institutional factors affecting the collective use and management of common-pool resources

(Ostrom et al., 1994, p. 23). The IAD framework is commonly used for institutional analysis of the collective governance of natural resources that involve a complex interaction between nature, technology, and humans, such as water (Ostrom, 2007).

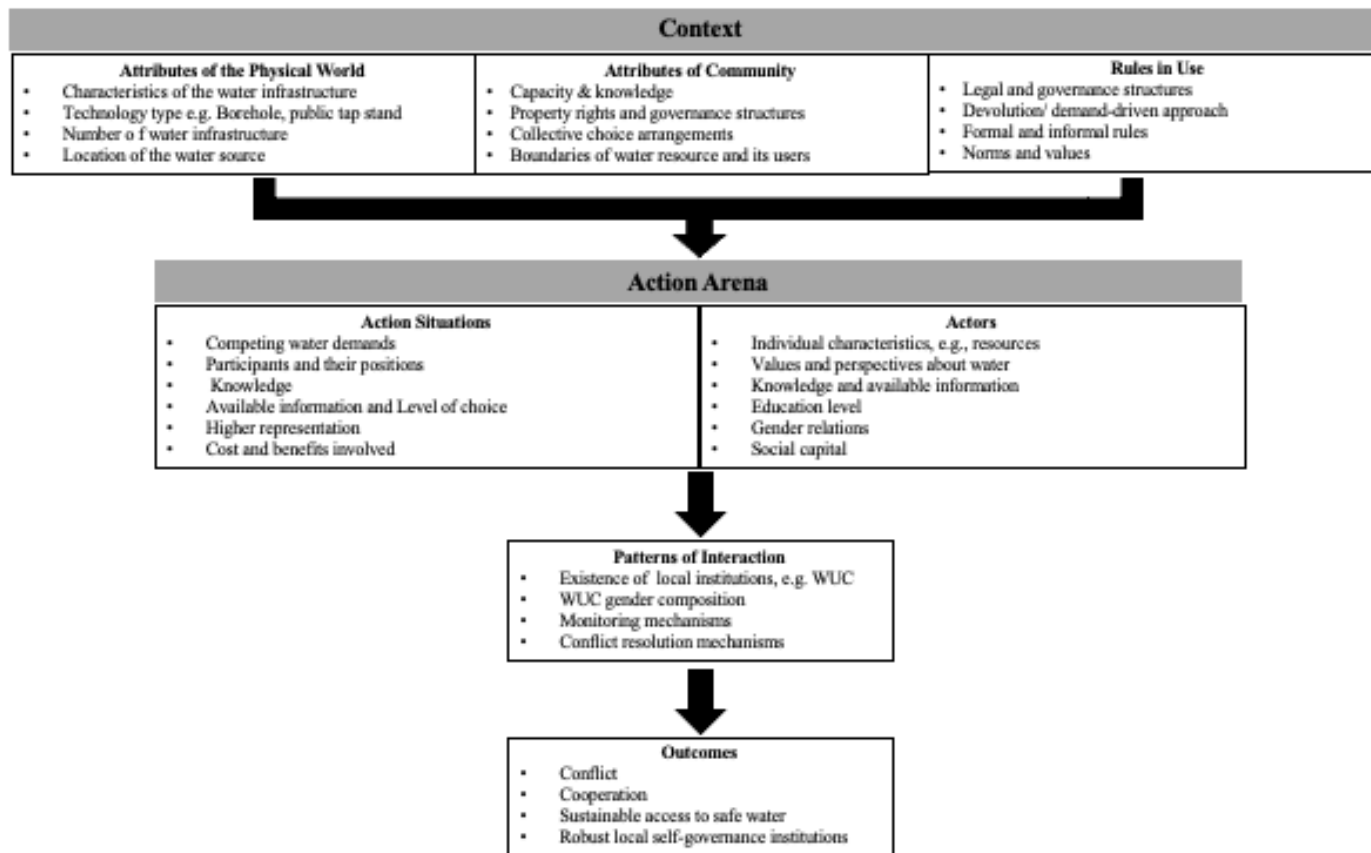
The framework helps to understand and analyze the contribution of the institutional and policy regimes and how they influence conflictual or peaceful local water management. Hence, it provides a positive attempt to the analysis of how institutions affect individual behaviors. The framework further helps in the identification of the main variables existing in all institutional arrangements to provide a tool for both theoretical and empirical analysis of common-pool resources. The aim is to characterize the factors affecting local water governance as collective-action problems; study the relations among them; and show their influence on the conflictive or cooperative behavior of actors using and managing communal water infrastructure in the study area.

According to the IAD framework, three classes of external factors affect the structure and the variables of action arenas: the states of the physical world where actions are undertaken; the rules in use by participants to order their interactions, and the structure of the community where participants act. The IAD framework's primary value lies in providing a set of related categories of variables (Ostrom & Cox, 2010) and orientation for an analysis of the factors that might influence conflict and cooperation within the context of community-based water management. The framework's core unit of analysis and investigation is the conceptual unit called the *action arena* where actors interact in a social space named *action situation*. An action situation is defined as the social place where individuals interact, exchange goods and services, engage in appropriation and provision activities, make decisions, solve problems or fight (Ostrom et al., 1994; Ostrom, 2007).

The framework also identifies seven sets of variables that characterize and influence action situations: the participants; their positions; the possible outcomes; the links existing between actions and outcomes; the level of choice participants possess between the different actions to be taken; the information they have; and the costs and benefits assigned to each possible outcome. Actors interact with different individual characteristics like resources, valuations, knowledge, priorities, and information which affect outcomes such as conflict, cooperation, and water security (Ostrom, 1999; Ostrom et al., 1994).

Figure 1

Institutional Analysis and Development Framework (adopted with modification from Ostrom et al., 1994)



Hence, the character of the action situation shapes activities, interactions, exchanges among individuals, and the actual outcome (Ostrom et al., 1994). The IAD framework helps researchers significantly in the empirical analysis of the institutional performance of studies regarding collective action. The term institution as used in this article refers to the shared concepts used by humans in repetitive situations organized by rules, norms, and strategies (Ostrom, 1999). Whatever definition is used, institutions are the results of human beings' efforts to establish order and increase the predictability of social outcomes (Ostrom & Ahn, 2001), and have a public good character (Bates, 1988; Ostrom, 1990). Institutions affect the behavior of actors through rules and norms stating what actions must, must not, or may be done. The characters of actors and of the action situation define the arena, while activities, interactions, and exchanges, among individuals inside the arena, produce the outcomes, like conflict or cooperation.

Methodology: Study Area and Research Design

The study was carried out in the Isingiro district in Western Uganda. Based on the literature from recent studies and scoping interviews with officials from the Western Region Water Support Unit, the study site was purposively selected due to five main reasons: (1) high prevalence of water-related conflicts; (2) ranked high as a poor example of local water governance in terms of collective action; (3) very low water infrastructure functionality rate; (4) the area is part of the cattle corridor hence faced with a challenge of competing demands for water for both crop farming and pastoralism; (5) lack of scholarly study on local water conflict within the Isingiro district in particular and Uganda in general (Naiga, 2018; Ratner et al., 2017; DWD, 2011a).

Within the Isingiro district, Masha sub-county was selected for the study. The sub-county selection was purposively done due to the availability of all six types of water sources and technologies as described previously in the introduction (see also DWD, 2011a; Naiga & Penker, 2014; Naiga et al., 2015). Simple random sampling was used to select four villages in Masha sub-county. The four selected villages for investigation were Kabaare, Rubeho, Nyarubungo, and Kagando.

Data was collected using mixed methods comprised of both quantitative and qualitative approaches. The data were collected in four phases from July to December 2019. The first phase was a review of relevant literature such as journal articles, policy documents, and national and district water sector performance reports. The second phase comprised key informant interviews (KI) at the community, district, and national levels. Key informants were purposively selected

based on their knowledge, experience, responsibilities, and roles. These included the officials from the Ministry of Water and Environment, Directorate of Water Development, Water Regional Support Unit, district water officer, district engineer, and community development officer. The focus group discussions (FGD) at the community level constituted the third phase of data collection. Three FGDs were conducted in each of the four villages, one with both men and women (mixed FGD), one with men only (FGDm), and one with women only (FGDw). While the mixed FGD intended to explore and discuss cross-cutting issues, the separate FGDs (women and men only) intended to overcome unequal power relations that impact the nature of data obtained (Valentine, 2001; May, 1997). The information from the three phases was used to generate the explanatory variables that guided the design and development of the household questionnaire which was used during the fourth phase of data collection. The fourth phase, therefore, involved quantitative data collection through household interviews. This phase was vital for applying the explanatory variables identified in all the previous three phases to a larger sample in order to quantify their explanatory value in terms of influencing water-related conflicts in the study area. Based on the list of households obtained from local leaders, 51 households were randomly selected from each of the four villages—Kabaare, Rubeho, Nyarubungo, and Kagando—yielding a total of 204 households. Given that the focus of the study was water-related conflicts, and the average number of household members in the study area is seven (Uganda Bureau of Statistics, 2010), I considered it appropriate to interview four adults aged 18 and above in each household. To account for gender balance, two males and two females in each of the 204 selected households were interviewed. In case a selected household did not have the four adults, a replacement was applied with guidance from the local leaders. Overall, a total of 816 household respondents were interviewed. Verbal consent was obtained from the respondents before conducting the interviews.

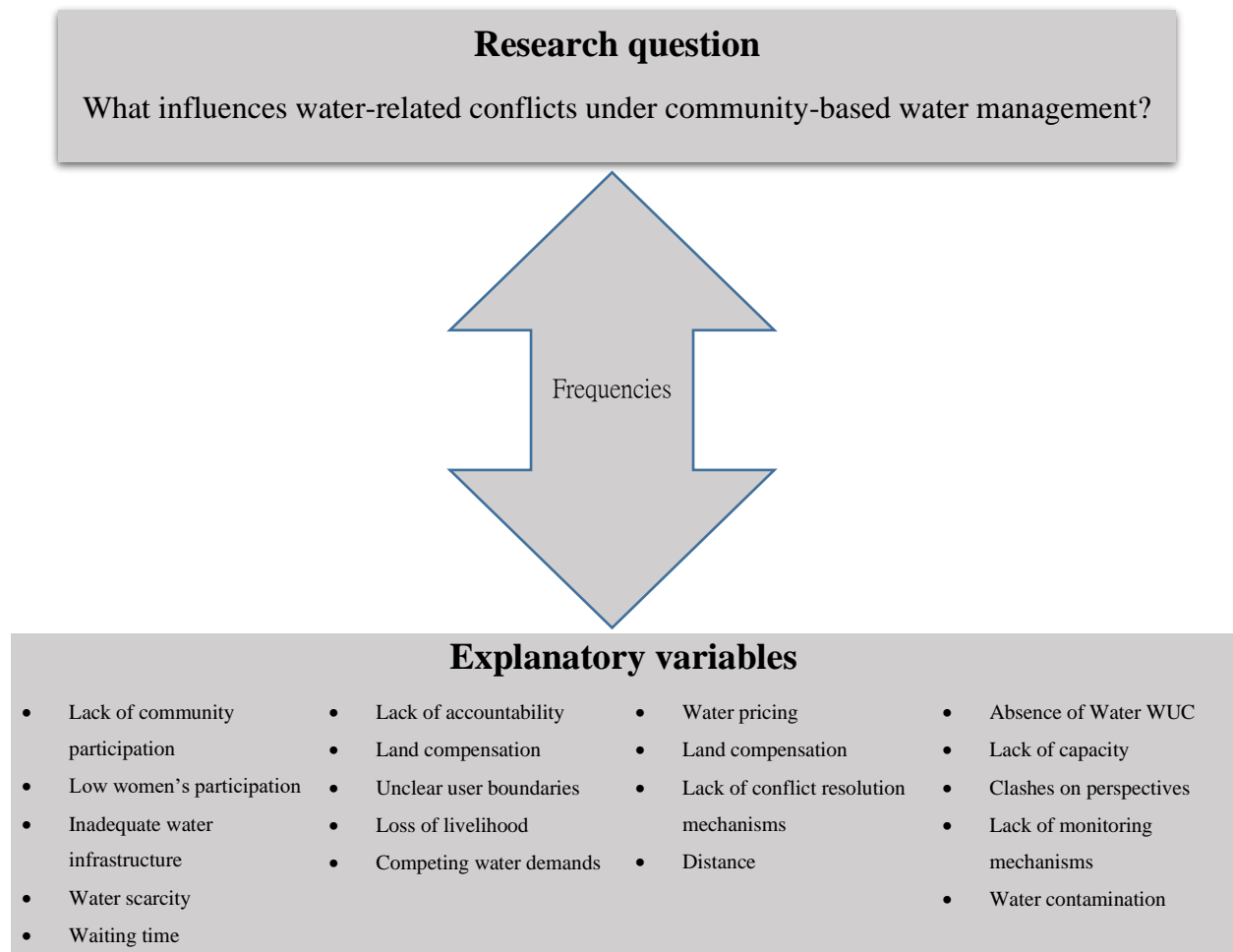
Data Analysis

Figure 2 presents the summary of the general design indicating the key research question and the explanatory variables included in the analysis. Analytical triangulation comprising both quantitative and qualitative methods of analysis was carried out. Firstly, the frequencies were used to quantify the importance respondents attached to each of the explanatory variables presented in the general research design. Secondly, content analysis of the qualitative interview transcripts was conducted. Data from literature, key informant, and focus group discussions were triangulated and

used to complement quantitative analysis. Overall, 816 household interviews, 12 focus group discussions, and 15 key informant interviews were included in the analysis.

Figure 2

General research design



Results

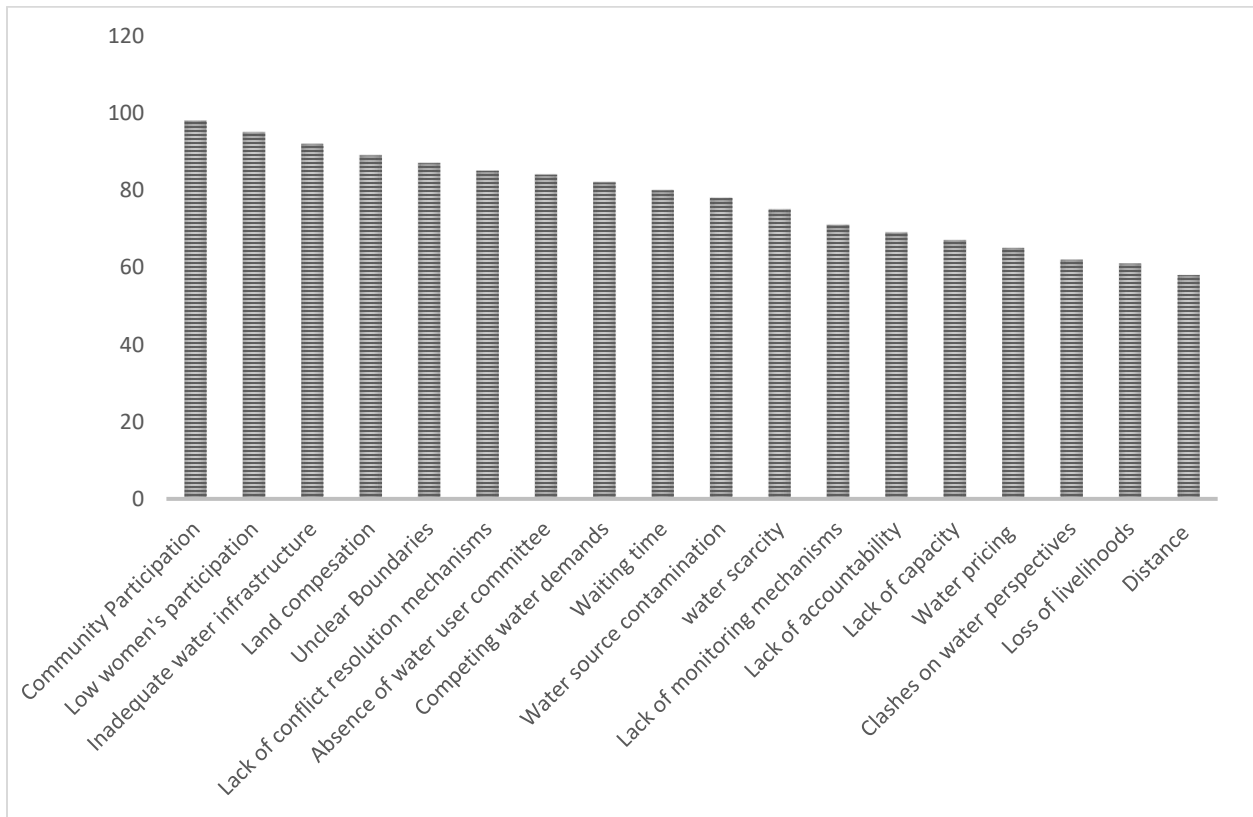
The results are presented in Figure 3. The variables found to influence water-related conflicts under community-based water management can be categorized largely as institutional factors, contextualized as governance and policy-related aspects. According to the results, 98% of the water users reported lack of community participation in water-related activities and decision-

making as a key factor influencing water-related conflicts. The operation and maintenance framework provides for water user participation in key water-related decisions such choice of technology and water infrastructure location (DWD, 2011a).

However, during the interviews and focus group discussions, interviewees indicated that they were not involved in decisions prior to water infrastructure construction. The key concerns raised by interviewees to justify the need for community participation before water infrastructure installation were decision on the final position and location of the water infrastructure; consent on the design and type of technology; information on the tendering process; use of local labor; use of local materials during construction; and minimizing poor quality construction.

Figure 3

Ranking of the factors influencing water-related conflict



Another variable reported by 95% of the water users was low women's participation in local water institutions such as water user committees and water-related decisions. The operation and maintenance guidelines stipulate that women should constitute 50% of the WUC members and that women should occupy influential positions on the WUC such as Chairperson, Vice Chairperson, and Treasurer (DWD, 2011a). Despite this well-spelled-out affirmative action, less than 30% of the WUC had at least two women as members on WUC and less than 10% occupied key positions. Limited women's participation was also supported by key informants and focus group discussions at the community level. The justification for women's participation was largely based on the gender division of labor, such as water provision at the household level is a culturally ascribed role of women. Hence, women tend to be more committed to water management since they bear the brunt of water insecurity. Accordingly, their limited participation is considered to compromise community and household water access rights thus raising contestation among sections of the population.

Furthermore, inadequate water infrastructure was ranked by 92% of the water users. Limited water infrastructure was reported to be a leading cause of water source unreliability due to frequent infrastructure breakdown as a result of overuse, coupled with poor operation and maintenance, and high operational costs for some of water infrastructures, especially boreholes. Land compensation also recorded one of the highest rankings at 89%. The interviewees expounded that although the guidelines stipulate the provision of land for water infrastructure is the role of the community, there is a need for compensation since such land serves the interest of the public and the landowner ceases to utilize the land for economic activities like crop farming and animal rearing. Interviewees further explained that land is the main source of livelihood in rural areas hence the government should compensate on behalf of the community. This was further confirmed by key informants at district and community levels as well as focus group discussion participants who expounded that failure to compensate landowners was the leading cause of conflict between users and the district local government authority.

Quite remarkably, unclear user boundaries were reported by 87% of the water users. According to the guidelines, each water source is supposed to be used by an average of 50 households. However, according to the local leaders each water source was used by more than 100 households. During the interviews, I asked whether the users were aware of who is supposed to use the water source and 88% of the respondents clearly indicated that there were no clear

boundaries on who is or is not supposed to draw water from any given water source. The challenge of unclear boundaries was further confirmed by key informants and focused group discussions. A key informant at the community level stated, “It is difficult to have clear boundaries of users because water is God-given hence it is impossible to deny someone water even if a person is a stranger in the village.” Unclear boundaries were also reported by focus group participants as one of the leading causes of poor operation and maintenance of the water infrastructure because it makes the collection of user fees difficult which promotes free riding among users.

Furthermore, a lack of conflict resolution mechanisms was reported by 85% of the water users. Even though 98% of the respondents reported having experienced conflicts at least once a week, 91% of the respondents indicated that there were no conflict resolution mechanisms in place. A key informant at district level indicated that it was the role of the local leaders to resolve water-related conflicts. Although local leaders confirmed this role, community members during focus group discussions cited conflict of interest among local leaders which renders local leaders’ efforts to resolve water-related conflicts in their area of jurisdiction ineffective and counterproductive. Hence, they observed the need to have an independent committee that should be selected using a participatory process to handle water-related conflicts.

The absence of a water user committee was stated by 84% of the respondents. According to the operation and maintenance guidelines, each improved water source must have a Water User Committee. The water user committee is the executive organ at the community level and must be elected or selected by the users. The roles and responsibilities, among others, include the collection of user fees, overseeing the day-to-day operation of the water infrastructure, organizing meetings, and maintaining the hygiene of the water source in collaboration with the users. Despite this central role of the WUC, 66% of the respondents reported an absence of WUC.

Competing demands on the available water were identified by 82% of respondents. Interviewees at national, district, and community levels reported the challenge of competing demands for water between domestic use and use for economic livelihood activities in the area. Five main competing uses of water were identified as domestic; cattle rearing; brick making; crop farming; as well as building and construction. National-level key informants explained that over 80% of the population is employed in agricultural activities, predominately subsistence farming in low-yield crops such as beans, maize, and animal rearing. Given that livelihood activities are closely related to ethnicity, competition and conflict over scarce resources particularly between

crop farming and cattle-rearing ethnic groups become evident and even worse during the dry season.

In addition, waiting time was reported by 80% of the water users. Interviewees at different levels reported spending over four hours at the water source before accessing water due to exceptionally long queues coupled with low quantities of water. The challenge of waiting for a very long time at the water source was attributed to limited water infrastructure, low water quantity, unclear user boundaries, and competing demands of the limited water infrastructure. Due to unclear user boundaries, it is estimated that the few sources available are each serving around 400 people representing about 200 homesteads. A female respondent expounded: “For women collecting water means leaving their homes at 6 a.m. and returning at 1 p.m., this has caused domestic violence as husbands become suspicious of their wives and accuse them of adultery.”

Water source contamination too was stated by 78% as a source of conflicts among water users. The key reasons contributing to this challenge as identified by the respondents at different levels were lack of water infrastructure protection in form of fences, animals, and humans competing for the same water source; and competing uses of water such as brickmaking and building construction. A male respondent reported that quarrels and fights often take place between domestic water users, brickmakers, and pastoralists over the use of dirty containers by brickmakers and the watering of animals at the water source by pastoralists.

Moreover, water scarcity was reported by 75% of the water users as a source of conflict. Local district government attributed the challenge of water scarcity largely to the fact that the area is water stressed in terms of quantity; community level respondents attributed the challenge to limited water infrastructure as well as poor operation and maintenance of the few available infrastructures. Water scarcity was reported to be more prominent in the dry season when people tended to compete over access more than the rainy season. WUC members indicated that for the last five years, they have been proactive in protesting and complaining to the district local government about water scarcity, but the response has always been, “The government does not have sufficient funds to construct more water infrastructure.” Such responses tended to anger community members as they question district authorities regarding the purpose and justification for the taxes that citizens pay which is intended for improved service delivery.

Additionally, the lack of monitoring mechanisms in place also influences conflicts and was reported by 71% of respondents. According to the community-based water management

guidelines, monitoring is the role of the district local government. However, community-level respondents reported that the monitoring function was rarely performed by the district local government. Similarly, district local government key informants confirmed and justified that the monitoring role was hindered by limited funding and unclear roles among actors at different levels. Importantly, lack of accountability also influences conflicts among users as was stated by 69% of the respondents. Respondents reported not receiving accountability for the user fees collected. According to the operation and maintenance framework, one of the means to ascertain both downward and upward accountability, as well as transparency of WUC activities, is the availability of books of accounts and bank accounts. However, WUCs reported having no books of accounts or bank accounts.

Another important variable was the inadequate capacity of the users to handle repairs of the water infrastructure in case of breakdown. During the interviews, WUC members explained that in case of a breakdown, the matter was reported to the local leader who is responsible for identifying the hand pump mechanic. However, community members reiterated the need for training and capacity building at community level to be able to handle repairs cheaply and effectively.

Important still, water pricing also influences conflicts among users and was stated by 65% of the respondents. This challenge was emphasized by the community-level respondents for two main reasons: First, they were not aware of the criteria used to set user fees; secondly, they emphasized that due to competing demands for water, it was appropriate for the users to pay user fees depending on the amount of water used per household. Focus group discussion participants further explained that a uniform fee is unjust since some users draw and use more water than others from the same water source. However, some key informants expressed fear that appropriation of user fees might compromise cooperation and escalate conflicts among users.

Related to the above were clashes on perspectives about water which also influence water-related conflicts, noted by 62% of the respondents. District local government key informants attributed this challenge to the rapid policy shift from the welfare state model of service delivery to the demand-driven model without effective awareness creation among users but also socio-cultural norms that tend to perceive water as a “free and abundant” resource. Related arguments were raised by community-level respondents during key informant interviews and focus group discussions urging that water is “God-given” and hence should be accessed without any form of

hindrance. The case was further argued that water provision is an obligation of the state to its citizens and hence should be provided unconditionally.

Furthermore, loss of livelihood because of insufficient water access also triggers water-related conflicts and was reported by 61% of respondents. Community-level respondents highlighted ways through which their livelihoods are negatively affected by water insecurity, including loss of productive time as a result of walking long distances to the water source; inability to pay user fees; the unreliability of the water source due to persistent operation and maintenance related challenges; crop destruction due to water source location; and lack of compensation for the land where the water source is located.

Distance to the water source also influences water-related conflicts and was reported by 58% of the water users. A comparable shorter distance (below one km) was indicated to reduce conflicts. During the interviews, interviewees were asked to indicate the distance they walked to the water source (less than 1 km, 1 to 2 km, or more than 2 km). According to the results, 68% of respondents walk more than 2 kilometers to the nearest water source contrary to the water policy which stipulates 1.5 kilometers on average.

Discussion, Implications for Peacebuilding and Water Management

The factors influencing local water-related conflicts within the context of community-based water management are broadly categorized as institutional-related factors largely because they either relate to water access or its management and policy framework. This supports Postel and Wolf's (2001) observation that transfers of water system ownership and/or management from public authorities to private multinational corporations have been a new source of many water-related conflicts since the 1990s. The vicious cycle of institutional failures as a result of a policy shift in Uganda and elsewhere are further confirmed by Seppälä's (2002) judgment that in developing countries, policy changes have in many cases been pushed through too rapidly, without adequate consideration for the policy transition and adequate capacity building. For instance, like Uganda, a lack of community participation and community capacity to handle operation and maintenance are also reported in other developing countries that experienced policy reforms such as Zimbabwe, Ghana, Mali, and Burkina Faso (Kujinga & Jonker, 2006; Fielmua, 2011; Cherlet et al., 2013).

Participatory implementation and management processes are particularly critical for peacebuilding and conflict transformation in water development in the following ways: Firstly,

when beneficiaries' knowledge is sought and incorporated in planning and implementation, project activities are more likely to be responsive to the needs of the users, hence accepted, owned, and sustained (Pretty & Ward, 2001). Secondly, knowledge of ownership influences attitudes and behavior towards facility operation, maintenance, and management (Braithair & Fielmua, 2011). Thirdly, participation provides the possibility for sharing information, building trust, constructing rules, monitoring, and sanctioning behavior necessary for an effective institutional structure which in turn promotes cooperation, allows participants to share risks, leverage resources, extend pay-back periods, test innovations, and make effective contributions to collective operation and maintenance of the water infrastructure (White & Runge, 1995).

The importance of incorporating peacebuilding in water development processes is further confirmed by Uganda and Ghana's experience showing that the process of installing water infrastructure without community participation was conflictive and the infrastructure was abandoned by users (Braithair & Fielmua, 2011; Naiga et al., 2015). From the qualitative and quantitative analysis of this research, community participation in general, and women's participation in particular, have a significant positive effect on the likelihood of local water conflicts in rural Uganda. However, like Golooba-Mutebi (2005) asserts, the local capacity to participate in water-related decisions including peacebuilding and conflict transformation should not be assumed, but rather facilitated through capacity building, monitoring, sensitization, and awareness creation.

As expected, a lack of downward accountability influences local water-related conflicts. This is confirmed by findings showing mistrust as a cause of conflict and a challenge to the willingness to contribute to water provision in Uganda (Naiga, 2018; Naiga & Penker, 2014). The importance of accountability and trust towards peacebuilding in water development and water security has been emphasized before. For instance, according to Ward and Pretty (2001), trust lubricates cooperation and unity which in turn liberates resources and prevents conflicts since investment in monitoring and sanctioning others is not needed. These results are in line with Madrigal et al. (2011) who found downward accountability to be an important factor affecting the performance of community-based drinking water organizations in Costa Rica. Similarly, Fielmua (2011) emphasized accountability as key to promoting cooperation and successful management of water facilities in Ghana. Therefore, addressing downward accountability is crucial to conflict transformation and peacebuilding in water management because cooperation and unity will take

place and continue to do so as long as a critical mass of stakeholders has practical knowledge of the benefits (White & Runge, 1995).

The results from the empirical study indicate a clear link between water management and conflictual events between different actors at different levels of governance. The institutional variables highlighted by the study are largely related to either access or management and therefore seem to be effects and symptoms of a vicious cycle of governance crisis rather than root causes of conflicts. The water access-related variables found to have a significant influence on local water conflicts are water scarcity; inadequate water infrastructure; livelihood loss; competing water demands; distance; and waiting time. On the other hand, variables related to mismanagement are lack of community participation; low women participation; lack of land compensation; unclear user boundaries; lack of conflict resolution mechanisms; absence of water user committee; lack of monitoring mechanisms; and clashes on perspectives about water due to the rapid paradigm shift. By attaching value to each of the variables identified, the research results, therefore provide insights into how to reduce the probability of local water conflict and enhance conflict mitigation and peacebuilding in water management processes.

The positive effect of women's participation in local water-related conflicts, provides supportive arguments for further conflict transformation and peacebuilding through affirmative action, capacity building, and monitoring mechanisms to ensure increased and sustained equitable local water governance and ultimately water security. Drawing from the results, a community-based model of water provision is necessary but not a sufficient condition to guarantee sustainable safe water security, but rather the need for better rules for incorporating peacebuilding and conflict transformation and resolution among actors at different levels of governance. Therefore, actors at different levels including non-governmental organizations, district local government, and donors can support good water governance by incorporating peacebuilding into water-related processes as efforts towards mitigating and preventing local conflicts. Incorporating peacebuilding into water development can effectively be done by emphasizing the ethical aspects of water management such as citizen participation including gender equity and equality in all stages of water development; property rights; building robust self-governed local institutions through awareness; creation of roles and responsibilities of the different actors involved in water provision; capacity building to facilitate local participation; downward accountability to enhance transparency; rapid cost-effective conflict resolution mechanisms; and establishing accurate indicators for measuring

the success of water projects and user satisfaction with water provision. Framing water development efforts within the ethical peacebuilding paradigm increases conflict sensitivity on the part of development practitioners and facilitates conflict transformation and prevention for the different actors in water provision.

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