

# Trends and Actors of Local Water Governance in Ethiopia: The Case of Borkena River

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**Abstract:** Water governance is the range of political, social, economic and administrative systems that are in place to develop and manage water resources and delivery of water services at different level of society. This research assessed the trends and actors of Borkena river water governance. Borkena is major tributary of Awash River that originated from South Wollo, Kutaber Woreda. The research use qualitative research approach and data were gathered from both primary and secondary sources. Based on the data, the research found the households and institutions around the river contributed for the depletion of the river water. There is clear policy and practice gap where weak institutional linkages exacerbate the river pollution from bad to worst. The research found that Borkena River serves for the social and economic need of large number of households in the basin. However, the river is found ownerless where no specifically identified government offices are responsible for the river governance at local level. Thus, the river suffers from disposals of industries, companies and households wastes. The river pollution is the result of the absence of planed and systematic solid and liquid wastes management mechanisms from the upper to the lower basin. Based upon the finding, the researchers suggest three areas of intervention using government bureaucracy and other civic organizations. These are: (1) revising the policy documents and establishing specific river governing body at local levels; (2) Expanding good experiences of riverside basin protection in the area; and (3) Intensive awareness creation about waste management and preserving river water needs to be implemented to improve the surrounding communities' socioeconomic wellbeing that enable Borkena river clean and viable for future.

**Keywords:** Borkena River, Actors, Water Governance, Trends of Water Governance

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## 1. Introduction

Water is an essential natural resource for human beings and because of this, the study of water is very close to humankind. However, water is scarce resource with uneven distribution. This scarce resource is now in a danger state of affairs because of human-induced environmental change and unwise plus excessive water utilization. Global shortage of water is now associated with human security issues. In this regard, a technology oriented solution come to the scene to solve problem of 'global water crisis' and to save life.

Nevertheless, technology alone never solved the problem. Rather water scarcity remains unsolved problem of the global community. At worst, it is predicated that scarcity of water coupled with population growth and land degradation may leads to violent conflict [1].

Academicians [2-6], political leaders (Boutros Boutros-Ghali, Kofi Annan, Ban Ki-Moon, Ismail Serageldin (as quoted in [7]), and international media;[8]) subscribe to the view of water as a source of future conflict at least in water stressed regions of the world. The shibboleth of the 'water war' perspective is that 'the war of tomorrow is over water'.

As Chellaney [1] has argued, “the battles of yesterday were fought over land [imperialism and colonialism]. Those of today are over energy [the oil war]. But the battles of tomorrow are likely to be over the most precious of all natural resources-water”. This shows the severity and the internationalization of the problem and the imperative of collective response, ‘governing ungoverned actors’ and all these foreshadows the urgency of ‘good water governance’. Although water crisis is now acknowledged as ‘crisis of governance’, it does never have adequate attention by the concerned bodies and water users. Rather, water is still viewed and treated as having extrinsic value and thus ‘a means to achieve certain ends’. Such views with unwise and competitive exploitation of water resources may lead to extinction of river basins.

In this case, Ethiopia is not exceptional. Although Ethiopia is cited as ‘water tower of the Northeast Africa’, its water resources are not wisely utilized and conserved even some of its water resources had already diaped (Lake Haromaya) while others are in danger, for instance Lake Tana. The problem is not lack of physical water but uncontrolled and ungoverned human activity and lack of governance. The same is true for Borkena river which is in a ‘path of extinction’. Borkena River is a tributary of Awash River. Although there exist a few studies on the Borkena river basin, almost all of them are from engineering [9], geological science and hydrology [10, 11], and environmental perspectives [12] and thus the social aspect of the problem has not gained due attention of the scientific community. Fantaw [9] studied the channel stability of Borkena river mainly from engineering and hydrological perspective and his finding shows the instability of the aforesaid river and thereof the unexpected flood and destruction of property in Kombolcha. From environmental perspective, Mohammed [12] assessed the level (concentration) of heavy metal in selected vegetable that are grown in the area using the water of Worka and Leyole rivers, the twin tributaries of Borkena river. Two empirical studies also conducted from hydrological perspective [10, 11]. Despite the significance of these reviewed literatures, the hydro-political aspect of the Borkena river basin is often overlooked and thus nascent. This study, therefore, aimed to examine the trends, involved actors in depleting and conserving the river ecosystem vis-à-vis river water governance.

## 2. Materials and Methods

This study attempted to explore trends and actors of local water governance with regard to Borkena river basin. To address properly the issue under investigation, this study employed a qualitative research methodology. In this study, a qualitative research methodology is justifiable due to the nature of the research problem, objectives and questions under study. The study requires a wide range of data to be gathered from multiple sources, which is possible only by employing qualitative approach. Thus, the study requires a

theoretical perspective, qualitative instruments of data collection and analysis. Beside this, the subject of the study can be understood by collecting, analyzing and interpreting various documents and conducting interviews with individuals who are close to the issue under study. Therefore, qualitative research approach employed to address properly the subject under study.

### 2.1. Sources and Instruments of Data Collection

The data for this study gathered from both primary and secondary sources. Primary data was gathered through Key informant interviews, Focus Group Discussion and field observation. Because of their experience, proximity, knowledge and their day-to-day activities on the subject under study, key informants are considered relevant sources of information. In view of this, Key informants from Kutaber town, Dessie town, Kombolcha town, Kemissie town and Sembetie town were participated. In addition, households adjacent to Borkena River were interviewed. Along this, private and public institutions that are (in) directly depleting or conserving the river ecosystem, found in the left and right bank of the river from Kutaber to Sembetie were also interviewed. Focus Group Discussion (FGD) was conducted with those individuals who are (in) direct beneficiary of the Borkena River water. Field observation to the Borkena River was also conducted. On the other hand, to substantiate the data gathered through primary source secondary data was collected from public documents, policy documents, public records and reports. To select key informants, the researchers used non-probability sampling method. Among the several types of non-probability sampling techniques, the researchers employed ‘expert sampling’; “a technique where respondents are chosen in a non-random manner based on their expertise [knowledge and experience] on the phenomenon being studied” (13). Thus, a sample of expert is more important since they are more familiar to the subject under study.

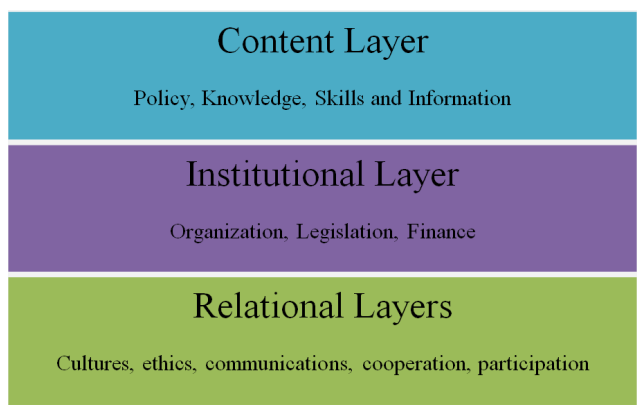
### 2.2. Method of Data Analysis

Before proceeding to data analysis, transcribing and organizing the recorded data is the first required task of the researcher [14]. In view of that, the researchers were transcribed the recorded data and the note as soon as the interview was completed. Finally, the data was interpreted in combination of secondary data. To accomplish this, the researchers employed a qualitative method of data analysis because the data was gathered through key-informant interviews, FGD, field research and document analysis.

## 3. Conceptual Framework: Water Governance Assessment Model

Governance is a complex concept and thus there is confusion about governance in general and water governance in particular. Along the conceptual obscurity of governance, what constitute good governance and in turn water governance is in question [15]. For this purposes scholars

tried to devise models via which governance practices are assessed in different institutions. The Academic Round Table of the Water governance centre (WGC) as cited in Hemel and Henk [16] developed a water governance assessment method based on nine building blocks, identified from different academic working fields like civil engineering, hydrology, public administration, law and economics. This assessment method is currently made applicable in the field by testing it in different projects including water governance program for the Awash basin in Ethiopia. The nine building blocks of this method are developed into the 'Three layers of models of governance' as described below;



**Figure 1.** Three-layer model of assessing water governance capacity.

Source: developed by Water governance centre (WGC) and used by Hemel and Henk, 2013.

## 4. Trends of Water Governance in Ethiopia

The FDRE Constitution which is the supreme law of the land for Ethiopian, has several provisions, which have direct policy, legal and institutional significance for the management of the water resources of the country [17, 18]. For example, Article 40(3) of the Constitution provides for the public ownership of ... all natural resourcesvested in the regional State. On the other hand, the Constitution stipulates that the Federal Government shall determine and administer the utilization of the rivers or lakes linking two or more regional States or crossing the boundaries of the national territorial jurisdiction (Article 51(11)). This provision gives the Federal Government very broad powers as regards to water resources management since almost all the major water resources in the country are shared by two or more Regional States.

Based on this provision of the Constitution, the determination and regulation of the use, allocation and protection of the water resources of the country as well as its administration largely rests with the Federal Government, centralized policy despite the current advocacy of decentralized water governance. Hence, the FDRE constitution is contrary to the principles of Integrated Water Resources Management (IWRM) and the river basin

approach that are both pillars of the Ethiopian Water Resources Management Policy (WRM Policy). Another important provision of the Federal Constitution is that the Federal Government may delegate its powers and functions granted to it under Article 51 of the Constitution to Regional States (Article 50.9 of the Constitution).

Following the constitutional provision, the Ethiopian Water Resources Management Proclamation, issued in March 2000 (Proclamation No.197/2000), which provides the fundamental principles that need to be taken into account for the management and administration of the water resources in the country (Article 6) [19]. The basic thrust of these fundamental principles is that it designated Ministry of Water, Irrigation and Electricity (MoWRIE) as the "Supervising Body at the federal level where it pertains to water resources at the central level, or any organ delegated by the Ministry. The latter is further elaborated in Article 8.2 of the Proclamation, which says, "The Supervising Body may, where necessary, delegate its powers and duties to the appropriate body for efficient execution of its duties. However, the proclamation do not clearly show how delegation and to whom delegation will be. In the same manner the proclamation did not express about the issues of integrated water resource management system and inter-sectoral coordination and cooperation.

Another legal document (policy) concerning river water governance is Ethiopian Water Resources Management Regulation, which was issued by the Council of Ministers in March 2005 (Regulation No. 115/2005). The objective of the Regulation is to provide detailed provisions for the effective implementation of its parent legislation, the Water Resources Management Proclamation. A review of the Regulation shows that it is mainly a further elaboration of the Proclamation providing the main requirements for the issuance of water use permits. The regulation further provides the mandate to administer, permits and collect water charges to Ministry of Water, irrigation and electricity former Ministry of Water Resources (MoWR) or an organ delegated by law. The other water resources management institution in Ethiopia next to Ministry of Water, Irrigation and Electricity is River Basin Organization. The FDRE House of Peoples Representative (HPR) issued River Basin Councils and Authorities proclamation No. 534/2007 which putdown the framework for the establishment of River Basin High Councils, which is responsible to MoWRIE and River Basin Authority with double accountability. According to the FDRE HPR proclamation No.534/2007, the Basin High Councils shall have the following powers and duties. These are; providing policy guidance, planning, coordinating, directing river basin plan, proposing the rate of water charge, deciding on constructing major water works and water allocation (Art. 6 (1-5)).

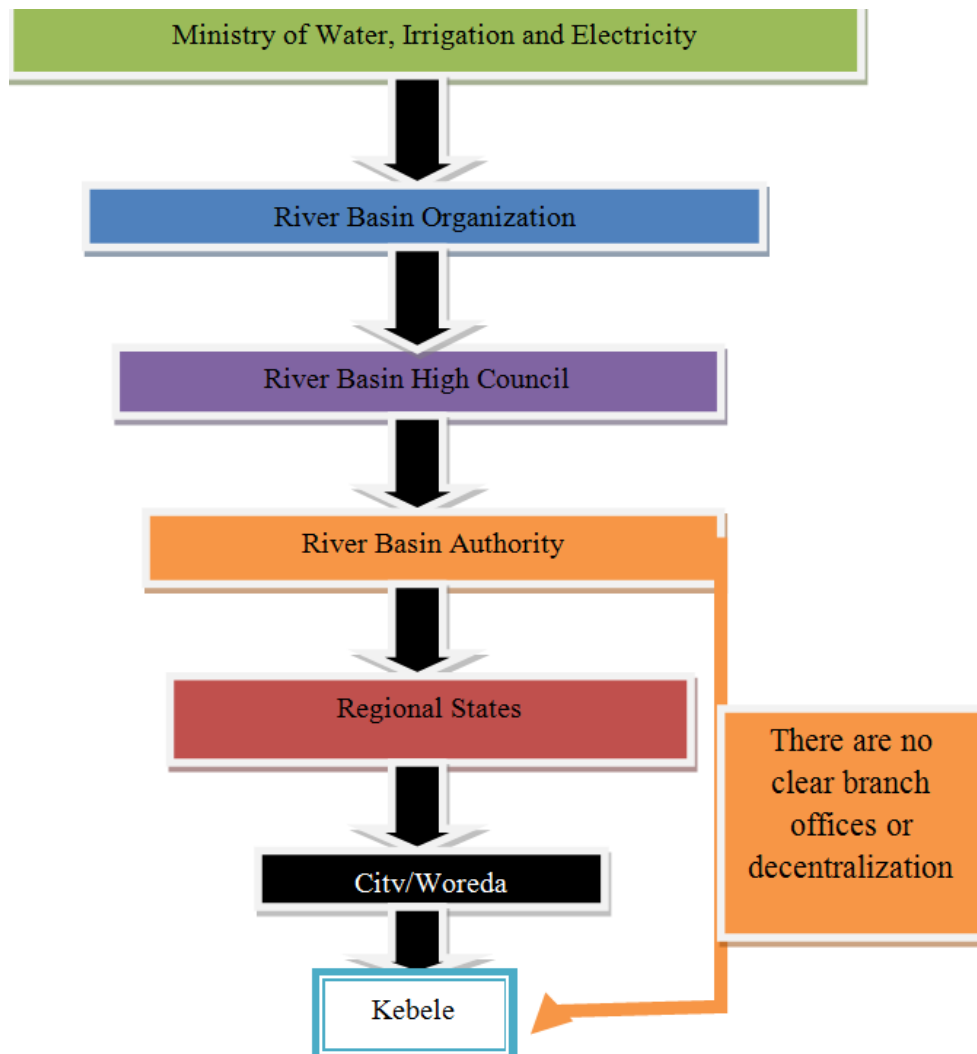
In the same manner the FDRE house of peoples representative proclamation No. 534/2007 issued the powers and duties of Basin Authority on Article 9 (1-14). As per the proclamation, the basin authority has the power to undertake necessary activities for and facilitate the implementation of

integrated water resources management in the basin (Art. 9 (2)). The authority ensure that projects activities and interventions related to water in the basin are in their content, schedule, impacts and management are in line with the IWRM (Art. 9 (3)). It also Prepares and submit to the basin high council, the basin's plans and monitor its implementation upon approval (Art. 9 (4)). It develops and use a river basin model in order to guide and support its basin water resources strategic planning and water administration functions (Art. 9 (7)); undertake studies, surveys and researches that are deemed necessary to carry out its functions (Art. 9 (12)). The River Basin Authority is accountable to Basin High Council and MoWIE.

Although MoWRIE is delegating its power to the basin

high council and basin authority, that does not either open branch office to local area or delegated its power further to the local government. This is the main challenges hinder river governance in Ethiopia. Borkena River, which is part of the Awash River basin, is not immune from these challenges. As the officials in Dessie town confirmed the Awash River Basin Authority neither opened branch office nor delegated its power to local area administration to govern Borkena River water. Hence, Borkena River left ungoverned River water in the area, which exposed it to become a dumping space.

In Ethiopia, the institutional structure of water resources governance in general and river water governance in particular are summarized in the following manner;



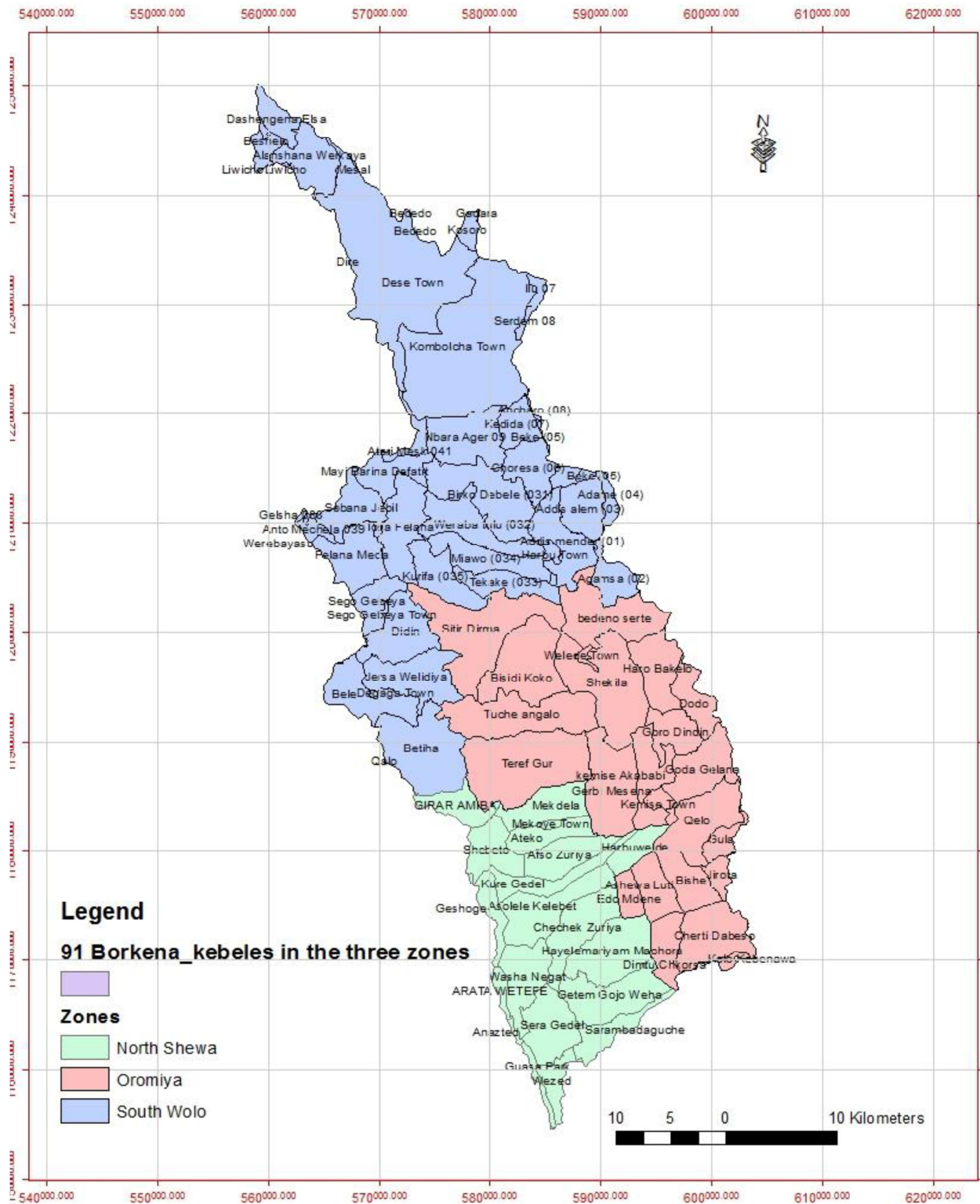
Source: Water Governance Institutions in Ethiopia (Developed by the Researchers).

**Figure 2.** Water Governance Structure in Ethiopia.

## 5. Borkena River Water: The Contexts

Borkena River originates from Kutaber Woreda Kebele 05, at the epicenter of two basins; Abay and Awash. It is entirely within the awash basin. The watershed of Borkena River

touches three administrative zones, 14 Woreda and 91 Kebeles. The three zones are South Wollo, Oromo nationality zone and North Shewa zone with total area coverage of 1709.63 km<sup>2</sup>. [20].



Source: Amhara National Regional State Water Resources Development Bureau (2016).

**Figure 3.** Map of the Study Area (Borkena River Catchment Area).

In this sub-section of the paper, an attempt was done to discuss the contexts of Borkena River water. Borkena River started from Kutaber Woreda at specific place called 'Mariam Wuha/Mariam Water' and flow down to Awash by crossing Kutaber Woreda, Dessie, Kombolcha, Kemissie and

Sembetie towns. From Kutaber down to Sembetie, Borkena River has many tributaries joining it at different places; these are Abba Abdela/Desso River, Arawutie River, Berbere River, AbaSharew/Wuranie River, Worka River and Leyole River.



*Desso* River (tributary of Borkena River) begins from *Boru Meda* watershed and flow beneath Wollo University, finally joins Borkena at Gabriel Bridge in Dessie town. According to the local community, Desso/Aba Abdela was previously clean and the amount of water was large which flows throughout the year. It had many deep ponds (specially two well-known deep ponds and one of them, which was around *Mushira Dingay*—Ritual Place to south Eastern part of Wollo University and was Very feared that only brave and well known swimmers like Seid Zegeye swum it). At that time the river was used for drinking, washing, swimming (recreation), bathing, Ritual practice (Every year at *Mushira Dingay*) and animal drink.

However, at present the water amount is decreasing and out of any use. According to local people currently, the local peoples are not using Desso River water for any Purpose because of poor water quality, the ponds are damped by construction extract soils, bad smell, and deadly poisonous dumped from; *Dessie* Tissue culture and Wollo University. Due to this, the local people told the researchers that they stop dairy and beef production, which was their source of livelihood before the pollution of *Desso* River. Ritual practices conducted on *Mushira Dingay* is also tending to cease due to the *Desso* river water is no more used for the ritual practice and bad smell there. Now for the ritual practice water is fetched from far distant instead of the *Desso* river. Due to the bad smell on the area, the participants of the ritual practices begin to refuse to participant on the occasion and the numbers of participant decreases from time to time.

The other essential tributary of Borkena River is the holly water flowing from around *Anera/Amanuel* churchdown and joins Borkena River at *Azewa* cliff. This holly water flowing from *Amanuel/Anera* to the *Borkena* River also serves as both ritual source and household water consumption. The Ethiopian Orthodox Christian follower use it as holly water locally named as '*AmanuelTsebal*' and followers from different corners of the country use it as healing water and relieve from their illness. On the other hand, this holly water service as sources of household water need, washing, bathing and washing clothes for surrounding community irrespective of religious differences. This holly water joins Borkena River at *Azewa* cliff and enrich recreational site of Borkena in the Area.

The other major tributaries of Borkena River are *Arawutie* and *Berbere* Rivers, which come from the plateau of *Kombolcha* and join Borkena River in Kombolcha town 500 meters a head of main Kombolcha Bridge. There is highly bad smell coming from these two tributaries rivers. The water from this tributary has reddish color and bad smell. '*Arawutie* River' and *Berbere* River were observed as they are polluting *Borkena* River with bad smell.

*Aba Sharew/Wuranie* River is the other large tributary of Borkena River, which joins to Borkena River beneath the Kombolcha Bridge. This river carried huge solid and liquid wastes and joins Borkena River. As of the local people's views and the researchers' observation, *Aba Sharew* River became a dumping canal for leather industry and meat

production in the area (*Kombolcha* town). It carried very bad smell water and blackish colored. In general, the local people in the Borkena River basin confirmed that they used the river water for social and economic purposes previously. These include recreation (swimming and walking site), healing and ritual purposes, household use (drinking, washing, bathing, construct mud houses), economic (irrigation), for animal farming and related purposes. However, currently, the river water is highly polluted and they fear the chemical dumped from industries to use it. Some peoples and animal used the water are faced illness like itching and skin diseases. In the same manner, one youth around Kutaber Woreda (upper riparian) said they used the river water for hygiene purposes throughout the year. However, currently they fear to use it due to poisonous wastes dumped in it from different pollutants.

In general, the local community adjacent to *Borkena* Riverbank confirmed that previously the river had contained large volume of water, which was used for socio-economic purposes (ritual practices, recreational, bathing, washing, cattle rearing, irrigation etc). However, currently the amount of water decrease and the local community refrain to use the Borkena river water because it is highly polluted. As the researchers observed from *Kutaber Woreda* to *Sembetie*, different government, NGOs, business institutions, households and individuals participated in depleting *Borkena* River. Among others, the major depleting actors are households adjacent to the river, hospitals (both public and private), condominium houses, hotels, Wollo University, *Dessie* Tissue Culture, garages, abattoirs, carwash and industries.

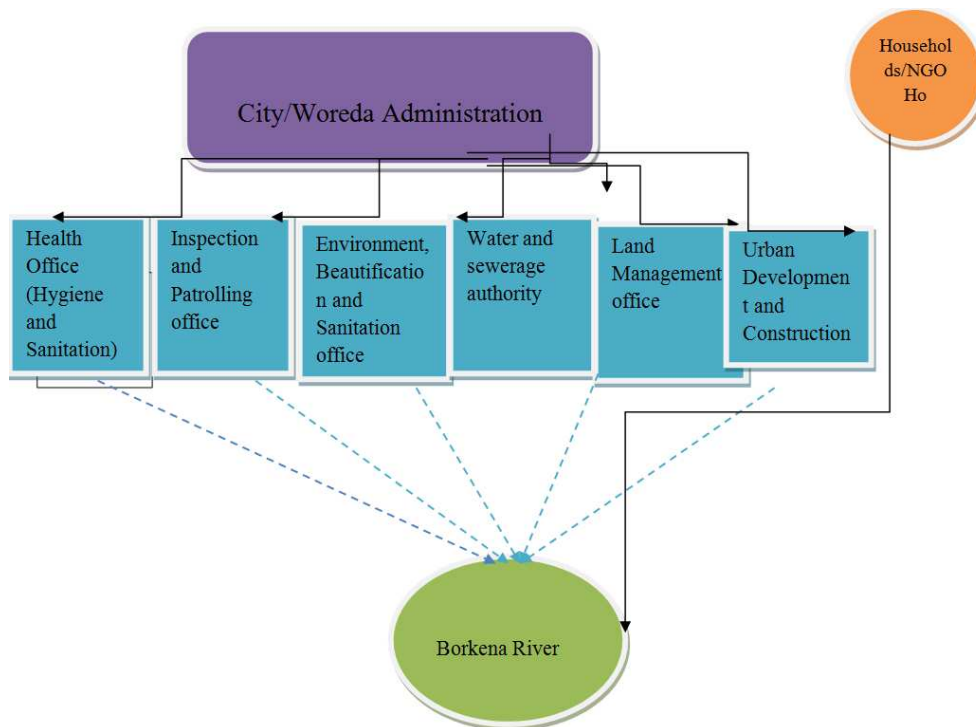
## 6. Trends and Actors of Borkena River Water Governance

As introduced in the conceptual framework, the trends and actors of Borkena River water governance was assessed against the three layers of water governance models developed by Global Water Centre (GWC). According to GWC, the first requirement for the assessment of water governance is the content layer, which includes policies, knowledge's, skills and information about the river water understudy. *Borkena* River water began from *Kutaber* Woredain Amhara regional state and join Awash River in Afar, which is trans-regional River as per the FDRE constitution. Therefore, the policy governing the Borkena river water is the water policy and regulations of federal government. Under the jurisdiction of federal government the FDRE constitution, the water resources policy (WRP), Ethiopian water resource management proclamation and different regulations introduced by the council of ministry are in effect. However, there is high scarcity of multi-disciplinary experts and skills of water governance in the local government, Dessie. According to Dessie town water and sewerage authority office chairperson, currently there is knowledge and skill gap to govern the complex problem of

river water resources in the town. The researchers observed that there is lack of understanding the importance's of river water resources by the officials, the business community and households adjacent to Borkena River. For them Borkena River is a no man's land and use it as dumping site. Therefore, it is found that there is information and knowledge gap in the area.

The second requirement in good water governance is an adequate organizational framework together with the necessary (legal) instruments and a good financing structure (the institutional layer). Concerning Borkena River water governance, there is no specific local river water governance institutions in the study area. Though, the authority (governing Borkena River) is under the jurisdiction of proc.no.534/207 River basin authority, by implication Awash

River Basin Authority, but the authority left the area ungoverned. The basin authority did neither delegate its power to the local government nor open the branch office at local government. However, there are government sectors, which directly or indirectly responsible for conserving and governing river water in general, and Borkena River in particular. The Amhara regional state *Woreda* and city administration structure shows that some government sectors and Non-government actors participate in conserving and governing *Borkena* River. Despite the absence of particular sector to conserve Borkena River, different sectors have inefficient engagement with unclear roles and responsibilities towards the river water governance. Having this, the following government sectors are directly and indirectly participate in Borkena river water management.



Source: Developed by the Researchers (2019).

**Figure 4.** Actors of Borkena River Water Governance.

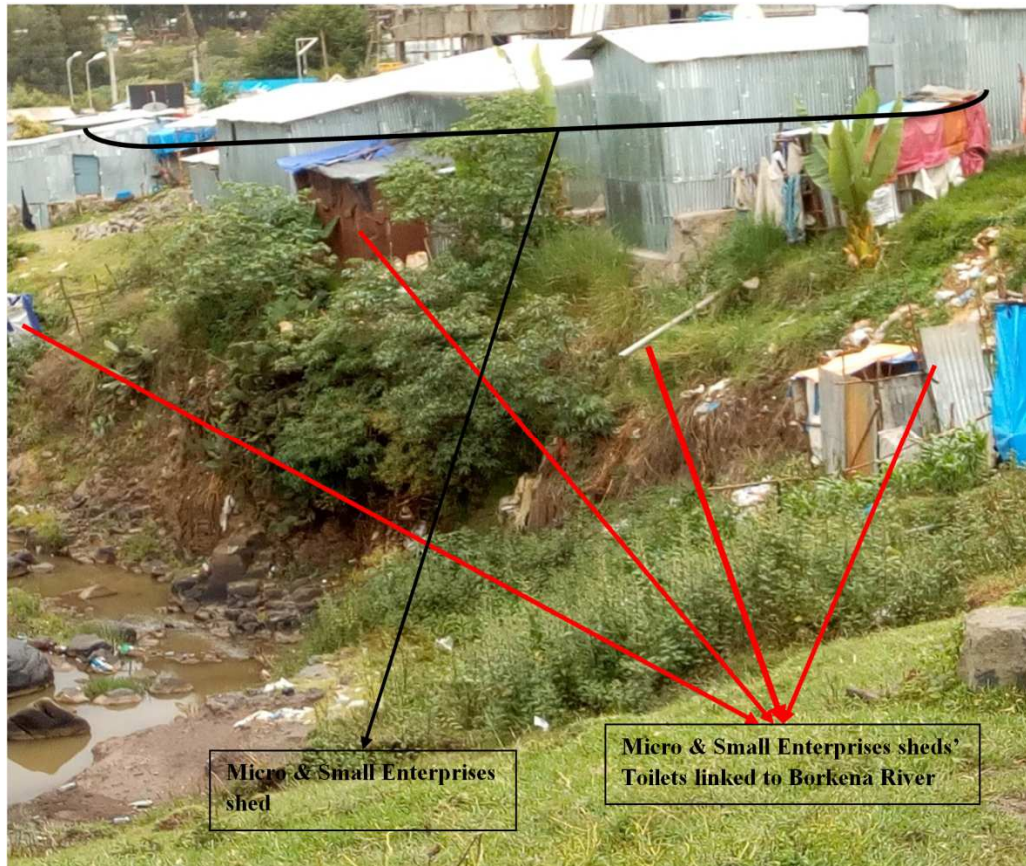
Thus, specific responsible institution in governing river water at local government (city/*Woreda*) was not found, whereas, different government sectors are (in) directly involved in river water governance. Of these institutions, *Woreda/city* environmental, beautification and sanitation office did not consider Borkena River as resource that needs attention. The water and irrigation office experts also argued that their concern is with drinking water and small-scale irrigation not the river. Despite the preciousness of water resource, officials in all levels did not consider river as properties. Land management also did not include the river as important resources and allocating riverbanks for construction by violating 50 meters river buffer zones. The aforementioned institutions did not work interactively towards river governance. Each of institutions responsible to river governance focuses for their own major purposes. For

example, the general intention of Environmental protection, beautification and sanitation office is to integrate environmental protection and sanitation work. In practices the Environmental, protection department is limited to awareness creation through environmental clubs, face to face discussion, Brochures, workshops, Radio and other mass media method. As the data obtained from the offices documents and the interviews shows that, the office focused more on waste management than environmental protection particularly in the river governance.

The third layer of water governance assessment is relational layer, which make Borkena River water governance more difficult. As the data showed, the concerned institutions have both normative and institutional dissonance, (there is no cooperation and communication). Apart from normative dissonances, institutional mal-functioning and

disharmonious relation is a pervasive challenge. For example, Environmental Protection office merged to Beautification and Sanitation office by leaving important power to land management office. The office is limited to awareness creation purpose. Structurally, the Environmental protection office is under the jurisdiction of Sanitation office, which is narrower than the limit of the former office. On the other hand liquid waste management brought to Water and sewerage (previously water office) which make the waste

management system highly fragmented. Not only fragmentation but also the water office fails to perform appropriate liquid waste management. At sub city, level the office has no budget, sufficient human resource, position for Sanitation and Beautification office. Thus, there major activity is limited in approving and examining project impact assessment (IA) and environmental impact assessment (EIA) for business organization only.



Source: Photo taken at Dessie, Buabuawuha Sub-City (field Observation, 2019).

**Figure 5.** Micro & Small Enterprises sheds' Toilets linked to Borkena River.



**Figure 6.** Dessie, Buabuawuha Sub-City Riverside Greenery achievements.

Source: Photo taken at Dessie, Buabuawuha Sub-City (field Observation, 2019).

### 6.1. Good Trends on Borkena River Water Governance

In addition to government sectors, some non-government Organizations are working in collaboration with government and individuals to conserve Borkena River water. According to Dessie city Environmental protection, beautification and sanitation office, the following NGOs participated in conserving Borkena River Water. These are; Safety Net Program (SNP) (Tossa and Azewa Project- that the poor people participate in conserving Borkena River for five days a month and earns 75 ETB per person). Climate Change Adaptation (CCA) – did the same to the Safety Net Program. WaSH Project- is a project designed to prevent city pollution. The project launch a team work; string and technical committee. However, the project period become phase out and less successful. Mekaneyesuschurch; Buabuawuha sub-city, also did an exemplary works by rehabilitating the highly



polluted Borkena riverside around Gabriel Bridge and turns the area into greenery. Although, the area Mekaneyesuschurch changed to greenery is too small, it is good model to change depleted area easily to green area. However, the common problem is there is lack of coordination and cooperation among these governmental and non-governmental institutions.

Similar to the *Mekaneyesus* church's greenery, there are some conservational practices here and there on the River basins like *Zemageal* watershed, *Robit* greenery, the *Bret Dildy*, *Kombolchagreenery*, *Keragreenery*, *Dereku Dildy*, *Buabuawuha* urban agriculture plan and riverside public recreational site, terrace building, although it is not comprehensive and institutionally planned. From the field observation in the course of the river, the researchers learn that Desso River, from Megenteya to Gabriel Bridge is less polluted. The intuitions bordering the river in this segment relatively did not release both solid and liquid wastes, as compared to the other segments. According to the officer in Environmental protection, beautification and sanitation office, practical moves are not performed unlike the prevalence of different legal frameworks. According to him, they have no power to take corrective measures compared to Sanitation and hygiene office and patrolling agency, by saying that the office become handicapped. Furthermore, there is also municipal rule approved by the Dessie city council named 'the Polluters Punishment Declaration'. Despite its existence the corrective measure are not taking regularly. Environmental office workers complain for difficulties in making religious institutions accountable for polluting the river. At sub-city, level there is no public space and roadside janitors. Unlike workload is left to sub city the roadside janitors are under the city administration. The role of water and sewerage institutions asserted that they are not responsible for managing rivers rather the spring, which are source for the offices water institutions. Hence, Borkena become no man's land.

## 6.2. Challenges of Borkena River Water Governance

As seen in the above discussion, there is no particular institution working on local river water governance as well as there is no strong cooperation and communication among local government sectors which have (in) direct responsibility to govern Borkena River water. It is only different government sectors indirectly involving in conservation and governance of river water as additional responsibility. As aforementioned, there are six government sectors indirectly involving in river water governance at *Woreda*/city levels. However, the sectors are not successful in governing Borkena river water. Among others, the following are the major challenges of Borkena river water governance;

### 6.2.1. Lack of Expert

There is high scarcity of multi-disciplinary experts (environmental health, public health, geology, geography, socio-economic, soil, water, engineers, public law, plant

science, peace, and development) with the required experience. This problem manifests in failure to support, advice and obligate large factories/institutions to build treatment plants. The city is also facing treatment site selection and administration, which is challenged by the topography, geological and underground water nature of the town. In some offices, there are experts and officials misunderstood of their roles and responsibilities. In addition, as the Dessie town water and sewerage authority explain, this time is the age of globalization that need multi-disciplinary professionals whereas the current reality in Ethiopia is otherwise. The allocation of work force is also too little to carry out the expected work.

### 6.2.2. Absence of Ownership

As discussed in the above section, there is no particular institution responsible for local river water governance. Even, the six sectors dealing with river water governance are by themselves having no clear roles and responsibilities concerning River water governance. The way they structured is very fragmented. There is no sense of ownership and belongingness, all individuals and institutions participate in polluting the river. Borkena River is considered as left over spaces-no man's land and dumping area.

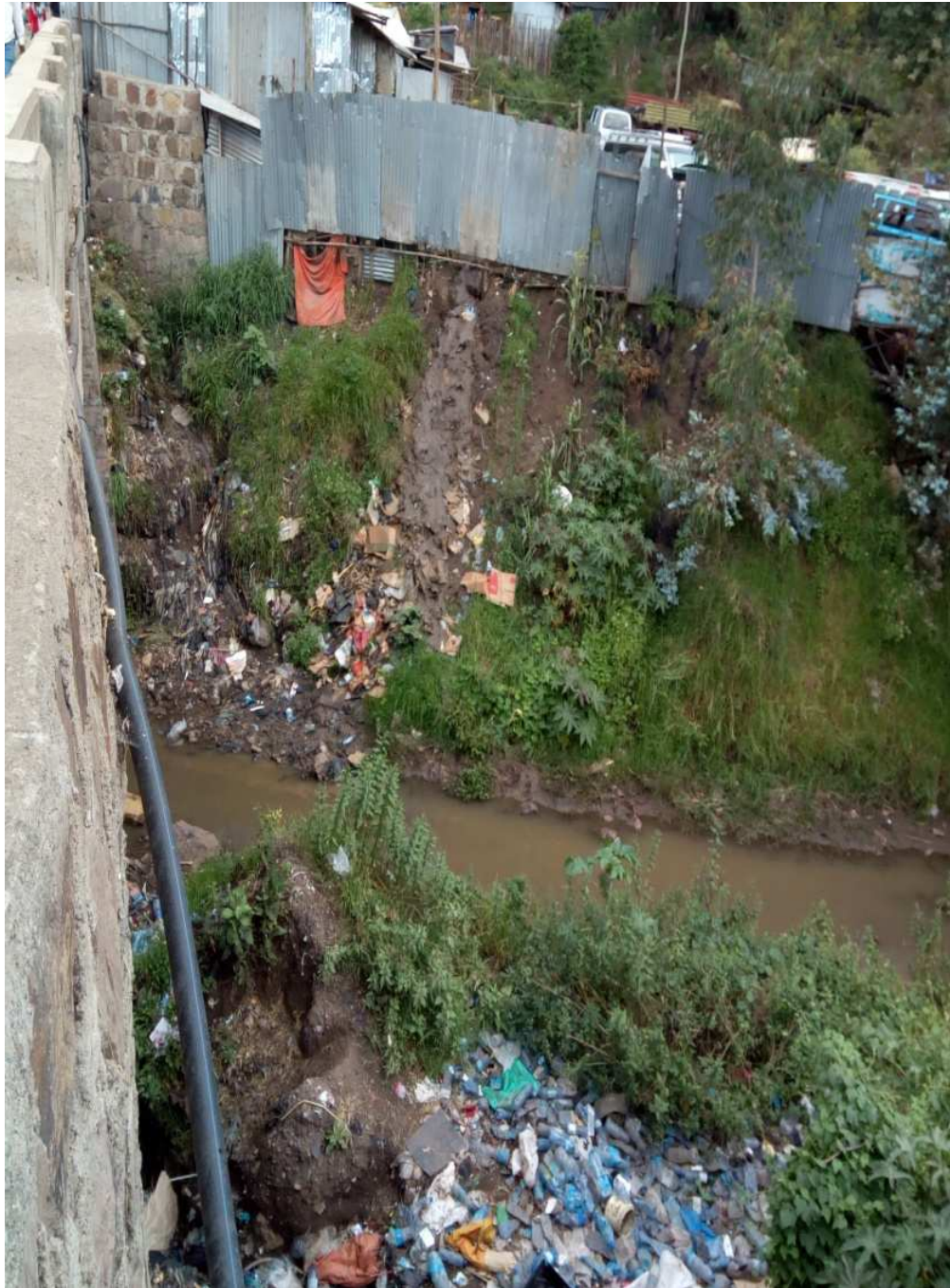
In the local government administrative structures, river water governance has no autonomous structure or institution. The existing structure leave the river water governance ungoverned. Thus, the river water governance implicitly left for Environmental protection and other offices responsible for sanitation, beautification, land and water issues. Nevertheless, the structure itself is taking environmental issue as secondary matter. The office has no budget, limited authority is assigned, is not autonomous compared to it equivalent offices. As the officer said, the political issues affect the work of the office and chief executives lack commitment and devotion towards environment unlike the country's international green economy commitment. Local Politician undermines the work of the office, by condemn, as "environment is not bread". In this way river water become ungoverned space and river water considered as valueless resources and river basins considered as free spaces where everybody use for whatever purpose it needs like dumping solid and liquid wastes, individual and group toilets, shelter/illegal housing and economic sources (extracting stones and irrigation).

### 6.2.3. Mass Pollution (Everybody Is Pollutant)

The river water from the source-*Kutaber* to *Sembetie* found highly polluted to the extent of water death. The main challenges why the government sectors unable to control these pollution is because of everybody including government institutions are participating in the depletion. As of the *Dessie* town Environmental protection, beautification and sanitation department head, everybody is participating in depleting *Borkena* River, which makes taking corrective measure more difficult. Adding the *Buabuawuha* sub-city

Environmental protection experts said that some institutions align the case with religious and politics when their office tried to take corrective measures by citing the case of carwash and garage beneath Gabriel bridge which rent the

work premise. As the officer said it, need comprehensive work on awareness creation and political commitment to solve the problem for all.



Source: Photo taken at Dessie town (field Observation, 2019).

**Figure 7.** Pollution dumped to Borkena River at Dessie Town.

#### **6.2.4. Weak Institutional Capacity and Cooperation**

The offices associated/working on river water in particular and environment and sanitation at large are poorly organized, less empowered and lack sufficient budget and human resources. As of the Dessie town environmental protection, beautification and sanitation department leader, the office are

poorly organized and are not equipped with modern pollution investigation tools and standards. For example, the Dessie town Environmental protection, Beautification and Sanitation has no Dustbin, sound pollution measurement device and Water pollution measurement device. According to the department head, they face the problem of identifying the level of pollution and who polluted and how much to bring

the pollutants in front of the law. In addition, there are weak inter-institutional linkages among government sectors directly and indirectly working on River water governance.

In addition, of the problem of lack of particular institution responsible for river water governance, the existing institutions listed above fail to work interactively in protecting the river and deterring pollutants. There is no clear roadmap of the roles and responsibility of each institution; what roles and responsibilities each institution have on river water governances and how one institution can work with others. This institutional fragmentation left the issues of river water governance in vain. While institutional fragmentation happened, it creates institutional instability. Institutions that are responsible for the protections of the river repeatedly shift their roles and change their major focal point; they marginalized river governance as the sideline issue.

### 6.2.5. Absence of Accountability

The government institutions fail to take measure against the government agency pollutants. The structure itself is taking environmental issue in general and river water in particular as secondary matter. Since the role of the institutions are overlapping, contradictory and nonbinding. In some situation, one institution is dependent on the decision of the other. Because lack of precise responsibility of the institutions and lack of institutional capacity in different respect, it is hard to make the experts and the institutions accountable for their failure in preserving the natural resource in and around the river. Since there is no single institution with clearly identified responsibilities of the government sectors, then letting a pollutant accountable become a difficult task. Thus, it is very hard to get any accountable body in the town in relation to *Borkena* River Water governance.

## 7. Concluding Remarks

Water is an essential natural resource for human beings but is scarce resource with uneven distribution. This scarce resource is now in a danger state of affairs because of human-induced environmental change and unwise plus excessive water utilization. *Borkena* River water is not exceptional from this reality and hence, this study tried to assess the trends and actors of *Borkena* River water Governances. To achieve this objective, the researchers used qualitative research approach. Both secondary and primary data were collected via focus group discussion, key informant interviews and field observation. Finally, the research reached upon the following findings;

The study focused on two major River water related issues: *Borkena* River water governance (both policy and institutions) and Actors in depleting and conserving *Borkena* River water. Concerning *Borkena* River water governance, the study come up with the finding that there is no single institution dealing with water river governance in the study area rather different government sectors like environmental protection, Beautification and Sanitation, Land management,

Water and Sewerage authority, Inspection and Patrolling and urban development office involved in fragmented manners. However, these offices are unable to conserve and govern *Borkena* river water due to the following institutional challenges. These challenges are lack of experts, absence of ownership (no single responsible institution), poor waste management system, institutional fragmentations, weak institutional capacity and absence of accountability. These institutional challenges are mainly emanated from the perception of considering river water resources everybody use it but belong to nobody (no ownership) which political scientists call as tragedy of the commons which in turn left *Borkena* river water ungoverned-orphan.

The study also assesses the nature and actors who depleting *Borkena* River water. Multiple actors are participating in depleting *Borkena* river water. These are public institutions (hospitals, University, Condominium houses, abattoir, and industries), Private Business institutions (Hospitals, hotels, factories/industries, garages, carwash), households and individuals. Especially, public institutions like hospitals, abattoirs, university and condominium were the major polluting actors followed by private business institutions like private hospitals, hotels, garage, industries and carwash. Generally this study found that *Borkena* River water governance lack specific institutions responsible for its conservation and governance. Hence, *Borkena* River faced tragedy of the commons in which everybody use/deplete it but no one is responsible for governing/conserving it. This makes *Borkena* River water an orphan resource, which in turn challenges the economic activities, performed on *Borkena* River. Based upon the finding, the researchers suggest three areas of intervention using government bureaucracy and other civic organizations. These are: (1) revising the policy documents and establishing specific river governing body at local levels;(2) Expanding good experiences of riverside basin protection in the area; and (3) Intensive awareness creation about waste management and preserving river water needs to be implemented to improve the surrounding communities' socioeconomic wellbeing that enable *Borkena* river clean and viable for future.

## Nomenclature

CCA	Climate Change Adaptation
EIA	Environmental Impact Assessment
FDRE	Federal Democratic Republic of Ethiopia
HPR	House of Peoples Representative
IA	Impact Assessment
IWRM	Integrated Water Resources Management
MoWR	Ministry of Water Resources
MoWRIE	Ministry of Water, Irrigation and Electricity
NGO	Non-Governmental Organizations
SNP	Safety Net Program
WaSH	Water, Sanitation and Hygiene
WGC	Water governance centre
WRM	Water Resources Management
WRP	water resources policy

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## References

- [1] Chellaney, Brahma (2013). *Water, Peace and War: Confronting the Global Water Crisis*. Maryland: Rowman& Littlefield Publishers.
- [2] Starr, Joyce R. (1991). *Water Wars*. *Foreign Policy*, 82, Pp. 17-36.
- [3] Davis, James R. and Rafik Hirji (2005). The Myth of Water Wars. *Georgetown Journal of International Affairs*, 6 (1), Pp. 115-124.
- [4] Homer-Dixon, Thomas F.(1991) On the Threshold: Environmental Changes as causes of acute conflict. *International Security*, 16 (2), Pp. 76-116.
- [5] Homer-Dixon, Thomas F. (1999). *Environment, Scarcity, and Violence*. Princeton, New Jersey: Princeton University Press.
- [6] Yacob Arsano, forthcoming (2015) *Beyond Drops of Water: Four Imperatives to Cooperation in the Nile Basin* (forthcoming) Nordic Africa Institute and Uppsala University, Uppsala, Sweden.
- [7] Dinar, Shlomi (2007). *Water Wars? Conflict, Cooperation, and Negotiation Over Transboundary Water*. In Velma Grover (Ed.), *Water: A Source of Conflict or Cooperation?* (Pp. 21-38). New Hampshire: Science Publishers.
- [8] CNN (2013, March 22). *The Coming Water Wars?* CNN News. Retrieved November 23, 2016 from <http://globalpublicsquare.blogs.cnn.com/2013/03/22/the-coming-water-wars/>.
- [9] Fantaw Mengesha 2008. *Channel Stability Analysis -The Case of Borkena River*. Unpublished Master Thesi, Addis Ababa University, Addis Ababa: Ethiopia.
- [10] Ketema Tadesse (1980). *Hydrology of the Borkenariver Basin Wollo-Ethiopia*. Unpublished Master Thesi, Addis Ababa University, Addis Ababa: Ethiopia.
- [11] Mesfin Sahele 2001 *Hydrogeological Investigation of The Upper And Middle Borkena River Catchment, Northern Ethiopia, Wollo*. Unpublished Master Thesi, Addis Ababa University, Addis Ababa: Ethiopia.
- [12] Mohammed Awole (2015). *Assessment of Heavy Metal Contamination Levels of the Vegetable Cultivated Along Two Tributaries of Borkena River at Kombolcha Town*. Unpublished Master Thesi, Addis Ababa University, Addis Ababa: Ethiopia.
- [13] Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*. Textbooks Collection. Book 3.
- [14] Guest, Greg, Natasha Mack, Cynthia Woodson, Kathleen Macqueen and Emily Namey (2005). *Qualitative Research Methods: A Data Collector's Field Guide*. USA: Family Health International.
- [15] Moore, M.-L. (2013). Perspectives of complexity in water governance: Local experiences of global trends. *Water Alternatives* 6 (3): 487-505.
- [16] Hemel, Ronald and Henk, Loijenga. (2013). *Set up of a water governance program in the Awash river basin, central Ethiopia: Assessment of water governance capacity in the Awash river basin*. Report, Water Governance Centre.
- [17] FDRE constitution (1995). *The constitution of FDRE*. Negaritgazeta.
- [18] Solomon, Yimenu, (2016), *Water Resource Management in Ethiopia: Normative and Institutional Analysis*, MA Thesis, Addis Ababa University, Addis Ababa, Ethiopia.
- [19] *Ethiopian Water Resources Management Proclamation No.197/2000*.
- [20] Amhara National Regional states Water Resource Development Bureau (BOWRD) (2016). *Feasibility Study and Detailed Design of Borkena –Sakli Intake Small Scale Irrigation Project: Volume I Watershed Management Final Report*, Dessie, Ethiopia.