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Water Services Sustainability: Institutional Arrangements and Shared Responsibilities

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Abstract: Poor water services in developing countries after national conflict as a result of institutional setups and devastating infrastructures. This study assesses how institutional arrangements have affected the poor water services in Somalia, through thematic analyses. The huge gap in the literature about Somalia highlights the significant need of such research works and the originality of this paper. For this paper, different stakeholders were interviewed from seven zones of the city of Garowe. The results show that public private partnerships (PPP) play a vital role in providing drinking water. The results show that the institutions involved in the water sector in Puntland are not well organized. Roles and responsibilities were unclear, and different governmental institutions criticized each other for deliberately taking over others' responsibilities, leading to poor and over-priced domestic water quality. Most consumers cannot afford a drinking water supply to their homes, so they are forced to walk long distances and queue for a long time in order to access water. Our analysis shows that it will be difficult for Somalia to achieve Sustainable Development Goal six (SDG 6) (target one) under the current institutional arrangements. Institutional reforms are recommended in the water sector in order to achieve SDG 6 (Target one), and to ensure safe drinking water in Puntland by 2030.

Keywords: public private partnerships; SDGs; institutional setups; water supply; post-conflict services; Somalia

1. Introduction

1.1. Background and Post-Conflict Situations

The Republic of Somalia (Figure 1) was formed in 1960 by the federation of a former Italian colony, and a British protectorate. It is surrounded by Djibouti, Ethiopia, Kenya, and the Indian Ocean, with a total area of 637,657 km^2 and a total population about 14 million (2017 est.) [1]. The climate in Somalia is mainly dry and hot, with landscapes of thorn bush savanna and semidesert [1].

After its independence in 1960, Somalia went through nine years of stability, followed by a war with Ethiopia, and then a conflict (civil war) after the collapse of the central government in 1991, which made the dictator, Mohamed Siad Barre, flee the country, after about 1,000,000 Somalis had died [2].

The United Nations (UN) tried to interfere, but because of significant casualties, the whole UN mission left Somalia on 3 March 1995. Then, the UN set up an office in Kenya, to monitor the situation in Somalia, and started to cooperate with the African Union. However, the situation got worse; Ethiopia interfered in 2006, the United States conducted airstrikes using AC-130 gunships against Islamist positions in 2007, and then the country was divided [3].

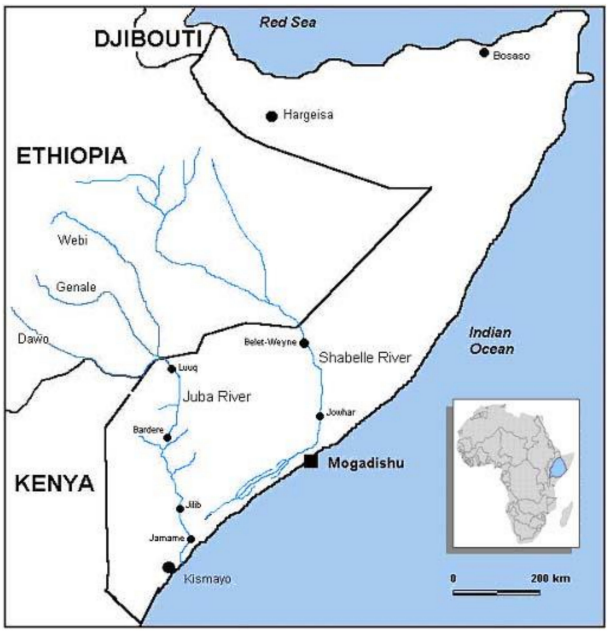

Figure 1. Map of Somalia [4].

The civil war destroyed most of the country's infrastructure, including its water services [5]. In 2000, a cholera outbreak occurred as a result of unsanitary water, and killed hundreds of Somalis. In 2006, thousands of Somalis fled to Kenya to escape drought, famine, and fighting; then, in 2007, the UN Security Council approved a six-month African Union peacekeeping mission, which included 8000 troops from neighboring countries [6]. In 2010, Al-Shabab formally declared an alliance with al-Qaeda, and began to concentrate troops for a major offensive, so as to capture the capital, which made the UN World Food Program withdraw from the Al-Shabab areas of southern Somalia after threats to the lives of its staff, after which famine killed about 260,000 people [7]. All of the above affected access to water and sanitation, and made safe water one of the most difficult commodities in Somalia [8].

1.2. Water Supply Management

Before the civil war, and as with many developing countries, the central government was responsible for water supply, operation, and maintenance through one of its ministries [9]. In most parts of the country, people depended on groundwater as a major source of water for drinking, cooking, washing, and so on, which led to a huge water shortage. However, as a result of the civil war, most of the water infrastructures that were managed by the previous government became out-of-order. People started to move to cities for a better life, which increased the pressure on the already poorly operated infrastructure. Population growth doubled, especially in pacified areas of the country [10]. UNICEF, with the help of the European Union, implemented public private partnerships (PPP) projects in selected areas. It was obvious that these PPP projects worked well, and that the situation had changed [9].

Somaliland and Puntland regions have tried to readjust the water supply by employing local water supply providers, including public private partnerships (PPPs), which replaced the community managed water supply systems, under long term concessions [11]. PPPs played a positive role in supplying water services to the population. Moreover, small water entities were locally established so as to manage and distribute water at a local and regional level. These utilities were monitored by local government agencies, especially in Somaliland and Puntland states. However, the services were very low because of an unwillingness to expand the service, the poor water quality, and the high prices. Gulled et al. [9] stated that the poor and non-existent water resource management plans were due to many parallel responsibilities for providing water, either by construction, management,

or maintenance, which led to the creation of many organizational plans, but without common goals to be achieved between the institutions.

Currently, the water supply in Garowe is managed by the Nugal Water Company (NUWACO), which provides water through pipelines connected to the households, while serving as a contractor with PSAWEN under a concession agreement. Groundwater is the main resource for NUWACO, however, the water is not drinkable as it contains high levels of minerals. Another company, called the Alna'im Water Company, provides treated water through trucks and tanks, and is more expensive than NUWACO's untreated water. This makes the treated water unaffordable. Therefore, people use it for drinking only. Many poor and low-income households use harvested water from their roofs, which is collected and stored in underground tanks that were constructed by local NGOs. These different types of water sources and uses are indicators of poor water management, as well as a lack of clear policies and coordination among institutions. Moreover, the lack of political will to serve safe, affordable, and reliable drinking water was the main reason that the Minimum Development Goals (MDGs) were not achieved, and will in turn hinder the achievement of SDG 6.

1.3. Water Resources in Somalia

Somalia can be divided into the following nine major water basins: the Gulf of Aden, Darror, Tug Der/Nugal, Ogaden, Shabelle, Juba, Lag Dera, Lag Badana, and the Central Coastal Basin [12]. The Juba and Shabelle rivers are very important in Somalia, and have been described as the breadbasket of Somalia [13]. The estimated available water in Somalia is about 14.7 km^3, which is mainly contributed by two rivers, Juba and Shebelle, and the annual withdrawal rate is around 3.3 km^3 [14,15].

In addition to the Juba and Shabelle rivers, the water resources in Somalia include the following: 25 dams, 300 springs, 600 boreholes, and 2000 shallow wells [16]. According to the traditional Somalian custom, the right to use water depends on access to land along the rivers [13]. The Natural Water Resources Law of 1984, as well as some other legislations, are used to manage the water resources in Somalia [13]. The water supply is managed by the private sector, with a little or no governmental support. This sector is mainly supported by international donors, while public institutions serve as facilitators. At a federal level, the Ministry of Energy and Water Resources is responsible for managing the water resources of the country. According to UNICEF, only 32% of the total population in Somalia has access to safe drinking water, and 39% have access to safe sanitation [17]. People, especially women/girls (Figure 2), walk long distances in the rural villages under the hot sub Saharan sun to fetch water. The prices are high, which makes it difficult for poor people to be able to afford, so most of the rural areas depend on untreated rain water, which increases outbreaks of water borne diseases [17]. The lack of clean and safe water has increased water-borne diseases, especially Cholera, and has led to a high mortality rate in the country, especially for children under five years old, where the mortality rate is up to about 133 per 1000 live births [14].

Because of a lack of baseline information, it is difficult to know the exact percentage of the population who have access to a safe drinking water, however, UNICEF [17] reported that 32% of the 14 million Somalis has access to a safe drinking water, as a result of the significant efforts of the international donors and private sector involvement. In its national development plan of 2017–2019, the government mentioned its willingness to increase this percentage to 45% by 2019, by reforming the national and institutional policies at federal and district levels [18].

Figure 2. A young girl carrying water on her back (left) and a woman queuing (right).

1.4. Transboundary Water Resources in Somalia

Given the relevance of water scarcity discourses on transboundary water governance [19], it is necessary to illustrate some aspects of the transboundary water resources in Somalia. Of the Juba and Shabelle rivers, 90% originate from Ethiopia, and some from Kenya [13], making them vulnerable to upstream uses. The two basins face the following challenges [13]:

- Insecurity and lack of access: many areas are still not accessible to development agencies;
- Most of the required data and information for the development and management of water resources in Somalia is missed, and the monitoring network is limited;
- The transboundary nature of the Juba and Shabelle basins complicate the proper planning, development, and management of water resources; and
- Lack of resources: according to Food and Agriculture Organization of the United Nation (FAO), 100 million USD is required for an integrated water resources management system in the region.

Therefore, information sharing between countries would help overcome this challenge, and further studies are needed in order to suggest possible transboundary management plans, taking into account different water uses, socioeconomic factors, hydro-political relations, and sustainability.

1.5. SDG 6 in Somalia

In 2016, the UN Sustainable Development Goals (SDGs) replaced the Minimum Development Goals (MDGs), introducing 17 goals and 169 targets [20]. The SDGs summarized the needs of each corner of the country.

SDG 6 ("ensure access to water and sanitation for all") has eight targets, focusing on safe drinking water, equitable sanitation, reducing pollution, increasing water-use efficiency, implementing integrated water resource management at all levels, protecting and restoring water-related ecosystems, expanding international cooperation and capacity-building support, and strengthening the participation of local communities [21]. SDG 6 is the core and integral part of achieving the five other goals, including SDG1 (no poverty), SDG 2 (no hunger), SDG 3 (good health), SDG 4 (life below water), and SDG 15 (life on land) [22].

Food security is under threat in Somalia because of rainfall decrease, crop failure, pasture shortages, and water shortages. All of these have increased food prices and animal deaths, resulting in

3 million people not receiving their daily food needs. The inability to achieve SDG 2 (no hunger) and food security can be solved by providing reliable water for agricultural production, considering water efficiency and crop water requirement [23,24].

The decrease in agricultural production has also impacted achieving zero poverty, as well as the economic growth of the country, as agricultural production is the main sector of Somalia, which more than 60% of the people depend on. The gross domestic product (GDP) of Somalia declined to 2.5% in 2017, from an estimated growth of 3.7% in 2016, because of the lower agricultural production [25].

Providing water and sanitation facilities in schools increased the wellbeing of the children and their attendance in schools, especially the girls, which means achieving SDG 6 leads to achieving SDG 3, of good health and well-being, by 2030. Moreover, 19% of child deaths (under five) were from diarrhea, which is a water-related disease [17].

1.6. Roles of Public Private Partnerships (PPP)

PPP is a kind of cooperation between the public and private sectors, to achieve a goal together, with the same targets and shared risks [26]. There are different categories of involving the private sector in the water sector, which may include the design, construction of facilities, finance, operation, and/or management.

In all of the options of the PPPs, public authority is always responsible for supervising the activities, ensuring that public needs are met, by setting the standards and enforcing them [27]. Private sector involvement has brought a lot of advantages in filling the government's position of providing the required services in efficient ways, but it needs to do more to reach the level of international market competition.

The performance of water supply should not only depend on the ownership of public or private partners. Regulations, transparency, and accountability are the main factors for the performance of water supply systems in order to be successful in PPP form [28]. However, before the implementation of the PPP, the city of Qardho used to face water shortages and frequent water borne disease (diarrhea) [29]. However, after the implementation of the PPP project, the situation got better, and women walked shorter distances to fetch water. Moreover, the outbreak of disease was dropped down, and the standard of living in the city improved.

Actually, there are a number of challenges that reduce water coverage, including the willingness of the PPPs to implement new projects in other areas. Hence, some areas face a decline of the water table as a result of the over pumping of groundwater. Water quality has also been criticized in the PPP of Somalia because of the chemical and biological contaminations of the pumped water [9].

Many researchers have focused on the regulations, successes, and influence of the PPP, but very few have focused on the achievements of the PPP. This paper, therefore, is aimed at assessing the impact of the shared responsibilities of different institutions on the water sector, its effect on poor water services, and its relationship with achieving SDG 6 (target 1), by exploring the current institutional setups and the roles of different institutions in the water sector, investigating the overlapping effect of shared responsibilities on the deterioration of the water services, highlighting the roles of public private partnership in improving water supply, and identifying the challenges towards achieving SDG 6 (target 1).

2. Methodology

2.1. Research Area

Garowe is located in the north-eastern part of Somalia (Figure 3), with a total population about 200,000 residents. The elevation ranges from 100 to 500 m above sea level, and it is surrounded by Nugal Valley. It is the administrative capital of Puntland State of Somalia. After the outbreak of the civil war in Somalia, Garowe hosed thousands of people who fled from the war areas in the southern part of the country.

Figure 3. Garowe, Somalia [30].

The weather in Garowe is hot, sunny, and dry from November to February, while it rains in April. Temperatures range from 23 °C in winter, to 41 °C in summer. The average annual rainfall is low, at about 123 mm. Therefore, groundwater is the main source of water supplies for Garowe.

2.2. Research Design

This research was carried out in an urban area by interviewing the local people and some governmental representatives at different levels in the water sector.

For sampling, a non-probabilistic sampling method was adopted, where the researcher had a choice to select the respondents to be interviewed. The main reason behind this selection was to select the informative source about the core of water supply in the region. At PSAWEN, a water engineer, an expert, geologist, and a director were selected. They were the main runners of water supply at this important agency for the research that helped the research problem to be more deeply understood. Similarly, at the Nugal Water Company (NUWACO), which is the main provider of water supply in Garowe, the deputy head of the company was purposively selected, because he had worked there for a long period. Also, an engineer from the Ministry of Environment (MoE) was selected and interviewed. From the local municipality, the director of social affairs was selected. Other participants, such as households, were selected according to the previous categories.

The total number of the key informants that were interviewed was seven. The interviewing of the key informants in the field of water sector institutions in Puntland and Garowe specifically, was one of the approaches that we used to collect information through questions. Also, this type of interview gave the respondents space to feel comfortable to share their thoughts, but also, the questions were consistent and in order. In this type of interview, the respondents were selected on purpose, based on their positions and on the information as mentioned above. Most of the interviews were conducted in face-to-face meetings after agreed appointments.

For in-depth interviews, Glaser and Strauss [31] recommended that, in the qualitative research, the concept of saturation is applicable to achieve an appropriate sample size. Morse [32] suggested 30–50 participants, while Creswell [33] suggested only 20–30 participants in the interview. In this paper, considering the available resources and the study objective, 20 participants across the city were selected for in-depth interviews. The interviews of the 20 randomly selected households were conducted through a guide who translated the questions to Somali language in seven zones of the city; three households of each zone were interviewed, except one zone, where two households were selected. The interviews aimed to capture the necessary information for this research; especially the amount of used water, income, and water availability.

2.3. Ethical Statement

The Pan African University Institute of Water and Energy Sciences (including Climate Change) (PAUWES) did not require prior ethical approval for this study. The people who were asked to participate were not specifically vulnerable, and the interview questions were not sensitive. Moreover, the respondents were told in advance, prior to the interviews, that the main purpose of the interview was research, and we made it clear that names would not appear in any outreach activity.

3. Results and Discussion

3.1. Socio-Demographic Characteristics of the Participants

3.1.1. In-Depth Interviews

From the household's interviews (Figure 3), twenty respondents were interviewed, consisting of men, who mostly manage the family affairs, and traditionally, women, who take care of the issues of water in Somalia. Of the participants, 45% (n = 9) were male, while 55% (n = 11) were female; three (3) households were selected from each zone in the city, except one, from IDP, where the total households living there were 150. Of the participants, 55% of their income was between $100–200 per month, while 30% varied according to the seasons of the year, as they do not have permanent jobs, while 15% were between $200–500.

The amount of tap water used per month varied according to the number of households and their income. Of the households, 60% contained six to eight members, and consumed between 5–8 m^3/month; 35% contained four to six members, and consumed 4–6 m^3/ month, while 10% of the households contained four to eight members, and consumed 8–10 m^3/month.

Table 1 shows the number of people that were interviewed during the study from the seven zones of the city.

Table 1. Number of households' respondents at the different zones.

Name of the Zone	Respondent
Waberi	3
Hodon	3
Hantiwadaag	3
1st August	3
Horseed	3
Khayraad IDP	3
Jawle IDP	2
Total	20

The results showed that poor households with an income of about $150 US, spent more money on drinking water than the higher income households, Table 2.

Table 2. HH income and their expenditure on water.

Households Income ($US)	Tap Water (m^3/Month)	Spent Income for Tap Water [1] (US$)	Spent Income for Drinking Water (US$)
150	3	US$ 3.9 (2.6% of the income)	US$ 10 (10% of the income)
300	8	US$ 10.4 (3.5% of the income)	US$ 15 (5% of the income)

[1] Tap water is not used for drinking purposes.

3.1.2. Key Informants Interview

Seven key informants were interviewed, for two hours each, from different governmental institutions, including high ranking government officials from PSAWEN, the MoE, the deputy director

of the Nugal Water Company (NUWACO), and the director of social affairs of the local municipality of the city of Garowe (Table 3).

Table 3. Details of key informants. MoE—Ministry of Environment; PSAWEN—Puntland State Water and Energy.

KI Code	Key Informants	SEX	Organization
KI01	Director of projects	M	PSAWEN
KI02	Site engineer	M	MoE
KI03	Director of social affairs	M	Local municipality
KI04	Water engineer	M	PSAWEN
KI05	Geologist	M	PSAWEN
KI06	Head section	M	MoE
KI07	Water expert	M	PSAWEN

3.2. Roles of Institutions Involved in Water Sector

3.2.1. Puntland State Water and Energy (PSAWEN)

PSAWEN is the government's main agency that has the overall responsibilities for managing the water resources of the region. Its mandates include the construction of boreholes, sand dams, the rehabilitation of the water sources (springs and boreholes), and monitoring the activities of water NGO's.

The findings showed that the agency was challenged by the MoE of Puntland, which is currently implementing constructions and the management of all surface water, including dams. The key informants interviewed during the data collection from both PSAWEN and the MoE, revealed a conflict of responsibilities.

As PSAWEN is the main governmental agency responsible for leading the water sector, it consists of only one department that is responsible for water development, called the Department of Water; under this department, there are technical engineers and geologists. The following describes how the structure of the water departments affects water development plans and projects, "a confusion and mixture of tasks in the department, and a parallel of same and different tasks carrying out by same engineer", as quoted by an engineer.

The structure is not based on a need and mandate, vision, or goal, it only stands as nominal, where the director of the department can command anyone to perform any tasks he prefers.

3.2.2. Ministry of Environment of Puntland

The findings showed that the MoE, which was established in 2009, is responsible for managing the surface water resources. It is responsible for protecting the environment, wildlife, and sources of tourism. As part of the protection, it implemented a number of water projects by constructing dams to protect the environment from degradation.

There have been resolutions led by the regional presidents (Governor) to solve this responsibility related to the conflict between the two institutions. "For the last meeting led by the president (regional governor), it has been mutually agreed that any surface water above 4 m deep is for the responsibility of the ministry of environment, while PSAWEN had the responsibilities of managing the ground water specially below 4 m deep", a quoted response by a site engineer during the key informants' interviews.

The ministry mainly has two departments dealing with water, namely: (1) The Department of Natural Resources, which deals with soil and water conservation, and (2) The Department of Climate Action, which has the rain water harvesting section.

3.2.3. Local Municipality of the City of Garowe

We found that the role of the local municipality was below our expectations. The implementation of the infrastructure of the water sector at a district level was supposed to be under the local municipality, but the lack of decentralization affected this local municipality, whereby all of the responsibilities and decisions on the water sector were taken only by the central government. "Currently every bit of action is controlled by the water agency (PSAWEN). And they do not give any consideration to the local governments, there's no water related activity, responsibility or decision that we have in our hands as the local municipality, but there's a bit of improvements that we are currently working on, such as decentralization of Education and Health", was the reply of a key informant during an interview.

As a result, there was no community involvement in water decision making, or any kind of representation at the district level, such as water users associations. The ordinary public could not interfere in these essential matters that affected their socio-economic development.

The local municipality did not have a department or sections dealing with water, except for the Department of Social Affairs, and concerning this, the director declared that "it is our responsibility to have a department or section, but we do not have that capacity for the moment and there is no decentralization in the water sector".

3.3. Effect of Sharing Responsibility in Water Sector

The two main governmental agencies that are responsible for the water sector are the MoE and Puntland state water and energy (PSAWEN) complained about taking on the tasks of the other.

Sharing the management of water supply in Puntland resulted in a poor water supply in the region, due to the mismanagement of the scarce resources. According to a key informant, there was no clear mandate for managing water resources at state level, which led to confusion about responsibilities, a collapse of water projects, and the poor people could not get adequate safe drinking water.

When it comes to the discussion on who manages the water supply or the water sector in general, the responses from PSAWEN's point of view was that "PSAWEN is the responsible for managing Puntland water resources and there is no other institution has the mandate of any water related activities", but the MoE officials said, "our role in the water supply is leading the management, construction, supervision and monitoring of the surface water in rural and urban areas, but for any underground water we leave it for PSAWEN especially the water below four meters".

Regarding to the PSAWEN role in the water supply of the city of Garowe, the responses were as follows, "our role is to dig boreholes and to cooperate with NUWACO in supplying the water". The MoE constructed Hodaal Dam near Garowe as a part of its plan to fight water scarcity in the city. However, the management approach of the MoE is different from PSAWEN, because after the completion of the project, the MoE transferred it to the community to be "a community managed water source".

When asking the director of projects of PSAWEN if he knew any other institutions involved in the water sector in Puntland, he replied as follows: "Only PSAWEN has the role for managing the water sector in Puntland and there is no any other institution in this sector".

As there was competition between government institutions about water issues, and there were no clear roles and responsibilities from the federal level, it was therefore necessary to know the perspective of the water institutions in terms of the role of the local municipalities; "it's something which is unclear but I think their role in the water supply is somehow infrastructure related, but we do not know exactly their role in this matter", was the answer from a participant from PSAWEN.

The local municipalities have no tangible roles in managing the water supply, they represent the local community needs. When asked about the role of their institutions in the water supply sector of the city of Garowe, the director of social affairs declared that "there is no decentralization of responsibilities, every task is managed by the ministries. But now we are trying to recover and decide

on behalf of the communities we represent. Regarding water issues: I have to say: local municipality do not manage any water related activity".

3.4. Institution Involved in Water Sector of Puntland

The following two questions were asked:

1. How many institutions are involved in the water supply sector in Puntland, Somalia?
2. What is the role of your institute in the water supply of Garowe, Puntland?

The key informants of PSAWEN answered that PSAWEN was the only government institution that was responsible for managing the water supply of the region; "only PSAWEN fulfills water and energy projects", as declared by the director of projects of PSAWEN.

Addressing the role of the institutions in the water supply of Garowe, PSAWEN affirmed that "our role is to dig boreholes, to construct dams and to cooperate with NUWACO for water supply".

The key informants of the MoE answered that "the ministry of environment is responsible for managing the surface water supply in urban and rural areas, like Hoodaale dam near Garowe, which is important for the people who are living in this city".

The findings showed that PSAWEN and the MoE shared responsibilities, but they had no coordination, and the tasks that they were doing were supposed to be done by one of the government institutions.

3.5. Effect of Sharing Responsibilities in Water Sector

Managing the water sector needs more than one governmental institution. There is a need for cooperation between the different governmental agencies and ministries at local and national levels. How the institutions shared responsibilities and cooperation in the water sector was crucial for this research, and the issue has been extensively discussed from the key informants' point of view.

The key informants were asked about their cooperation with other institutions of the water sector, and the PSAWEN director responded that "there's no other institution working in the water sector except, PSAWEN, whose solely responsibility is managing the water resources of Puntland", which presents the nonexistent cooperation between the governmental institutions involved in the water sector.

Another key informant from the MoE said "the water which is for irrigation was left for the ministry of agriculture which is responsible of managing for the irrigation sector of Puntland, and we leave Groundwater for PSAWEN, this is how we cooperate with other government agencies". This showed that the MoE was willing to cooperate with PSAWEN, who was insisting that they were the only government agency responsible for the water sector.

3.6. The Effect of the Overlapping Roles Within Different Institutions

In Puntland, different government institutions have the same responsibilities (overlapped responsibilities), which sometimes caused conflict between the institutions; as previously discussed from the key informants' interviews. An engineer from the MoE stated that "some governmental institutions like PSAWEN claims responsibilities of our ministry due to unknown reasons, which led to a conflict situation then the donors stopped funding some of the projects".

PSAWEN is also blaming the MoE when it comes to the overlapped roles between these two governmental bodies; a director from PSAWEN said, "regarding to water related issues in Puntland, PSAWEN is responsible in representing the government, nobody should believe other governmental agencies who claim water related roles in Puntland".

People will be negatively affected if they have the same role from different institutions. The interviewed engineer from the MoE said "the main effects is that the people will not get enough water also the donors will relocate their projects due to the conflicts between the governmental

institutions". The key informant of PSAWEN also stated the same effect from the overlapping responsibilities that existed between the governmental agencies.

3.7. The Role of PPP in Water Supply of Somalia

In the city of Garowe, NUWACO, which is a private company working as a PPP, is responsible for providing water to the people of the city. NUWACO was established in 2004 in order to fill the government role of water supply, under a PPP contract with PSAWEN. The initial investment was supported by UNICEF, and it is still being supported by UNICEF for the extension of the water supply infrastructures.

Since 2004, NUWACO has improved the water supply when it comes to the coverage level of the city, but still, there is a lot of work to be done. The people that were interviewed were complaining about the quality of the water supply, which is not suitable for drinking because of the high chemical content, which made it unpleasant for drinking. Of the participants, 70% complained about the quality of the water, which forced them to use another source of water, apart from tap water, for drinking and cooking.

From the field visits, we found that the price of one cubic meter of water was $1.3; as a result, the average person living in this city will pay between $6–20 per month for water from a tap that is not drinkable. The price of the tap water was one of the toughest issues and was the most spoken about by the respondents, who mentioned that it was too expensive for them compared to their income, especially for the poor and internally displaced people. Drinking water, on the other hand, will cost $15–30 for an average household of six people.

3.8. Community Perception on the Water Provided by the PPP

3.8.1. Water Quality

The used water, according to the interviews, varied from 2 to 8 m^3/month based on the social status. However, only 15% of the participants were satisfied with the quality of the tap water, which is supplied by NUWACO. A participant from Hantiwadaag said "it is hard to drink so we use it for washing clothes and houses, not for drinking or cooking. It is salty and it may affect our health, we have also realized it leaves stones in the kidneys". A participant from the Waberi zone mentioned the following: "In general, the quality of this tap water is not good, that's why we use other sources of water for drinking".

3.8.2. Affordability of the Water

The price of water depends on the consumed amount of water by a household per month. On average, it is around $1.3 per cubic meter.

From the interviews with the selected participants, it was reported that price was one of the major concerns after water quality, especially for the low-income households. Six households out of the twenty pay from 4.5–10 US$ per month. Seven of the selected households pay from $10–20 per month, while nine households pay more than 20 US$ per month. Five households complained about the high pressure of the water flow, which led to errors in the reading devices (m), and when they reported this issue to the company, they were forced to change the meters. In general, fourteen out of the twenty participants said that water is expensive. A respondent from low income households stated that "the quality of the water is not good, and the price is high for households like us who does not have a permanent salary".

3.8.3. Water Supply Extension

Since the private company, NUWACO, has taken responsibility for supplying the water in the city of Garowe, the service was extended, and this improved the coverage of the water supply in the city.

But the private company made water an economic good rather than a right that every citizen should enjoy, which affected the poor people, especially the children.

The private company signed a contract with the government to supply water, while the government's role is to maintain the infrastructure and the extensions. "The government is not fulfilling its role which was maintenance and extensions of the service", said a deputy director of NUWACO.

From the interviews, it was discovered that every household should pay $180 to get tap water in front of their house or less than 20 m away.

3.9. Challenges to Meets SDG 6

Supplying clean water for everyone in Somalia by 2030 is one of the goals that the country is committed to achieve (SDG 6, target 1). However, there are many things to be resolved before approaching this achievement. The institutions involved in the water sector are fragmented with poor cooperation, no clear roles and responsibilities between and within the governmental institutions, and there are no policies or strategies for those involved in the water sector.

"The institutions are not ready to achieve that goal when you look to their vision or projects they are implementing, maybe some of the higher official or decision makers are not aware of these international goals especially in the regional and local level", was the response from a key informant's interview. He continued, "the structure of the government agencies is applicable to achieve such goals but, the rural areas are almost neglected".

The key challenges of achieving goal six (target one), according to a key informant from PSAWEN, were funding, policies, and expertise; "there is no enough government budget to do all these works, our policies are not up to date, and there are droughts and technical challenges", he responded.

Moreover, all of the key informants agreed that the current structure of the government agencies will not allow for achieving SDG 6. From PSAWEN's point of view, "if other governmental institutions leave the water issues to PSAWEN it will be easy for us to achieve this goal but now sharing our responsibilities is an obstacle".

On the other hand, the MoE's point of view is as follows: "it is necessary for the sector to have some structural changes, for example it is better to establish monitoring agency that monitors the activities of other water institutions, currently no government agency monitors another agency, everyone does what he likes".

A key informant from PSAWEN said "it is a huge work to be done, who knows we may can but currently we are not on the way"; another key informant from the MoE replied, "it is difficult for everyone to get safe, clean and sustainable water but maybe about 70% can get it in 2030".

4. Conclusions

This study was carried out in the city of Garowe, in order to investigate the impacts of the institutional setups in supplying drinking water and achieving SDG 6. The findings of the study showed that PPPs played a vital role in providing drinking water to the people. However, it needs improvements in order to reach international standards. The paper showed that the institutions involved in the water sector were not at a place to achieve the international developments goals, especially goal six (Target 1). Their roles were not clear or documented, and there was a conflict of responsibilities between and within the institutions involved in the water sector and competition, over resources such as the funding of water projects. From a regional to district to village level, tasks were not decentralized and public participation in decision making was very low.

In the city of Garowe, it was found that, the local municipality of the city did not have any role in the water supply of the city. The water agency (PSAWEN) signed a contract with a private company under PPP to manage the water supply to the city; whereas the administration of the city did not have any role in controlling, monitoring, or involvement in the water supply of the city.

The findings also showed that the water supplied by the private company (NUWACO) was not of a good quality; the majority of people complained about the quality, price, and the management of the water sector. This is a result of the governance systems in the region, which lacked a monitoring agency, accountability, and cooperation between the private sector and the public authorities. The private sector was also discouraged by the lack of commitment from the government. According to the contract between the government and the private sector who managed the water supplied, one of the terms they agreed on included that the government should implement the maintenance of the infrastructure and expand on the service, but the government failed to do so.

The study found that the majority of the interviewed governmental officials were not aware of SDG 6. In addition, when we described it, they totally disagreed on the possibility of achieving this goal, saying it is "difficult to achieve according to the current status".

To conclude, achieving SDG 6 (target 1) requires a tremendous and huge investment in the water sector. Many developing countries are facing the same problems, and the following recommendations are needed in order to improve water governance at national and regional levels:

- Funding from donors like USAID, the European Union (EU), the African Union (AU), among others, is needed for projects addressing local water governance, national institutional arrangements, and international cooperation in water and sanitation issues;
- Developing countries must shift from centralization into the decentralization of water services, which will allow for better operation, management, and maintenance;
- Establishing a separate monitoring agency to monitor all of the water related works is needed, especially when PPP projects are on the ground;
- A participation approach is the most effective approach, which should be used by developing countries by involving the local communities and stakeholders in decisions related to development projects from the preparation stage. This can be improved through supporting the start of water user associations [34,35]
- Many developing countries should review and analyze their legislation, policies, and standards of water quality in order to improve it (things that were right 30 years ago might not still be right);
- Water resources should be assessed and prioritized between different uses using water models [36], and the potential of using nonconventional water resources should be studied [37,38]; and
- Water does not stop at the borders, therefore, regional cooperation; information sharing between Somalia, Ethiopia and Kenya; and further studies are needed in order to suggest possible transboundary management plans, taking into account different water uses, socioeconomic factors, hydro-political relations, and sustainability [39].

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