IMPACT OF WATER SUPPLY AND SANITATION STATUS IN JUBA CITY

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ACRONYMS

CLTS	Community Led Total Sanitation
CSPS	Center for Strategic and Policy Studies
IOM	International Organization for Migration
IRC	International Water and Sanitation Centre
MDGs	Millennium Development Goals
MWRI	Ministry of Water Resources and Irrigation
NGOs	Non-Governmental Organizations
UNDP	United Nation Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WSSC	Water Supply and Sanitation Collaborative Council

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CHAPTER ONE

1.0.Introduction

The water supply and improved sanitation facilities are some of the challenges facing people in South Sudan, and particularly in the capital Juba as an increasing number of people inhabit the city. The United Nations estimates that there are nearly over one billion people in developing nations who lack access to water facilities and nearly almost 3 billion who lack access to an improves sanitation facilities globally. Millions of people living in Juba city are domestically used to cloudy water which are potentially contaminated and also living in poor hygienic conditions. With abundant water surface and groundwater resources as the opportunity, they people would have certainly be able to have access to clear clean water but, still used to dirty cloudy and contaminated water obtained from the water Tankers and rivers as the only option which are available. This study is about why people in Juba city still do not access to adequate water supply and improved Sanitation and good Hygienic conditions. However it is an attempt aims to address these risks against vulnerable populations living in Juba city and helping by promoting awareness programs of the risks of drinking water like this, while providing health guideline various options that improve water supply and sanitation facilities and hygiene education program. In developing nations, programs related to water supply and sanitations facilities are failing frequently and there is no explanation to why there are compelling and lacks of theory that explain reason of these programs failure. Therefore, this study has explore why water supply and sanitations programs are failing by detaining the operationalization's of keys theory and it application to exact reason why program failures are alarming. They theory that explores to why these programs are always not effectives to populations need and expectations and followed by a number of recommendations that aims to improve success similar programs in future. This study has investigated the relationship between access to clean water supply and improved sanitation facilities and livelihood of population in Juba city. As such, the entire study work introduced to the reader on context study has undertaken as well as related factors such as institutional capacity, Socio-cultural and economic issues that are essential for meaning understanding

1.1. Background

This study strives to investigate on how poor water supply, sanitation status affect the lives of people in fragile situation in Juba city and South Sudan in general. The major factors hindered water supply, improved sanitation facilities to the people in Juba city as South Sudan as whole is includes;

(i) Economic factor (ii) Institutional capacity and responsibilities factor (iii) Socio-cultural factor

As outline, in the strategic documents; the National Water Policy (2007); the Strategic Framework for Water, Sanitation and Health (2011); the National Rural Water, Sanitation, and Hygiene Subsector Action and Investment Plan (2012-2015) are policy documents that recognize an access to improved water supply and sanitation services in the country. The Government of South Sudan adopted water, sanitation and hygiene strategic framework policy in 2011. This strategic policy framework was translated in water policy already existing in action which served as a road map towards attaining the objectives of the policy and addresses an adequate water supply, improved sanitation and good hygiene practices. The policy frameworks enable the Government through the directorates of South Sudan Urban water and rural water cooperation respectively to improve water supply and sanitation in the cities across the country strategically to achieved programs of poverty reduction and boosting of economic growth. The lead ministry in this sector is the Ministry of Water Resources and Irrigation (MWRI) which is solely mandated to implements the guideline and policies; The development of water policies, guidelines and expansion of access to water, hygiene and sanitation services and the oversights functions and supervision of South Sudan Urban Water Corporation for be effectives and reliable in the services.

Water supply and good sanitation practices are very important elements for human survival worldwide. But billions peoples around the world are currently faces several problems that associated with poor water supply unhygienic conditions and unimproved sanitation facilities. As according to (UNDP, 2006)) reports, it stated that over 700 million people in developing nations of Sub-Saharan Africa regions livelihood is in danger due to poor water supply and unhealthy living conditions. Within these countries especially South Sudan, due to lack of improved facilities for water has forced people to use untreated water for drinking and domestic uses

(WHO, 2009). In schools and other public places in Juba city and South Sudan in general, the situation is worst because it is where a lot of people gathered and there is no clean water supply and improved facilities and as such peoples die every day because of water borne diseases. Thus, it is not only the availability of abundant water resources that can guarantees better life but it is the quality of such water and facility improved will determined the better living conditions. Clean water supply and better sanitation facilities are the main basic requirement that ensure the livelihood of people is healthy. Although an improved water supply and sanitation facility is basically a need and human being cannot survive without it, still million people in urban area and billions people living in rural areas have access no access to improved water supply and sanitation facility (JMP, 2006). Apart from an improved water supply alone, lack of proper sanitation facility become a serious health concerns and risking to human dignity not only in South Sudan but worldwide. as stated by WHO (2011) that people are still practices open defecation in an opened land, in the Rivers or opened water surfaces where children play and people get water for making food. This is not because the like it but they are forced to do so because they do not have access to improved sanitation facilities. All human being have equal right to life, food and education but these entire fundamental human rights can be enjoyed fully based on the level and status of sanitation facility and improved water services. Considerably, with fundamental human available, still human being can not realized meaningful life unless water supply and improved sanitation facilities are provides effectively (WWC, 2009). Thus, the question of having access to adequate clean water and improves sanitation facility goes beyond the rights; rather it is a question of survival since people living in developing cities are more suffering from lack of adequate water and improved sanitation services that what will improves their livelihood and survival and enjoy their rights.

The question goes around water supply and sanitation facilities are linked with realization of sustainable development goals of particular country. The target 7.C of the Millennium Development Goal simplified and outlined the important of water sustainability and realization of development (UNDP, 2010). Therefore, any country that has not priorities the provision of clean water and improvement of sanitation facility cannot be able to fully realize they sustainable development objectives and the livelihood of her own citizens. On an important note, the most countries faces problems of poor water and poor sanitations conditions are developing countries. Thus, availability adequate water supply and improves sanitation facilities means that country

have attained sustainable development targets and has improves the lives of her people and realization of economic growths. Currently, many developed countries have no problem in relation to water and sanitation facility. Basically, poor accessibility clean water and improved sanitation facility is a typical and main causes poverty in every society. Therefore, have a secure an improved water sources and basic improved sanitation facility and real development dependent on each other. An access to improved sanitation remains a greater concerns and serious challenges in Juba city. According to JMP report (WFIO/UNICEF JMP, 2012), on the classification of proper sanitations; for improved sanitations; there must be separation of human feces pipe sewer systems, septic tanks and toilets waste from getting contact to humans and all the facilities are ensure that hygienic conditions is well placed. unimproved sanitation facilities are considered anything that does not ensure hygienic separation of human excreta from human contact, which commonly includes pit latrines without a slab or platform, hanging latrines, bucket latrines and any sanitation facilities shared between households (WHO, 2011)).

1.2. Problem and Significance of study

The world estimation about the million children die every year due to lack of adequate improve water supply and improved sanitation status is alarming. And millions of women and young girls in Sub-Saharan African countries spend more hours fetching water or remained without getting enough water on daily basis. South Sudan is at the highest stages of water problem, despite the fact that the country has abundant of water resources. Juba city and the country in general water sector is not improved due the limited infrastructure for water sources and it storage which is considered as key factor amongst the factors in this study.

Even though lack of clean water supply and improves sanitation services still a challenges worldwide, Juba urban poor water supply and sanitation status are at the forefront that affects people livelihood daily. Many people always in Juba city collect polluted water from shallow and unprotected, rivers, walls in places where the services are very limited. In some areas people share the same water sources with their animal which are risky of contamination as rainwater washes waste from surrounding areas into the water sources. Additionally, school children fetch and carry unclean water to drink when they are at school because most of the schools in and around Juba city do not have improved source of water. In addition to the time they spend, some pupils goes to distance nearby water point and as a result of that, the can performance poorly as

attendance and missing of teaching schedules and hours. On side of household responsibilities for water provision, fetching water at distance is harsh situation to mostly women who walk along distance, it create gender inequality and low productivity in agriculture and other household activities that support family incomes.

It is not debatable that lack of access to water supply and improved sanitation facility is affecting lives of many Urban and rural areas in South Sudan. The Juba city is one of the South Sudanese Urban where the people does not have an access to adequate water supply and improved sanitation facilities. Thus, the due to lack of adequate improved water supply, people living in Juba city are forced to use water from unprotected sources which are also use by animals. During the dry season, people defecate in an open land and when it rain, all the human remained are washed by rain water into these open sources which undermines people dignity and impairs health living conditions. Consequently, poor access to improved water supply and lack of adequate sanitation services has a great adverse effect on an economic well-being and their livelihood.

This study has the probability and believes that Juba city is much better in term of water supply status coverage and improves sanitation services in Juba as the capital of South Sudan, is more improved than in other cities in the country. But this study revealed that Juba city is highly affected by lack of access to water supply and sanitation facility. More importantly, the population uses unimproved sources of water for basic necessities and there are low and inadequate standards of hygiene. It is very to understand the importance of water services, but it is good to know by people that use of unsafe water is as risky to lives of people. Though there are water sources from the tanker and bore hole, still having access to those sources of drinking water are not improved and unsafe for people to use. People in Juba city are easily exposed to water borne and diseases related to poor access to clean water and improve sanitation services. Therefore, the issue of water supply and sanitation status in Juba city has to get much attention from the Government of South Sudan to address it well. This study assessed the impacts of the poor access to adequate water and improves sanitation status on the economic wellbeing of the population in Juba city as well as its environmental consequences in the country.

1.3. Objectives and Research Questions

This study is purposely carrying out to examine the status of sanitation in Juba city and how it affects the livelihood of population.

1.3.1. Main Objective

The study objective of this research was mainly to assess the impacts of poor water supply and sanitation status on the livelihood of population in South Sudan, use Juba city as a case study

1.3.2. Research Questions

To fulfill the objective of the study, the following specific research questions were employed;

i. What are the factors hindering the access to improved water supply and improved sanitation services to people in Juba city?
ii. How does the poor quality of water and unimproved sanitation status affect the economic wellbeing of the people in Juba city?
iii. How does poor water supply and unimproved sanitation status affect the environment of Juba city?

1.4. The Research Organization

In order to have a clear background of the study area the study has included introduction and background of the study area in Chapter one, Chapter Two deals with conceptual and empirical review of related literature and theory on scientific grounds. The study continues with Chapter three which basically focuses on the methodological review of the whole study. It provides a description of the nature of the household survey, key informant interviews, focus group discussions, personal observation and document review. The main part of the study which is the empirical findings and discussion is presented in Chapter Four and Five. In these chapters' issues under the broad topics of water supply and accessibility, toilet use and availability; the impacts of poor access to water supply and sanitation, and the possible recommendation measures forwarded from the population are discussed briefly and it also includes the limitations and challenges the researcher faced during the study work. Finally, the research study includes conclusions and recommendations.

1.5. Scope of study

This study research was carryout for three to four months as per CSPS policy. The study work was work is mainly in Juba city of Central equatoria State, Juba County, National Ministry of Health, Ministry of Environment and Forestry, National Ministry of Housing, State Ministry of Health, State Ministry Physical Infrastructure and the National Chamber of commerce industry and agriculture and business community.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the existing literature put forward by different scholars and personalities on the status of hygiene and sanitation in Africa and more especially Juba city and other part of the region in South Sudan.

2.2. Overview of Sanitation Status in Juba City

The history of Water supply and sanitation facilities programs started longtime around1960s, by WHO have initiated the development activities targeting water and sanitation which resulted in the formation of the body names as International Water and Sanitation Centre (IRC). By the period of 1980s, this initiative was officially coined by the United States Agency for International Development (USAID). In 1990s a group of organization starts focus on water supply projects and sanitation facilities projects as approaches to improves the standard of water facility and sanitation standard globally. Finally, 2000s the United Nations Children's Fund (UNICEF) together with Water Supply and Sanitation Collaborative Council (WSSC) put much efforts Water supply and sanitation status programs aim to accelerate the achievement of the Millennium Development Goals (MDGs) which is basically a recognition target for water and sanitation improvement programs.

The projects about water supply and sanitation facilities comprises of number of activities including the constructing strong toilet facilities, an access adequate clean water and the proper disposal of human waste, while also provides programs of awareness promotions and education programs of sanitation that enlighten people on the importance of hand-washing and proper uses of these facilities. On the other hand, this program target population by provides training the use and how to maintain the existing facilities, as well as educating them about the benefit of proper used of sanitation and hygiene practices in the community. Through the achievement of such initiatives, it basically requires an adequate human resources, funds and practitioners to educate community and oversee the progress of the projects.

Table 2.1: classification of improved and not improved water supply and sanitation facilities in Juba City

Adequate Water Supply		**Sanitation Status**	
Improved	**Not Improved**	**Improved**	**Not Improved**
Household pipe connection	Water from the Truck-Tanker	Household Connection to the main public sewer	Bucket latrines
Protected dug well and Protected spring water	Bottled water	Pour-flush Latrine Simple pit latrine	Public Latrines
Public standpipe & Boreholes	Unprotected well	Connection to a septic system	Latrines with open pit
Rain water collection	Unprotected spring & Vendor-provided water	provided Ventilated improved pit latrine	

The existing literature on water supply and sanitation programs explain keys element and reason to why water supply and improved sanitation facility programs are not always being implemented on long-term bases. Peal et al. (2010) argue that it is not with that approach of Water supply and sanitation facility make the projects failed but the fault lies on how the organization and community planned and implemented these projects. Robinson (2005) considered that majority of Water supply and sanitation facility program fail because implementing them greatly consumed a lot of time and financial resources. The time in which these programs were supposed to be done may overlaps and lack of financial resource can hinder the progress of the activities and these basically threaten the programs implementations.

Breslin (2010) explained typical examples of programs failure experienced in the community of Che, Guatemala. According to Breslin (2010) the original programs was instituted by an unnamed NGO that built latrines for 30 families but ran out of funds to provide the remaining 35

families with latrines of their own. This shortfall was attributed to the initial latrines taking longer to construct than the NGO had originally estimated, largely as a result of inexperience in construction abroad. Upon expending all of its resources, the NGO left the latrine designs in the hands of the community, in English, and promised to return at a later date to complete the remainder. Assuming programs successfully manage time and resources, the failure to achieve long-term adoption of Water supply and sanitation-related programs remains a persistent barrier to generating sustained implementation of the improved practices. This is because, once infrastructure is built and education is provided, the new healthy practices frequently fail to be widely adopted and communities often revert to old habits, which may include open defecation, absence of hand-washing or drinking untreated water.

A similar well explained example of a program type of failure is Community Led Total Sanitation (CLTS) program from Malawi led by Engineers without Borders and. Kennedy and Nilsson, (2012). Under the CLTS which implemented two organizations that include a community-based model which deal with designs to target the entire community. The Community-based models believed to have fostered the right of ownership and encouraging practices for all the community members.

According to Peal et al. (2010) it approaches that represents water supply and sanitation services sector, whereby community inclusivity is necessary in this sector related activities. The primary objectives of CLTS programs are to provide sufficient quantity and quality adequate water supply and improve sanitation facility. By achieving this, it is through practitioners/community system targets and design that strictly remained within the timeframe whereby programs should be done, implement and handover to the target community. Kennedy and Nilsson (2012) describe a CLTS program in an area village in Malawi that it was successful implemented but failed upon its completion. Kennedy and Nilsson (2012) note entire community were happy with CLTS implementation they were part of the projects.

Therefore, out of the world poor population, South Sudanese population, and particularly population in Juba city do not have access to adequate water supply and sanitation facilities. The MDGs for sustainable development goal targets 7C is have never been reached or achieved and remained low in South Sudan. Therefore, for the target to be achieve and livelihood of people in South Sudan be improves, much consideration in terms of financial resources and human

capacity in water supply and sanitation services coverage in community should be effective address.

The World Bank has outlined some challenges in scaling up the ease of access of the rural potable water supply and basic sanitation. The basic challenge is 'how to scale up water supply and sanitation to the rural poor?' In order to address the question, Ethiopia is one of the poorest countries which get assistance from the World Bank to address the issues of water and sanitation to achieve the MDGs. The approach taken is different between urban and rural areas. In urban areas water boards have been established to have responsibility for increasing the water supply and sanitation. In rural areas, efforts are made to provide financial assistance to rural districts which helps to establish water supply and sanitation committees and build facilities (World Bank, 2011). Despite this assistance by the World Bank and other aid organizations, and the Ethiopian government to increase the easy access to potable water supplies and basic sanitation in rural areas, there are still rural districts that do not get potable water and basic sanitation. There are rural areas which consider having ease access to potable water and basic sanitation as a privilege rather than as a right.

The other challenge in providing potable water services and increasing basic sanitation access to rural areas are infrastructural problem. As Buddeke (2010) stated, socio-economic development is closely linked to infrastructure which many rural areas lag far behind. Ease of access to potable water and basic sanitation is one type of infrastructure which also depends on the other types of infrastructure like roads. Thus, the unavailability of such infrastructure is a challenge to any private or government organizations. South Sudan is far behind of many African countries in the water supply and sanitation facilities coverage. According to global water supply and sanitation body, the financial difficulties, institutional capacity problems, the inadequate human resources, lack of sector coordination amongst the stakeholders, the lack of political commitment, insufficient community involvement, inadequate operation and maintenance of the facilities, lack of hygiene education and awareness, finally the insufficient information and communication are hindered factors in South Sudan development of water and sanitation facilities.

Theory of water supply and sanitation service is basically rooted to the research work of Harris (1979), societies are considered to be relatively stable systems comprised of different interrelated

components that are joint together and form stability that resist change. When the system is stable, the components are strongly join together to resist any forms of change, as variation in one component of the system renders the system less efficient by straining the other components. For efficiency of the system to exist and stability is realizing, the components must be pre-disposed to resist change and preserve the outcome. According to Harris (1979), social systems achieve stability by aligning the needs of society with the needs of individuals. Societies have a need to survive, which is must to be accomplished by ensuring that population is replaced with future generation. Similarly, individuals have a need to survive like water supply needs and other necessities and these bring stability by meeting all these needs.

The keys need amongst these needs is to eat which make an individual to resist the sickness and survive the theory further suggested that human being cannot be completely not active, but when given the opportunity, the prefer to carry out more by expending a minimal amount of energy. These two needs suggest why humans act to maximize their energy potential by eating more, drinks and be clean as the availability of services is concerns and while conserving needed energy possible for the purposes of carrying the duties.

2.3 Factors for poor Sanitation Status in Juba

2.3.1. Institutional capacity factor

The strategic policy framework recommended that a formulation of a Water Council to provide an advisory service at the highest level as well as a Water Supply and Sanitation Regulatory Board to develop and enforce regulations for the water supply and sanitation services in the country. Also the framework proposes the establishment of autonomous institutions to conduct the operation and maintenance of urban water supply and sanitation services in the country. While the separation of water regulatory and service in Urban and rural water supply and improved sanitation services should be appropriately include the lowest level of the community.

The Government has not enacted the Water Act; and in this regard, there is a gap in service delivery as well as regulatory functions of the sector. Therefore, it is critical for the sector to formulate Water Legislation (Act). The Act will permanently establish a legal framework for the management of the water sector which is necessary to improve the overall water governance in the South Sudan. According to the State ministry of Physical Infrastructure Directorate of water

and Sanitation, there is no single ministry or directorate that is designed to regulate water supply, formulate policies of proper management of waste and make good choice of the best technology that will suit the modern construction for of improved toilet facility that promotes good sanitation services in Juba city. There is no institution mandated to provide and improves sanitation services and hygiene education awareness in schools across the country. Additionally, there is lack of regulation and monitoring mechanism that regularly oversight the activities of NGOs implementing WASH project while respecting or violating the policies set the by the authority and Business entities in regard to waste management. This happened due to lack of trained professional staff in state water and sanitation directorates Central Equatoria States.

There is a very limited sewerage network and waste stabilization ponds in Juba city especially in ministerial complex and residential areas of Juba. The piped sewerage and waste treatment system exists in the country is poor and not well connected. The design capacity and the system have almost reached the limit and as population is growing, this has never been upgraded. The proper regulation and quality monitoring of the ponds and entire sewage system is not regularly carried out which endangers the environment and communities living in the area. South Sudan has been in conflict for long time which resulted in the destruction of several water infrastructures and had impeded investment projects in water sector. Therefore, this has become a major challenge because the institution is weak to manage the increased number of returnees in the provision of clean water and good sanitation. The Government at both state and national levels has taken encouraging key steps in water supply and sanitation sector as one of the top priority in Government's development plans**.** But many challenges are facing the directorate lack of fund to finance the projects, poor coordination between the government and developmental partners or agencies, lack of cooperation and collaboration with Government counter parts and final absent of motivation and innovative projects that will support both the staffs and the institution. The poor management of the waste is one a major citizen's concern in South Sudan. According to an opinion writer, the people in the country have adopted styles of dumping waste in an open land, along the road, burned or discharge to the surface of Nile River. However, the management of commercial and residential generated solid waste in Juba is poorly managed due to lack of designated garbage collection centers in the area and market place. Therefore, it is majorly contaminating the Nile River water which is a source of drinking water to the population in the country.

2.3.2. Economic factor

According to McConville (2003) each day in Africa over two million children die because of diarrheal disease which its main source is human excreta. This made it understood that human waste is potentially a dangerous material which requires to be managed properly. In that regard, there are main factors which hindered people in communities from adopting latrine facilities; with economic status is the main first factor. Poor people in community depend on their small subsistence income, of that income they prefer to spend on food and other basic services, then use it on toilet/latrine construction. So it is expensive for them to build a Toilet/latrine while the do not have food. Even if the know it is good to have Toilet/latrine, they cannot be able to afford and meet the cost of building toilet/latrines.

Though economic status inhibits people to build their own latrines, on the other hand this shows that, people do not realize the costs they spend on treating diseases cause of unsanitary environment, which the costs for curing might be higher than preventing. Thus, if people had aware of the consequences of unhealthy environment, the costs to prevent its consequences like diarrheal diseases would be the easiest than treating the diseases. So investing on latrine is also a means of minimizing expenses of medication comes after unhealthy living environment because of poor sanitation.

2.3.3. Socio-cultural factor

There are also some socio-cultural reasons why people do not use latrine; ‘what is dirty and clean can vary from culture to culture’. Some in South Sudan view Toilet/latrines as evil and dirty places and degraded Job. Other in different communities terms it as an invitation of death when digging latrine. As a result, people prefer to defecate in an opened land near or far away from their home which the considered as more sanitary compares to toilet facility. Therefore, it can be hard to change the community behavior soon or as expected but behavior dictating by discouraging open defecation practices with proper support could be an option. But without proper support from the practitioners and communities, still people will revert to their old habits in regard to sanitation practices. In addition to the above reasons, some of the study which were conducted in three different African countries: South Africa Zambia, and Zimbabwe; revealed that an illiteracy in most communities, poor linkages between the sanitation service provision

agencies and communities' approaches, poor communication between the local administration and the communities were found out to be the causes for poor sanitation in the urban and rural areas (Manase, G., et al, 2001)

Also these practices polluted the air and soil and it caused serious disease to people. Furthermore, the writer urges the recent formed RTGoNU to do more especially in this sector for the Health safety of the peoples of South Sudan (Dot, 2020). The public places like schools, and market are places where states invest so much in WASH projects to prevent the spread of diseases. Lack of Clean drinking water and improved sanitation and hygiene in schools appears to be negatively on student health and their enrollment. Therefore the provision of clean water and improved sanitation and hygiene conditions in the cities were found to be an important aspects for good health in communities; example are, Kenya, Uganda and India; however, a recent study in Kenya revealed most cities Kenya have improved toilet and sanitation facilities in schools which has reduced girls dropout from learning (Alexander, 2014).

Apart from NGOs implementing sanitation projects, there are no enough funds allocated by the national Government towards improving water supply, management of waste and sanitation and hygiene services in Juba city. Investing in health through sanitation and hygiene is for brighter future. According to water supply & sanitation collaboration council (WSSCC, 2020) nearly 9 % of the world population still practices open defecation, 2 in 6 people lack excess to clean water, hand washing and improved sanitation facilities. However, lack of sanitation and hygiene poses deadly risks to lives of individuals in every community. Therefore "leaving no one Behind in sanitation and Hygiene" supported by global fund is a projects that aim at reaching out every one in the communities especially in developing countries for the proper improvement of sanitation and hygiene.

2.4. Water Supply, Sanitation Status and Development

The inclusion of access to water supply and sanitation status in the Millennium Development Goals (MDGs) for sustainable development shows that water and sanitation services are most important development indicators of each country. It is a fact that infrastructure development and socio-economic development are much related. Infrastructure development such as water and sanitation improvement, irrigation projects schemes and road construction. However, by having access to these services is typically considered as an indication for economic development. Accordingly, water supply and sanitation facilities infrastructures have great impact on impact on the economic, social and human development of any nation.

According to UNDP (2006) stated that water supply and sanitation facility improvement has a role of reducing income poverty. Governments are aware of their fiscal expenditure requires to increase the access to improved water supply and sanitation facility but not well curious on the negative economic consequences and the cost of unimproved water supply and sanitation services. If population of all nation worldwide had adequate safe drinking water and appropriate sanitation facility, issue concerns with child mortality rate could have be minimized.

As a result of poor water supply and sanitation facility, a lot of people in the world are not secure; additionally, water supply and sanitation services is the preventable mean of reducing child mortality rate across the globe. Access to clean water supply and sanitation status is also best ways to reduce health related costs and, effective's improvement of girl's education services and it is to ensure a great sense of human progress and dignity. Generally, have access to clean water supply and improved sanitation services can make human development progressives and it is a better condition for all human being and achievement of development goals.

2.5. Progress in Water and Sanitation Services Coverage

Despite the encouraging efforts made by organizations that specialized in water supply and sanitation program to change the status of sector from poor to better, still the coverage is in inadequate in Juba city. The study reveal that 69 percent of the respondents indicated that mechanism need to be applied for the effective improvement of sanitation in Juba City should include funds allocations, investment in the sector, sites for the dumping of waste, heavy truck and cooperation of Government agencies and development partners.

As reveal finding concluded in this study, it indicated that there is no single institution mandated with provision of sanitation facilities and hygiene programs in Juba. Few NGOs that are helping in the implementation of these projects operates without regulation and monitoring by the state authority of water and sanitation directorates mainly due to lack of professional trained staffs in the relevant institutions. More importantly, this sector has been actively urges by concerns body and their associates to incorporate sanitation facility components and further merge the responsibilities of these sectors under one umbrella entity in Juba.

The Ministry of Water Resource and Irrigation (MWRI) and a few NGOs have launched the Community Led Total Sanitation program in the country. This is a capacity development organization active in South Sudan, encouraging results has been obtained in stimulating discussions among community members on the benefits of improved sanitation services in Juba and other state in South Sudan. However, this is necessary key in behavioral change practices amongst them communities.

Additionally, there is an urgent need in South Sudan to streamline responsibilities of sanitation and hygiene, to avoid overlaps and bridge gaps in water supply and sanitation facility sector. Finally, the best experiences from regional countries shows that, the Nairobi Water and Sewerage Company (Kenya), the National Water and Sewerage Corporation (Uganda) and India are exemplary entities that have transformed their sectors from being weak institution and inefficient service providers into effectives, efficient and reliable sanitation and hygiene service providing entities to their citizen. Therefore, the Government of South Sudan and the development partners should cooperate and manage this sector while importing these successful best experiences.

2.6. Benefits of Improving Access to Water and Sanitation

An investment in water supply and sanitation facility serves as input of development achievement and poverty reduction. The major health benefits are associated with economic, social, and environmental health benefits. Public health facility is only guaranteed if there is improved water supply and sanitation facility since mains causes of illness that led to death in developing country are related to poor water supply and lack of adequate sanitation services. Moreover, an illness that led to deaths can greatly reduce the productivity of the economy; poor sanitation services have a great adverse effect on the livelihood of people and their environment which affect their source of the economy as tourism and agriculture.

One of the keys benefits of water supply and sanitation services improvements is time saving associated with better access. for example, the relocation of a well and borehole to a site closer to targets communities, the collection of piped water supply to the households, the closer of access to toilet/latrines and public latrines. As the result, it increased the production, improved the level of education and other development activities are realized (Hutton & Haller, 2004).

The WHO stated that an improvement in water supply greatly reduces diarrhea and other related disease. Therefore, the improvement on both water supply and sanitation facility has a direct and great impact on health livelihood of people. By explaining the frequent occurrence of diarrhea diseases caused by unsafe drinking water and improper sanitation services can be reduced if improvements were made in water and sanitation services. Since diarrhea diseases are highly related with unsafe drinking water and poor sanitation and poor hygiene conditions, the improvements in water and sanitation services would have a great significant outcome result in the community.

The improvements in water supplies and sanitation services have an impact on poverty and economy of the nations. As logical is outlined, that only healthy people in the community are strong enough to effectively work and fulfill their daily needs. As Hutton (2007) stated that an improvement to water supply and sanitation services has economic benefits basically under three categories: the direct economic benefits of avoiding diarrheal diseases, the indirect economic benefits of health improvements and non-health benefits related to improvements in water supply

and sanitation services. The direct economic benefits of avoiding diarrheal diseases resulted as cost savings is realized due to the reduction in the occurrence of diarrheal disease, full health care costs, and non-health sector direct costs. The indirect economic benefits are the effects productivity of improved health and the non-health benefits.

2.7. Regional perspectives on sanitation and water management

Globally the issue of water supply and sanitation improvement has become a major concern especially in sub-Saharan Africa. Most of students in South Sudan drop out school before they completed their studies and household. This is a serious concern currently from the Government and international agencies by looking at how the environment can make conducive for learning in all the communities

According to the JMP (2010), population global of 2.6 billion people lack access to basic sanitation; and as a result of poor access to basic sanitation 1.5 million peoples die each year. Many of these people live in sub-Saharan Africa. Sanitation services coverage in Africa is poor with lowest. South Sudan's water supply and sanitation coverage services are also the lowest in the world. The country's health status is low with majority population lack knowledge on maintaining their health and Hygiene standard. The low literacy rates in South Sudan bring a heavy burden on the nation to increase delivery for water, health, education and other social services. In comparison with the neighboring countries South Sudan water and sanitation coverage is very lower than neighboring countries. Even though the existing data which was taken from WHO/UNICEF indicated most Sub-Saharan African countries have the lowest coverage of water supply and sanitation services worldwide. South Sudan's water supply and sanitation services coverage is the lowest (JMP, 2010).

Looking into issues, that affects the livelihood of people in Juba in regard to the inability of the sector to managed and improved the sanitation facility, it is critical important to put all the responsibilities of water supply and sanitation services under one institution. In addition to that, all the major water supply projects and incorporates sanitation services components are further need to be justified and merge all the responsibilities of sectors under one institutional entity. The Government of South Sudan urgently needs to streamline the sectors responsibilities to avoid an overlaps and bridge gaps. The best experience from the region show that; In Uganda

have currently the National Water and Sewerage Corporation, Kenya have, The Nairobi Water and Sewerage Company, The Burkina Faso have, ONEA, National Office of Water and Sanitation (ONEA). These are improved best exemplary entities that have managed to transform their institutional capacity from being inefficient and weak debt ridden into efficient services providing entities. This examples experience should be applying for the case of South Sudan water sector and sanitation facility to more effectives in service delivery to the vulnerable people living in Juba and other cities across the country.

CHAPTER THREE

STUDY METHOLOGY

3.1. Introduction

This section is a presentation of the various methods that the researcher will use to collect appropriate information about the topic under investigation in the field. It presents the research design, study population, sampling method, sample size, data collection tools, validity and reliability, measurement of variables and data analysis.

3.2. Research Design

The research study used a mixed methods design that comprised a case-control quantitative study, qualitative interviews in the Ministries/institution and residents in Juba city. It was formally under; Key informant interviews and focus group discussions, personal observation, the review of sanitation facility data in Juba city.

To extract the required information needed to meet the objectives of the study, four major techniques were employed in the study: household survey questionnaires, key informant interviews, focus group discussion, personal observation and secondary data and document review. Under this four techniques of study method, it was basically on water quality and it associates, waste disposal and it related environmental effects in Juba city and poor types of types and how it attracts flies in the areas.

The data for this report was gathered from this survey carrying out by CSPS in Juba city to ascertain data regarding the correlation between water accessibility, improved sanitation facilities and its use as well as the ways how it affects the livelihood of people living in Juba city.

3.2.1. Key Informant Interview

There are key institutions that are main actors in the supply water and sanitation services. The directorates of water of and sanitation in State Ministry Physical infrastructure has direct contact with the national ministry of Health, Ministry of Housing and planning in providing adequate

water supply and sanitation facility and promotes awareness. This research work has addressed these groups of individuals using personal interviews on what has been done to help the community to get access to clean water and what has been done to reduce the communities' vulnerability to water borne diseases and how the poor accessibility is affecting the well-being of the community in Juba. The interview involves a face-to-face basis with the groups and different official. In order to have in-depth interviews with these responsible individuals, the interview was conducted by the researcher. There were two reasons for doing this: One reason is to allow in depth interviews as mentioned above and the second is that these responsible individuals are aware of the issues water and sanitation and they do not have a problem of speaking the national working language which the researcher is more acquainted with.

3.2.2. Focus Group Discussion

The researcher utilized this mean, which was formed on purposive sampling. The groups were formed on a gender and age basis. This systematic grouping was selected because males may have an influence on females' opinions since the tradition of the country does not allow females to speak in front of males and in public. The researcher perceived it was better to divide the focus groups by gender. Additionally, the age gap shows a huge difference between the attitude and experience of the older people; therefore, the study wanted to offset the gap by categorizing the groups on the basis of age. It was noted that the focus group has enabled the study to address the opinion of the community towards access to water supply and sanitation status and its impact on their daily activities. Therefore, the research created some groups based on age and gender basis: young males, young girls, older women, and older men.

3.2.3. Personal Observation

The researcher has used observation as an additional means to the data collection which helped to have a general understanding of the area and how the community perceives the environment, to what extent the community is aware of the right to water, and how poor access to adequate water supply and inadequate sanitation affects the livelihood of the community. Additionally, the researcher has observed the activities of the community which may reduce their vulnerability to water borne disease and negative impacts of poor sanitation and unsafe drinking water. Since observation comprises subjective judgment the researcher did not completely depend on the

results of the observation in the empirical finding and analysis part of the study unless supported by the other data collected by other means. To perform this observation, the researcher spent time during data collection within population household around Juba city which lack adequate water, sanitations services. This helped the researcher to understand how serious it is to spend all your life without access to these basic infrastructures.

3.2.4. Document Review

In addition to the primary data, the researcher has tried to collect written documents from the Payam, counties within Juba city, reports and publications on water supply and sanitation status in South Sudan, region Africa and worldwide, to see the level South Sudan is and serves as supporting means of the data collected by the primary sources.

3.3. Target Population

The study shall comprise of a total population of 162 respondents from different institutions, household and general public in South Sudan. The study focused on the status of sanitation in Juba city and how it affects the livelihood of people living in Juba city. This examined the poor water supply quality and how it affects the economic status of people in Juba city.

3.4 Sampling Procedure

A sampling method is a procedure for selecting sample members from a population. The researcher will use both purposive sampling technique to select senior staff members of concerns directorate of water and sanitation in Juba to be used in the research and random sampling shall be used to obtain a good representative sample of other respondents from all over Juba city residents.

3.5 Sample Size

The sample size refers to the number of units that will be chosen from gathered population. The sample size is calculated using the table for determining sample size as this give a practical ratio according to the population size.

3.6 Data Collection Instruments/Techniques

This refers to the device used to collect data, such as survey, interview guide and a paper questionnaire or computer assisted interviewing system.

Household surveys were held with the selected population of 162 residing in Juba city for to establish the knowledge, attitudes and practices of the communities in relation to water usage supply, sanitation and hygiene practices in Juba city. The study research involved the number of who had ever suffered from obtaining quality clean water, live in healthy environment and even witnessed people who died from water and sanitation-related diseases in the family; the cost of water and sanitation related diseases in the family; how the family manages faucal matter; and about cultural norms surrounding sanitation that the family observes, among other issues. The interviews were conducted using a questionnaire.

Review of water supply, sanitation and health facility data in Juba city: This study research reviewed data from selected institutional facilities in different institution within Juba city that includes common types of water related disease, poor quality water, inadequate sanitations services in the city and how these affect the livelihood of population in the city.

3.6.1 Survey

The researcher will use survey materials as a data-collecting instrument to obtain information from the stakeholders on conflict transformation in South Sudan. The questionnaires will be designed according to the theme and objectives of the research. They contained close-ended questions. The close-ended questions will be based on the scale format. Questionnaires covered big area over a short period of time. It will also allow respondents to respond boldly and frankly to questions. The survey will enable collection of vast amounts of data in a short time and will be less expensive.

3.6.2. Household Survey

Structured interview questionnaires which were designed by the researcher assistance distributed to the entire participant in the household around Juba city. There was not difficulty faced by the respondents in regard to language ethic of study. The sample respondents were selected by systematic sampling. The systematic sampling focuses within 90 participants in the households

of Juba city residents while 72 participants were selected from Government institution, school representative, public places and NGOs. The research questions were provided according to the level of understanding of the local population in Juba city. During the data collection, the research assistant walks for many hours from houses to houses in Juba city. The national working language is English and questions were explained to some respondent who speak Arabic for easy understanding. It was done with door-to-door interviews with the most appropriate available head of household. The households questioned were based on lists provided to the survey team by local government officials familiar with each community's children. Community members' familiar with their location led the surveyors to the households. These survey assistants were asked to stand back during the interview to make sure that respondents' answers were kept confidential.

To the maximum extent possible the same surveyor completed both the baseline and post-implementation survey for a given household. Water related borne diseases like Diarrheal disease, typhoid and cholera were particularly among issues that affects people live in Juba city due to lack of improved sanitation facilities.

The survey was designed to query the respondents in such a way that disease by asking the respondents some general questions about the community health and economic well-being of residents in Juba city. Although these preliminary questions were not used directly in this analysis they were integral part of the questionnaire. In addition, the sanitation status study questions were asked at the end of each interview once the surveyor had developed a rapport with the respondents. These questions included inquiries about all illnesses caused by unimproved water supply, poor waste management in the city and limited toilets facility in Juba city and how these illnesses negatively affect the livelihood and economic wellbeing of population in Juba city.

The survey concerns the water and sanitation status of the communities and households queried. These questions aimed to assess the impact of the interventions and to more precisely correlate reductions in diarrheal disease to specific improvements in the water and sanitation situation. It also measured the specificity of the interventions. For instance, was the decrease in diarrheal disease in the community where the shallow well was constructed due to increased usage of that well or due to improved practices of household water purification and storage which was a

byproduct of the interventions? The questions were asked in relation to the six main different intervention strategies: water source status and usage, latrine prevalence and cleanliness, household water treatment practices, hand-washing practices, knowledge about diarrhea causes and prevention strategies as well as presence of different household sanitation improvements.

3.7 Validity and Reliability of Research Instruments

3.7.1 Validity

The validity of an instrument is defined as the ability to an instrument to measure what it is intended to measure. In this study, the validity of the instruments was established by a panel of experts through an assessment of selected items in the instruments that ensured that the instruments are measuring to the expectations. After identifying the vague and ambiguous questions, corrections were made and final instruments were prepared. Content validity index (C.V.I) will be measured as items rated 3 or 4 by both judges divided by the total number of items in the questionnaire.

3.7.2 Reliability

Reliability refers to the ability of a measurement instrument to produce the same answer in the same circumstances, time after time. This means that if people answer the same question the same way on repeated occasions, then the instrument can be said to be reliable. Reliability (Internal consistency and stability) of the instruments were tested using coefficients. The researcher will test the inter-item consistency reliability to ensure that there is the consistency of respondents' answers to all items in the measure. a coefficient of reliability that gives unbiased estimate of data generalizability will be used to test reliability of the answered questionnaires.

3.8 Data Collection Procedures

Data sources include both primary and secondary sources. The researcher will use both primary and secondary data sources.

3.5.1 Primary data

Primary data sources that will be used in this study is from the data which can be obtained through interactive interviews, questionnaires from the various respondents selected from the staffs of selected ministries and general population residing in Juba city. Primary data refers to

data that the researcher collects from respondents while secondary data refers to data from other sources like records and documents, thus primary data is considered more reliable and up to date.

3.5.2 Secondary data

The secondary data supported the empirical findings of the study. This data was obtained from the organization's reports like the Annual reports (UNICEF, IOM WHO); so as to establish to what extent the WASH programs has been supported in South Sudan. Also other secondary data will be from published text books, annual reports, journals and magazines.

3.7. Data Analysis Method

In assessing the case of Juba city the researcher has applied a case study design which is concerned with the complex nature of water and sanitation in which the researcher has utilized mainly a qualitative approach, although some quantification was used with percentages.

This research work has focused on the significant impact of poor access to adequate water supply and improved sanitation status on health, social, economic, and the environmental status of the study area. The major tools use was SPSS for calculating the percentages that was used to analyze the data to show the poor water supply and lack of sanitation accessibility in the study area and its impact, and SPSS tool was used for computation of the data and it interpretation for the study.

The aim of this study has been to evaluate the impact of the poor supply water and basic sanitation on the economic, environmental and social situation of the Juba city particularly to the household and the resident. The needs which identified are related to improved water quality and treatment, quantity of water used in the household, distance to the water source, human dignity, community participation and responsibility. The impacts followed these unsatisfied needs were summarized and discussed in figures forms. Data was organized and the sum and averages for each variable was further analyzed using pie charts, graph and tables. Based on these findings the room for improvement in clean water supply and proper sanitation is discussed. \

3.8. Water and Sanitation Questions

The questions about water source usage, distance and time to collect water and the number of Drums of water collected per day and the reasons for selecting the current water source are fairly straightforward and were based on responses from the participants. From the study, the factors hindering the access to improved water supply and improved sanitation services to people in Juba city like weak institutional greatly had affected the economic wellbeing of people in Juba. People are always sick and the could not be able to effectively more productive as expected and water are very expensive which in turn consumed much income of the family.

The household water treatment questions are also fairly straightforward and were based on responses from the survey participants. The hand-washing questions should have been easily answered; however, the survey staff answered many of the hand-washing facility questioned incorrectly. A hand washing station was supposed to only be considered present if it was semi-permanent and always filled with water. Very few South Sudanese households have such devices and the baseline results should have been near zero. However, the surveyors answered this question inconsistently with some including the presence of the tippy-tap installed for the project to have been present before implementation while others considered temporary drums of water containers that are sometimes filled when guests are present to be hand-washing stations. Likewise, the questions regarding hand-washing practices were based on responses of the survey participants, are of poor quality and show many inconsistencies and are largely left out of these findings.

Questions about health knowledge and awareness were taken notes by the researcher and later translated into a systematic numbered score based on their responses. The last set of questions was in regard to the presence or absence of various sanitation improvements in the home. A rubbish pit is a shallow pit used by many homes to dispose of trash in a more sanitary way. The bathroom is a simple area set aside for bathing and does not have a latrine connected to it like developed countries. A drying rack is a wooden rack used to dry dishes, which is better than the alternative, which is dry them on the ground or another unsanitary location. The water container is a designated drums/jerry-can used solely for drinking water. South Sudanese NGOs and other health institutions that are actively advocate for all of the above technologies.

Finally, the compound cleanliness was a score generated by the researcher based on a pre-determined set of indices namely: little rubbish in compound, well-kept appearance, few flies, and buildings well maintained, animals kept in enclosed areas and no potholes. Like the latrine cleanliness score a household could gain points for the presence of the above items.

Initially, the plan was to install new latrines at as many households as possible. However, based on data from the study, it was found that around 96.9% of households in the survey area already had Toilets/latrines. The focus was therefore shifted to be a latrine improvement campaign in which households in need would receive concrete slabs to put over new or existing latrine holes and a system of community outreach volunteers would encourage people to maintain their latrines in a more sanitary manner. Therefore, the research staff expected and did see improvements in latrine construction, improved latrine cleanliness and an increased awareness of sanitation issues. The latrine cleanliness standard was measured based cleanliness of a latrine based on the presence or absence of the following eight items: no urine present, no feces present, few flies present, clean, latrine hole covered, wiping material present, hand-washing facility present with soap, broom present. The poor quality of water and unimproved sanitation status affect the economic wellbeing of the people in Juba city. The poor sanitation status affects the environment of Juba city basically at the sides of random dumping of waste on the streets, main market places and stream within the city. Some household residents in Juba dumped their solid waste outside back yard and later burn it and this caused population.

3.9. Ethical Considerations

It refers to a situation of being in accordance with the rules or standards for right conduct or practice, especially the standards of a profession. Maximum effort was ensured to observe ethical principles to ensure that bias is eliminated and maximize meaning of information provided. Respect for all intellectual property where all the secondary data was properly documented and referenced. The respect for respondents was ensured regarding information provided, and non-discrimination to allow willing and equal participation. In addition, no respondent was coerced to give the information, but was convinced to give the feedback at will, in this study. The researcher recognized the rights of individuals to privacy, personal data protection and freedom of movement. Masculinity was put in consideration especially in cultures where it is associated with self-esteem. Consent to conduct this studies in the institution, markets, the household,

schools and public places was obtained from each concern individuals, department representatives prior to the conduct of interview or giving designed questionnaires. The approval to the conduct of this study activity was reviews and guided by the CSPS research polices and ethic.

CHAPTER FOUR

FINDINGs AND PRESENTATIONS

4.1 General Characteristics and Study Population in Juba City

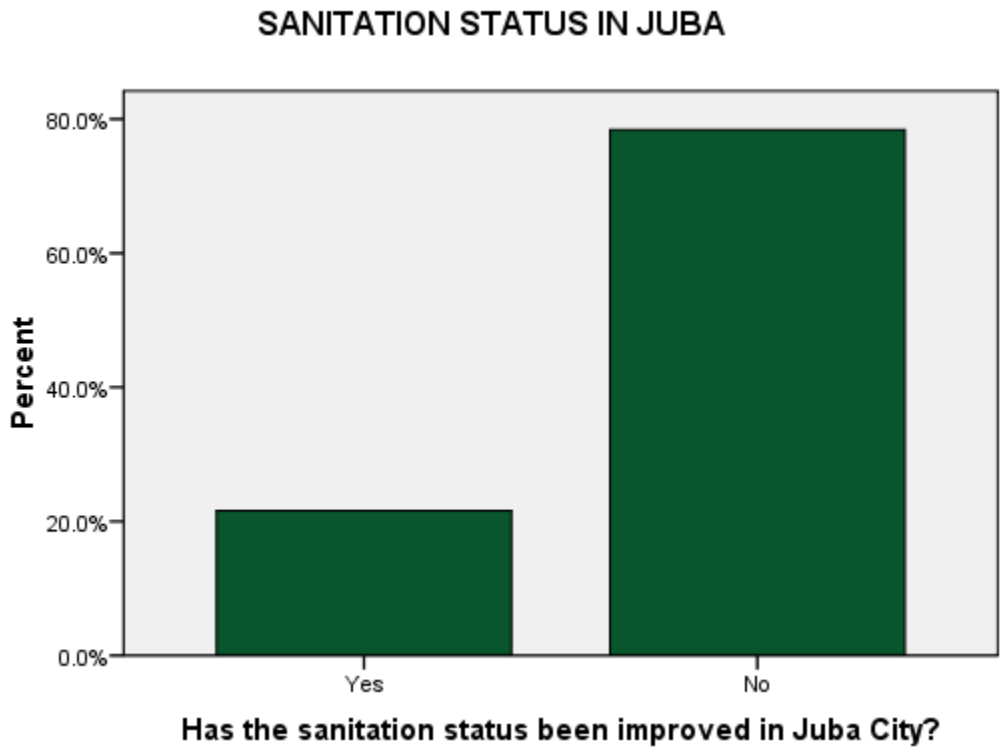
The majority of current data are from the primary sources in different Ministries, private individuals and international agencies operating WASH programs in South Sudan and this known studies quantify specifically currents status of sanitation and hygiene conditions in Juba City. In June 2020, i conducted a baseline cross-sectional survey of 5 Ministries, Juba city council, 4 market places and household in different area around Juba which have 163 participants that made up this study paper. This study was undertaken in preparation for sanitation and hygiene issues in Juba. The aim of this sanitation Study was to understand the real status of our vulnerable communities living conditions, their safety from various infectious and to evaluate their potential. The health, educational and social effects of poor conditions of sanitation and hygiene management are still unclear, and additional research is needed. This paper examines structural sanitation and hygiene facilities available for population living Juba City and other towns in South Sudan and enables the State to identify safety measures, resource available for interventions in water and sanitation sector in the country.

The majority of total 162 respondents 91 (56%) are male while 71 (44%) participants were female. The majority of respondents age ranged from 31-40 Years 76 (47%), 51(32%) of the respondents age is 41-50 Years, 20 (12%) are over 50 years and 15 (9%) represented age range of 21-30 years of the study population. The levels of education of the respondents is that 45 participants (28%) has certificate, 33 participants 20.4%) has Secondary level, 33 participants (20.4%) has Diploma, 24 participants (15%) has Degree, 15 participants 9.3% at primary level and 12 participants (7.4%) are at post graduate level. The experiences the respondent has in different institutions is 1-2 Years were 49 participants (30.2%), 2-4 Years were 47 participants (29%), 4-6 Years 29 participants (17.9%), 6+ Years 20 participants (12.3%) and Less than 1 Year were 17 participants (10.5%. The study was basically carryout to examine the sanitation status in Juba city and the surrounding.

4.2 Sanitation Status in Juba City

4.2.1 Has the sanitation been improved or not in Juba South Sudan

Figure 4.1: Showing Sanitation status in Juba City

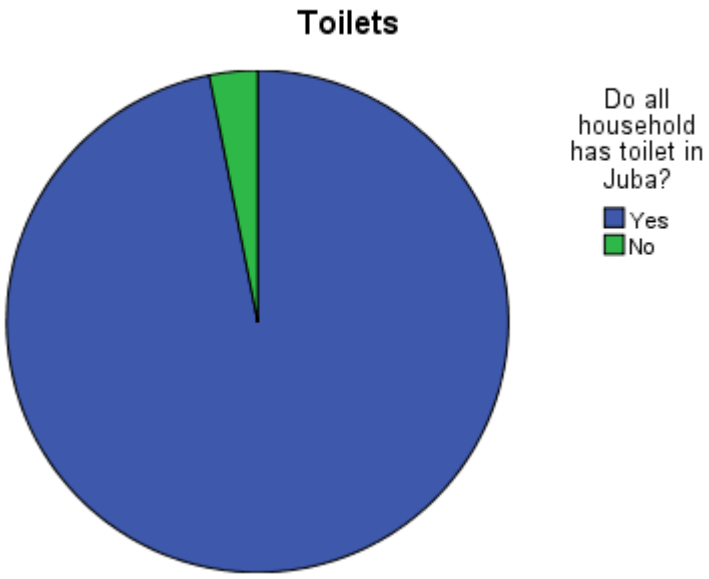


Source: Primary Data

From the above figure, 78% of the respondents were in a view that sanitation status has not been improved in Juba city while only 22% attributed that sanitation status in Juba city has been improved by the authority in Juba city South Sudan. Therefore, with opinions of the participants illustrated above, the sanitation status in Juba city has not been improved. The provision of domestic clean water for the residents, the constructed strong toilet facility in city and the proper management of the waste in the city are not yet develop. Still now people dumped or disposed solid waste on the road, liquid wastes are dumped by nearby water or in the stream or river. This practices have is related to so many diseases that always attacked population living in Juba. Diseases like diarrhea, Guinea worm, cholera, and typhoid which are very common in Juba due to poor health guidance and hygiene practices.

4.2.2 Household Toilets facility in Juba South Sudan

Figure 4.2: Showing whether majority of population has toilet facility in Juba City



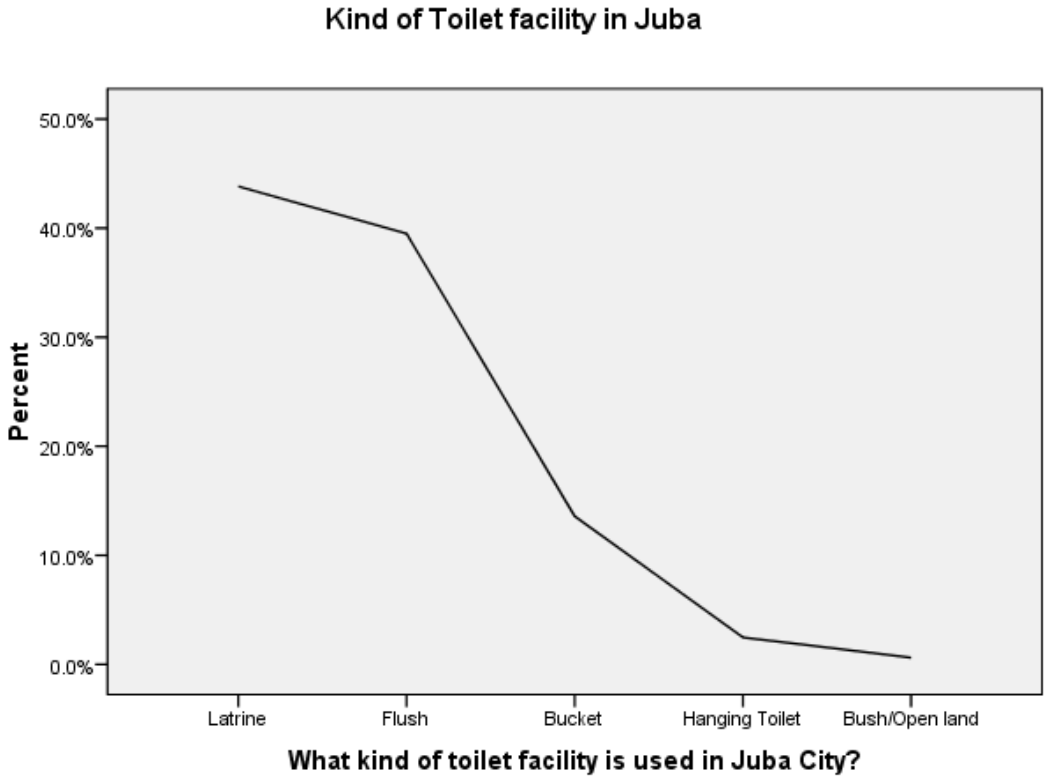
Source: Primary Data

The findings above reveal various opinions from the respondents where 96.9 % has Toilet facility in Juba while 3.1% do not have Toilet facility in Juba city. Individual, institutions, schools, public place and the household, majority have constructed their own toilets facility in Juba. There are some toilets which were constructed by the NGOs in area where toilet are few or not existing but still the sanitation is not improved to the standard requires. Most of the toilets facilities that are existing in Juba are latrines, are not clean, not strong and not safe. This is due to the facts that constructing latrine in Juba or in South Sudan is very expensive compares with other countries. Some of the latrine or toilets built are constructed in manner that waste cannot be exhausted or remove.

The study also revealed that there are case or area around Juba were residents still practices open defecation or go to bush as toilet, there are some area where it exists hanging toilet facility. toilet facility in Juba are constructed to the international standard, some can easily fall when it rains heavily in Juba city and the waste is mixed with drinking water that threaten a healthy living conditions and cannot support and promotes sanitation in Juba

4.2.3 The common kind of Toilet facility used in Juba and show whether people are satisfied with the facility

Figure 4.3: Showing the kind of Toilet facility used in Juba and whether people are satisfied or dissatisfied with facility.



Source: Primary Data

The above two figures show that 44 % of the household in Juba used latrines, similarly 40% of the population used flush toilet facility, 14% of the household used Bucket toilet facility while 2% of the people used Hanging Toilet/Open Bush facility in Juba. However, 40% of the respondent's views that they are satisfied with their current status of toilet facility, 37% of the people say that they are dissatisfied with current status of toilet facility, 17% of people are neither satisfied nor dissatisfied with their toilet facility and 6% of people have no opinions on their facility.

Figure 4.4. Show the common type of toilet and latrine in Juba

Source: field data.

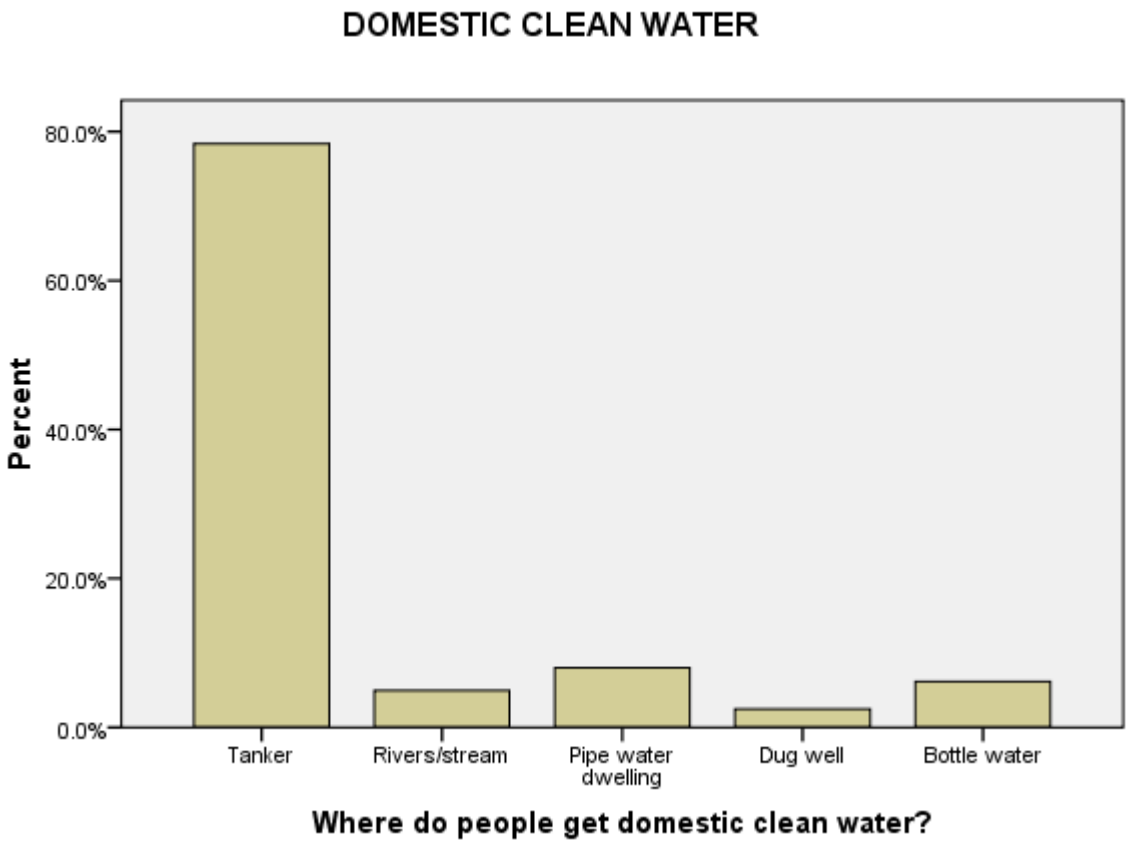
Additionally, 40% of the respondent's views that they are satisfied with their current status of toilet facility, 37% of the people say that they are dissatisfied with current status of toilet facility, 17% of people are neither satisfied nor dissatisfied with their toilet facility and 6% of people have no opinions on their facility.

The study shows that the most common types of toilet facility used in Juba is latrine which is made of common wood and soil structures that show it is not permanent. This also indicated that most household used flush toilets that are usually used water of the septic tanks and not connected to main sewage or there is no central main sewage in the city which is controlled by the authority. The vacuum tankers commonly used in Juba to exhausts toilets waste which is mainly under mechanical means for septic tanks and pit latrines. Although Government agencies including Juba city council, the Ministry of Lands, Housing and Physical Planning, being active in the liquid/solid waste management, the existence of the central sewage network is insufficient in Juba city.

The study, however, also indicates that there are existing elements of the fecal sludge management system. A large number of households have toilets that cannot be exhausted. For instance, the study indicated that over 44 percent of latrines are constructed but not lined. This indicated that lack of lining in latrines is less prevalent in some areas of the Juba city.

4.2.4 Sources in which people get domestic clean water in Juba

Figure 4.4: Showing source of domestic clean water in Juba.



Source: Field Data

In Juba, people in the household pay 400-500 SSP daily per 12 of Jeri can drum while government offices and business entities pay daily fees ranging from 2,000-5,000 SSP. From the study population, it reveals that The figure above revealed that; 78 percent of the respondents get domestic clean water from the Tanker, 8 percent get water from pipe, 6 percent get water from Bottle water and 5 percent get water from Rivers/stream and 3 percent get water from Dug well in Juba city.

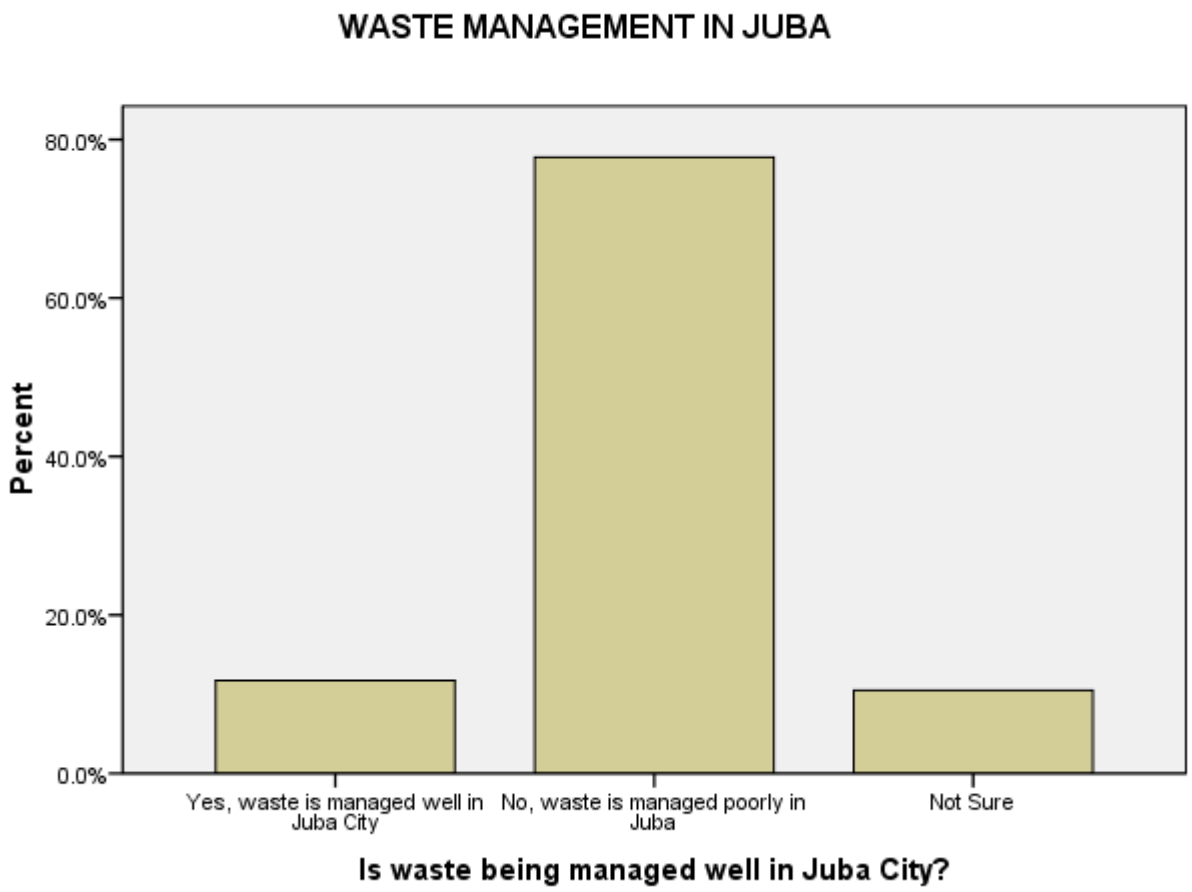
Figure 4. Show water tanker at the fueling station near Juba-gumbo bridges

Although the Urban water system is being managed by South Sudan Urban Water Cooperation (SSUWC), the water systems in Juba city are dilapidated and unreliable. This is due to so many years of being neglected and poor maintenance practices which have undermined the performance of water facilities in Juba. However, inadequate system capacity, weak distribution network of water has resulted in poor quality of water, which has to reduce number of new connections, high degree of unaccounted for water, weak revenue collection all contributed to the low performance of the water supply systems. Therefore, it has affected the livelihood of the people in Juba city. It is not affordable by the resident because getting 500-1,000 SSP on daily basis is too much for almost majority of people living in the city. This makes them resort to get untreated water from the river and wells. This untreated water source generated diseases and are not healthy for domestic human uses. In South Sudan, it is estimated that diarrhea, typhoid, cholera and other acute respiratory infections are very common. This is due to poor access to clean water and improved sanitation services in the country. The evidence based analysis

revealed that clean water supply, good hygiene and improved sanitation facilities reduce childhood mortality. However, with the statistics in South Sudan indicated that more than 60% of the schools in Juba city don't have improved sanitation facilities. This has impacted on their school attendance and the level of education attainment. Compare to other countries, there are reasons attributing to the low levels of sanitation and hygiene practices in South Sudan.

4.2.5 How do people usually disposed and managed waste in Juba City?

Figure 4.5: Showing waste management in Juba City



Source: Primary Data

The above figure revealed that waste is not managed well in Juba City as indicated by 78% of the respondents, 12% of the respondents indicated that waste is being managed well in Juba City while 10% are not sure about the waste management in Juba city.

From the same finding in the study, 38% of the people living in Juba burn the waste nearby their homes or in market places or school, 25% of the respondent views that waste is collected by the City Administration unit but it is not on regular or daily bases in Juba city, 18% of the household dumped their waste outside home, 12% did not indicated how the disposed their waste and 6% Burying their waste outside/inside home in Juba city. Therefore, it revealed that managed well in Juba city and that why there is a lot of dumped waste in the open places in the cit.

The study revealed that waste is not managed well in Juba City as indicated by 78% of the respondents, 12% that according to an official from respondents indicated that waste is being managed well that According to an official from the National Chamber of commerce.

In the same responses, 53% of the respondents opinion is that responsibilities of managing and improves sanitations is for central Equatoria State, 24% opinion is that it is the responsibility of National Ministry of Health that can improved sanitation in Juba City, 2% of the respondents view that it can be improves by International agencies in South Sudan while 21% opinions is that all of the above institution can collaborate and cooperate in managing and improving sanitations status in Juba city.

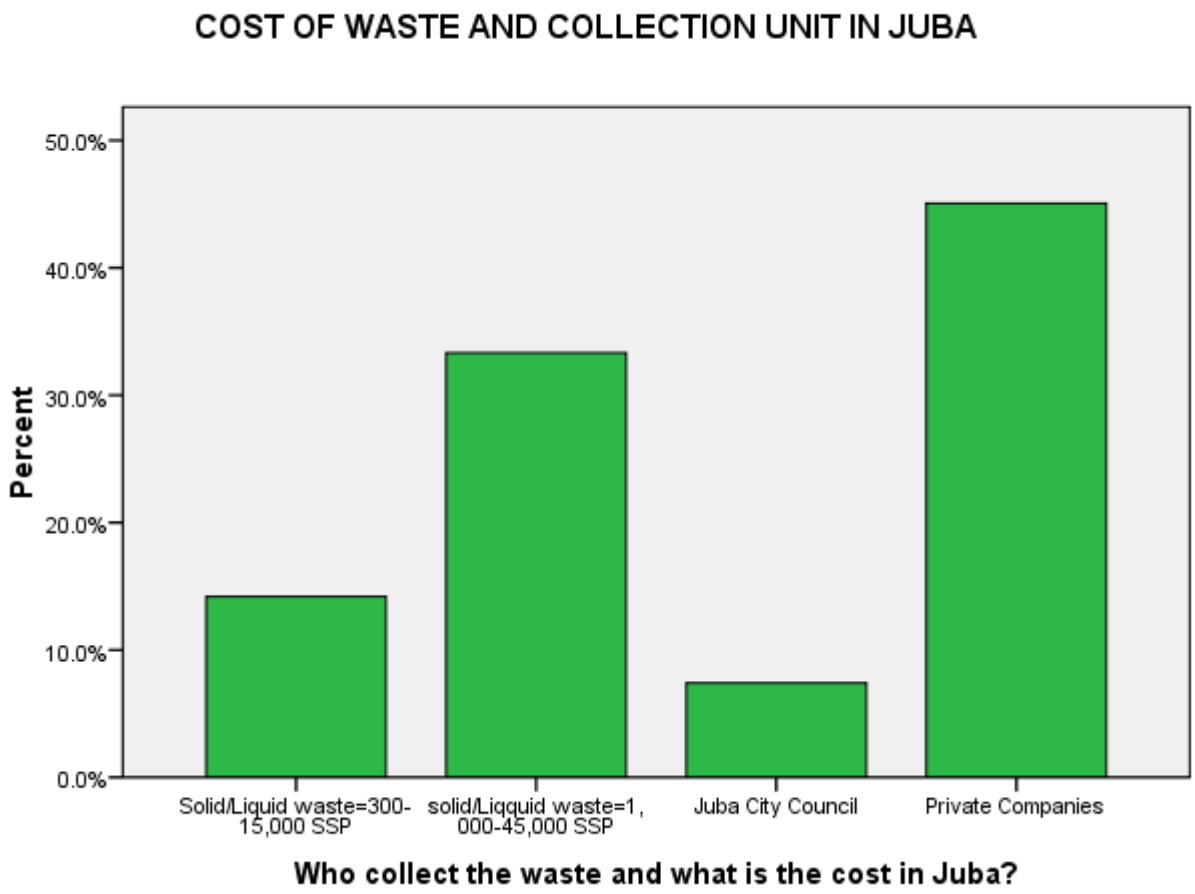
Fig.4.7 Shows garage in Juba city

Sources: Juba city

These pictures of garbage's were captured from different part of Juba city, in Jebel market, Juba town center Gudele 2 and stream near the Juba international airport

4.2.6. The cost of waste Collection in Juba City

Figure 4.6: Show the Cost of waste in Juba City.



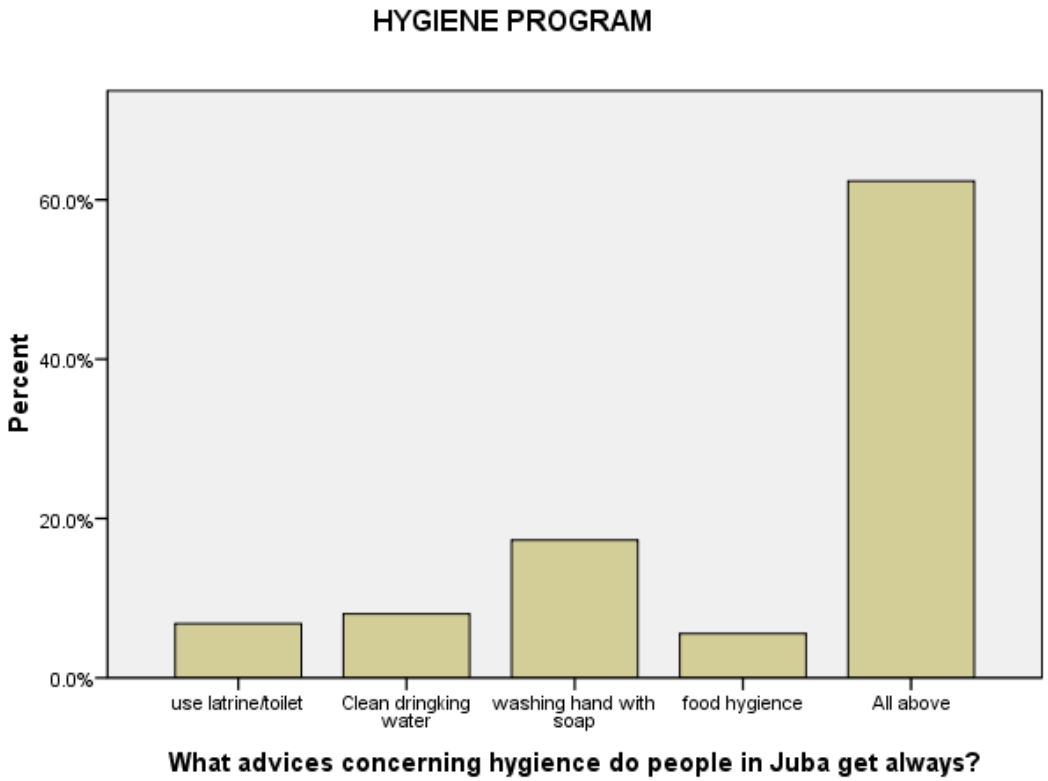
Sources; primary data

The study revealed that 45% of the waste is collected by the Private companies in Juba, 33% of the companies cost 1,000 SSP-45,000 SSP in Juba, 14% of the companies charged 300 SSP-15,000 SSP and 8% of the waste is collected by the City administration. The garbage collection centers are not located in the area that why you see most of the people end up dumped that waste near the residential areas, dumped in the river/stream in Juba. One potential explanation from the reliable institution in the Government of South Sudan is that the authority did not provide waste management sites in Juba city additional factors are that insufficient resources for dig the pit and constructing remained challenges in Juba. There is an issue of existing of infrastructures which

are old weak and could not support the proper management of waste in the city. As discussed in chapter two by a community leader Mr. Joseph, the residents are disappointed with current status of waste disposal in the county. The dumping site is not properly maintained, road connecting to the dumping ground are not upgrade, no machines and truck that collect the waste on time and lack funds to construct the sites are a challenges that they community requested the authority to work on while trying to improve the sanitation facility in the county. However the management of waste is poor due to the fact that solid waste is being dumped in opened spaces and when it rains, the smell is too much and that is likely risking of contracting deadly diseases amongst the people living in the city.

4.2.7 Advice Concerning Hygiene Program in Juba.

Figure 4.7: Show the advice concerning Hygiene program in Juba.

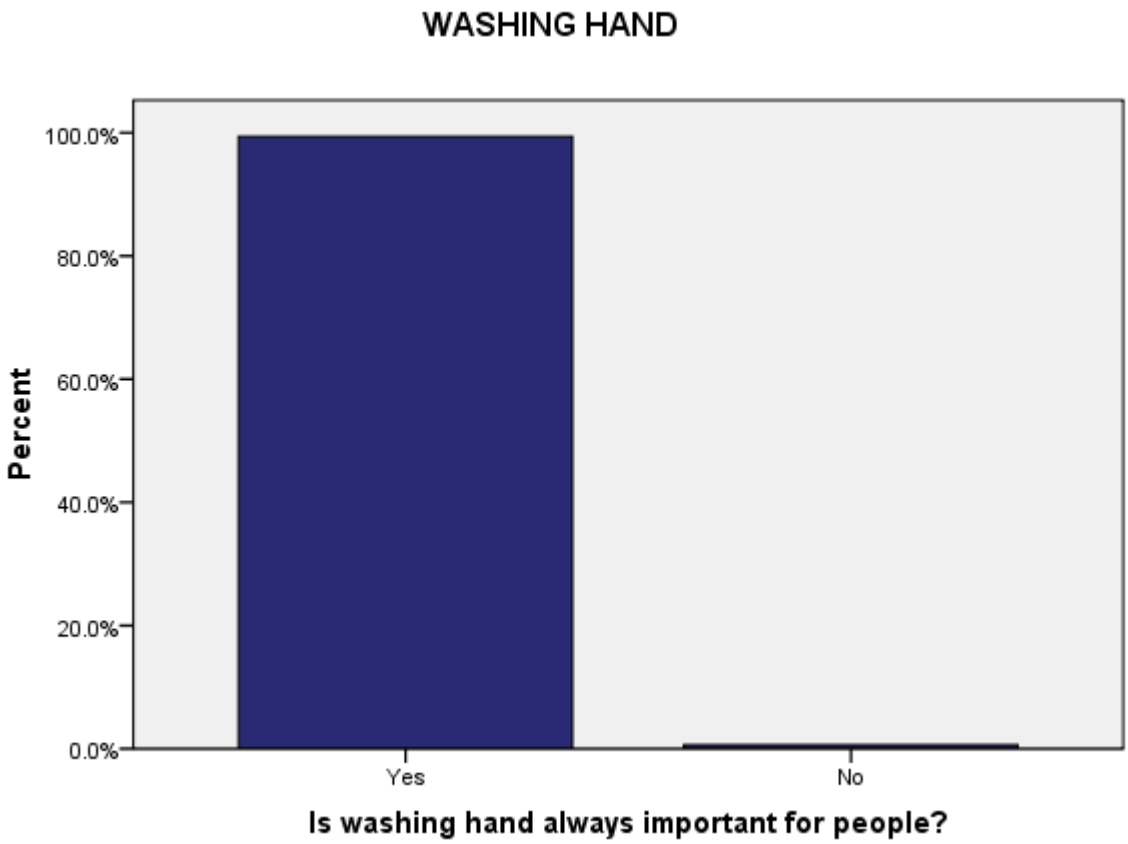


Sources: Primary data

From the figure above 62% of the population get all the above information from the radio, TV and newspapers, 17% of the people always listened to hand washing with soap as mean of promoting sanitation and hygiene, 8% consider having clean drinking water promotes good health, 7% of the people considered used of good latrine/Toilet facilities promote sanitations and 6% considered food hygiene in the household as mean of promoting good health in Juba. South Sudan as similar with most other developing countries, the level of hygiene awareness in the country is low. During this critical time of pandemic and together with surveys conducted by PACT in Juba and other states of South Sudan demonstrate that 50% of the population washed their hands before preparing a meal, while only 15% did so after latrine usage. However, the issue of behavioral changes in the country is really challenges the target in which the level of hygiene and awareness could be achieved. Construction of sanitation facilities like toilets alone will not bring outcomes anticipated unless awareness campaigns strategy are put in places and the meaningful usage of such facilities. In the previous study, it has indicated that behavioral changes are crucial and instrumental in stimulating the demand and will serves as catalyst for a proper use of sanitation facilities in Juba. The water policy as well as the strategic framework document emphasize that each households in Juba city and other city across the country is supposed to construct their own sanitation facilities. It is also stated that any support that is provided by Government of South Sudan and development partners like WHO/UNICEF and others will mainly on the promotion of hygiene education and awareness program. However, these strategies are not being put into practice in Juba city and other major towns in South Sudan.

4.2.8 Important of always washing of hand.

Figure 4.8: Shows important of regular of washing hand.



Although 161 (99.4%) respondents say that hand washing is important while 1 (0.6%) are neutral some schools and household were observed to have limited provision of water and good toilet facilities in Juba city.

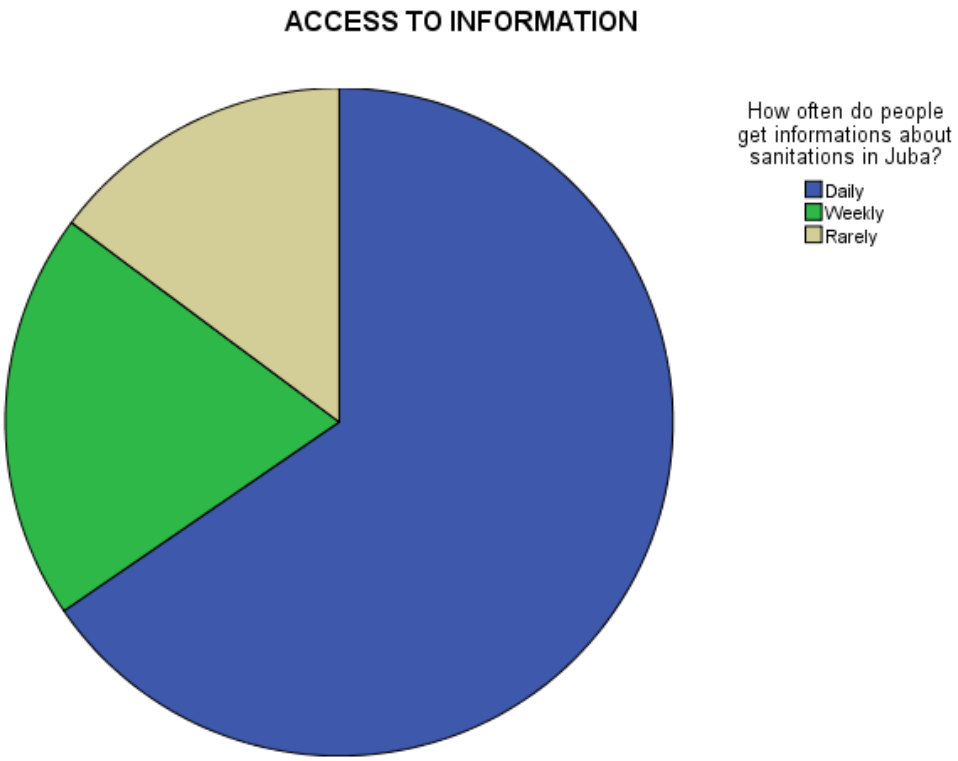
Figure 4.6 Show the water waste from the bathroom in Juba

Although 161 (99.4%) (Fig 4.8) Respondents say that hand washing is important while 1 (0.6%) are neutral, some schools and household were observed to have limited provision of domestic clean water and good toilet facilities in Juba city. Some restaurant and business entity poured dirty water on the road, these practices has been witnessed many time in Juba, also some shops in the city are used as Bar and places for drinking Alcohols but do not have toilet or place for urines. The own usually provides buckets for customers to use for urines and at end of business, these water waste are poured on the road or some customer can urinate in any open place. However, when it rain, all these waste are washed by rain water contaminate water source or people can easily stepped on these dirty water waste and the can also invite more flies that cause disease to people. A number of studies indicate that the above water, sanitation and hygiene components are necessary for people; however a more rigorous understanding of how these components affect people' lives daily. It is encouraging that National, State Government and

some NGO like USAID, UNICEF, OXFAM and IOM and other are supporting sanitation and hygiene programs to create a better condition for IDPs and general public in South Sudan, however renewed investments in water and sanitation program need to be consider which can strengthen educational awareness, effective and consistent service delivery, and program sustainability to benefit all people in the long term. In comparing level of hygiene with most other developing countries, the level of hygiene awareness in South Sudan is very low. However, a facts finding and evidence based surveys was conducted by PACT has demonstrated that less 60% of the population washed their hands before preparing a meal, only less 20% wash their hand after visiting toilets.

4.2.9 How often do people have access to Information regarding sanitation?

Figure 4.9: access to information

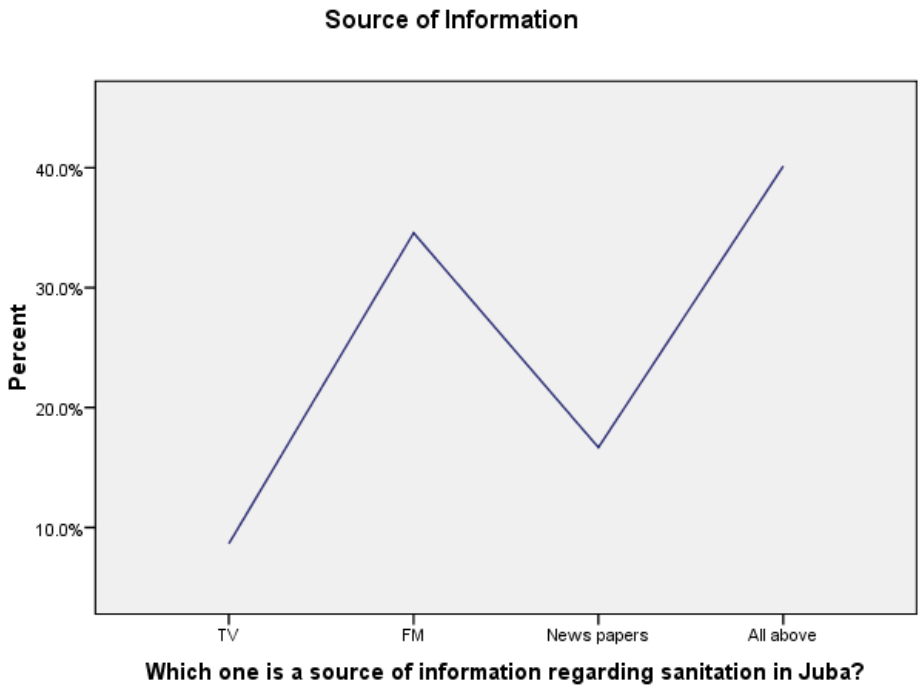


Source: primary data

The study revealed that 65% of the populations have access to information regarding sanitation daily, 20% gets information concerning sanitation and hygiene weekly while 15% of the populations rarely have access to information in Juba city. From this study also, about, 40% of people in Juba get information from both TV, FM Radio and newpapers,35% only listened to FM Radio,17% read Newspapers and 8% watched TV news regarding sanitation and hygiene promotion in Juba. Due to lack of designated a lead single institution for sanitation and Hygiene program; there is almost completely no awareness in regards to regulations and policies of household and individual to maintain their sanitation and hygienic. However, about 79 percent of respondents view that insufficient fund, weak institutional capacity and poor coordination, an irregular waste collection, poor centralized sewage systems and it management and lack of awareness are major challenges hindered the improvement of sanitation in Juba.

4.2.10 what is the sources of information do people get regular updates in regard to sanitation status in juba

Figure 4.10: show the sources of information

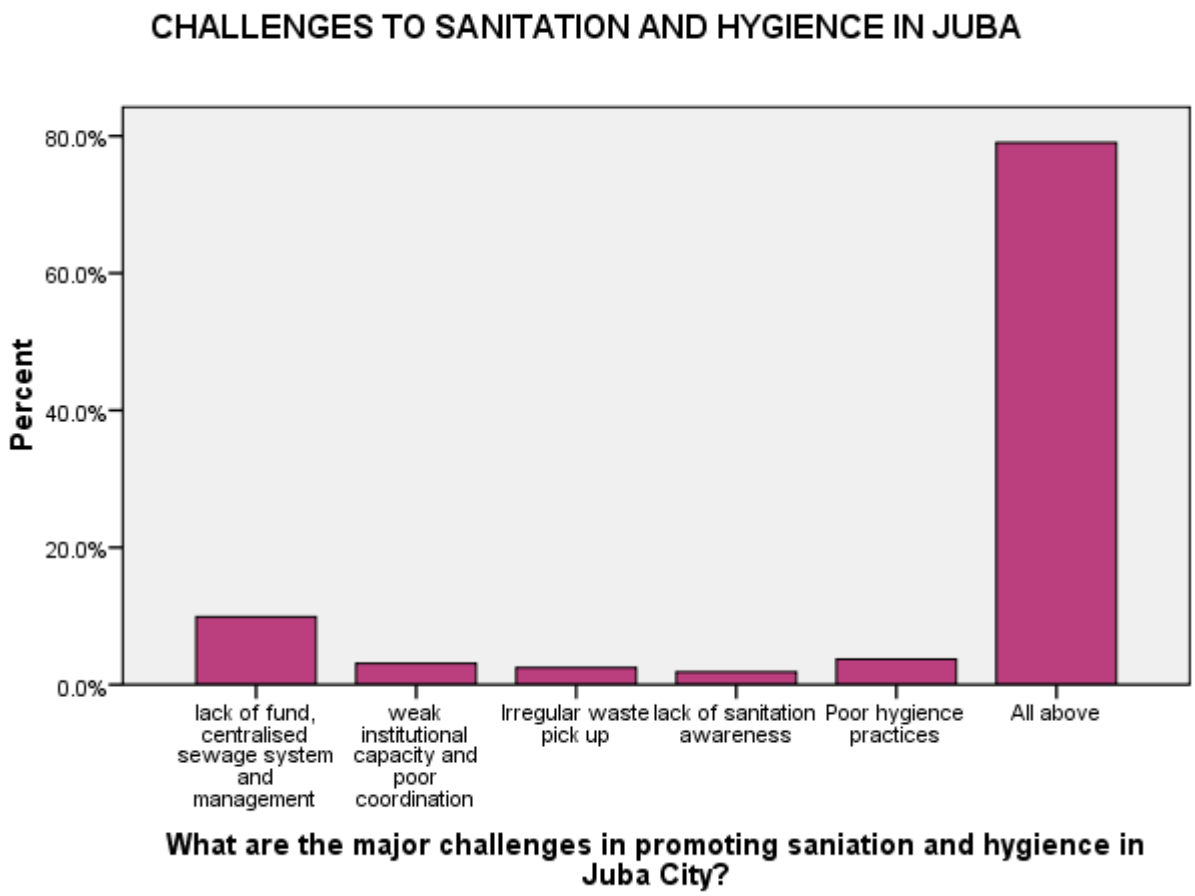


Source: field data

From the figure above, 40% of people in Juba get information from all the sources above,35% only listened to FM Radio,17% read Newspapers and 8% watched TV news regarding sanitation and hygiene promotion in Juba

4.2.11 what are the challenges face while promoting sanitation and hygiene

Figure 4.11: Show the challenges in hygiene and sanitation promotion in Juba



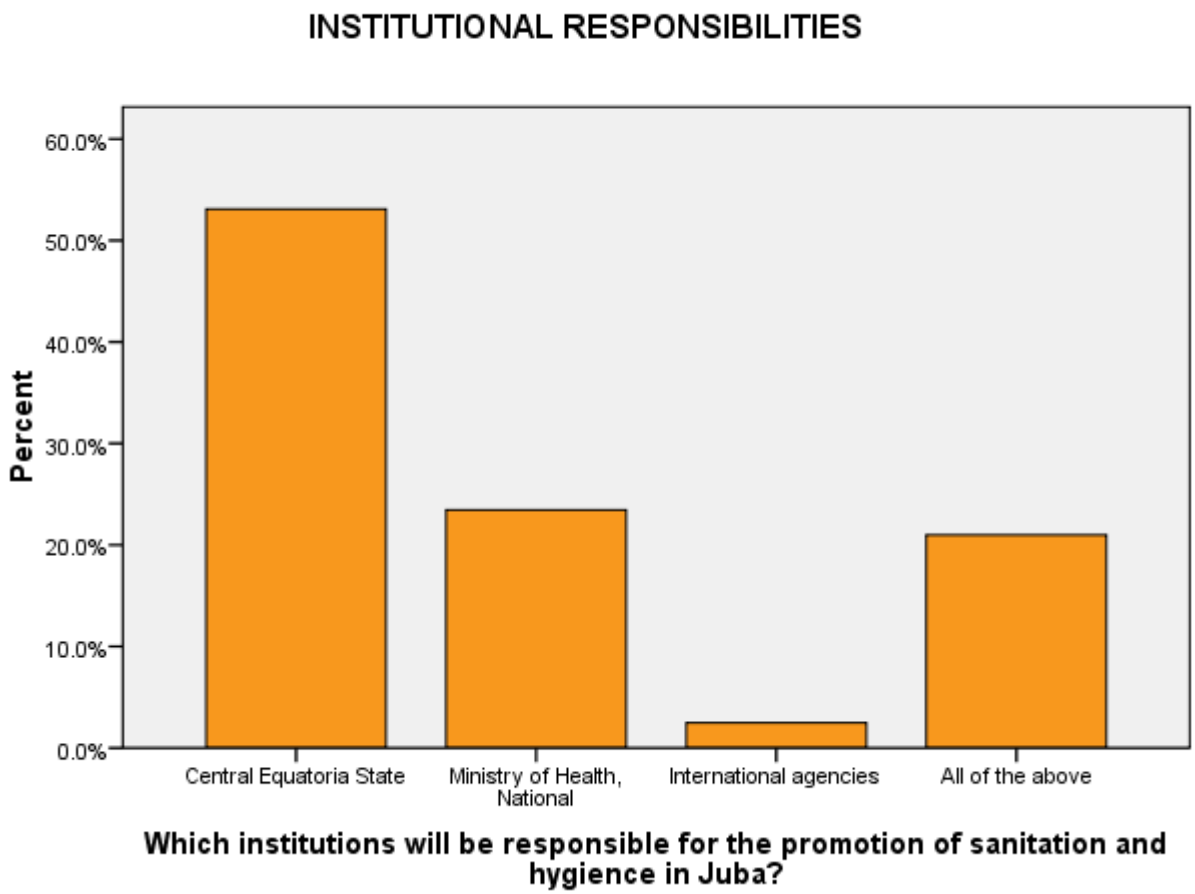
Source: Primary Data

From the figure above 79% of respondents view that all the factors listed above are major challenges hindered the improvement of sanitation in Juba, 10% of respondents views that lack of fund, lack of centralized sewage systems and management is a challenge,4% is poor hygiene

practice, 3% weak institutional capacity and poor coordination, 2% an irregular waste collection and 2% is lack of sanitation awareness in Juba city.

4.2.12 which is responsible for the promotion of sanitation and hygiene in Juba

Figure 4.12: show the institutional responsibilities in sanitation and hygiene promotion

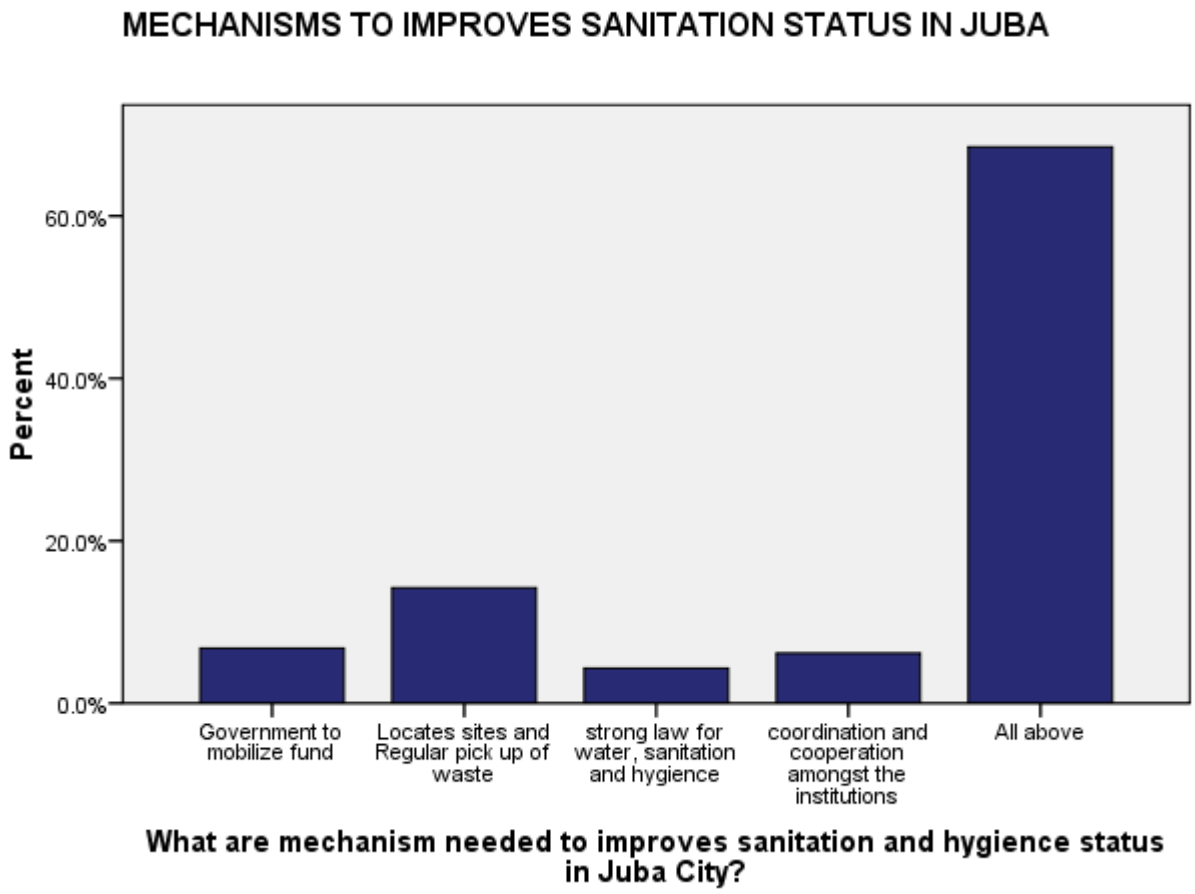


Sources: primary Data

From data above 53% of the respondents' opinion is that responsibilities of managing and improves sanitations is for central Equatoria State, 24% opinion is that it is the responsibility of National Ministry of Health that can improved sanitation in Juba City, 2% of the respondents' view that it can be improves by International agencies in South Sudan while 21% opinions is that all of the above institution can collaborate and cooperate in managing and improving sanitations status in Juba city.

4.2.13 Mechanism to improve sanitation in Juba

Figure 4.13 Show the mechanism to improve sanitation



Source: Field Data.

From the figure above 69% of the respondents indicated that all the above mechanism can be applied for the effective improvement of sanitation in Juba City, 14% view that the Authority should locate site for the waste and regularly collected by the authority, 7% of the respondent views that if Government can mobilizes funds, this can address it well, 6% views that institution could coordinates and cooperate in managing sanitation while 4% proposed that state should draft and implement laws and regulations that will governance the sector.

Therefore, it is safe to say that Juba's sanitation infrastructure, including water supply, waste management unit and toilets facility and their site in the city are not completely improved and

problematic. Therefore, the issue of design and construction improvements for sanitation facility remains a crucial and requires interventions. Improving all the services that promotes wellbeing and livelihood of people in regard to sanitation are necessary as a matter of environmental protection is concerns. However, interventions involving proper use of water supply, waste management, and toilets facility must be undertaken with a knowledgeable understanding and their associated cost of materials requires.

CHAPTER FIVE

DISCUSSION OF RESULT AND ANALYSIS

5.1. Water supply Sanitation Status in Juba

This study demonstrates that sanitations status is not improved; the majority of South Sudanese household living in Juba lack access to regular clean drinking water, poor waste management poor types of toilet facility and weak institutional capacity both infrastructure and professionalism of staffs. However, it was Quantitative methods of applied in this study. The findings from sanitation status and how its effect to the livelihood of people living in Juba found out that 78 percent of the respondents residing in Juba City have responded that sanitation status has not been improved by the authority in Juba city while 22 percent of the studied population attributed that sanitation status in Juba city has been improved by the authority in Juba city.

In this study, it is found out that the underlying factors that impact negatively on the livelihood of people in relation to poor sanitations statuses are includes; (i) economic reason that led to lack of water supply, poor Solid/Liquid waste management, poor quality type of toilet and availability in Juba city (ii) weak institutional capacity to manages and regulate the sector, (iii) Socio-cultural factors which make it hard for people to adopt to standard and good practices of keeping hygiene in the communities living in Juba city. Bellows are the outline factor that hindered the effective implementation of water supply and sanitation facilities in Juba.

5.2. A factor affects Water and Sanitation services in Juba city.

Some of respondents in Juba city do know why they do not have secures sources of water supply and improved sanitation facilities and some of them are very much aware of the key factors hindered the improvement of the sector. Below are the factors that are discussed in the following paragraph.

5.2.1 Factors hindered provision of adequate Water supply

Water supply has never been a priority. According to South Sudan Development plan (SSDP) water and sanitation sector was a key priority amongst the six top agenda but the fund was not

released as plan. See in Figure (4.2.4). This made it difficult for the resident in Juba city to get excess to clean water supply. Water supply has never been improved well in Juba city, there is no public water pipe connected to supply water. The resident almost majority get their daily clean water from the business owned water tankers. This mode of water supply has never been reliable due to poor design and lack of supervision during construction of facility. However, this led to crippling of the core components of the systems. This can easily damage the water tanks which and could not regularly supply and as a result it forced residents to revert back to use untreated water from the river. With that low levels of access to improve clean water supply and poor hygiene awareness are typically main causes of water related diseases such as diarrhea, cholera and guinea worm in Juba city. Most of the diseases that affect people living in Juba are transmitted through drinking contaminated and stagnant water. Water supply facilities that exist in the country lack adequate system capacity to supply enough, this has led to surge of constructing private wells by the resident in the city. These well are often providing poor quality water that negatively affects the healthy living of people in Juba.

Lack of Budget; the lack of improved water supply has exacted a heavy toll on the health and economic productivity of South Sudan. This water sector has been neglected by the Government and the existing facilities were not maintained well. Hence, this requires necessary efforts at national, state to properly improve and maintains existing facilities in the country. The key issue that affects water supply is an Institutional capacity. The study findings highlight insufficient fund are available for Central Equatoria State; however, reviews indicate insufficient resources impact on the improvement sanitation and Hygiene and other health parameters in the country. In addition, the city council and state ministry administration has a problem of budget allocation for sector to provide services needed.

Administrative capacity**;** the provision of clean water supply is determined on how the country sector builds its institutional facilities. In particular, training of staffs and capacity building to upgrades their professional skills in sector. Although some efforts have been made by the Ministry of water to build water facilities in urban areas, still very little has been achieved especially in human resources and strengthening water and sanitation sector. However, the Ministry of Water Resources and Irrigation (MWRI) and South Sudan Urban Water Cooperation (SSUWC) lack professional's engineers, geologists, and treatment plant specialists to manage the

sector. Administration of Juba city council has put much consideration in the provision and improvement of water supply to meet the need of community. The city council and administrative capacity also identified as additional hindering factor that prevent water access supply and improve sanitation facility. Resident of Juba city believe that the city administration does not have much influence on the National Government to focus much attention on water provision and improves sanitation. Generally, there is a lack of coordination between the National Government, state Government and international agencies in managing sanitation program, difficulties in properly disposing of solid/liquid waste materials, and a lack of provision of cleans water in the Juba city.

Limited community participation; the community members, the state authorities and development partner do not always involve themselves in the development activities of the sector. This is a hindered factor for not having adequate water supply and improves sanitation services in Juba city. As the literature indicated that the effective to improve water supply and sanitation facility is through community participation. The WSSCC (2011) encourages full participation of the community at the start of the projects so that own it and pledge in their contribution in any form. But if the community involvement failed or not considered, it become a factor that prevent the progress of the activities. Failure to work together, the community will think that they do not have any role in the development of overall infrastructure in the sector. This makes them relax and wait from the government and development partners involves them in the activities. So the participation of the community in any kind of development activities in the Juba city is low. One of the respondents who is a community leader and chairperson of Quarter council said the residents in Juba city become dependent on what the government provides to them rather than being involves to put their efforts in the development of the sector.

Lack of Infrastructure; The infrastructure problems are amongst the factors which hindered the provision of improved water supply in Juba city. It is because infrastructure very poor in the city, especially roads connecting area to area and electricity availability. The status of Juba city has discouraged people who interesting to invest their money in the development projects of the sector and the government has not done enough in the sector. In the literature, it is stated that socio-economic development of the infrastructure is linked closely with this sector for the improvement of livelihood of people. In this case, residents in Juba city have an inadequate

infrastructure such as health, roads, education and water supply and sanitation facilities, which is a serious challenge to government both national, state level respectively and NGOs organizations to provide such a services to the resident in the Juba city.

There are few NGOs operating in the field; the work for NGOs is to support human development and poverty alleviation as the core agenda. There are few NGOs operating in the sector in Juba city and could have a positive developmental impact on an infrastructure of the sector. But their activities are not enough to provide the services needed in Juba city. Therefor NGOs are few or not willing to provide facilities needed in this sector. With that, it issues it has limited and restricts an access and provision of clean water supply and sanitation facilities and other infrastructure. NGOs like Maltser international, IOM, UNICEF are active in the area of health and sanitation programs but it is not sufficient to the entire resident in Juba.

Lack accurate of Prefeasibility Study of underground water, there has been many examples where drilling for underground water failed because of failures in pre-feasibility studies. The failures in pre-feasibility studies result in poor quality of water, which would have served many people in Juba city with good quality water supply. It is the accurate pre-feasibility study that cans result with the identification of the appropriate places to dig for good quality water. This happened because the Juba city councils do not have highly skilled human resources and modernized technology to perform accurate pre-feasibility studies.

5.2.2 Factors Prohibiting Building a Toilet

Some community members believe that having a toilet is a good thing which inspires them as they are modernized which makes them safe and provides privacy during defecation. But still there are some factors which prevent them from not having their own latrines. These factors are discussed below which is given by the respondents.

The study shows that there existent of elements of fecal sludge management system that still requires more understanding and it strengthens. In Juba a number of households have toilets/pit latrines that are not lined and couldn't be exhausted completely. These types of pit latrines that lack lining are less prevalent in most areas of Juba city. In addition, many toilets were built with wood and other materials which are not permanent and as such, lack of safety, cleanliness and

privacy make them not qualify as adequate and an improved sanitation facility that promotes healthy living in the community.

Time and Ability; as we have said earlier the toilets in the community are simply constructed by the household owners for it is simply digging a hole in the ground and lining it with wood. Some people give the reason for not having a toilet as not having the time and ability to dig a hole for a toilet. This is because all the agricultural work is done by the household head while the digging of a toilet would be an additional job to do. In addition, they are not capable financially of building the toilet if they have to pay those who do the digging. As we can see from the general backgrounds, the community members' monthly income is less than 50 US dollars per month which makes building a toilet quite expensive.

Lack of Facilities; it is well known that in order to build latrines, some inputs like cement, steel and other materials are necessary. In this case many toilets are frequently destroyed because the latrines are not constructed using permanent material. The Government and NGOs do not provide people with any materials apart from teaching them how to build a toilet. The materials required for latrine construction are quite expensive in comparison to their household income which does not even cover their expenses for food and other basic necessities. As a result, even if the community members build their own latrines, they do not last long. It is because they build a simple pit latrine based on their knowledge with the local available materials which is destroyed when the by rains.

Lack of Awareness; during the study some respondents say they do not understand the importance of having a toilet in their houses. These people consider that any place is appropriate to defecate as long as people are not around. The lack of awareness means that the community is far behind what is expected to be achieved. Therefore, there are people who do not understand the importance of building a latrine and its linkage with health.

Factors Related to Land; as it was observed, population do not have land in Juba city it is good for people to a build latrine on their own land. Some people use the lack of suitable land as an excuse for not constructing a toilet of their own. As a result, they forced to defecate in an open field.

Traditional attitudes; in some communities across South Sudan disregard the use of toilet/latrine. This unwritten definition of latrines in the community overlooks the advantages of latrines in ensuring a healthy generation and creating a healthy environment to live in. As a result of such cultural attitudes among the members of the community people defecate in an open field or in the forest. People with such attitudes even discourage other community members when they try to build their own latrines. Especially adult males are not even expected to defecate in the latrines for they are considered as 'gutless'. Though these negative attitudes towards latrines are changing, there are still people who consider defecating in a latrine or literally what they call a 'house' as a sign of weakness. As HEWs explained, some households with such primitive attitudes present big obstacles in their attempts at training on sanitation and hygiene issues.

Finally, the issue of poor construction of common types of toilets in Juba city requires effective capacity building of the staffs that will be work on the good design and proper supervision of toilet construction facility in and around Juba city.

5.3. Impacts of Poor Water Supply and Sanitation Status in Juba city

The poor water supply and improves sanitation status has many negative impacts on the livelihood of people. However, the measurement of degree attached to the negative consequences always varies from nation to nation and people respectively. In this study, it is reveal that negative consequences of poor water quality supply by the water tanker-and unimproved sanitation facility is highly affecting the livelihood of people daily. By looking at the following economic, social, environmental and the health impacts were identified by the respondents who took part in this study as crucial and affect all the activities and lives of people in Juba city. It is notice that social impacts is greatly linked with environmental, economic and health impacts even though each of topic this are being discussed in different paragraphs, still they are not mutually exclusive to each other.

5.3.1. Impact on the Household Income

The economy of South Sudan is negatively affected by poor water and sanitation current status. But people realize that poor quality water and unimproved sanitation has a negative impact on the household incomes in Juba city daily. In Juba, people in the household pay 400-500 SSP daily per 12 of Jeri can drum. From the study population, it reveals that the figure above revealed

that; in figure (4.2.2), 78 percent of the respondents get domestic clean water from the Truck-Tanker. The impact is identified as how the poor water supply and lack of basic sanitation affects their livelihood. If people do not get clean water from the truck tankers, they can get sick and cannot be productive at work place which reduced their daily income. In that regard, is hard for families to get food to survive and all other basic necessities. Therefore, lack of access to clean water supply and improve sanitation facility has a huge negative impact on all the household income in Juba city.

5.3.2. Health Impacts

The poor water supply and lack of improves sanitation facilities affects the well-being of the people. Access to poor sanitation status and poor quality water in the community has negative effects on women and children. The health effects of poor quality of drinking water and poor sanitation status are not only limited to illness alone it can lead to death. The livelihood of community members who resided in Juba city are greatly exposed to many diseases like amoeba, malaria and trachoma and very complicated unhealthy conditions. The health of the population in Juba city is daily threatens in Juba city because people do not have access to a nearby improved clinic or hospital in and around Juba city. Finally, the combination of poor water and inadequate sanitation services has leads to a deterioration situation in the human resources of Juba city and South Sudan in general.

5.3.3. Social Impacts

The traditional walls/ponds are not well protected, either to protect the quality of the water but they are also not well protected to keep people safe when collecting pond water. As a result, a number of people have drowned collecting pond water. It is only for a limited period of time that people stop collecting water and drinking from the walls. After some time, communities living around these walls believe that water is safe to drink and continues because it only the option for them to get water. The problem is that such water is not clean and safe to use for human health. In part of Juba city, there still part of the city where people still practices open defection in the open field, people fear to relieve themselves at day time due of privacy at day time and this social affect their them because they will not be comfortable. Although Government of South Sudan and NGOs always encourage people to build their own toilets to keep the environment clean and ensures a healthy living, people will also wish to have privacy when they relieve

themselves. As it is revealed in this study, the sanitation status of people living in Juba city is very low.

5.3.4. Economic Impacts

There are major economic impacts which were revealed by respondents who participated in the study research which are directly related to health issues.

Water related and water borne diseases are diseases which affect the community members' health. As a result, they are forced to be absent from work for they are unable to work because of the diseases to which they are highly exposed. This reduces the household income for almost all the community households which depend on agriculture. If one of the household members becomes sick, the others have to invest some money to make him healthy. And if the patient is the household head, the income of that household is highly negatively affected. Children are greatly exposed to unsafe water and poor sanitation related disease since they spend their time playing in a place where they defecate. The parents have to take their children to a health station if they get sick. This means that parents have to be absent from their jobs, which lessens productivity.

Regarding the household income of the community, the households have a monthly income which is less. With this low income they are expected to pay for their own treatment and that of their children when they get sick. But the cost of medication is sometime not meet due to economic due to low productivity burden.

The economic related impact is that almost all of the community members are required to spend hours collecting water from the unprotected sources which could have been spent on other productive activities. Because people do not have latrines nearby they have to walk for some hours to get far from their houses which could be saved if they had a latrine nearby.

5.3.5. Environmental Impacts

Every person has the right to a clean and healthy environment and this remained as key factors in the Government constitution to ensures that all the policies priority should concerns with environmental protections. Despite what has been stated in the constitution many people in Juba city do not have a healthy environment. There are still significant cases whereby some people

who do not have access to a toilet still practices defecate in open land in some area around the city. Consequently, Juba city environment is not that clean and is not comfortable for good health in some area. There are a lot flies and insect that transmitted disease which can easily breed and cover the whole area within short period. It has been observed with concern that, children play in and around places they defecated while their faces are covered by flies.

Apart from the environmental, economic, social and health impacts which the water accessibility and sanitation level has on the everyday activities of the community, this issue also affects their human dignity. So when people have a natural call, they cannot defecate whenever they want to, rather they have to wait until other people leave the place or if they are female they should wait until sunset. In addition, because there are no separate ponds in the community, people are forced to use the same source of water as their animals. On top of that, during the dry season the sources of water which are nearby might dry out and people have to go far to collect water which is a big challenge to the community.

Though most of the respondents agreed that the poor accessibility of potable water and basic sanitation has impacts, there were very few respondents who argued that poor accessibility of water and sanitation does not have a negative impact on their daily lives. This attitude towards the current water and sanitation status helps them to easily adapt and accept the situation by drinking water from unprotected sources and defecating in an open field. Some others think though they are facing the problem of water and sanitation, they argue that they already adapt it and learn how to live with it. They believe the poor access to water supply and sanitation is not considered as a big challenge which the community currently faces. Therefore there are three groups of people based on their perception towards the impact of poor water accessibility and sanitation: people who know and understand the negative consequence of the poor quality of water; people who know the negative consequences of the poor quality water but adopt themselves to it and are fine with it; and the third group is people who do not understand the negative consequences of the poor quality of water and believe it does not have any negative impacts on their livelihoods. People may not be convinced of the desirability of new water sources and new excreta disposal facilities.

5.4. CONCLUSION

Globally people deserve to live in a healthy environment with access to clean domestic water and good toilet facilities. However, the sanitation facility in Juba for household, public places and schools are insufficient and not improved well. With little support from NGOs had better conditions overall, including for girls, than those without. Additional resources, training of health personnel's and regular awareness and monitoring are needed to ensure the provision of domestic clean water, the construction of good toilet/latrines in Juba City.

Therefore, it is safe to say that Juba's sanitation infrastructure, including water supply, waste management unit and toilets facility and their site in the city are not completely improved and problematic. Therefore, the issue of design and construction improvements for sanitation facility remains a crucial and requires interventions. Improving all the services that promotes wellbeing and livelihood of people in regard to sanitation are necessary as a matter of environmental protection is concerns. However, interventions involving proper use of water supply, waste management, and toilets facility must be undertaken with a knowledgeable understanding and their associated cost of materials requires.

5.5. Limitations of the study

There is no task that can advance without challenges. The researcher anticipates experiencing problem of inadequate cooperation from some respondents. This is because some of them may postpone the appointments made with them due to urgency of other programs at their respective offices. This might slow down the speed of data collection for the entire research.

5.6. Recommendations:

In order to ensure effective implementation of sanitation facility in Juba, the Ministries of Health, Physical Infrastructures, Water and Environment, and Juba city council and Chamber of Commerce must develop a harmonized position, strategy and policy on sanitation and hygiene, with a clear institutional mandates.

The Ministry of Health at the national level should priorities her responsibilities as set out in the constitution to fulfill their commitments to allocate funds to sanitation and hygiene sector in collaboration international agencies.

The state ministry of Physical infrastructures should demarcate land and allocate sites for solid and liquid waste and but heavy truck for collecting waste in the city centers.

For the state to achieves, it requires relevant authority to avail a strong political wills as well as to support institutional capacity building and expansion of investment in the sector.

South Sudan's needs is to assign formal responsibility for each of the State capitals to the Urban Water Corporation and assign formal responsibility to the state governments for provision of sanitation services facility to other urban communities within each state.

It is also recommended that regulatory functions should be undertaken by the relevant institutions to; to strengthen the water supply institutional capacity, provides a clear guild line to the department for effective supply chains of goods and services in the water sector and finally provision of training and reforms in the South Sudan urban and rural entities.

Finally, the institutions concerns require to come up with capacity building on design and supervision of toilet construction to avoid the issue of constructing poor latrine

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