

**MONITORING AND EVALUATION PROCESS ON SUSTAINABILITY OF  
WATER SANITATION AND HYGIENE PROJECTS IN BAIDOA DISTRICT BAY  
REGION, SOMALIA**

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Degree of Masters of Arts in Monitoring and Evaluation in the Department of  
Monitoring and Evaluation and the School of Business of the African Nazarene  
University.**

**JUNE 2023**

**DECLARATION**

I declare that this document and the research that it describes are my original work and that they have not been presented in any other university for academic work.

**Student Signature** \_\_\_\_\_  \_\_\_\_\_ Date: 10/06/2023

**20M01DMME032.**

This research was conducted under our supervision and is submitted with our approval as university supervisors

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**DEDICATION**

This project is dedicated to my beloved daughter Vania and beloved son Jayden who have been my inspiration and encouragement throughout my academic journey and achievements.

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## ABSTRACT

There are a variety of interconnected and dynamic factors that are said to have an impact on the sustainability of water, sanitation, and hygiene (WASH) services in developing countries. The five sustainability factors are financial, organizational, ecological, technological, and interpersonal which are frequently mentioned in literary works. The purpose of this study is to establish the extent to which monitoring and evaluation process influence sustainability of water sanitation and hygiene projects in Baidoa district. This is specifically the area with highest number of IDPS in the Camps. The study is guided by the following objectives: to examine how Planning for monitoring and evaluation influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia, to assess how capacity building influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia, to establish the influence of data collection for monitoring and evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia and finally to determine how utilization for monitoring and evaluation results influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. The study was informed by Theory of planned behavior and Theory of Sustainability .Descriptive survey research design was adopted and Pearson correlational was used to test hypothesis. Stratified and random sampling techniques were used for a sample of 205. The study used questionnaire and interview guides for data collection . Data analysis was carried using SPSS version 25. Regression analysis was utilized to test the fitness of the model in predicting the sustainability of water, sanitation, and hygiene projects. The strength of the relationship between monitoring and evaluation process and sustainability of water, sanitation, and hygiene projects decreased in the following order: Planning for M&E( $r=0.394$ ), Capacity building ( $r=0.381$ ), data collection for M&E ( $r=0.082$ ) and finally Utilization of M&E results ( $r=0.104$ ). The model predicted 94% in the variation of sustainability of water, sanitation, and hygiene projects. The overall conclusion was that monitoring and evaluation process (Planning for M&E, Capacity building, data collection for M&E and Utilization of M&E results) have significant influence on sustainability of water, sanitation, and hygiene projects. The study recommended Non-governmental organizations to create policies that can promote proper planning, training of staff in capacity building, utilization of M&E results and sustainability of water, sanitation, and hygiene projects with proper maintenance of equipment's. Future methodologies need to do factor analysis so as to establish how each indicator influences sustainability of water, sanitation, and hygiene projects.

## DEFINITION OF KEY TERMS

**Capacity building:** It is defined as training of staff, formulation of project ideas, sharing of learnt skills and knowledge acquisition as per the current study.

**Data collection for Monitoring and Evaluation:** It is the process of gathering information that can be used for reporting and it encompasses coming up with indicators, developing the tools for data collection and validating the tools for data collection. In this study, it is defined as developing data indicators, frequency of data collection and coding of data after it has been cleaned and verified.

**Planning for Monitoring and Evaluation:** This is the process of making plans for something, It is defined as scheduling of activities, resource allocations, resource mobilizations and stakeholder engagement in monitoring and evaluation process.

**Sustainability:** This is a project's long-term ability to continue meeting a community's needs after receiving funding from a donor. It is defined as Proper usage of soap for washing, duration of implementation, access to clean water, access to pit latrines and adequacy of sanitation facilities

**Sanitation:** is used to describe how the neighborhood is doing in terms of having access to safe drinking water and having proper sewage and fecal waste disposal.

**Utilization of Monitoring and Evaluation Results:** This is the process of placing together information in a report in a well written format and in a language that can be understood by all stakeholders and sending it out for utilization in projects' improvement. In this study, it is defined as dissemination of results, interpretation of results, use of information shared and capturing of results after the feedback is released to the beneficiaries.

**Hygiene:** It is the way that a person must maintain their cleanliness in order to avoid contracting a disease. **Monitoring and evaluation process:** It is the process of gathering, storing, analysing and finally transforming data into strategic information that may be utilized to make educated decisions about project management, policy formulation, and advocacy. In this study it is defined as planning for M&E, data collection for M&E, capacity building for M&E and utilization of results for M&E.

**ABBREVIATIONS AND ACRONYMS**

<b>WASH:</b>	Water Sanitation and Health
<b>UNICEF:</b>	United Nations Children's Fund
<b>UNESCO:</b>	United Nations Education, Science and Cultural Organization
<b>UNEP:</b>	United Nations Environmental Programme
<b>M&amp;E:</b>	Monitoring and Evaluation
<b>IDP:</b>	Internally Displaced People

## **CHAPTER ONE:INTRODUCTION**

### **1.1 Introduction;**

This section entails details on how monitoring and evaluation procedures affect the viability of water sanitation and hygiene programme in Baidoa district, Bay region, Somalia. It presents a concise background of the study, the statement of the problem, the objectives of the study, the significance of the study and scope. Also inclusive is the delimitations and limitations of the study, theoretical framework, conceptual framework and knowledge gap.

### **1.2 Background of the study**

Sustainability is a development issue that shows a project's capacity to provide long-term beneficial effects. The Sustainable Development Goals (SDGs), also known as the global sustainable goals, push for development discourses that support high standards of living, environmental stewardship, and the peaceful prosperity of the planet (United Nations Development Group, 2016). Continual benefits flow, environmental stability, equitable and fair benefit distribution, and ongoing community participation are all features of sustainable projects (Project Management Institute, 2021). Project sustainability ensures that the institutions supported through projects and the benefits realized are maintained and continue after the end of the project (Kaumbulu, Muathe and James, 2020). This emphasizes that a project has to meet its intended effects and impact for it to be termed as sustainable. If realized, it can gain reputation for the project, reduce financial risks and potential litigations as well as develop a competitive edge. Nonetheless, ensuring sustainability is one of the key challenges facing development processes in both developing and developed countries (Bukhala & Ganesh, 2016). In the 21<sup>st</sup> century, project managers are not only required to ensure efficiency, effectiveness and productivity, but are also to pay attention to the issue of sustainability.

Somalia, Mauritania, Sudan, Niger, and Egypt are the nations with the greatest water shortage in Africa. According to the ranking, countries like Mauritania and Niger are more than 90% dependent on outside water supplies, while water access and demand were also taken into consideration. Access to clean and safe water in most developing countries is a dream due to many factors which hinder this service to be acquired by an ordinary citizen (Mulenga, Bwalya, Kaliba-Chishimba, 2017). In most areas water sources are inadequate in terms of accessibility quantity and quality. Water is vital to the growth as well as an essential element in food production, sanitation, hygiene and foundational resource for economic growth as depicted by (Munamati, Nhapi, Misi, et al (2016).

The World Health Organization (WHO) estimates that 1.5 million children worldwide pass away from foodborne illness each year, with 88% of these fatalities happening as a result of poor drinkable water, cleanliness, and hygienic. (Armah, Ekumah, Yawson, Odoi, Afitiri, & Nyieku, 2018). Proximity to restrooms doesn't really guarantee sanitary behavior or the acceptance of other sanitary conditions as posited by (Morgan, Bowling, Bartram, Lyn Kayser, 2017). Health issues like as sanitation, access to clean water, and hygiene are all related and have a major role in forming habits in a given situation (McMichael, 2019). Due to a dearth of clean water, aseptic technique are challenging in many countries, notably Bangladesh, whereby sustaining those facilities already in use is a problem.

As stated by UNOCHA report from October 2018, there is a humanitarian crisis in Somalia, where 4.2 million people including an estimated 2.5 million children need humanitarian aid, with 1.5 million of them experiencing a crisis or emergency (Parkhurst, 2017). The suggested project aimed to overcome many challenges among the areas hit by targeted dislocation. Lack of water, adversely affecting malnourishment, high rates of morbidity and mortality among mothers and children, poor individual and situational hygiene, and an absence of protection safeguards are the most experienced predicaments in the area (Oino, Kirui, Towett & Luvega, 2015). Specifically, in Baidoa Districts which hosts many

displaced people endangered by these challenges even if there are intervening projects in place. Inadequate sanitation facilities experienced in this area posing threat to residents who are in large populations. In Somalia, it is difficult to get access to clean water. The Shebelle and Juba Rivers are Somalia's only sources of year-round surface water, which in most case are contaminated by human feces. The primary causes of water supply system failure are inadequate water sustainable procurement models, excessive operating and maintenance expenses, a lack of a distribution chain for spare part, and technical challenges of service suppliers. Those facilities which are in place are managed by water committees but are not able to sustain the maintenance of water points and toilets due to high population. The current study sought to investigate how these facilities are monitored, evaluated and sustained after the intervention projects terminate their services bearing in mind the current situation in country of insecurity and prolonged drought.

### **1.2.1 Sustainability of water sanitation**

Project sustainability involves the ability of a project to maintain an acceptable level of benefits flows through its economic life. Sustainability concerns around projects at national or community level encompasses different dimensions including social, economic, environmental, structural as well as technological sustainability. Kenya's supreme law, which mandates integration and analysis of advancement discursive practices, is rooted in the idea that plans must be sustainable (Warinda et al., 2020). In order to achieve long-term perks, sustainability of projects is built on the belief that the investments will be used effectively and efficiently while taking into account preferences and potential negative effects (Sulemana, 2018).

The sustainability of development initiatives in the Middle East and North Africa is ensured by monitoring and evaluation procedures that are interconnected across various sectors and stakeholders (Ratnayake, Wickramaarachchi, and Wattege, 2017). The trend is similar in South Africa, where



decisions about monitoring and evaluation are made using a multi-stakeholder strategy to advance sustainability (Rennkamp, 2020). Through collaborative monitoring and evaluation techniques and procedures, the sustainability of contemporary infrastructure projects in the East African community is ensured. According to Makau, Mackenzi and Nicole, (2018) project sustainability is the percentage of project-initiated goods and services that are still being delivered and maintained after five years of termination of implementation of the project. The sustainability of point water facilities poses a significant development challenge in many rural areas of developing nations, including those in the Sub-Saharan Africa region. This is so that evidence-based data can be used from monitoring and evaluation study results to support ongoing learning and improvement (Kathongo, 2018). This demonstrates how crucial monitoring and evaluation are to the realization of a development's long-term goals.

The results of a study by Kithinji (2019) on the influence of monitoring and evaluation on the success of non-governmental projects in Kenya led to the conclusion that project efficiency is promoted by monitoring and evaluation. The ability to plan, organize, and use monitoring and evaluation results was associated with sustainable impacts, according to a related study by Rogito, Maitho, and Nderitu (2020) on how monitoring and evaluation capacities affect the sustainability of irrigation projects in Kenya. The two studies by Kithinji (2019) and Rogito, Maitho, and Nderitu (2020) were both contextually constrained to non-governmental projects and irrigation, respectively. Regarding the population and geographic contexts, the conclusions could not be generalized very far on how projects should be sustained even after the departure of the funders.

### **1.2.2 Monitoring and evaluation process**

Secondary data, sample surveys, output data from projects, qualitative studies, checklists, outside evaluations, and participatory assessments are all excellent sources of data and information for project

monitoring and evaluation. The best source of information on the effects and results of a project is typically sample surveys based on random samples obtained from beneficiaries or stakeholders (Nalinya and Wanyonyi, 2017). In Meru County, Ebuthania (2018) examined if the influence of M&E data collection had an effect on the faith based organizations' funded projects' performance. The findings of the study indicated that there was a big impact on data information in monitoring and evaluation of projects being undertaken.

In Nigeria, Okafor, (2021) assessed the influence of M&E data analysis on RANA projects' performance within Katsina state. The study used a descriptive survey research approach and targeted 32 employees working on RANA Project. Nyasambu (2018) studied how the performance of M&E systems used by non-governmental organizations in the lira district in northern Uganda was impacted by the quality of the data used in those systems. In addition, a cross-sectional study design was used for the research. 79 people took part in the survey, including managers, M&E officers, and organization staff. The study's conclusions showed that NGOs were capable of routinely gathering data from both primary and secondary sources. In order to assess the crucial aspects of sustainability in the Brazilian project management context, Mauro and Carvalho (2017) conducted a study. In that study, exploratory factors analysis was used to analyze project managers' perceptions. It was discovered that resources, stakeholder management, economic conditions, and global markets all significantly influence sustainability. The results, nevertheless, were unable to fully explain how well internal and external factors could forecast a project's suitability.

A survey on the influence of sustainable project management on sustainable project planning and success in manufacturing firms was conducted in Malaysia by Chow, Zailani, Rahman, et al. (2021). Data was analyzed using the partial least square method with a sample size of 231 respondents, and the results showed that the factors of sustainable project management, specifically the economy, society, and

environment, have both linear and nonlinear effects on sustainability. It implies that the sustainability of a project is accelerated by outside forces. An exploratory study on the factors influencing the sustainability of renewable energy projects was carried out in Rwanda by Muthoni and Khan (2021), and it was discovered that both internal and external factors had an impact on the project's sustainability. The study, however, ignored the existence of multiple or nonlinear relationships in favor of focusing on linear relationships thus affecting the outcomes of the projects under study.

### **1.2.2.1 Planning for Monitoring & Evaluation**

Project planning is the process of outlining the steps to take in order to complete tasks within a predetermined time frame. Project planning enhances employee retention, enhances communication among team members, ensures proper resource use, keeps everyone on the same page, makes it simple to track project goals, and increases project performance and success rate (Mbonigaba, 2021). Project planning and the success of public sector projects were examined by (Irfan, Khan, Hassan, and Khan in 2021). The survey-based study included 260 project engineers in total. The findings showed that planning had a significant positive impact on the success of public sector projects.

Planning for monitoring and evaluation is very vital in any organization due to its importance in startup of the project activities. Using a correlation design and descriptive survey design, Nalianya and Wanyonyi, (2017) carried out a research in Bungoma South Sub-County, Kenya, on impact of M&E planning on non-governmental maternal health projects' effectiveness. Sustainability evaluates the development, upkeep or degradation of resources that have an impact on a community's capacity to survive (Borja-Vega, Pena and Stip, 2017). SDG 6 is a goal for sustainable development that aims to ensure availability and sustainable management of water and sanitation for all, places of focus is WASH sector (Kookana, Maheshwari, Dillon, Dave, Soni, Bohra, and Katara, 2016).

A study by Kanyangi and Okello (2018) evaluated the effect of M&E planning on the performance of projects funded by the Kakamega County Government using a descriptive survey research approach. In 2016, 63 NGO projects focused on reproductive health were evaluated. Structured questionnaires with both closed- and open-ended questions were used to collect the data. The study discovered that M&E planning significantly and favorably affects the performance of projects funded by the Kakamega County Government. The funded health projects by the Kakamega County Government were the main focus of this study. The endowment of WASH facilities advanced during 2017, as evidenced by the most recent WHO/UNICEF Joint Monitoring Programme (JMP) report: 71% of individuals had access to basic potable water amenities, adequate sanitation, and equipment for basic personal washing with soap and water at home, while 60% of the global and sanitation infrastructure (UNICEF, WHO, 2019). No literature to show how these projects are performed thus raising eyebrows on the implementers of the projects under investigation. However how this projects are maintained and sustained is the big issue therefore promoted the investigation of this study and found out that there is a big outcry on how projects are maintained and sustained after the departure of the donors.

#### **1.2.2.2 Capacity building for monitoring and evaluation**

Capacity building helps the organization to train his people on better ways of handling activities which are very crucial to any group of people working together. Assistance given to local partners for the development of specific skills or for the general improvement of performance capability is referred to as capacity building (Tillet, Huston & Davis, 2020). WASH initiatives are carried out in collaboration with regional partners as appropriate for the situation, the local Red Cross/Red Crescent National Society, pertinent local government offices, water supply authorities, neighborhood associations, and other partners as posited by ( Njama, 2015). At the planning stage, it should be taken into account to build the

project partners' capacity in order to increase their capacity to support sustained improvement and sustainability in the WASH sector (Snehalatha, RM FC, Uddin, Ahmed and Sharif, 2015).

### **1.2.2.3 Data collection for monitoring and evaluation**

There are several methods used in collecting data for monitoring and evaluation which facilitate in giving fundamental information on the study under investigation. In order to document water springs that are accessible in specific sites, the assessment strategy usages the Water Point Mapping (WPM) as an initial theme. After that, this information is connected to information from a household survey (Chasekwa et al., 2018). In spite of the detail that water is crucial to sizeable fraction of the world's population lacks access to clean water, and 2.5 billion people lack access to sanitary facilities, which are necessary for human survival, ecosystem conservation, farming, and education (Afifah, Nuryetty, Musadad, Schlothuber, Bergen and Johnston, 2018).

Secondary data, sample surveys, output data from projects, qualitative studies, checklists, outside evaluations, and participatory assessments are all excellent sources of data and information for project monitoring and evaluation. The most reliable sources of information regarding the effects and outcomes of a project are typically sample surveys based on random samples obtained from stakeholders or beneficiaries of the project (Nalianya & Wanyonyi, 2017). In order to determine how M&E data collection methods affect the provision of reproductive health services in particular Nairobi County health facilities, Gitamo (2018) conducted a study. Both primary and secondary data were collected for the study. A questionnaire was used by the researcher to collect primary data, and government documents were used to gather secondary data. Also included in the study's population were 26 project managers. According to the study, the use of M&E data collection tools had a big impact on how well reproductive health services were provided in hospitals, as measured by client acceptance, required quality, and timely,

cost-effective implementation. However, the study's dependent study variable which is distinct from the effectiveness of reproductive health projects was the provision of reproductive health services.

Women and children frequently devote the majority of their days getting water in Africa, Asia, and Latin America. It's decent and plentiful for practical solutions in areas dealing with the comprehensive WASH catastrophe, like hand washing with detergent, which canister cut diarrheal disease by 45%, storage of freshwater, drilling wells through manual or electrical drives, and giving H<sub>2</sub>O. The key to preventing diseases linked to WASH is raising public awareness of good hygiene (World Bank, 2018).

#### **1.2.2.4 Utilization of monitoring and evaluation results**

There are a variety of constructive uses for WASH data that are connected to clear decision-making procedures, like the planning of national and subnational techniques. However, in other instances, stakeholders emphasized the value of data in order to shape others' decisions, such as when monitoring data was used for advocacy in Baidoa, or to create mutual understanding and a shared vision (Kamau and Mohamed, 2015). It is therefore helpful to consider beyond decisive, instrumental usage when considering the operations that WASH observing statistics might aid and to comprehend information as a judgment tool for a broader audience chain system incorporating various participants at numerous stages (Callistus and Aigbavboa, 2018).

The effectiveness of result utilization, use, and reproductive health NGO project performance were examined by Mutekhele, Rambo, Ongati, and Nyonje (2018). To accomplish this, the researcher looked at the effects of data utilization and dissemination on the effectiveness of projects involving educational infrastructure in Bungoma County. The investigation employed both a correlation research approach and a descriptive survey approach. The target group included 152 individuals altogether. There were 110 participants in the sample, distributed among the intended categories. The research methods in this study included questionnaires and interview schedules. Both qualitative and quantitative formats for the data

collection and analysis were used. The study found that the performance of NGO projects promoting reproductive health in Bungoma County is unaffected by the results' dissemination and use.

According to Njoka (2015) who conducted a study on M&E system used by regional NGOs in Kenya found out that utilizing data collected and managing it M&E in local non-governmental organizations was one of the study's main goals. His study population consisted of three service delivery sites Kisumu, Eldoret, and Kakamega, and 17 respondents were purposefully sampled to participate in the evaluation. He used a descriptive research approach. As stated by Wepukhulu, (2017) who conducted research on the application of M&E findings and project performance in Busia County. The descriptive research methodology was used by the researcher to all Busia County employees, including managers, community workers, M&E staff, and volunteers, making up the study population. The study's conclusions showed that project performance is influenced by how the results are used. Results indicated that many county governments have adequate M&E technical skills, which affects how well M&E findings are used. The researcher discovered that the use of M&E results can be adversely affected by a lack of M&E experience thus no sustainability of and closed projects.

### **1.3 Statement of the problem.**

In a nation that has been in a prolonged case of emergencies for decades, the Humanitarian Needs Overview (HNO, 2020) estimates that approximately 2.7 million people even now require humanitarian WASH assistance. The WASH humanitarian scenery in Somalia continues to be characterized by erratic access to water, frequently from poorly maintained sources. There are significant regional differences in the availability of improved water sources across the country. Water scarcity is a major factor in conflicts and evictions in areas affected by drought. All regions of Somalia have alarmingly high protection risks, which puts all types of people's perspective at an elevated risk of victimization (Saggiomo, 2020). Data collected on the areas affected by lack of water is sufficient enough to help the government of Somalia

to curb the problem of water and proper hygiene in Baidoa Bay. Utilization of the data is so crucial in that all the stakeholders need to be informed.

Given the extreme needs mentioned, the WASH cluster must have a thorough understanding of the humanitarian circumstances of the affected population in order to carry out its functions in Somalia. The provision is more effective on executing the crucial functions, a thorough analysis of WASH data is critical and needs immediate attention in Baidoa district in Bay region.

Insufficient WASH facilities have been linked to a variety of other negative health hazards whereby according to JMCNA data, households using WASH-related coping mechanisms typically had limited access to WASH services. Planning for the construction of these facilities could be a problem thus low quality. There are toilets constructed but are inadequate and of low quality whereby they sink when it rains. The current study sought to investigate how maintenance is carried out on these toilets and how sustainable they are in the future. However, national characteristics of the various countries frequently have a repercussion on this advancement on how to curb the problem of unsafe water to their citizens.

#### **1.4 Purpose of the Study**

The purpose of the study is to establish the extent to which M&E process influence sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia.

#### **1.5 Objectives of the study**

The study was guided by the general and specific objectives

##### **1.5.1 General Objective**

To establish the extent to which monitoring and evaluation process influence sustainability of water, sanitation and hygiene projects in Bay region Baidoa district, Somalia



### **1.5.2 Specific Objectives.**

- i. To examine how Planning for monitoring and evaluation influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.
- ii. To assess how capacity building for monitoring and evaluation influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.
- iii. To establish the influence of data collection for monitoring and evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.
- iv. To determine how utilization for monitoring and evaluation results influence sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

### **1.6 Hypotheses of the Study**

- i. H<sub>01</sub>: There is no significant relationship between Planning for monitoring and evaluation and sustainability of Water sanitation and hygiene projects in Baidoa district Bay region, Somalia
- ii. H<sub>02</sub>: There is no significant relationship between capacity building and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia
- iii. H<sub>03</sub>: There is no significant relationship between data collection and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia
- iv. H<sub>04</sub>: There is no significant relationship between utilization of monitoring and evaluation results and sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia.

### **1.7 Significance of the Study**

The findings of the study would be of importance to the management of non-governmental organizations, Somalia government and policy makers as well as other academicians and researchers. To management of non-governmental organizations, the researcher provides essential information on how M&E process influences sustainability of NGOs' funded WASH projects. These findings can be used in the

development and formulation of strategies based on components of monitoring and evaluation process such as planning for M&E, data collection for M&E, Capacity building for M&E and utilization of results for M&E, to improve sustainability of NGOs' WASH projects.

NGOs play major role in ensuring continued sustainability of WASH projects. The findings may therefore be of significance to policy makers and Somalia government as it may provide essential information on how monitoring and evaluation process influences NGOs funded WASH projects .This may be used in policies development to guide M&E process and implementation of NGOs funded Water, sanitation and Hygiene projects in Somalia.

### **1.8 Scope of the Study**

The focus on determining relationships between M&E process and sustainability of WASH project in Baidoa district, Bay region in Somalia. This study was conducted in Somalia and particularly Baidoa district, within Bay region where WASH projects have been conducted before ,but little has changed to the beneficiaries since maintenance and sustainability of clean and safe water for drinking is not adequate. Usage of latrines per sex also are inadequate and dirty most of the times thus triggered the investigation of the study on how facilities are handled and why they are not meeting the needs of the proposed people. The researcher engaged the management of the implementing team to determine the overall sustainability of the project and the extent to which M&E process influenced sustainability of WASH project in Baidoa district Bay region in Somalia.

### **1.9 Delimitation of the Study**

The investigation was conducted at Baidoa district of Bay region in Somalia, where the targeted project is implemented. The study employed mixed research design in order to increase validity for generalizing the findings. The concept of sustainability of WASH project delimits this study since it revolved around sustaining socioeconomic development of nations and it's also anchored on past literature.

### **1.10 Limitations of the Study**

Several challenges were experienced during process of conducting the study. First, data collected from project managers, program coordinators, community leaders, displaced people were reluctant in participating in the study but this was solved by assuring participants that data obtained will be purely meant for learning use. In addition they were provided with an introduction letter acquired from the university, the investigator guaranteed the respondents their secrecy in information they are providing. In addition, the participants were in fear to provide relevant information and felt they were being investigated. The respondent however, received assurance from the researcher that the information they provided was kept confidential and was only used for academic purposes. Finally, participants weren't required to fill out any questionnaires with personal information, guaranteeing their anonymity, and as a result, no information provided can be linked to specific people hence degree of confidentiality was exercised.

### **1.11 Assumptions of the Study**

In the study, the researcher assumes that participants gave information on the link between M&E process and NGOs funded WASH projects' sustainability project within Baidoa district Bay region in Somalia.

It is assumed that the project was of beneficial to the researchers, policy makers and any party involved in health care projects and particularly those touching cleanness of water and sanitation.

It is assumed that project managers, program coordinators as well as communities were able to read, interpret, answer and write responses in the questionnaire. All the participants were easily available and were willing to provide accurate and true information which facilitated the findings which were credible and comprehensive. Further, the study assumed that participants were willing to give responses to all questions in questionnaires after the assurance from the researcher herself and all information collected was pertinent to the variables under investigation.

## **1.12 Theoretical Framework**

### **1.12.1 Theory of Planned Behavior**

In an effort to forecast human behavior, Icek Ajzen created the Theory of Planned Behavior (TPB) (Ajzen, 1991). The theory of planned behavior (TPB), will serve as the study's guiding principle. Ajzen first suggested the TPB in 1985, and since then, significant research has been done on it. A psychological theory that connects beliefs and behavior is called the theory of planned behavior (TPB). According to the theory, an individual's behavioral intentions are shaped by three essential factors: attitude, subjective norms, and perceived behavioral control. The most immediate determinant of human social behavior, in turn, is behavioral intention, which is a core principle of TPB. The theory makes the supposition that social attitudes, normative beliefs, and control beliefs all influence their motives to engage in a behavior. When it comes to predicting people's behavioral intention related to their use of humanitarian assistance, the TPB has been found to be a useful tool for understanding human behavior.

The idea was put forth in the early 1980s, and it is now generally acknowledged as a theory that can account for human behavior. The TPB is relevant to the study because it offers an explanation for how people's intentions and actions regarding the use of humanitarian aid are formed. The TPB makes the supposition that people are capable of comprehending and anticipating their behavior in specific circumstances. The theory can be used to inform emergency response decision-making by explaining why people might react in a certain way and by predicting how people will act in a specific circumstance. The TPB is relevant to the study because it offers an explanation for how people's intentions and actions regarding the use of humanitarian aid are formed. The theory can be used to provide information on how people will behave in a given situation, for example, when they are sharing the toilets and washing stations in the Camps, to help guide emergency response decision-making.

It has been discovered that the TPB theory is useful in foretelling people's intentions and actions in relation to their use of humanitarian aid. The theory is predicated on the idea that people's intentions to engage in a behavior are influenced by their attitude, perceivable behavioral control, and subjective norms. The theory can be used to inform emergency response decision-making by explaining why people might react in a certain way and by predicting how people will act in a specific circumstance. The planning and execution of an efficient emergency response can then be done using this knowledge.

The TPB is relevant to the study because it is a theory that aids in illuminating how people's intentions and behaviors regarding the use of humanitarian aid are established. By revealing information about how people will act in a specific circumstance, the theory can be used to help direct emergency response decision-making.

### **1.12.2 Sustainability Theory**

Sustainability is the capacity to alter a situation and make desirable needs accessible over an extended period of time. In order to achieve the long-term objective, the definition emphasizes the fundamental principles of sustainability and sustainable development. This definition may serve a variety of interests, including those that are goal-oriented. According to Kates et al. (2001), sustainability is simply a means of meeting basic human needs while preserving existing support systems and extending their reach to the global level. The need for sustainability means that the pursuers have the goal of maintaining or make improvements to beneficial matters in terms of capacity and give desirable outcomes in the long run. Sustainability therefore calls for maintenance of desirable features of a natural or social condition and where necessary improve on the status of the natural resources. Due to its emphasis on promoting human wellbeing, sustainability thus triumphs over sustainable development. (WCED 1987). Without explicitly focusing on human wellbeing, sustainability emphasizes the health of an ecosystem or biodiversity. However, it can occasionally concentrate on a particular aspect of the human system, such as ensuring

equal access to education or the financial health of a particular farm (Palmer, Cooper, and van der Vorst 1997; Was et al. 2011). Taking into account human wellbeing and the stability of dynamic systems, sustainability is concerned with long-term solutions for natural resources, social systems, and people. In-depth analysis of sustainability by Bettencourt and Kaur (2011) includes discussion of both its structure and historical evolution. However, their ideas about sustainability do not offer a good compilation or origin of the fundamental ideas required for both practical efforts related to sustainability that enable sustained development. This is because rural sustainability presents difficulties. The challenges include using resources in a sustainable manner, building community resilience to risks, and fostering economic growth through the use and management of environmental resources (Woods 2012). Rural areas provide the raw materials and energy needed for urban consumption, as well as taking on the majority of the waste generated by urban activities. The majority of populated areas are rural, and the dynamics of these areas control many functions while also providing resources and services vital to the ecosystem. Insuring a steady supply of food is part of this. As an illustration, consider the food supply in the cities of Rome for the various quantities of food, building supplies, and wood. These types of supplies were given to urban areas while the resulting waste products were transported to the countryside. Zhang 2013; Moore, Kissinger, and Rees 2013; Villarroel Walker and Beck 2012). Kennedy, Cuddihy, and Engel-Yan (2007). For instance, Zucaro et al. (2014) point out that cities are open systems that depend on other systems for the provision of necessities like food, water, and information at various times. They made note of other academics who held the same belief that cities had a parasitic nature. As they concentrate on their own sustainability, they therefore promote the significance of recognizing the crucial roles played by the rural areas. Due to the increased demands for agricultural and other uses brought on by growing populations, fresh water availability and quality have both attracted attention on a global scale. UN WWAP 2015; Hoekstra et al. 2012; Simonovic 2002). 16 Soil pollution, infertility, deforestation, and diminished natural

habitats, biodiversity, and pollination are additional issues related to rural areas. 2005; Foley et al. 2005, 2011; MA 2005). According to Foley et al. (2005), the loss of production due to the significant reduction in arable land is estimated to be worth \$11 billion. Other factors that contribute to the loss of arable land include overgrazing, soil erosion, and decreased soil fertility. "Modern agricultural land use practices may trade short-term increases in food production for long-term losses in ecosystem services, including many that are crucial to agriculture," they added. Sustainability and choice are related, but choices depend on the desired results. Therefore, the claim of sustainability lacks a solid foundation. (NRC 1999; Kates and colleagues 2001; Parris and Kates 2003) Sustainability and sustainable development have both been accepted as factors that have improved the wellbeing of people and the environment. The pursuit of sustainability and sustainable development is successful in accordance with medical ethics of not causing harm. The principle is applied as a preventative measure in environmental risk management to guarantee that the outcomes of an action are known before the action is implemented. The many ways that sustainability and sustainable development are applied can occasionally lead to mistrust or even confusion. Palmer, Cooper, and van der Vorst (1997); also see Devlin and Sophocleous (2005) and Aras and Crowther (2009). This occurs more frequently when the topic at hand is discussed without a clear motive being stated. In rural areas, sustainability is applied in a variety of ways, with a focus on one aspect over another. (De S.M. Bicalho, Cawley, and Laurens 2013). The term "sustainability" is still applicable despite different interpretations of the term, but it is crucial to have a clear understanding of its benefits and how it applies to particular circumstances. Any ambiguous use of the term creates a problem and prevents the management of sustainability as a goal from being achieved.

### **1.13 Conceptual Framework**

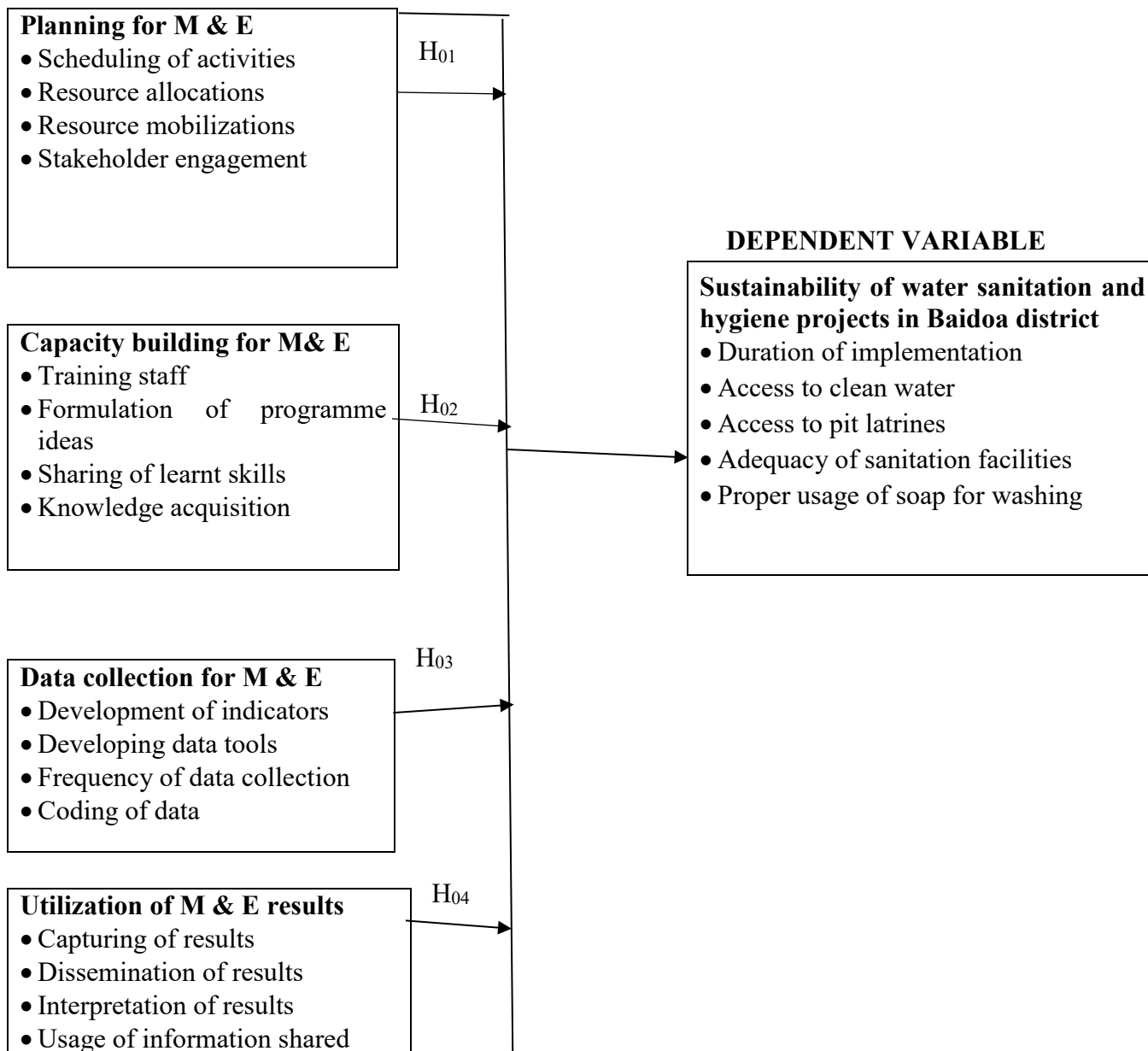
The study's independent and dependent variables are shown in Figure 1.1, with distinct significance of participatory evaluation and utility of results for humanitarian assistance in Somalia. The focus of the

study is on planning, capacity building, data collection and utilization of findings on sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia



### 1.13 The Conceptual Framework

#### INDEPENDENT VARIABLE



*Figure 1: Source Author 2022: M and E process on sustainability of water sanitation and hygiene projects in Baidoa District Bay region, Somalia*

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The section entails empirical review drawn from scholars and the linkage it has with the current study. All the objectives, research questions and the research hypothesis were discussed. The dependent and independent variables were critiqued in this section and the findings had an influence on each other. Ethical issues were given priority and later analyzed.

### **2.2 Empirical Review**

#### **2.2.1 Sustainability of water sanitation and hygiene in Baidoa district, Bay region, Somalia**

Sustainability is defined as whether or not something remains to work over time (Abrams 2018). One of the most important factors in a community's prosperity across a number of dimensions is working to confront and achieve Sustainable Urban development Adequate water and hygiene are the focus of goal number six (Bhargava, 2016). It's impossible in overstating how important it is for businesses to have sustainability as a general goal (Shivairo & Were, 2017). Environmental factors on the inside and outside of society influence sustainability. The internal factors may include organizational resources, organizational culture, management strategies, internal management structures, leadership in change management, and technology.

According to Hendri Coetzee et al. (2016), most inhabitants grasped the term water quality to refer to characteristics like clarity, color, smell, and composition. In this connection participants were also asked to appraise the water quality in their societies and the results were, most people did not have quality water neither the access to clean and safe water for drinking leave alone sanitation services in their locality. As noted by WASH (water, sanitation, and hygiene), the foundations for a better way of life, better health,

and the environment, as well as education, gender equality, comfort and integrity, are crucial (Chaudhary, Kusum, Mali, Malla, Sushma et al 2019).

There are many challenges of sustaining water projects as depicted by Eltigan, Nabil, Ahmed, Elamin and Samira, (2015) on their study on maintaining sanitation and water supply in the face of population growth in Sudan. Rural areas of Gezira State lack enough water to satisfy their citizens hence needs to source for more water sources that they can help in cubing the current situation in the state (Willmott, Nicholson, Busse, MacArthur, Brookes and Campbell, 2016) A similar situation is experienced in Uganda health facilities where they have a problem in sustaining sanitation facilities in that they don't have enough toilets and points to wash their hands as posited by (Mulong, Matte, Wesuta, Bagenda, Apecu & Ntaro, 2018)

The inequalities in wealth quartiles are primarily to blame for the gaps between rural and urban areas. There are typically more affluent households and greater economic power in urban regions. In remote places, there appears to be less legislative commitment to provide basic WASH and infrastructure (Ojima et al., 2020; Sinharoy et al., 2019). When compared to urban poor homes, rural poor households had a 29:1 lower likelihood of having significant positive and a 25:1 lower likelihood of having access to high quality improved sanitation, according to a different study that tracked the development of WASH in sub-Saharan Africa (Armah et al., 2018). Additionally, wealthy households in these rural areas receive superior WASH services to other households (Chasekwa et al., 2018).

### **2.2.1 Planning for monitoring and evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Project planning is the process of documenting steps for accomplishing a goal within a certain time frame. Project planning improves team communication, ensures the best use of resources, It helps keep all collaborators aligned, makes it easy to track project goals and outcomes, improves employee retention,

boosts project performance and success rate and boosts project performance and success rate (Mbonigaba, 2021). Irfan, Khan, Hassan and Khan (2021) examined the role of project planning on public sector project success and found out that no proper mechanism are well placed under planning in any ongoing projects. In Kenya, sustaining community-based and controlled water, sewage disposal, and health projects is still difficult. These are findings on a study conducted by Kimutai and Nabifwo (2017) whereby planning for the projects is not done well, use of technical officers and utilization of funds on Programs related to water, hygiene, and wellness need to be sustainable.

According to Ntimama (2018) posits that understanding factors influencing sustainability enables organizational managers to design effective strategies that enable improved and long-term high performance. Failure to address the issue of planning prior to commencement of any activity thus collapse of the activity in future. This can only be achieved through community participation and proper engagement of every stakeholder in the projects undertaking the intervention (Ananga, 2015) Sustainability evaluates the development, upkeep, and/or degradation of resources that have an impact on a community's capacity to survive (Borja-Vega, Pena & Stip, 2017). SDG 6 is a goal for sustainable development that aims to ensure availability and sustainable management of water and sanitation for all, places of focus is WASH sector (Kookana, Maheshwari, Dillon, Dave, Soni, Bohra, Katara, 2016).

In addition, inadequate WASH facilities increase the risk disease, such as diarrhea and stunting, as well as fatalities, particularly in LMICs for children under the age of five (Daniel, Pande, Rietveld, 2020). Planning for any projects needs careful structures as stated by (Walters, Neely & Pozo, 2017). Previous studies on WASH-related behavior were more concentrated on individual-level factors and paid less attention to other factors, like technological, environmental, and institutional aspects, which have a significant impact on WASH behavior and associated illnesses. For illustration, environmental factors like water scarcity can affect WASH-related behavior as posited by (McMichael, Robinson, 2016).

### **2.2.2 Capacity building on sustainability of water sanitation and hygiene in Baidoa district, Bay region, Somalia**

The success of any project depends on having the right technical knowledge (Routray et al, 2017). The knowledge that will be transferred should be chosen based on its applicability to both social and technical measures, as well as financial and technical measures, in order to increase project sustainability (Simiyu, 2015). For any project intervention to be sustained, it is crucial to train the key stakeholders. The instruction should be appropriate and pertinent, and follow-up instruction should also be taken into account. Typically, a single externally funded training activity is insufficient meaning that trainings should always be done on regular basis to keep the staff and all the stakeholders on board especially in water and sanitation intervention projects (Kasri, Wirutomo Kusnopranto, Moersidik, 2017).

Assistance given to local partners for the development of specific skills or for the general improvement of performance capability is referred to as capacity building (Tillet, Huston & Davis, 2020). WASH initiatives are carried out in collaboration with regional partners as appropriate for the situation, the local Red Cross/Red Crescent National Society, pertinent local government offices, water supply authorities, neighborhood associations, and other partners ( Njama, 2015). At the planning stage, it should be taken into account to build the project partners' capacity in order to increase their capacity to support sustained improvement and sustainability in the WASH sector (Snehalatha, RM FC, Uddin, Ahmed & Sharif, 2015). The National Red Cross/Red Crescent Society, as well as pertinent government and civil society groups in the operating nation, are collaborators in SRC WASH projects. A crucial element is helping associates build their capacity (JMP, 2018). It is acknowledged that the advancement of sanitation facilities is always affiliated with health education programme and capacity building, underscoring the fundamental significance of "software" to the success of a WASH program (Huston & Moriarty,2018). WASH project

implementation in societies as part of health training programs and as part of therapeutic interventions is a substantial area of expertise for SRC (Harter, Lilje, & Mosler, 2019). The broader WASH sector uses a variety of methods and techniques and has access to a wide range of instruments but this could be missing in Baidoa district thus need for the current study to sought how capacity building influence sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia.

### **2.2.3 Data collection for monitoring and evaluation on sustainability of water sanitation and hygiene in projects Baidoa district, Bay region, Somalia**

Project sustainability is an approach to business and organizations that balances economic, social and environmental aspects of project -based working to meet the needs of various stakeholders without overburdening or compromising future generations. As depicted by Aupal and Ngaka (2017) indicates that sustainability in water projects is a systematic concept that relates to the continuity of social, environmental, and economic aspects of human society. Accurate and readily available data is a crucial component of strategic planning as well as the effective creation and administration of water and sanitation programs. These data may help water managers with decision-making, resource allocation, benchmarking distinctions, policy advancement evaluation and performance of monitoring if properly utilized (Abubakar, 2017). There are numerous tools and procedures in place to gather data. However, when creating a tool for regular data gathering, especially at the local level, some methodological flaws appear (Behailu, Hukka & Katko, 2016). In an effort to address prior shortcomings, the current study will enhance methods of collecting WASH data at a decentralized level in low income settings. The ultimate goal is to supply solid evidence to local policymakers so they can make informed planning decisions (Kimbugwe, Murungu, Watako, & Tumisiime, 2018).

In order to document water springs that are accessible in specific sites, the assessment strategy usages the Water Point Mapping (WPM) as an initial theme. After that, this information is connected to information

from a household survey (Chasekwa et al., 2018). In spite of the detail that water is crucial to sizeable fraction of the world's population lacks access to clean water, and 2.5 billion people lack access to sanitary facilities, which are necessary for human survival, ecosystem conservation, farming, and education. (Afifah, Nuryetty, Musadad, Schlotheuber, Bergen & Johnston, 2018). Women and children frequently devote the majority of their days getting water in Africa, Asia, and Latin America. It's decent and plentiful for practical solutions in areas dealing with the comprehensive WASH catastrophe, like hand washing with detergent, which canister cut diarrheal disease by 45%, storage of freshwater, drilling wells through manual or electrical drives, and giving H<sub>2</sub>O. The key to preventing diseases linked to WASH is raising public awareness of good hygiene (World Bank, 2018).

The fact that infrastructure cannot provide universal accessibility to WASH (water, sewerage, and cleanliness) amenities means that "WASH system as whole needs be strengthened in order to provide services that are sustainable (Walters, Neely & Pozo, 2017) This system's core components in sector of tracking procedures which deliver the necessary for efficient planning, budgeting, and accountability on sustainable water services (Walters & Javernick-Will, 2015). The transformational change promised, however, is not being produced by investments in WASH monitoring systems (Carrard & Willetts, 2017). Even in cases where data collection occurs, it is not always applied to enhance decision-making and proper mechanisms in sustaining the already available facilities thus need for this study which scrutinized how data collection influenced sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia.

#### **2.2.4 Utilization of monitoring and evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia**

Project sustainability is a means of ensuring configuration of civilization and human activity so that society, community members and its economies are able to meet their needs and express their greatest

potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely. Project sustainability ensures that the institutions supported through projects and the benefits realized are maintained and continue after the end of the project (Shivairo & Were, 2017). Monitoring has typically been seen as a procedural matter within WASH industry. The administrative behavioral features effect how tracking data in use have received less attention (Rickinson et al, 2018). It is crucial that stakeholders work together to provide user-centered surveillance systems that promote the use of information when making decisions in order to boost the efficiency and value of expenditures in WASH management (Parkhurst, 2017).

There are a variety of constructive uses for WASH data that are connected to clear decision-making procedures, like the planning of national and subnational techniques. However, in other instances, stakeholders emphasized the value of data in order to shape others' decisions, such as when monitoring data was used for advocacy in Baidoa, or to create mutual understanding and a shared vision (Kamau and Mohamed, 2015). It is therefore helpful to consider beyond decisive, instrumental usage when considering the operations that WASH observing statistics might aid and to comprehend information as a judgment tool for a broader audience chain system incorporating various participants at numerous stages (Callistus & Aigbavboa, 2018).

To navigate this sophistication, it can be helpful to start with the most important resolutions, routines, and operators fairly than with specific sorts of facts (Chipato, 2016). Local data use may be deterred by a reporting culture, but elegant procedures and data conversations may promote usage across the board (Kabonga, 2019). The efficiency of data use depends on how WASH monitoring and interventions are subsidized (Frankal and Gage, 2016). Lack of access to proper water and sanitation in towns and cities is directly correlated with low socioeconomic level (Dungumaro, 2017). There are several intervention programme started by different non-government organizations which have taken necessary measures to



intervene and WASH is one of them which has given sufficient data to fill the gap being addressed (Afifah, Nuryetty, Musadad, Schlotheuber, Bergen and Johnston,2018). According to (WHO, 2019) about 2.5 billion people live in unhygienic conditions while 780 million families lack access to safe and drinkable water. About 90% of diarrheal diseases are caused by lack of clean, safe water as well as poor sanitation facilities. Numerous people obtain WASH intervention ways to mitigate their risk of the disease in many different contexts but the issue of sustainability has not been fully addressed after these interventions have been put in place as depicted by Anderson, Gronk, Fejifar, Pak Cawley and Bartram, (2021). There are a variety of interconnected and dynamic factors that are considered to have an impact on the long-term viability of water, sanitation, and hygiene (WASH) services in poor nations. Financial, organizational, ecologic, technological, and interpersonal factors are frequently referred to in literary works as five sustainability factors (Macharia, Mbassana and Odour, 2015). However this is not the case in Baidoa district thus need for the current study sought to determine how utilization of results influence sustainability of water hygiene and cleanliness projects in Baidoa.

### **2.3 Summary and research gap**

Empirical literature shows that main measures of NGOs funded projects include cost of implementation, duration of implementation, achievement of objectives, mortality rate, access to clean and safe water. The empirical literature also shows planning for monitoring and evaluation, data collection for M&E, monitoring and evaluation for utilization of feedback, presentation of results, interpretation of results and results reporting has influence sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia. These are gaps to be addressed by the current study.

The research utilized theory of planned compartment. Theory of planned conduct involves the use of interventions to improve the behaviour of different people and their altitudes. The interventions are developed based on M&E results. Therefore, process of M&E is important in ensuring appropriate

interventions are developed. In this study, planned theory behaviour was employed to explain the link between M&E process and sustainability of water sanitation and hygiene. M&E is a process that begins with planning, data collection, capacity building and utilization of monitoring and evaluation results included in the study.

## 2.6 Research gaps

**Table 2.1: Summary of the knowledge gaps**

<b>Variable</b>	<b>Author(s) (Year)</b>	<b>Title of the study</b>	<b>Findings</b>	<b>Knowledge gap</b>
<b>Planning for Monitoring and Evaluation</b>	Ojima, Temitope, and Iyanuolumwa, 20213	The impact of capacity building on public healthcare delivery of services in Nakuru sub- county	The results were that there was positive and significant effect on capacity building	The study employed only one type of research methodology which qualitative but the current study will use a mixed method to bridge the gap
	Kimutai and Nabifwo (2017	Sustainability of water, sanitation and health projects implemented by African medical and research foundation in Nairobi city county, Kenya. International Journal of Entrepreneurship and Project Management	Study on how this was sampled among many projects	The current study involved all the stakeholders in the study

<b>Capacity building</b>	Tillet, Huston & Davis, 2020	Strengthening Water, Sanitation and Hygiene Systems: Concepts, Examples and Experiences. Agenda for Change	Delays in funding the development of apprenticeships projects have had a significant impact on their execution.	To source for other means of funding in order to complete the projects in time
	Harter, Lilje, & Mosler, 2019	Role of Implementation Factors for the Success of Community-Led Total Sanitation on Latrine Coverage: A Case Study from Rural Ghana', Environmental Science & Technology	Training on knowledge and skills alone is not enough but also train on market access extra.	
<b>Data collection for monitoring and evaluation</b>	Abrams (20178)	Sustainability: Understanding Sustainability of local water services. Retrieved from African Water:	Loans and other private credit negatively influenced the study. Also one share capital 1% loan a 1.7% drop in performance	The current study will investigate thoroughly all the causes which bring about the drops of performance of the projects
	Chasekwa et al., 2018	Measuring wealth in rural communities: Lessons from the Sanitation, Hygiene,	Working capital was found to be an issue to most farmers thus influencing firm's liquidity.	Bridge the gap by helping all the stakeholders in management skills in their firms'

		and Infant Nutrition Efficacy		
<b>Utilization of monitoring and evaluation results</b>	Shivairo & Were, 2017	Factors Affecting Project Sustainability in Non-Governmental Organizations in Nairobi City County, Kenya. International Journal of Novel Research in Humanity and Social Sciences		
	Callistus & Aigbavboa, 2018	The Role of monitoring and evaluation in construction project management. Advances in Intelligent Systems and Computing		
<b>Sustainability of water sanitation and hygiene projects</b>	Chaudhary, Kusum, Mali,P., Malla, Pokharel Sapkota,K & Baskota, (2019	Hygiene and Sanitation Practice among Chepang Community in Rapti Municipality, Chitwan, Province 3 Nepal Med	Leadership was significantly influencing the dairy performance but needed more finances to led to the farmers	Bridge the gap on how farmers handle their challenges on finances at the variable of financial resources.

	Wada, & Oloruntoba, (2021)	Safe reopening of schools during COVID-19: An evaluation of hand wash facilities and students' hand hygiene knowledge and practices. European Journal of Environment and Public Health,	Provision of information on technology and money lending is a big issue since there are two categories of farmers who are older and new at the same time richer and moderately rich.	Bridge the gap by helping the concerned parties on formulating policies which will help all categories of farmers be able to access funds at the same level.
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## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This section entails research methodology, techniques used to collect and data analysis procedures used in this research study. These protocols outline the manner in which the study was conducted. It encompassed research design, study population, sampling technique and simple sample size, information gathering tools, procedures in collecting data, reliability, and validity of research tools, data analysis, and operationalization of themes as well as moral contemplations.

### **3.2 Research Design**

The researcher employed a descriptive survey research approach, which included gathering information about the current state of a phenomenon in order to provide a complete account of the current situation with respect to the conditions and variables under investigation without changing the variables (Creswell & Creswell, 2017). The research design used in the current study is descriptive survey design. It serves as the foundation for gathering, analysing, and measuring data (Babbie, 2017). In order to provide such a thorough account of the current situation with regard to the instances and parameters under inquiry, the researcher used a descriptive survey research design, which entails gathering information about the current state of a phenomenon without altering the variables (Creswell & Creswell, 2017). The design answers the how, when, what and where questions which lead to predicting the answers to phenomena under investigation.

### **3.3. Research Site and Rationale**

The researcher carried out the study at Baidoa district, Bay region Somalia. The questionnaires were circulated to the program managers, program coordinators and officers, community Leaders and committees and internally displaced people. The reason for choosing these sites is Baidoa host most of

the internally displaced people and WASH projects are being implemented there in order to save the community from contracting more diseases.

### 3.4 Target Population

According to Devi (2017) defines population as any set of individuals, objects, things, cases, or anything else that has a recurring theme or set of traits. The unit of analysis used was 5 WASH programme by non-governmental organizations in Bay region Baidoa District Somalia. The unit of observation were project managers, program coordinators, community leaders, internally displaced people .The target population is 440 people involved in the programme.

**Table 3. 1 Target Population**

<b>Categories</b>	<b>Target Population</b>
Program Manager's	5
Program coordinators and officers	35
Community Leaders and committee members	100
Internally displaced people	340
<b>Total</b>	<b>480</b>

**Source Author 2022**

### 3.5 Study Sample

#### 3.5.1 Study Sampling Size

The research population chosen for the study is a subset of the sample size (Fraenkel, 2018). A sample size must be sufficient to accurately represent the entire population. Sampling is the process of choosing

a subgroup or individuals from a population to use in dictating conclusions and estimating population characteristics (Greenfield & Greener, 2016, Gilliland, McKemish & Lau, 2017) According to Fraenkel (2018), the term study's sample refers to a subset of the study's subject population that has been selected to be representative of the entire population under study. To accurately represent the entire population, a sample size must be sufficiently large. According to Greenfield and Greener (2016), sampling is the process of selecting a subset or individuals from a population in order to estimate population characteristics and draw statistical conclusions. The sample size was determined using the table created by (Krejcie & Morgan, 1970). From the table study's sample size from a total population of 480 is 214 and computed by using Yamane formula of 1967 and helped in calculating in categories.

**Table 3. 2: Study's Sample Size**

<b>Categories</b>	<b>Target Population</b>	<b>Sample</b>	
Program manager's	5	2	
Program coordinators and officers	35	16	
Community Leaders and committee members	100	45	
Internally displaced people	340	151	
<b>Total</b>	<b>480</b>	<b>214</b>	<b>Source</b>
			<b>Author</b>

## 2022

The study used basic small samples and systematic sampling techniques. The sample size of each of the categories is proportional on populace size of that specific category. The model size in every category was therefore designed using the formula below.

$$n_h = \frac{N_h}{N} * n$$



Where:

$n_h$  is the sample size for stratum  $h$ ,

$N_h$  is the population size for stratum  $h$ ,

$N$  is total population size,

$n$  is total sample size.

### 3.5.2 Sampling Procedures

The investigation population was sampled using simple random sampling technique, which yield 205 respondents. A sampling technique in which study population is subdivided into smaller groups (strata) is referred to as stratified random sampling (Greenfield & Greener, 2016). The strata in stratified random sampling are usually constructed based on mutual characteristics or qualities among participants (Hewson, Vogel & Laurent, 2016). A random trial from each category obtained in a figure relative to stratum's scope and comparisons of study audience. Prior to employing random sampling methods, stratifying the whole population ensures that the sample clearly represents population being researched in terms of the criteria employed for stratification. Stratified random sampling offers the extra benefit of guaranteeing that each segment within the population is accurately represented within the sample when done correctly (Kumar, 2019). The sample size of this study is therefore be 205 project managers, program coordinators, community Leaders, and internally displaced people, in Baidoa district Bay region Somalia.

**Table 3. 3: Sampling Technique**

<b>Categories</b>	<b>Target Population</b>	<b>Sample size</b>	<b>Sampling procedure</b>
Program managers	5	2	Purposive sampling
Program coordinators and Officers	35	16	Simple random sampling
Community Leaders and Committee members	100	45	Simple random sampling
Internally displaced people	340	151	Simple random sampling
<b>Total</b>	<b>480</b>	<b>214</b>	

**3.6****Data****Collection**

Primary data in this study was collected in numerical and statistical forms related to defining the relationship between the independent variable and dependent variables, which together make up the core notions, in order to fulfill the study's objectives and solve the problem.

**3.6. 1 Data Collection Instruments**

Data was obtained through questionnaires with, Host communities, internally displaced people and project managers, program coordinators, community leader and key informant interview guide for managers. Furthermore, both closed- and open-ended items were included in semi-structured questionnaires and statements. Using a questionnaire, according to Metsamuuronen (2017), is an economical approach to obtain data, especially from a huge number of respondents. The questionnaire was divided into six parts. An in-depth qualitative approach with significant key stakeholders serves as a key source interview questions. A key informant actual interview major purpose is to collect data from a

variety of people, including experts and local leaders, who have direct experience of a society and its operations. In this research study, project managers, program coordinators, community leaders, were used as the key informants. The interview guide comprised of questions covering all the four objectives of the study. Information obtained from the key informant interviews helped to regulate quantitative data.

### **3.6. 2 Piloting of Research Instruments**

Pilot trial was undertaken to collect and correct questions that were unclear, misconstrued, or misunderstood. Furthermore, the pre-test aided in the correction of typographical problems as well as deciding if the inquiries are appropriate and pertinent. Random sampling was used to pick the pre-test group, which made up 10 percent of total sample size that is 20 questionnaires which were used. Pilot test in this study was carried out in Wajid district Feyla, village. It is selected due to its closeness and similarity accessibility and similarity in characteristics with the sample villages

Prior to collecting data, beforehand, sample questionnaires were created and uploaded to the portable data capture program. The training was provided covering the content of the data collection instruments, data collection etiquette and ethical considerations in surveys. The researcher conducted daily follow-ups to ensure that the surveys on data collection and completion were going as planned. It is anticipated that the entire data collection procedure will take one week.

### **3.6.3 Instruments of Reliability**

The term "reliability" refers to whether an assessment tool produces consistent results when employed in similar situations with similar subject categories. Internal consistency was used to assess reliability in this investigation (Singpurwalla, 2018). The internal consistency coefficient calculates the measurement's reliability by assuming that items measuring similar constructs should correlate. The most often used approach for determining internal consistency is Cronbach's alpha. When the alpha

values utilized in this method are between 0 and 1, the method's reliability increases. When the coefficient is between 0.6 and 0.7, it is regarded adequate reliability, however when it is 0.8 or more, it is called excellent dependability' Cronbach's alpha of 0.7 was regarded acceptable in this investigation.

**Table 3.3: Reliability Test Results Total number of items and the overall Cronbach**

<b>Research Variables</b>	<b>Items</b>	<b>Cronbach's Alpha</b>
Planning for monitoring and evaluation	8	0.82
Capacity building for monitoring and evaluation	8	0.77
Data collection for monitoring and evaluation	8	0.86
utilization for monitoring and evaluation	8	0.84
Sustainability of water sanitation and hygiene projects	10	0.78
<b>Total</b>	<b>42</b>	<b>0.79</b>

**Source: Author (2023)**

### 3.6.4 Instruments of Validity

This degree of research tool accurately gauges what it supposed to gauge. This research used two categories of validity, both the face and the substance authenticity. Face validity refers to a subjective judgment on the functionalization of a construct (Saunders, Lewis & Thornhill, 2016). Face validity is therefore the extent to which a measure appears to be connected to a specific construct (Mitchell and Jolley, 2017). A test is said to have face validity if its gratified appears pertinent to an individual conducting the test. It assesses the outward show of the survey in footings of readability, clarity of the used language feasibility consistency of style and formatting. In the investigation, face validity was heightened by expending analyses from specialists of area of project management such as the supervisor. Content validity portrays degree to which items effectively represent or measure the content of the trait and property of scholar desires to quantity (Stokes & Wall, 2017). The extent to which instrumental

substances reveals the content creation to which the apparatus wide spread. The content validity of the questionnaire was enhanced by structuring questions in accordance to study's indicators and objectives.

### 3.7 Data Processing and Analysis

Data analysis comprises putting acquired data in orderly manner and organising its primary aspects in such a manner that findings can be delivered quickly as well as efficiently (Williamson & Johanson, 2017). Quantitative and qualitative data generated via the questionnaire with some organization. Thematic analysis was used to analyse qualitative data and the findings were presented in prose. In qualitative research, thematic analysis is one of the most prevalent types of analysis. It focuses on identifying, analysing, and recording patterns in data (Yevale, 2016). Themes are data sets patterns essential for describing phenomenon under study and are related to specific research question. Moreover, themes are used to categorize data. With the use of SPSS statistical software, quantitative data was evaluated employing both inferential as well as descriptive statistics. Frequencies, percentages, mean and measures of dispersion were all employed in this study. The relationship between study variables was established by employing inferential statistics like correlation analysis. A 95% confidence interval was used in the investigation. A 0.05 significance level is shown by a 95 per cent confidence interval. This means that p-value of an independent variable must be less than significance level of 0.05 for it to have impact dependent variable significantly.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Sustainability of water sanitation and hygiene projects

$\beta_0$  = Constant

$\beta_1$ -  $\beta_4$  =Coefficients of determination

- $X_1$  = Planning for monitoring and evaluation
- $X_2$  =Capacity building for monitoring and evaluation
- $X_3$  = Data collection for monitoring and evaluation
- $X_4$  = Utilization of monitoring and evaluation results
- $\varepsilon$  =Error term

The following null hypotheses and models were tested:

$H_{01}$ : There is no significant relationship between Planning for monitoring and evaluation and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

**Model:**  $Y = \beta_0 + \beta_1 X_1 + \varepsilon$ . Where: Y is sustainability of water sanitation and hygiene projects

$X_1$  is planning for monitoring and evaluation,  $\beta_0$  is Constant,  $\beta_{.1}$  is Beta coefficient for  $X_1$ ,  $\varepsilon$  is Error term.

$H_{02}$ : There is no significant relationship between capacity building and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia

**Model:**  $Y = \beta_0 + \beta_2 X_2 + \varepsilon$  where: Y is Sustainability of water sanitation and hygiene projects,  $X_2$  is capacity building

$\beta_{.0}$  is constant,  $\beta_{.2}$  is beta coefficient for  $X_{.2}$  and  $\varepsilon$  is Error term

$H_{03}$ : There is no significant relationship between data collection and Sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

**Model:**  $Y = \beta_0 + \beta_3 X_3 + \varepsilon$  where: Y is Sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia,  $X_3$  is data collection,  $\beta_{.0}$  is constant,  $\beta_{.3}$  is beta coefficient for  $X_{.3}$  and  $\varepsilon$  is Error term

$H_{04}$ : There is no significant relationship between utilization of monitoring and evaluation results and Sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

**Model:**  $Y = \beta_0 + \beta_4 X_4 + \varepsilon$  where: Y is Sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia,  $X_4$  is utilization of results,  $\beta_0$  is constant,  $\beta_4$  is beta coefficient for  $X_4$  and  $\varepsilon$  is Error term

**Model:**  $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$  where: Y = Sustainability of water sanitation and hygiene projects,  $X_1$  is planning for monitoring and evaluation,  $X_2$  is capacity building,  $X_3$  is data collection,  $X_4$  is utilization of monitoring and evaluation results,  $\beta_0$  is Constant,  $\beta_1, \beta_2, \beta_3, \beta_4$ , are beta coefficients for  $X_1, X_2, X_3, X_4$  respectively and  $\varepsilon$  is Error term

### 3.8 Legal and Ethical Considerations

Throughout the process of conducting the research for this study, all ethical issues were taken into account. The respondents' consent to take part in this study was respected in full. In addition, all data collected from respondents must be kept private and must never be shared with anyone else without the express consent of the subject. Respect for human dignity, beneficence, and justice, which are an appropriate code of behaviour principles in data gathering, was ensured by the researcher. Understanding and voluntary choice to participate in a study project constitute informed consent (Singpurwalla, 2018). Only respondents who were willing to take part in surveys were provided with information to respond to.

The expert reassured respondents that all information will be kept private, that disclosed information will be treated with the strictest anonymity and also will be employed for educational reasons. The researcher will store the data papers in a secure area and restrict access to the data by allowing only a few people to see them.

## CHAPTER FOUR: DATA PRESENTATION, INTERPRETATION AND DISCUSSION

### 4.1 Introduction

The aim of the current study was to establish how Monitoring and Evaluation process influence sustainability of water, sanitation and hygiene projects in Baidoa District Bay. Data was collected using questionnaires and interview guide and was analyzed and presented in the current chapter. The findings are interpreted and discussed.

### 4.2 Response Rate

There were 214 questionnaires administered but only 205 were successfully filled and received back. 9 of them were not returned so giving a return rate of 96 % when computed and presented 4 % of not returned questionnaires as depicted in Table 4.1

**Table 4.1 Questionnaire return rate**

<b>Responses</b>	<b>Frequency</b>	<b>Percent</b>
Filled questionnaires	205	96
Unfilled questionnaires	9	4
<b>Total</b>	<b>214</b>	<b>100</b>

Data in Table 4.1 show that return rate was 96% above 68% which is the required minimum response rate for reliable survey results as posited by (Holtom, Baruch, Aguinis & Ballinger, 2022). A high return



rate increases the confidence that data accurately reflects the opinions of the vast majority of the respondents. As described in chapter three about the validity and reliability of the instrument, as a result, validity and reliability are improved.

### 4.3 Demographic Characteristics of the Respondents

The demographic characteristics of respondents included; gender, highest qualification and experiences of the respondents as summarized in Table 4.2.

**Table 4.2: Demographic Characteristics of Respondents**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Male	121	59.0
Female	84	41.0
<b>Total</b>	<b>205</b>	<b>100</b>

<b>Age</b>	<b>Frequency</b>	<b>Percentage (%)</b>
18-24	24	11.7
25-35	71	34.6
36-46	49	23.9
47-50	46	22.4
Above 50 years	15	7.3
<b>Total</b>	<b>205</b>	<b>100</b>

<b>Education</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Primary Certificate	12	5.9
Secondary Certificate	58	28.3
Diploma Certificate	61	29.8
Undergraduate Degree	52	25.4
Master's Degree	22	10.7

<b>Total</b>	<b>205</b>	<b>100</b>
<b>Duration of stay in the area</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Below 3 Years	33	16.1
5-10 Years	93	45.4
11-20 Years	53	25.9
Above 20 Years	26	12.7
<b>Total</b>	<b>205</b>	<b>100</b>

### 4.3.1 Gender of the Respondents

The findings of data in Table 4.2 indicates that 121 (59.0%) were male and 84 (41.0%) respondents were female. It meant that gender was almost paired since two thirds were met therefore eradicating the gender biasness and sampling errors leading to greater validity of the findings.

### 4.3.2 Education of the Respondents

Table 4.2 shows that primary certificate were 12(5.9%), Secondary certificate 58 (28.3%), Diploma certificate 61 (29.8%) and undergraduate degree 52(25.4%). While Master's degree were 22(10.7%). All those who responded to the underneath questions had acquired a university degree and diploma certificates. This means that people who undertook the study were literate. The capacity to comprehend questions and provide answers highlights the value of literacy and education in data collection. The response rate and data validity was acquired.

### 4.3.3 Age category respondents

The respondents were of different ages. According to Table 4.2, those between 18-24 yrs (11.7%) were the highest while 25- 35 years 71 (34.6%), followed by 36-46 yrs 49 (23.9%). Also 47-50 yrs had 46(22.4%) and lastly above 50yrs 15(7.3%). Experience denotes that sustainability of water, sanitation and hygiene projects.in Baidoa District Bay depended wholly on proper project planning.

#### **4.3.4 Duration of stay in the area**

The respondents were asked to state the time they have lived in this current area. According to Table 4.2, below 5-10 yrs were 93(45.4%) were the highest while 11- 20 years 53 (25.9%), followed by below 3 yrs 33 (16.1%). Lastly 20 yrs 26(12.7%). Experience denotes that sustainability of water, sanitation and hygiene projects.in Baidoa District Bay depended wholly on proper project planning.

#### **4.4 Sustainability of Water, sanitation and hygiene projects in Baidoa District Bay**

Sustainability of Water, sanitation and hygiene projects in Baidoa District Bay was measured by duration implementation, access to clean water, access to pit latrines, adequacy of sanitation facilities and proper usage of soap for washing.

##### **4.4.1 Descriptive Data on Sustainability of Water, sanitation and hygiene projects in Baidoa District Bay Region**

Ten line items were responded to as indicated in Table 4.3 on sustainability of water, sanitation and hygiene projects.in Baidoa District Bay Region

**Table 4.3 Sustainability of water sanitation and hygiene projects**

Statements	SD	D	N	A	SA	Mean	Std deviation
	F	F	F	F	F		
	%	%	%	%	%		
1. There are enough points where soap is kept in the washing areas and adequate supply of water	17 (8.3%)	69 (33.7%)	10 (4.9%)	65 (31.7%)	44 (21.5%)	<b>3.24</b>	<b>1.33</b>
2. Many people do not like using soap but prefer using water only /ash which is in the washing points	15 (7.3%)	61 (29.8%)	24 (11.7%)	56 (27.3%)	49 (23.9%)	<b>3.31</b>	<b>1.31</b>
4. Personnel's to implement the projects are well skilled and have enough knowledge about the project at hand.	28 (13.7%)	56 (27.3%)	22 (10.7%)	47 (22.9%)	52 (25.4%)	<b>3.19</b>	<b>1.42</b>
5. Clean and safe water is available at all the washing points as well as in the latrines	11 (5.4%)	44 (21.5%)	27 (13.2%)	61 (29.8%)	62 (30.2%)	<b>3.58</b>	<b>1.26</b>
6. There is no adequate water for washing after visiting the toilets. The toilets are shallow making it dangerous for use when it is raining	14 (6.8%)	50 (24.4%)	23 (11.2%)	83 (40.5%)	35 (17.1%)	<b>3.37</b>	<b>1.21</b>
7. The latrines made for women are few hence making them to use alternate methods of throwing feces into open areas	9 (4.4%)	54 (26.3%)	33 (16.1%)	70 (34.1%)	39 (10.9%)	<b>3.37</b>	<b>1.18</b>
8. Most toilets are shallow and risk sinking when it rains and very poorly constructed	10 (4.9%)	37 (18.0%)	30 (14.6%)	76 (37.1%)	52 (25.4%)	<b>3.60</b>	<b>1.18</b>
9. Washing points are many and there is adequate soap for washing hands after visiting the toilets	16 (7.8%)	50 (24.4%)	17 (8.3%)	73 (35.6%)	49 (23.9%)	<b>3.43</b>	<b>1.29</b>
10 No proper measures are taken in area where the project is being undertaken	18 (8.8%)	50 (24.4%)	16 (7.8%)	67 (32.7%)	54 (26.3%)	<b>3.43</b>	<b>1.34</b>
<b>Overall composite mean and std Deviation</b>						<b>3.43</b>	<b>1.26</b>

Statement (1) there are enough points where soap is kept in the washing areas and adequate supply of water, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 17(8.3%) strongly disagreed, 69(33.7%) disagreed, 10(4.9%) neutral, 65(31.7%) agreed while 44(21.5%) strongly agreed. These result show that 3.24 was lower than the composite mean of 3.43. The implication of these results to the study is that there are enough points where soap is kept in the washing areas and adequate supply of water hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.33 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (2) many people do not like using soap but prefer using water only /ash which is in the washing points, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 15(7.3%) strongly disagreed, 61(29.8%) disagreed, 24(11.7%) neutral, 56(27.3%) agreed while 49(23.9%) strongly agreed. These result show that 3.31 was lower than the composite mean of 3.43. The implication of these results to the study is that there are enough points where soap is kept in the washing areas and adequate supply of water hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.31 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (3) it takes a long time to implement any intervention projects under WASH in Baidoa District, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 20(9.8%) strongly disagreed, 51(24.9%) disagreed, 22(10.7%) neutral, 60(29.3%) agreed while 52(25.4%) strongly agreed. These result show that 3.36 was higher than the composite mean of 3.43. The implication of these results to the study is that it takes a long time to implement any intervention projects under WASH in Baidoa District hence positively influencing Sustainability of water sanitation and hygiene projects. The

line item standard deviation of 1.35 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (4) personnel's to implement the projects are well skilled and have enough knowledge about the project at hand, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 28(13.7%) strongly disagreed, 56(27.3%) disagreed, 22(10.7%) neutral, 47(22.9%) agreed while 52(25.4%) strongly agreed. These result show that 3.24 was lower than the composite mean of 3.43. The implication of these results to the study is that personnel's to implement the projects are well skilled and have enough knowledge about the project at hand hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.42 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (5) Clean and safe water is available at all the washing points as well as in the latrines, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 11(5.4%) strongly disagreed, 44(21.5%) disagreed, 27(13.2%) neutral, 61(29.8%) agreed while 62(30.2%) strongly agreed. These result show that 3.58 was higher than the composite mean of 3.43. The implication of these results to the study is that Clean and safe water is available at all the washing points as well as in the latrines hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.26 is at per with the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (6) The toilets are shallow making it dangerous for use when it is raining, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 14(6.8%) strongly disagreed, 50(24.4%) disagreed, 23(11.2%) neutral, 83(40.5%) agreed while 35(17.1%) strongly agreed. These result show that 3.37 was higher than the composite mean of 3.43. The implication of these results to the

study is that there is no adequate water for washing after visiting the toilets. The toilets are shallow making it dangerous for use when it is raining hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.21 is lower than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (7) the latrines made for women are few hence making them to use alternate methods of throwing feces into open areas, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 9(4.4%) strongly disagreed, 54(26.3%) disagreed, 33(16.1%) neutral, 70(34.1%) agreed while 39(10.9%) strongly agreed. These result show that 3.24 was lower than the composite mean of 3.43. The implication of these results to the study is that the latrines made for women are few hence making them to use alternate methods of throwing feces into open areas hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.18 is lower than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (8) most toilets are shallow and risk sinking when it rains and very poorly constructed, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 10(4.9%) strongly disagreed, 37(18.0%) disagreed, 30(14.6%) neutral, 76(31.7%) agreed while 52(25.4%) strongly agreed. These result show that 3.60 was lower than the composite mean of 3.43. The implication of these results to the study is that most toilets are shallow and risk sinking when it rains and very poorly constructed hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.18 is lower than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (9) washing points are many and there is adequate soap for washing hands after visiting the toilets, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents,

16(7.8%) strongly disagreed, 50(24.4%) disagreed, 17(8.3%) neutral, 73(35.6%) agreed while 49(23.9%) strongly agreed. These result show that 3.43 was lower than the composite mean of 3.43. The implication of these results to the study is that washing points are many and there is adequate soap for washing hands after visiting the toilets hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.29 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

Statement (10) no proper measures are taken in area where the project is being undertaken, mean of 3.43 and standard deviation of 1.26. This result indicates that out of 205 respondents, 18(8.8%) strongly disagreed, 50(24.4%) disagreed, 16(7.8%) neutral, 67(32.7%) agreed while 54(26.3%) strongly agreed. These result show that 3.43 was higher than the composite mean of 3.43. The implication of these results to the study is that no proper measures are taken in area where the project is being undertaken hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.34 is higher than the composite standard deviation of 1.26 indicating that there was a divergence opinion among the respondents.

#### **4.5 Planning for Monitoring and Evaluation on sustainability of Water sanitation and hygiene in Baidoa district Bay region, Somalia**

Sustainability of water, sanitation and hygiene projects in Baidoa District Bay region is the dependent variable while planning for monitoring and evaluation was measured by schedule activities, resource allocations, resource mobilization and stakeholder engagement.

##### **4.5.1 Descriptive Data on Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Eight line items were responded to as indicated in Table 4.4 on Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Bay region Baidoa district, Somalia



**Table 4.4 Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

Statements	SD	D	N	A	SA	Mean	Std deviation
	F	F	F	F	F		
	%	%	%	%	%		
1 We have a systematic order on how project activities are scheduled	8 (3.9%)	47 (22.9%)	12 (5.9%)	69 (33.7%)	69 (33.7%)	<b>3.70</b>	<b>1.25</b>
2 All projects activities are implemented as scheduled	19 (9.3%)	50 (24.4%)	15 (7.3%)	67 (32.7%)	54 (26.3%)	<b>3.42</b>	<b>1.35</b>
3. Resources are allocated as per the plan of the projects	14 (6.8%)	55 (26.8%)	17 (8.3%)	66 (32.2%)	53 (25.9%)	<b>3.43</b>	<b>1.31</b>
4. Many projects in the area do not have enough resources to implement the projects in question but the WASH projects is well equipped.	13 (6.3%)	49 (23.9%)	18 (8.8%)	69 (33.7%)	56 (27.3%)	<b>3.52</b>	<b>1.28</b>
5. Resource mobilization helps us to determine the available resources for project implementation	11 (5.4%)	41 (20.0%)	17 (8.3%)	67 (32.7%)	69 (33.7%)	<b>3.69</b>	<b>1.27</b>
6. Resource allocation is done in line with the priority list and helps in future use after the funders have terminated the projects	9 (4.4%)	51 (24.9%)	21 (10.2%)	67 (32.7%)	57 (27.8%)	<b>3.55</b>	<b>1.25</b>
7. All the stakeholders are involved in the projects from the initial stages to the last stage.	14 (6.8%)	34 (16.6%)	20 (9.8%)	85 (41.5%)	52 (25.4%)	<b>3.62</b>	<b>1.22</b>
8. Key stakeholders are the ones who have a say in the project	15 (7.3%)	48 (23.4%)	14 (6.8%)	63 (30.7%)	65 (31.7%)	<b>3.56</b>	<b>1.34</b>
<b>Overall composite mean and std Deviation</b>						<b>3.56</b>	<b>1.32</b>

Statement (1) we have a systematic order on how project activities are scheduled mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 47(22.9%) disagreed, 12(5.9%) neutral, 69(33.7%) agreed while 69(33.7%) strongly agreed. These result show that 3.70 was higher than the composite mean of 3.56. The implication of these results to the study is that it takes a long time to implement any intervention projects under WASH in Baidoa District hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.25 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents.

Statement (2) all projects activities are implemented as scheduled mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 19(9.3%) strongly disagreed, 50(24.4%) disagreed, 15(7.3%) neutral, 67(32.7%) agreed while 54(26.3%) strongly agreed. These result show that 3.42 was higher than the composite mean of 3.56. The implication of these results to the study is that all projects activities are implemented as scheduled hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.25 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

Statement (3) resources are allocated as per the plan of the projects mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 14(6.8%) strongly disagreed, 55(26.8%) disagreed, 17(8.3%) neutral, 66(32.2%) agreed while 53(25.9%) strongly agreed. These result show that 3.43 was lower than the composite mean of 3.56. The implication of these results to the study is that resources are allocated as per the plan of the projects hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.31 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

Statement (4) many projects in the area do not have enough resources to implement the projects in question but the WASH projects is well equipped mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 13(6.3%) strongly disagreed, 49(23.9%) disagreed, 18(8.8%) neutral, 69(33.7%) agreed while 56(27.3%) strongly agreed. These result show that 3.52 was lower than the composite mean of 3.56. The implication of these results to the study is that many projects in the area do not have enough resources to implement the projects in question but the WASH projects is well equipped hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.28 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

Statement (5) resource mobilization helps us to determine the available resources for project implementation mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 11(5.4%) strongly disagreed, 41(20.0%) disagreed, 17(8.3%) neutral, 67(32.7%) agreed while 69(33.7%) strongly agreed. These result show that 3.69 was higher than the composite mean of 3.56. The implication of these results to the study is that resource mobilization helps us to determine the available resources for project implementation hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.27 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

Statement (6) resource allocation is done in line with the priority list and helps in future use after the funders have terminated the projects mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 9(4.4%) strongly disagreed, 51(22.9%) disagreed, 21(10.2%) neutral, 67(32.7%) agreed while 57(27.8%) strongly agreed. These result show that 3.55 was lower than the composite mean of 3.56. The implication of these results to the study is that it takes a long time to implement any intervention projects under WASH in Baidoa District hence positively influencing

Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.25 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents.

Statement (7) all the stakeholders are involved in the projects from the initial stages to the last stage mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 14(6.8%) strongly disagreed, 34(16.6%) disagreed, 20(9.8%) neutral, 85(41.5%) agreed while 52(25.4%) strongly agreed. These result show that 3.62 was higher than the composite mean of 3.56. The implication of these results to the study is that all the stakeholders are involved in the projects from the initial stages to the last stage hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.22 is higher than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents.

Statement (8) Key stakeholders are the ones who have a say in the project mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 15(7.3%) strongly disagreed, 48(23.4%) disagreed, 14(6.8%) neutral, 63(30.7%) agreed while 65(31.7%) strongly agreed. These result show that 3.56 was at per composite mean of 3.56. The implication of these results to the study is that Key stakeholders are the ones who have a say in the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.34 is higher than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

#### **4.5.2 Inferential Statistics for Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district ,Bay region, Somalia**

Correlation between Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia was computed by means of Pearson's

correlational analyses and Table 4.5 shows the statistical outputs. The total scores of the scale were computed as a summation of the individual scores on each item by the respondents at 95% level of confidence. The correlation analysis results obtained are shown in Table 4.5

**Table 4.5 Correlation between Planning for Monitoring and Evaluation on sustainability of water, sanitation and hygiene projects in Baidoa district Bay region, Somalia**

Variable	Statistics	Sustainability of water sanitation and hygiene projects
<b>Planning for Monitoring and Evaluation</b>	Pearson Correlation	0.319**
	Sig.(2-tailed)	0.000
	n	205

(n=205); \*\*Correlation is significant at 0.05 level (2-tailed)

The study found a weak positive overall correlation 0.319 which was statistically significant as (P-Value=0.000 < 0.05); implying that there is a significant relationship between Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence the research results conclude that there is significant relationship between Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects.

#### **4.5.2.1 Model summary of Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The model sought to determine how Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. Simple linear regression was adapted to investigate how planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. The regression model summary results are presented in Table 4.6.

**Table 4.6: Regression Model Summary table of Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

<b>Model summary</b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.319 <sup>a</sup>	0.102	0.097	0.36997		
a. Predictor: (Constant), Planning for Monitoring and Evaluation						
<b>ANOVA</b>						
Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	3.146	1	3.146	22.986	0.000 <sup>b</sup>
	Residual	27.787	203	0.137		
	Total	30.933	204			
a. Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects						
b. Predictors: (Constant), Planning for Monitoring and Evaluation						
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p-value)
		B	Std. Error	Beta		
	(Constant)	2.400	0.203		11.824	0.000
1	Planning for Monitoring and Evaluation	0.271	0.057	0.319	4.794	0.000
a. Independent Variable: Planning for Monitoring and Evaluation						

The Model summary Table 4.6 suggest that there is a positive correlation ( $R^2=0.102$ ) between Planning for Monitoring and Evaluation influences sustainability of water sanitation and hygiene projects and those predicted by the regression model. The ANOVA data shows that  $F=22.986$ , Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects since  $p=0.000<0.05$ . Thus, the model was fit in predicting dependent variable. A unit rise in the Planning for Monitoring and Evaluation would lead to 2.400 change sustainability of water sanitation and hygiene projects, given that other factors were held constant. The substituted model is: Model:  $Y= 2.400+0.271X_1+\varepsilon$  where,

$Y$  = Sustainability of water sanitation and hygiene projects,

$X_1$  = Planning for Monitoring and Evaluation

$\varepsilon$  = Error term.

#### **4.5.3 Qualitative Data on Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

When answering the interview guide questions, statements were posed at every variable and the responses were analyzed and it was found that planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects helped in giving the citizens WiFi. The qualitative responses are summarized,

*“There are many projects of WASH which are very essential in delivering services to the community but they have not been successful. Many people depend on water sanitation and toilets to help them in their daily activities.”*

#### **4.5.4 Discussion on Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

It is evident from the descriptive and correlational data that planning for monitoring and evaluation had a significant contribution to sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia. The findings are in line with the findings from past related empirical studies that project planning has significant influence on sustainability of water sanitation and hygiene projects (Irfan, Khan, Hassan and Khan (2021; Mohamed and Moronge, 2019 and Owili and Paul, 2021). The findings are also in line with sustainability theory in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives and the solutions planned for. This Theory of constraints depict for you to your goals they must be well planned and in small manageable units.

#### **4.6 Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Sustainability of water, sanitation and hygiene projects in Baidoa District Bay region is the dependent variable while capacity building for monitoring and evaluation was measured by training of staff, formulation of programme ideas, sharing of learnt skills and knowledge acquisition.

##### **4.6.1 Descriptive Data on Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Eight line items were responded to as indicated in Table 4.7 on Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia



**Table 4.7 Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Statements	SD	D	N	A	SA	Mean	Std deviation
	F	F	F	F	F		
	%	%	%	%	%		
1 There is training of all stakeholders and the staff members who are implementing the project	14 (6.8%)	43 (21.0%)	19 (9.3%)	67 (32.7%)	62 (30.2%)	<b>3.59</b>	<b>1.29</b>
2 Implementing team of the project are knowledgeable and well acquitted with the required skills	17 (8.3%)	53 (25.9%)	29 (14.1%)	53 (25.9%)	53 (25.9%)	<b>3.35</b>	<b>1.33</b>
3. Ideas were planned and formulated during the onset of the project	9 (4.4%)	33 (16.1%)	23 (11.2%)	97 (47.3%)	43 (21.0%)	<b>3.64</b>	<b>1.11</b>
4. Formulation of ideas helped the staff and the team to organize for WASH activities	19 (9.3%)	49 (23.9%)	27 (13.2%)	70 (34.1%)	40 (19.5%)	<b>3.31</b>	<b>1.28</b>
5. There is sharing of learnt skills during meetings so as to encourage one another	4 (2.0%)	51 (24.9%)	12 (5.9%)	68 (33.2%)	70 (34.1%)	<b>3.73</b>	<b>1.22</b>
6. No prior arrangements for the trainings to the locals done by the implementing team	17 (8.3%)	59 (28.8%)	25 (12.2%)	56 (27.3%)	48 (23.4%)	<b>3.29</b>	<b>1.32</b>
7. Most stakeholders have what it takes in construction of the required facilities in the site	10 (4.9%)	49 (23.9%)	15 (7.3%)	72 (35.1%)	59 (28.8%)	<b>3.59</b>	<b>1.26</b>
8. Maintenance of the facilities is carried out by the technical experts in the field	8 (3.9%)	53 (25.9%)	26 (12.7%)	72 (35.1%)	46 (22.4%)	<b>3.46</b>	<b>1.20</b>
<b>Overall composite mean and std Deviation</b>						<b>3.49</b>	<b>1.28</b>

Don't cut tables! Reduce fonts ; should be on a pager

Statement (1) there is training of all stakeholders and the staff members who are implementing the project mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 14(6.8%) strongly disagreed, 43(21.0%) disagreed, 19(9.3%) neutral, 67(32.7%) agreed while 62(30.2%) strongly agreed. These result show that 3.59 was at per composite mean of 3.49. The implication of these results to the study is there is training of all stakeholders and the staff members who are implementing the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.29 is lower than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (2) Implementing team of the project are knowledgeable and well acquitted with the required skills mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 17(8.3%) strongly disagreed, 53(25.9%) disagreed, 29(14.1%) neutral, 53(25.9%) agreed while 53(25.9%) strongly agreed. These result show that 3.49 was at per composite mean of 3.35. The implication of these results to the study is that implementing team of the project are knowledgeable and well acquitted with the required skills hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.33 is lower than the composite standard deviation of 1.32 indicating that there was a divergence opinion among the respondents

Statement (3) ideas were planned and formulated during the onset of the project mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 9(4.4%) strongly disagreed, 33(16.1%) disagreed, 23(11.2%) neutral, 97(47.3%) agreed while 43(21.0%) strongly agreed. These result show that 3.64 was at per composite mean of 3.49. The implication of these results to the study is there is training of all stakeholders and the staff members who are implementing the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard

deviation of 1.11 is lower than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (4) formulation of ideas helped the staff and the team to organize for WASH activities mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 19(9.3%) strongly disagreed, 49(23.9%) disagreed, 27(13.2%) neutral, 70(34.1%) agreed while 40(19.5%) strongly agreed. These result show that 3.31 was at per composite mean of 3.49. The implication of these results to the study is that formulation of ideas helped the staff and the team to organize for WASH activities hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.28 is similar than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (5) there is sharing of learnt skills during meetings so as to encourage one another mean of 3.49 and standard deviation of 1.28. This result indicates that out of 205 respondents, 4(2.0%) strongly disagreed, 51(24.9%) disagreed, 12(5.9%) neutral, 68(33.2%) agreed while 70(34.1%) strongly agreed. These result show that 3.73 was higher than composite mean of 3.49 The implication of these results to the study is there is sharing of learnt skills during meetings so as to encourage one another hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.22 is lower than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (6) no prior arrangements for the trainings to the locals done by the implementing team mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 17(8.3%) strongly disagreed, 59(28.8%) disagreed, 25(12.2%) neutral, 56(27.3%) agreed while 48(23.4%) strongly agreed. These result show that 3.29 was lower than the composite mean of 3.49. The implication of these results to the study is there is training of all stakeholders and the staff members who are implementing

the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.32 is at higher with the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (7) most stakeholders have what it takes in construction of the required facilities in the site mean of 3.56 and standard deviation of 1.32. This result indicates that out of 205 respondents, 10(4.9%) strongly disagreed, 49(23.9%) disagreed, 15(7.3%) neutral, 72(35.1%) agreed while 62(30.2%) strongly agreed. These result show that 3.59 was higher than composite mean of 3.49 The implication of these results to the study is most stakeholders have what it takes in construction of the required facilities in the site project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.26 is lower than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

Statement (8) Maintenance of the facilities is carried out by the technical experts in the field mean of 3.49 and standard deviation of 1.28 This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 53(25.9%) disagreed, 26(12.7%) neutral, 72(35.1%) agreed while 46(22.4%) strongly agreed. These result show that 3.46 was lower than composite mean of 3.49 The implication of these results to the study maintenance of the facilities is carried out by the technical experts in the field hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.20 is lower than the composite standard deviation of 1.28 indicating that there was a divergence opinion among the respondents.

#### **4.6.2 Inferential Statistics for Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district, Bay region Somalia**

Correlation between Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia was computed by means of

Pearson's correlational analyses and Table 4.5 shows the statistical outputs. The total scores of the scale were computed as a summation of the individual scores on each item by the respondents at 95% level of confidence. The correlation analysis results obtained are shown in Table 4.8

**Table 4.8 Correlation between Capacity building for Monitoring and Evaluation on sustainability of water, sanitation and hygiene projects in Baidoa district Bay region, Somalia**

Variable	Statistics	Sustainability of water sanitation and hygiene projects
Capacity building for Monitoring and Evaluation	Pearson Correlation	0.127**
	Sig.(2-tailed)	0.069
	n	205

(n=205); \*\*Correlation is significant at 0.05 level (2-tailed)

The study found a weak positive overall correlation 0.127 which was statistically significant as (P-Value=0.069 < 0.05), implying that there is a significant relationship between Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence the research results conclude that there is significant relationship between Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects.

#### **4.6.2.1 Model summary of Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The model sought to determine how Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. Simple linear regression was adapted to investigate how

Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. The regression model summary results are presented in Table 4.9.

**Table 4.9 Regression Model Summary table of Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Model summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.127 <sup>a</sup>	0.016	0.011	0.38718

b. Predictor: (Constant), Capacity building for Monitoring and Evaluation

ANOVA						
Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	0.502	1	0.502	3.347	0.069 <sup>b</sup>
	Residual	30.431	203	0.150		
	Total	30.933	204			

a. Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects

b. Predictors: (Constant), Capacity building for Monitoring and Evaluation

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p-value)
		B	Std. Error	Beta		
1	(Constant)	2.940	0.234		12.592	0.000
	Capacity building for Monitoring and Evaluation	0.121	0.066	0.127	1.829	0.069

b. Independent Variable: Capacity building for Monitoring and Evaluation

The Model summary Table 4.6 suggest that there is a positive correlation ( $R^2=0.016$ ) between Capacity building for Monitoring and Evaluation influences sustainability of water sanitation and hygiene projects and those predicted by the regression model. The ANOVA data shows that  $F=3.347$ , Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects since  $p=0.069<0.05$ . Thus, the model was fit in predicting dependent variable. The coefficient data shows that holding other factors constant, sustainability of water sanitation and hygiene projects would stand at 0.121. A unit rise in the Planning for Monitoring and Evaluation would lead to 2.940 change

sustainability of water sanitation and hygiene projects, given that other factors were held constant. The substituted model is:

Model:  $Y = 2.940 + 0.121X_1 + \varepsilon$  where,

$Y$  = Sustainability of water sanitation and hygiene projects,

$X_1$  = Capacity building for Monitoring and Evaluation

$\varepsilon$  = Error term.

#### **4.6.3 Qualitative Data on Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

When answering the interview guide questions, statements were posed at every variable and the responses were analyzed and it was found that capacity building on sustainability of water sanitation and hygiene projects helped in giving the community water. The qualitative responses are summarized,

*“Many people were trained on how to wash their hands and how to use their toilets. These are the facilities people depend on and need to be acquitted with them.”*

#### **4.6.4 Discussion on Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

It is evident from the descriptive and correlational data that project capacity building had a significant contribution to sustainability of water sanitation and hygiene projects. The findings are in line with the findings from past related empirical studies that capacity building has significant influence on and sustainability of water sanitation and hygiene projects (Tillet, Huston & Davis, 2020; Harter, Lilje, & Mosler, 2019 and Routray et al, 2017). The findings are also in line with Theory of planned behavior in that projects generate good products when exposed to small manageable numbers when analyzed from

cause-effect perspectives and the solutions planned for. This Theory of constraints depict for you to your goals they must be well planned and in small manageable units.

#### **4.7 Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia**

Sustainability of water, sanitation and hygiene projects in Baidoa District Bay region is the dependent variable while data collection for monitoring and evaluation was measured by development of indicators, developing data tools, frequency of data collection and coding of data.

##### **4.7.1 Descriptive Data on Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Eight-line items were responded to as indicated in Table 4.10 on Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia.



**Table 4.10 Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

	SD	D	N	A	SA		
	F	F	F	F	F		Std deviation
Statements	%	%	%	%	%	Mean	
1 Indicators are formulated immediately the objectives are set	9 (4.4%)	53 (25.9%)	23 (11.2%)	71 (34.7%)	49 (23.9%)	<b>3.48</b>	<b>1.23</b>
2 They are set according to the objectives and goals of the project	6 (2.9%)	48 (23.4%)	29 (14.1%)	66 (32.2%)	56 (27.3%)	<b>3.58</b>	<b>1.20</b>
3. There are enough tools to use when collecting data for future use	16 (7.8%)	56 (27.3%)	35 (17.1%)	63 (30.7%)	35 (17.1%)	<b>3.22</b>	<b>1.23</b>
4. Proper and well prepared questionnaires were formulate to collect primary data from the respondents	7 (3.4%)	35 (17.1%)	18 (8.8%)	73 (35.1%)	72 (35.1%)	<b>3.82</b>	<b>1.18</b>
5. Information collected is shared on daily basis to the data base	8 (3.9%)	53 (25.9%)	40 (19.5%)	73 (35.6%)	31 (15.1%)	<b>3.32</b>	<b>1.13</b>
6. Data is stored in the data base for future use in decision making	8 (3.9%)	47 (22.9%)	22 (10.7%)	76 (37.1%)	52 (25.4%)	<b>3.57</b>	<b>1.20</b>
7. Data collected is verified and coded as per the set objectives of the projects	7 (3.4%)	46 (22.4%)	25 (12.2%)	60 (29.3%)	67 (32.7%)	<b>3.65</b>	<b>1.24</b>
8. Data is analyzed and the shared to the respective areas for immediate use	8 (3.9%)	45 (22.0%)	17 (8.3%)	84 (41.0%)	51 (24.9%)	<b>3.61</b>	<b>1.90</b>
<b>Overall composite mean and std Deviation</b>						<b>3.51</b>	<b>1.20</b>

Statement (1) Indicators are formulated immediately from the objectives that are set, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 9(4.4%) strongly disagreed, 53(25.9%) disagreed, 23(11.2%) neutral, 71(34.7%) agreed while 49(23.9%) strongly agreed. These result show that 3.48 was lower than the composite mean of 3.55. The implication of these results to the

study is that Indicators are formulated immediately from the objectives that are set hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.23 is higher than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (2) they are set according to the objectives and goals of the project, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 6(2.9%) strongly disagreed, 48(23.4%) disagreed, 29(14.1%) neutral, 66(32.2%) agreed while 56(27.3%) strongly agreed. These result show that 3.58 was higher than the composite mean of 3.51. The implication of these results to the study is they are set according to the objectives and goals of the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.20 were at per with the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (3) there are enough tools to use when collecting data for future use, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 16(7.8%) strongly disagreed, 56(27.3%) disagreed, 35(17.1%) neutral, 63(30.7%) agreed while 35(17.1%) strongly agreed. These result show that 3.22 was lower than the composite mean of 3.51. The implication of these results to the study is there are enough tools to use when collecting data for future use hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.23 is higher than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (4) proper and well prepared questionnaires were formulate to collect primary data from the respondents, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 7(3.4%) strongly disagreed, 35(17.1%) disagreed, 18(8.8%) neutral, 73(35.1%) agreed

while 72(35.1%) strongly agreed. These result show that 3.83 was higher than the composite mean of 3.51. The implication of these results to the study is that proper and well prepared questionnaires were formulate to collect primary data from the respondents hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.18 is lower than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (5) Information collected is shared on daily basis to the data base, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 53(25.9%) disagreed, 40(19.5%) neutral, 73(35.6%) agreed while 31(15.1%) strongly agreed. These result show that 3.32 was higher than the composite mean of 3.51. The implication of these results to the study is that Information collected is shared on daily basis to the data base hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.13 is lower than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (6) data is stored in the data base for future use in decision making, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 47(22.9%) disagreed, 22(10.7%) neutral, 76(37.1%) agreed while 52(25.2%) strongly agreed. These result show that 3.57 was higher than the composite mean of 3.51. The implication of these results to the study is that data is stored in the data base for future use in decision making hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.20 was at per with the composite standard deviation of 1.20 indicating that there was a converging opinion among the respondents.

Statement (7) data collected is verified and coded as per the set objectives of the projects, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 7(3.4%) strongly disagreed, 46(22.4%) disagreed, 25(12.2%) neutral, 60(29.3%) agreed while 67(33.7%) strongly agreed. These result show that 3.65 was higher than the composite mean of 3.51. The implication of these results to the study is that data collected is verified and coded as per the set objectives of the projects hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.24 is higher than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

Statement (8) data is analyzed and the shared to the respective areas for immediate use, mean of 3.51 and standard deviation of 1.20. This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 45(22.0%) disagreed, 17(8.3%) neutral, 17(8.3%) agreed while 84(41.0%) strongly agreed. These result show that 3.61 was higher than the composite mean of 3.51. The implication of these results to the study is that data is analyzed and the shared to the respective areas for immediate use hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.90 is higher than the composite standard deviation of 1.20 indicating that there was a divergence opinion among the respondents.

#### **4.7.2 Inferential Statistics for data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

Correlation between Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia was computed by means of Pearson's correlational analyses and Table 4.11 shows the statistical outputs. The total scores of the scale were computed as a summation of the individual scores on each item by the respondents at 95% level of confidence. The correlation analysis results obtained are shown in Table 4.11

**Table 4.11 Correlation between Data collection for Monitoring and Evaluation on sustainability of water, sanitation and hygiene projects in Baidoa district Bay region, Somalia**

Variable	Statistics	Sustainability of water sanitation and hygiene projects
<b>Data collection for Monitoring and Evaluation</b>	Pearson Correlation	0.013**
	Sig.(2-tailed)	0.851
	n	205

(n=205); \*\*Correlation is significant at 0.05 level (2-tailed)

The study found a weak positive overall correlation 0.019 which was statistically significant as (P-Value=0.851 < 0.05); implying that there is a significant relationship between Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence the research results conclude that there is significant relationship between Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects.

#### **4.7.2.1 Model summary of Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The model sought to determine how Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. Simple linear regression was adapted to investigate how Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects. The regression model summary results are presented in Table 4.12.

**Table 4.12 Regression Model Summary table of Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Model summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	0.313 <sup>a</sup>	0.000	-0.005	0.39033	

c. Predictor: (Constant), Data collection for Monitoring and Evaluation

ANOVA						
Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	0.005	1	0.005	0.036	0.851 <sup>b</sup>
	Residual	30.928	203	0.152		
	Total	30.933	204			

a. Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects

b. Predictors: (Constant), Data collection for Monitoring and Evaluation

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p-value)
		B	Std. Error	Beta		
	(Constant)	2.405	0.214		15.915	0.000
1	Data collection for Monitoring and Evaluation	-0.011	0.060	-0.01	0.189	0.000

c. Independent Variable: Data collection for Monitoring and Evaluation

The Model summary Table 4.12 suggest that there is a positive correlation ( $R^2=0.000$ ) between Data collection for Monitoring and Evaluation influences sustainability of water sanitation and hygiene projects and those predicted by the regression model. The ANOVA data shows that  $F=0.036$ , Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects since  $p=0.851 < 0.05$ . Thus, the model was fit in predicting dependent variable. The coefficient data shows that holding other factors constant, sustainability of water sanitation and hygiene projects would stand at -0.011. A unit rise in the Data collection for Monitoring and Evaluation would lead to 2.405 change sustainability of water sanitation and hygiene projects, given that other factors were held constant. The substituted model is:

Model:  $Y = 2.405 + -0.011X_1 + \varepsilon$  where,

$Y$  = Sustainability of water sanitation and hygiene projects,

$X_1$  = Data collection for Monitoring and Evaluation

$\varepsilon$  = Error term.

#### **4.7.3 Qualitative Data on Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

When answering the interview guide questions, statements were posed at every variable and the responses were analyzed and it was found that Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects helped in giving the community proper services. The qualitative responses are summarized,

*“Primary data was collected and comprehensive information was arrived at. Many village elders don’t have time to supervise what the people are doing on the use of water projects”*

#### **4.7.4 Discussion on Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

It is evident from the descriptive and correlational data that data collection had a significant contribution to sustainability of water sanitation and hygiene projects. The findings are in line with the findings from past related empirical studies that project planning has significant influence on and sustainability of water sanitation and hygiene projects (Aupal and Ngaka (2017; Chasekwa et al., 2018 and Carrard & Willetts, 2017). The findings are also in line with Theory of constraints in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives and the

solutions planned for. This sustainable Theory depict for you to your goals they must be well planned and in small manageable units.

#### **4.8 Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Sustainability of water, sanitation and hygiene projects in Baidoa District Bay region is the dependent variable while Utilization of Monitoring and Evaluation results was measured by capturing of results, dissemination of results, interpretation of results and usage of information shared.

##### **4.8.1 Descriptive Data on Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Eight line items were responded to as indicated in Table 4.13 on Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia



**Table 4.13 Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Statements	SD	D	N	A	SA	Mean	Std deviation
	F	F	F	F	F		
	%	%	%	%	%		
1 There are channels formulated on how to receive shared information to every participant	10 (4.9%)	41 (20.0%)	16 (7.8%)	76 (37.1%)	62 (30.2%)	<b>3.68</b>	<b>1.23</b>
2 Communication officers makes sure that every stakeholder receives the information in the right time	8 (3.9%)	45 (22.0%)	29 (14.1%)	69 (33.7%)	54 (26.3%)	<b>3.57</b>	<b>1.20</b>
3. Results disseminated as per the plan of the projects	13 (6.3%)	61 (29.8%)	36 (17.6%)	63 (30.7%)	32 (15.6%)	<b>3.20</b>	<b>1.20</b>
4. Dash boards are used to capture and disseminate the information collected to all the entities concerned	9 (4.4%)	44 (21.5%)	40 (19.5%)	72 (35.1%)	40 (19.5%)	<b>3.44</b>	<b>1.15</b>
5. After the data has been verified and analyzed it is then explained to all the entities involved	7 (3.4%)	61 (29.8%)	18 (8.8%)	40 (19.5%)	79 (38.5%)	<b>3.60</b>	<b>1.34</b>
6.Many people do not have the knowledge of interpreting data information in the project	6 (2.9%)	34 (16.6%)	31 (15.1%)	74 (36.1%)	60 (29.3%)	<b>3.72</b>	<b>1.14</b>
7. Collected information is used for making timely corrective decisions	7 (3.4%)	49 (23.9%)	23 (11.2%)	63 (30.7%)	63 (30.7%)	<b>3.61</b>	<b>1.24</b>
8. Major and minor changes are made after information is shared	4 (2.0%)	26 (12.7%)	23 (11.2%)	64 (31.0%)	88 (42.9%)	<b>4.00</b>	<b>1.10</b>
<b>Overall composite mean and std Deviation</b>						<b>3.60</b>	<b>1.23</b>

Statement (1) there are channels formulated on how to receive shared information to every participant, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 10(4.9%) strongly disagreed, 41(20.0%) disagreed, 16(7.8%) neutral, 76(37.1%) agreed while 62(30.2%) strongly agreed. These result show that 3.68 was higher than the composite mean of 3.60. The implication of these results to the study is that there are channels formulated on how to receive shared information to every participant hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.23 is at per with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (2) communication officers makes sure that every stakeholder receives the information in the right time, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 8(3.9%) strongly disagreed, 45(22.0%) disagreed, 29(14.1%) neutral, 69(33.7%) agreed while 54(26.3%) strongly agreed. These result show that 3.57 was higher than the composite mean of 3.60. The implication of these results to the study is that communication officers makes sure that every stakeholder receives the information in the right time hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.20 is lower the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (3) results disseminated as per the plan of the projects, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 13(6.3%) strongly disagreed, 61(29.8%) disagreed, 36(17.6%) neutral, 63(30.7%) agreed while 32(15.6%) strongly agreed. These result show that 3.20 was lower than the composite mean of 3.60. The implication of these results to the study is that results disseminated as per the plan of the projects hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.20 is at per with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (4) dash boards are used to capture and disseminate the information collected to all the entities concerned, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 9(4.4%) strongly disagreed, 44(19.5%) disagreed, 40(19.5%) neutral, 72(35.1%) agreed while 40(19.5%) strongly agreed. These result show that 3.44 was higher than the composite mean of 3.60. The implication of these results to the study is dash boards are used to capture and disseminate the information collected to all the entities concerned hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.15 is at per with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (5) after the data has been verified and analyzed it is then explained to all the entities involved, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 7(3.4%) strongly disagreed, 61(29.8%) disagreed, 18(8.8%) neutral, 40(19.5%) agreed while 79(30.2%) strongly agreed. These result show that 3.60 was at per with the composite mean of 3.60. The implication of these results to the study is that after the data has been verified and analyzed it is then explained to all the entities involved hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.34 is at higher with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (6) many people do not have the knowledge of interpreting data information in the project, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 6(2.9%) strongly disagreed, 34(16.6%) disagreed, 31(15.1%) neutral, 74(36.1%) agreed while 60(29.3%) strongly agreed. These result show that 3.72 was higher than the composite mean of 3.60. The implication of these results to the study is many people do not have the knowledge of interpreting data information in the project hence positively influencing Sustainability of water sanitation and hygiene projects. The line item

standard deviation of 1.14 is at par with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (7) collected information is used for making timely corrective decisions, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 7(3.4%) strongly disagreed, 49(23.9%) disagreed, 23(11.2%) neutral, 63(30.7%) agreed while 63(30.7%) strongly agreed. These result show that 3.68 was higher than the composite mean of 3.61. The implication of these results to the study is that collected information is used for making timely corrective decisions hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.24 is at par with the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

Statement (8) major and minor changes are made after information is shared, mean of 3.60 and standard deviation of 1.23. This result indicates that out of 205 respondents, 4(2.0%) strongly disagreed, 26(12.7%) disagreed, 23(11.2%) neutral, 64(31.0%) agreed while 88(42.9%) strongly agreed. These result show that 4.00 was higher than the composite mean of 3.60. The implication of these results to the study is that major and minor changes are made after information is shared hence positively influencing Sustainability of water sanitation and hygiene projects. The line item standard deviation of 1.10 lower than the composite standard deviation of 1.23 indicating that there was a converging opinion among the respondents.

#### **4.8.2 Inferential Statistics for Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Correlation between Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia was computed by means of Pearson's correlational analyses and Table 4.14 shows the statistical outputs. The total scores of the scale were

computed as a summation of the individual scores on each item by the respondents at 95% level of confidence. The correlation analysis results obtained are shown in Table 4.14

**Table 4.14 Correlation between Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

Variable	Statistics	Sustainability of water sanitation and hygiene projects
Utilization of Monitoring and Evaluation results	Pearson Correlation	0.114**
	Sig.(2-tailed)	0.104
	n	205

(n=205); \*\*Correlation is significant at 0.05 level (2-tailed)

The study found a weak positive overall correlation 0.114 which was statistically significant as (P-Value=0.104 < 0.05); implying that there is a significant relationship between Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence the research results conclude that there is significant relationship between Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects.

#### **4.8.2.1 Model summary of Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The model sought to determine how Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects. Simple linear regression was adapted to investigate how Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects. The regression model summary results are presented in Table 4.15.

**Table 4.15 Regression Model Summary table of Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

<b>Model summary</b>						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.114 <sup>a</sup>	0.013	0.008	0.38782		
d. Predictor: (Constant), Utilization of Monitoring and Evaluation results						
<b>ANOVA</b>						
Model		Sum of Squares	Df	Mean Squares	F	Sig.
1	Regression	0.401	1	0.401	2.664	0.104 <sup>b</sup>
	Residual	30.533	203	0.150		
	Total	30.933	204			
a. Utilization of Monitoring and Evaluation results and Evaluation on sustainability of water sanitation and hygiene projects						
b. Predictors: (Constant), Utilization of Monitoring and Evaluation results						
<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p-value)
		B	Std. Error	Beta		
	<b>(Constant)</b>	3.849	0.203		12.916	0.000
1	<b>Utilization of Monitoring and Evaluation results</b>	0.134	0.057	-0.114	-1.632	0.104
d. Independent Variable: Utilization of Monitoring and Evaluation results						

The Model summary Table 4.15 suggest that there is a positive correlation ( $R^2=0.013$ ) between Utilization of Monitoring and Evaluation results influences sustainability of water sanitation and hygiene projects and those predicted by the regression model. The ANOVA data shows that  $F=2.664$ , Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects since  $p=0.104 < 0.05$ . Thus, the model was fit in predicting dependent variable. The coefficient data shows that holding other factors constant, sustainability of water sanitation and hygiene projects would stand at 0.134. A unit rise in the Utilization of Monitoring and Evaluation results would lead to 3.849 change sustainability of water sanitation and hygiene projects, given that other factors were held constant. The substituted model is:

Model:  $Y = 3.849 + -0.134X_1 + \varepsilon$  where,

$Y$  = Sustainability of water sanitation and hygiene projects,

$X_1$  = Utilization of Monitoring and Evaluation results

$\varepsilon$  = Error term.

#### **4.8.3 Qualitative Data on Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

When answering the interview guide questions, statements were posed at every variable and the responses were analyzed and it was found that Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects are well implemented. The qualitative responses are summarized,

*“Project implementers do not have the capacity to dig many toilets as the number increases day and night. Utilization of these toilets is very key when it comes to gender parity”*

#### **4.8.4 Discussion on Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

It is evident from the descriptive and correlational data that Utilization of Monitoring and Evaluation results had a significant contribution to sustainability of water sanitation and hygiene projects. The findings are in line with the findings from past related empirical studies that project Utilization of Monitoring and Evaluation results has significant influence on and sustainability of water sanitation and hygiene projects (Shivairo & Were, 2017 Rickinson et al, 2018 and Parkhurst, 2017). The findings are also in line with Theory of Planned Behavior in that projects generate good products when exposed to small manageable.

## **CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. Introduction**

In the current chapter, the findings from the data analysis is presented in summary form. Other components in this chapter includes the conclusions from the findings, recommendations and possible areas for future studies.

### **5.2 Summary of Findings**

The findings are hereby summarized based on the research objectives.

#### **5.2.1 Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The descriptive analysis revealed that the overall composite mean for the eight items was 3.56 and standard deviation of 1.32 which implied that most of the respondents agreed that Planning for Monitoring and Evaluation increased sustainability of water sanitation and hygiene projects. The correlation coefficient was 0.319 which implied that Planning for Monitoring and Evaluation had a weak positive relationship with sustainability of water sanitation and hygiene projects ( $p=0.000 < 0.05$ ). This led to the rejection of the null hypothesis because there was strong evidence to conclude that Planning for Monitoring and Evaluation has a significant influence on sustainability of water sanitation and hygiene projects. The findings are in line with the findings from past related empirical studies that Planning for Monitoring and Evaluation has significant influence on and sustainability of water sanitation and hygiene projects (Nalianya and Wanyonyi, (2017; Daniel, Pande, Rietveld, 2020; Soni, Bohra, & Katara, 2016 Irfan, Khan, Hassan and Khan (2021). The findings are also in line with planned theory in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives and the solutions planned for after planning well in the onset of the projects. This Planned Theory depict for you to meet your objectives as planned.



### **5.2.2 Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district, Bay region Somalia**

The descriptive analysis revealed that the overall composite mean for the five items was 3.49 and standard deviation of 1.28, which implied that most of the respondents agreed that capacity building influenced sustainability of water sanitation and hygiene projects. The correlation coefficient was 0.127 which implied that capacity building had a weak positive relationship with sustainability of water sanitation and hygiene projects ( $p=0.069 < 0.05$ ). This led to the rejection of the null hypothesis because there was strong evidence to conclude that capacity building has a significant influence on sustainability of water sanitation and hygiene projects in Bay Baidoa district region, Somalia. The findings are in line with the findings from past related empirical studies that capacity building have significant influence on sustainability of water sanitation and hygiene projects (Tillet, Huston & Davis, 2020; Kasri, Wirutomo Kusnoputranto, Moersidik, 2017) and Harter, Lilje, & Mosler, 2019). The findings are also in line with Planned Theory in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives on trainings and workshops performed in the process of implementing the projects.

### **5.2.3 Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

The descriptive analysis revealed that the overall composite mean for the five items was 3.51 and standard deviation of 1.20, which implied that most of the respondents agreed that data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. The correlation coefficient was 0.013 which implied that data collection for Monitoring and Evaluation had a weak positive relationship with sustainability of water sanitation and hygiene projects ( $p=0.851 < 0.05$ ). This led to the rejection of the null hypothesis because there was strong evidence to conclude that data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. The findings are in line with the findings from past related empirical studies that data collection

for Monitoring and Evaluation has significant influence on and sustainability of water sanitation and hygiene projects (Aupal and Ngaka (2017; Kimbugwe, Murungu, Watako, & Tumisiime, 2018 and Chasekwa et al., 2018). The findings are also in line with Sustainability Theory in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives and the solutions collected and shared.

#### **5.2.4 Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia**

The descriptive analysis revealed that the overall composite mean for the five items was 3.60 and standard deviation of 1.23, which implied that most of the respondents agreed that utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects. The correlation coefficient was 0.114 which implied that utilization of Monitoring and Evaluation results had a weak positive relationship with sustainability of water sanitation and hygiene projects ( $p=0.104 < 0.05$ ). This led to the rejection of the null hypothesis because there was strong evidence to conclude that utilization of Monitoring and Evaluation results have a significant influence on sustainability of water sanitation and hygiene projects. The findings are in line with the findings from past related empirical studies that utilization of Monitoring and Evaluation results has significant influence on and sustainability of water sanitation and hygiene projects (Shivairo & Were, 2017; Rickinson et al, 2018 and Kabonga, 2019). The findings are also in line with Sustainability Theory in that projects generate good products when exposed to small manageable numbers when analyzed from cause-effect perspectives and the solutions planned for. The Theory of Human capital depict for you to your objectives that must be well organized controlled as per the projects.

#### **5.3 Conclusions from the Findings**

In the first objective, the study established that planning for monitoring and evaluation had an influence on the sustainability of water sanitation and hygiene projects. The findings generated from both descriptive and inferential analysis leads to the conclusion that planning for monitoring has significant had an influence on the

sustainability of water sanitation and hygiene projects in Baidoa district.

Second objective, to assess how capacity building for monitoring and evaluation influence on sustainability of water sanitation and hygiene projects. The findings generated from both descriptive and inferential analysis leads to the conclusion that capacity building have significant influence sustainability of water sanitation and hygiene projects in Baidoa district.

The third objective, to establish the influence of data collection for monitoring and evaluation on sustainability of water sanitation and hygiene projects in Baidoa district . The findings generated from both descriptive and inferential analysis leads to the conclusion that data collection for monitoring and evaluation have significant influence sustainability of water sanitation and hygiene projects.

The fourth objective determine how utilization for monitoring and evaluation results influence sustainability of water sanitation and hygiene projects in Baidoa district .The findings generated from descriptive and inferential analysis leads to a conclusion utilization for monitoring and evaluation has a significant influence on sustainability of water sanitation and hygiene projects

#### **5.4 Recommendations from the Findings**

The following recommendations are based from the findings and conclusions of the study.

##### **5.4.1 Recommendation for Practice**

Non-governmental organizations can help to improve on the practices of planning for M&E, Capacity Building, data collection for M&E and utilization of M&E results through alignment of project needs for good productivity and sustainability of water sanitation and hygiene projects.

##### **5.4.2 Recommendation for Policy**

The government should help in formulating policies and laws that govern WASH projects to the community and be able to sustain the already available services. Clean and safe water should be made a priority in the community for better services provided by the project implementation team.

### **5.4.3 Recommendation for Methodology**

Future methodologies need to take this into account in order to learn more about how the variables interact holistically. Future methodologies must also triangulate various approaches to planning, capacity building, data collection, and utilization of M&E results on sustainability of water sanitation and hygiene projects.

### **5.5 Suggestions for further Study**

The current study recommends more studies to be carried out on the areas, which were not included in the current study like data analysis, and institutional strategies, which are in line with the steps of monitoring and evaluation processes.

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## Appendix I: Letter of Introduction

Dear Respondent,

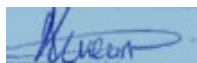
### RE: REQUEST FOR RESEARCH DATA

I am a Masters student of Arts in Monitoring and Evaluation Degree in the Business School of Africa Nazarene University. I wish to conduct a research entitled *Monitoring and Evaluation process on sustainability of water sanitation and hygiene projects in Baidoa district bay region, Somalia.*

You have been randomly selected to participate in this study by filling in the questionnaire to enable the collection of the needed data for analysis. The information collected will be used for academic research only and will be treated with utmost confidentiality.

Thank you in advance for your co-operation.

Yours faithfully,

A blue rectangular stamp containing a handwritten signature in blue ink. The signature appears to be 'Alice Wairia'.

**ALICE WAIRIA**

## Appendix II: Questionnaire

This data collection tool will be used to gather data on the M&E process and sustainability of water, sanitation and hygiene projects in Baidoa District Bay. You have been selected by chance through a random sampling process to participate in this survey. This survey is voluntary and you are free not to participate. All the information given will be treated with the highest level of confidentiality and ethical considerations, as it will only be used for the purpose of this study.

Please fill out the necessary information in the designated areas as kindly requested.

### PART A: DEMOGRAPHIC INFORMATION

1. Kindly indicate your gender

Male

Female

2. Kindly indicate your age:

18 and 24 years

25 and 35 years

36 and 46 years

47 and 50 years

Above 50 Years

3. Duration of stay in the area

Below 3 Years

5 and 10 Years

11- 20 Years

Above 20 Years

4. Kindly indicate highest level of education?

Primary certificate

Secondary Certificate

Diploma Certificate

Undergraduate degree

Master's degree

**PART B:****Sustainability of water sanitation and hygiene projects in Baidoa district, Bay region  
Somalia**

This section seeks to obtain information on sustainability of water sanitation and hygiene projects in Baidoa district, Bay region Somalia. Please rate your level of agreement with the following statements. Kindly use the Likert scale of 1-5 where 1 is strongly disagree and 5 is strongly agree provided below to TICK as appropriate.

**Sustainability of water sanitation and hygiene projects in Baidoa district, Bay region  
Somalia**

<b>Statements (Sustainability of water sanitation and hygiene projects)</b>	<b>SD(1)</b>	<b>D(2)</b>	<b>N(3)</b>	<b>A(4)</b>	<b>SA(5)</b>
1. There are enough points where soap is kept in the washing areas and adequate supply of water					
2. Many people do not like using soap but prefer using water only /ash which is in the washing points					
3. It takes a long time to implement any intervention projects under WASH in Baidoa District					
4. Personnel's to implement the projects are well skilled and have enough knowledge about the project at hand.					
5. Clean and safe water is available at all the washing points as well as in the latrines					
6. There is no adequate water for washing after visiting the toilets. The toilets are shallow making it dangerous for use when it is raining.					
7. The latrines made for women are few hence making them to use alternate methods of throwing feces into open areas					
8. Most toilets are shallow and risk sinking when it rains and very poorly constructed					

9. Washing points are many and there is adequate soap for washing hands after visiting the toilets					
10. No proper measures are taken in areas where the project is being undertaken					

Please comment on any other issues regarding sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. ....

**Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Bay region Baidoa district, Somalia**

This section seeks to obtain information on planning for M&E and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. Please rate your level of agreement with the following statements. Kindly use the Likert scale of 1-5 where 1 is strongly disagree and 5 is strongly agree provided below to TICK as appropriate.

<b>Statements (Planning for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects )</b>	<b>SD(1)</b>	<b>D(2)</b>	<b>N(3)</b>	<b>A(4)</b>	<b>SA(5)</b>
<b>Scheduling of Activities</b>					
1. We have a systematic order on how project activities are scheduled					
2. All projects activities are implemented as scheduled					
<b>Resource allocations</b>					
1. Resources are allocated as per the plan of the projects					
2. Many projects in the area do not have enough resources to implement the projects in question but the WASH projects is well equipped.					
<b>Resource Mobilization</b>					
1. Resource mobilization helps us to determine the available resources for project implementation					

2. Resource allocation is done in line with the priority list and helps in future use after the funders have terminated the projects.					
<b>Stakeholder engagement</b>					
1. All the stakeholders are involved in the projects from the initial stages to the last stage					
2. Key stakeholders are the ones who have a say in the project					

Please comment on any other issues regarding planning for M&E on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

.....

### **Capacity building for Monitoring and Evaluation on sustainability of water sanitation and hygiene in Baidoa district Bay region, Somalia**

This section seeks to obtain information on capacity building for M&E and sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. Please rate your level of agreement with the following statements. Kindly use the Likert scale of 1-5 where 1 is strongly disagree and 5 is strongly agree provided below to TICK as appropriate.

<b>Statements (capacity building for monitoring and evaluation process )</b>	<b>SD(1)</b>	<b>D(2)</b>	<b>N(3)</b>	<b>A(4)</b>	<b>SA(5)</b>
<b>Training of staff</b>					
1. There is training of all stakeholders and the staff members who are implementing the project					
2. Implementing team of the project are knowledgeable and well acquitted with the required skills					
<b>Formulation of project ideas</b>					
1. Ideas were planned and formulated during the onset of the project					

2. Formulation of ideas helped the staff and the team to organize for WASH activities.					
<b>Sharing of learnt skills</b>					
1. There is sharing of learnt skills during meetings so as to encourage one another					
2. No prior arrangements for the trainings to the locals done by the implementing team.					
<b>Knowledge acquisition</b>					
1. Most stakeholders have what it takes in construction of the required facilities in the site					
2. Maintenance of the facilities is carried out by the technical experts in the field					

Please comment on any other issues regarding planning for M&E on sustainability of water sanitation and hygiene in Baidoa district, Bay region Somalia. ....

**Data collection for Monitoring and Evaluation on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

This section seeks to obtain information on data collection for M&E on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. Please rate your level of agreement with the following statements. Kindly use the Likert scale of 1-5 where 1 is strongly disagree and 5 is strongly agree provided below to TICK as appropriate.

<b>Statements (Data collection for monitoring and evaluation process)</b>	<b>SD(1)</b>	<b>D(2)</b>	<b>N(3)</b>	<b>A(4)</b>	<b>SA(5)</b>
<b>Development of indicators</b>					
1. Indicators are formulated immediately the objectives are set					
2. They are set according to the objectives and goals of the project					
<b>Developing data tools</b>					



1. There are enough tools to use when collecting data for future use					
2. Proper and well prepared questionnaires were formulate to collect primary data from the respondents					
<b>Frequency of data collection</b>					
1. Information collected is shared on daily basis to the data base					
2. Data is stored in the data base for future use in decision making					
<b>Coding of data</b>					
1. Data collected is verified and coded as per the set objectives of the projects					
2. Data is analyzed and the shared to the respective areas for immediate use					

Please comment on any other issues regarding data collection for M&E on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.  
 .....

### **Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia**

This section seeks to obtain information on utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia. Please rate your level of agreement with the following statements. Kindly use the Likert scale of 1-5 where 1 is strongly disagree and 5 is strongly agree provided below to TICK as appropriate.

<b>Statements (Utilization of Monitoring and Evaluation results on sustainability of water sanitation and hygiene projects)</b>	<b>SD(1)</b>	<b>D(2)</b>	<b>N(3)</b>	<b>A(4)</b>	<b>SA(5)</b>
<b>Capturing of results why different fonts?</b>					
1. There are channels formulated on how to receive shared information to every participant					

2. Communication officers makes sure that every stakeholder receives the information in the right time					
<b>Dissemination of results</b>					
1. Results disseminated as per the plan of the projects					
2. Dash boards are used to capture and disseminate the information collected to all the entities concerned					
<b>Interpretation of results</b>					
1. After the data has been verified and analyzed it is then explained to all the entities involved					
2. Many people do not have the knowledge of interpreting data information in the project					
<b>Coding of data</b>					
1. Data collected is verified and coded as per the set objectives of the projects					
2. Data is analyzed and the shared to the respective areas for immediate use					

1. After the data has been verified and analyzed it is then explained to all the entities involved
2. Many people do not have the knowledge of interpreting data information in the project

#### **Usage of information shared**

1. Collected information is used for making timely corrective decisions
2. Major and minor changes are made after information is shared

Please comment on any other issues regarding utilization of monitoring and evaluation results on sustainability of water sanitation and hygiene projects in Baidoa district Bay region, Somalia.

.....

**THANK YOU FOR PARTICIPATING**

### **Appendix III: Interview guide**

The purpose for conducting interview is to gather information on project planning for monitoring and evaluation, capacity building for monitoring and evaluation, data collection for monitoring and evaluation and utilization of monitoring and evaluation results on sustainability of water sanitation and hygiene projects in Bay region Baidoa district, Somalia. Information given will be handled with anonymity and also will be deployed for education reasons. Your accuracy and honesty in answering the research questions is highly treasured and valued.

1. What role does planning monitoring and evaluation play sustainability of water sanitation and hygiene projects?
2. How does the project manager ensure planning for monitoring and evaluation WASH projects?
3. How is Planning useful in sustainability of water sanitation and hygiene projects?
4. What is the effect of Community participation on sustainability of water sanitation and hygiene projects?
5. How does project manager ensure community participation on sustainability of water sanitation and hygiene projects?
6. What is the effect of capacity building on sustainability of water sanitation and hygiene projects?
7. How does the project implementers ensure data collection has been done well as per the objectives of the projects?
8. How does data collection for monitoring and evaluation influence sustainability of water sanitation and hygiene projects?
9. Which measures has the project managers put to ensure utilization of results has influenced sustainability of water sanitation and hygiene projects?
10. How is utilization of monitoring and evaluation results useful in sustainability of water sanitation and hygiene projects?

Appendix V: Map

