

DETERMINANTS OF TIMELY COMPLETION OF WATER PROJECTS IN MARGINALIZED REGIONS IN KENYA: A CASE OF TANA RIVER COUNTY

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Abstract: According to a report by the World Health Organization (WHO) and the United Nations Children's Fund (2017), there are around 2.1 billion people who are still struggling to acquire clean and safe drinking water. The Sustainable development goal six aims at ensuring availability and sustainable management of water and sanitation for all. Target 6.1 further explains that by the year 2030, it should achieve universal and equitable access to safe and affordable water for all. The purpose of this study is to identify the determinants of timely completion of water projects in Tana River County, Kenya. The researcher was guided by the following objectives: First, to determine how availability of finances influences timely completion of water projects in Tana River County. Secondly to establish how monitoring process influences timely completion of water projects in Tana River County and finally to assess how community participation influences timely completion of water projects in Tana River County. The target population of this study is 240. The population includes officers of the county department of water, contractors and end users. The study will employ mixed methods of research which are generally intended to complement one information source with another, or triangulate on an issues by utilizing different data sources to approach the research problem from different points of view. Data was gathered using questionnaires and interviews, as well as, other secondary sources. To enhance reliability of the instruments, pilot study was conducted. Data from the questionnaires was coded, tabulated and entered in the Statistical Package for Social Sciences (SPSS) computer software for windows program to enable analysis. Quantitative data was analysed by means of various statistics as well as measures of central tendency and dispersion. Frequency and percentages statistics were used. Chi square was used to test the hypotheses. Confidentiality of the information that respondents provided was upheld. The response rate was 60%. From the findings, it is evident that the alternative hypothesis which stated that there is significant relationship between availability of finances and timely completion of water projects was accepted. This means there is high collaboration between finances and timely completion of projects. The study revealed there is a significant relationship between monitoring process and timely completion of projects. The alternate hypothesis for this was accepted. Lastly, the alternative hypothesis that stated that there is significant relationship between community participation and timely completion of water supply projects was accepted. This means that community should be involved in infrastructure projects in decision making in order to take ownership of the projects.

Keywords: Timely completion; Financing; Monitoring; Stakeholder; infrastructure projects.

1. INTRODUCTION

It is fundamental to supply sustainable, safe and adequate water, sanitation and hygiene services to ensure productivity, healthy and dignified life. However, according to a report by the World Health Organization (WHO) and the United Nations Children's Fund (2017), there are around 2.1 billion people worldwide who are still struggling to acquire clean and safe drinking water. The SDG's declaration aims at ensuring availability and sustainable management of water and sanitation for all. Target 6.1 further explains that by the year 2030, it should achieve universal and equitable access to safe and affordable water for all.

The Millennium development goal (MDG) period elapsed in 2015, The target of Millennium development goal of reducing the number of people without sustainable access to safe drinking water and basic sanitation by half was declared to have been met for drinking water while missed for sanitation (Cumming,2017). According to WHO and UNICEF (2017) report, it was estimated that 37 of 49 (75%) of Asia-Pacific counties, suffer from low water levels access hence they are currently facing water crisis. Consequently, water borne diseases caused by consumption of unsafe water carries 10% of the total burden of the disease, and thus causing 3.6 lives every year (Pruss-Ustum et al., 2011). Projects are implemented so as to solve a particular problem for socio-economic welfare of the society. In regard to this, when the project is successfully completed then it leads to wealth creation; socio-economic growth and improved standards of living (Kumar, 2015).

Delay in the completion of infrastructure projects is the most common problem in the construction industry and it is a very common global phenomenon, Completing infrastructure projects late has risky and undesirable effects on the overall success of the project in terms of project contract time, cost, quality and safety (Sunjka and Jacobs, 2014). These effects are not limited to the construction industry, but they affect the economy of a country. According to (Mbamali, 2005), for a project to be considered successful, it has to be within the budget, be of acceptable quality and be delivered on time. Even though the construction developers are the one to determine the order of events required to finish a project, the project managers are accountable for the overall success of projects. It is therefore important for Project managers to design strategies for controlling and directing resources in a well-coordinated and timely design in order to deliver a project within the set time.

The WHO and UNICEF (2017) estimate that there are 2.1 billion or 3 out of 10 people worldwide who lack access to safe, clean and readily available water at home and 4.5 billion or 6 out of 10 people, lack proper sanitation facilities. 844 million people of the 2.1 billion do not have access to basic drinking water services. This is inclusive of 263 million people who must spend more than 30 minutes each trip to the nearby water source to fetch water outside their homes and in addition, there are 159 million who still use untreated water for drinking that is obtained from surface water sources like lakes and streams. The WHO and UNICEF (2017) report further explains that in as much as billions of people have gained access to basic drinking water and sanitation by 2000, these services do not necessarily provide safe water and sanitation. Regarding this, it is therefore a top global priority to provide access to clean, safe and affordable water.

Africa is the continent that is facing the most challenge in achieving the SDG target of achieving universal and equitable access to safe and affordable water for all by 2030. Sub-Saharan Africa was rated as among the lowest in the levels of access to safe and clean drinking water and proper sanitation services compared to other regions in the world with 32% of the entire population lacking access to an improved water source at the end of the MDG, approximately 102 million people are using surface water and 695 million people are using unimproved facilities (Cumming, 2017).

It further explains that proper services are lacking because of systems fail, as well as the strain of fast growing population in the residences where such infrastructure exist. Recently, it is projected that if the current speed of expansion is not improved, then Sub-Saharan Africa would be able to achieve water services by 2040. To unravel the prospective of water sector in Africa, there should be increase in the proficiency of the existing systems for instance by reinforcing adequate enactment of organized reporting on planned, ongoing and realized projects as well as professional project planning. Many governments in the 1990s sought to regulate, institutionalize reforms and implement policies of urban water supply and sanitation (WSS) services, so as to improve the provision of water services. At that time, reforms were desperately needed; piped water and sanitation services were not accessed by millions of people; and for millions of others, these services were wanting. Fast urban growth, deteriorating infrastructure and huge investment requirements coexisted with scarce financial resources. The reforms of water sector emphasize the need for beneficiaries' access to adequate, affordable, efficient and sustainable services (Hukka and Katko, 2012). A good number of African Countries have consequently reformed their (WSS) systems to provide better services to their people in the past two decades.

Kenya's long-term objective is to ensure that all its citizens have access to transferrable water and ensure that there is water availability in enough qualities for home use and other economic activities like irrigation, agriculture and industrial use. Additionally, in (Kenya Vision 2030) the government acknowledges that water has to be made accessible, available and affordable to the needy so as to achieve the Sustainable Development Goals (SDGs) by meeting the reduction of poverty strategies. This is because all the Sustainable Development Goals are directly and/or indirectly interconnected to

water access. Making sure that there is availability of water access to all, will hasten the achievement of the UN target of vision 2030 by ensuring the availability and sustainable management of water and sanitation for all by 2030 (African Development Bank, 2013).

Kenya is categorized as a chronically water scarce country, it has one of the lowest replenishment rates of 647 m³ which is below the 1000m³ per capita per annum recommended by the United Nations, approximately 56% of the Kenyan population has access to clean and safe drinking water (UNICEF, 2017). Kenya has taken up the UN challenge by envisioning availability of accessible water to all citizens by the year 2030 (Kenya Vision 2030). The Kenyan government has identified several initiatives and projects to be embarked on in the water sector so as to increase the National water coverage; this is to enable the long-term goal. Among the initiatives is the establishment of Water Service Boards (WSBs) that was established in 2002 by the water sector reforms and devolution of some of the functions of the ministry of water to county governments.

It is the responsibility of the County department of water (CDW) and Water Service Boards (WSBs) to plan and develop water and sewerage infrastructure to raise the coverage of water and sewerage in their jurisdiction areas. The main objective of this initiative is to reinforce the water sector to facilitate in the offering of better water and sanitation to all water consumers. It is therefore the responsibility of the CDW and WSB is to identify, design and timely implement water projects that contribute properly to the state's long-term objective that Kenyans have access to clean, adequate and portable water for both domestic and economic use. Sadly, the WSBs have not been able to effectively discharge their mandate because they have failed to submit to their regulator Water Service Regulatory Board (WASREB). As a result, there has been meagre impact of investments and unsatisfactorily low investment realization even after the rising budgetary allocation towards supply of water and sanitation infrastructure development (WASREB IMPACT Report, 2012). For instance, development budget increased to ksh.32.8 billion in 2010/11 from ksh.23.3 billion allocated in 2009/2010, accounting for 85% of the total budget allocated for that sector. Ksh.25.4 billion of the total budgets was allocated to water supply and sanitation (MWI, Annual Water Sector Review Report, 2012).

According to WASREB IMPACT report (2017), the performance of water services sector has stagnated for a period of over two years (2015/16 to 2016/17). The water services sector has three major objectives of improving water access, reducing losses and ensuring cost recovery. Unfortunately, there is no significant improvement in those three areas that has been recorded in the past previous years. The report indicates water utilities increased from 36% from the last report period of (2014/15 to 38% in the year 2016/17 that indicates a slight improvement in the utilities.

The government of Kenya has been making efforts toward extending safe water access by construction of new water supply infrastructure along with rehabilitation and extension of already existing ones. However, there is need for the government agencies on water infrastructure to understand the determinants of successful completion of water supply projects to ensure that the projects are completed within the quantified time frames. The focus of this study shall be limited to those factors that are involved in the implementation phase of the projects (Water Supply & Sanitation collaborative council, 2012). The implementation phase or construction phase is when project activities are executed, leading to the completion of project deliverables, therefore achieving the projects' objectives. Kezner, (2012) states that for the project's target to be achieved effectively, the contractor's capacity in construction management is paramount. Money in this stage is spent to finance the activities and time is consumed. Simultaneously, monitoring and control should be carried out to ensure that the project remains in progress.

2. RESEARCH PROBLEM

Among the challenges facing the developed countries is the delays in the completion of infrastructure development projects. The Kenyan government has invested a lot and continues to invest in infrastructure development projects, in the financial year 2016/17; the government of Kenya set aside 809.0 billion for development expenditure, of the amount 62.3 billion was set aside for water projects. In spite of how important infrastructure projects are, the large amount of money committed to it for the intended benefits are partly or never accomplished because of unsuccessful or delay in project completion (Sambasivan and Soon, 2013). As a result, this has negative outcome that leads to cost overruns, litigations, and disputes. On the other hand the project beneficiaries are deprived the benefits that would have enjoyed from timely completed projects.

International Journal of Novel Research in Humanity and Social Sciences

Vol. 5, Issue 4, pp: (273-289), Month: July - August 2018, Available at: www.noveltyjournals.com

Kenya has been categorized as water scarce country (Birongo and Quyen, 2011) and it is projected that, by year 2025, the consistent with capita water availability would have dropped to 235 M³ due to the increase in population. According to Water Supply and Sanitation Collaborative Council, (2012), one of the objectives of Third World Countries is to achieve sustainable water supply. In Tana River County, the river Tana has remained to be the most reliable and major source of water. There are currently over 67 water pans, 225 shallow wells and 21 boreholes altogether. Irregular and light rains make the pans not to receive adequate recharge and therefore some are always dry. According to the County Department of Water (CDW) report, 2017. In the year 2016 the following projects types were undertaken but some are still ongoing 14 new water pans, 14 Boreholes and 17 new pipelines (supply and distribution lines) were constructed by the county government and TAWASCO. Most of the projects earmarked for implementation in FYs 2015/2016 and 2016/2017 were not fully paid.

Delays in water projects in Tana River County are common occurrences. According to CDW report, (2016) between the years 2013 and 2015 achievement report: by the time the report was being compiled, 21 of 52 (40%) completed projects in the county were completed late while 27 of 52 (52%) of continuing projects were behind schedule, while 4 of 52 (8%) had not started. Lack of proper monitoring systems to inform progress of the ongoing projects, poor site supervision and management of projects and financial challenges and contract discrepancies are key contributing factors to this phenomenon (Annual Water Sector Review Report,2015). Studies such as (Makori,2015) factors influencing the timely completion of construction projects have shown that some factors contributing to delay in timely completion of projects are community participation, availability of funds, technical competence and regular supervision. Hence the study wanted to investigate how financing, monitoring and community participation influence the timely completion of water projects in Tana River.

3. OBJECTIVE OF THE STUDY

The purpose of this study was to identify the determinants of timely completion of water projects in Tana River County, Kenya.

3.1 Specific Objectives of the Study:

The study was guided by the following objectives:

- i. To determine how availability of financial resources influences timely completion of water projects in Tana River County.
- ii. To establish how monitoring process influences of timely completion of water projects in Tana River County.
- iii. To assess how community participation influences of timely completion of water projects in Tana River County.

4. RESEARCH HYPOTHESIS

This study tested the following hypothesis at 95% level of significance:

- i. H_0 : Financial resources do not influence the completion of water projects.
 H_1 : Financial resources significantly influence the timely completion of water projects.
- ii. H_0 : Monitoring process does not influence the completion of water projects
 H_1 : Monitoring process significantly influences the timely completion of water projects
- iii. H_0 : Community participation does not influence the completion of water projects
 H_1 : Community participation significantly influences the timely completion of water projects.

5. SIGNIFICANCE OF THE STUDY

The findings of this study may provide valuable insights to the development partners and the government at large on the factors that hinder the timely completion of projects and hence help to formulate strategies that will address these factors.

This study will also add to the university library, a resourceful piece of information that would help future researchers and academicians. This study may also be used as reference material on factors to be considered for successful implementation of water supply projects in Kenya.

6. REVIEW OF LITERATURE

6.1 Review of Literature:

6.1.1 Timely Completion of Projects:

According to the basic definition of (Kerzner & Harold, 2012), a project involves a limited budget, a specified set of performance and a defined time frame to its completion. The time allocated to complete the actual project, starting from the time the tender was awarded to the delivery of the project is known as the project contract time. The time frame of the project is fixed by allowing for the time needed to procure equipment for the construction, deployment of labour and capability. It is also fixed by predictable weather, flow of finances and the ability of the management to drive the project.

For a project to be called complete, its objectives and deliverables have to be achieved. This realized through the construction/implementation stage where project's activities are executed. In the project construction stage, it requires that resources and materials necessary for the activities are procured, the project performance capabilities are verified, and the project is produced (Kerzner and Harold, 2012). In the execution phase on the other hand, stresses that all project management disciplines be gathered together for a service or a product that meets the requirements of project deliverables and the consumers' needs is produced. To achieve water projects completion, it requires professional planning, implementation and monitoring of the projects. This would be accelerated by ensuring that the projects are completed within the allocated budget, time, scope and quality.

Studies have shown that there is problem in timely completion of projects. Soon and Sambasivan (2013) acknowledged that delays in completion of infrastructure projects is a global phenomenon. According to a study conducted by Assaf and Al-Hejji (2006) in Saudi Arabian construction industry, approximately 30% of constructed projects were completed within the scheduled time with between 10% to 30%-time overruns. Consequently, Munyeki (2014) concluded in his study that customers' satisfactions are not met when there are delays in delivering the projects. This is because the stipulated time to enjoy the benefits of the projects is interfered with. Therefore, the duration of contract places the clientele's expectation time.

6.1.2 Influence of Financial Resources on the Timely Completion of Projects:

According to Chiocha (2011), Project financing is a way of raising funds to finance an economically separable capital investment project, the investors primarily access the flow of cash from the project as the source of funds to service their loans and provide the return on investment. Matesehe (2013) defines project financing as financing a economic unit in which a lender is satisfied to access the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and the assets of the economic unit as the collateral for the loan. Financing of construction projects like roads, railway, port harbors and other infrastructure projects is therefore anticipated to be an economic investment. In an economy of a country, construction industry helps in the creation of wealth and employment opportunities Olatunji (2010). It helps to build and/or expand infrastructure that facilitates the service industry. This way it can spur economic growth across the different sectors of the economy. In the development of a country, the construction industry plays a vital role in transforming the aspirations and the needs of its people into reality by implementing various physical structures. According Godfrey (2012), the financing process which entails raising and maintenance of adequate funding for water facilities is of great importance for its sustainability. Insufficient allocation of funds is normally cited as the major setback.

Provision of adequate funds will enable the completion of a project within the stipulated time (Makori, 2016), Funds should be disbursed in a timely manner to ensure smooth execution of planned activities. According to (Nyabaga, 2017), A substantial number of development projects lack adequate funding to successfully sustain their project activities, the limited resources at the disposal of the project implementation team are channelled towards the actual implementation of the project activities without taking into account how the funds will sustain the project activity, Nyabaga further explains that Lack of enough funds constraint the timely completion of the overall project. According to (Ndungu, 2014), the level of financing of the activities of a development project influences its completion time, the project contract time will observed if the financial resources are timely and adequate. Ndungu further explains that financing is a significant forecaster of completion time of water projects and has a strong positive relationship with timely completion of water projects.

In the recent past, capital investment in water projects has been funded by public finance. Water Service Boards have been accessing funds from the treasury in form grants and loans to execute infrastructure investment in the recent past; capital investment in water projects has been funded by public finance. Water Service Boards have been accessing funds from the treasury in form grants and loans to execute infrastructure investment projects. However, it is the responsibility of the public sector to provide public services. There is a challenge in availing financial resources that meets the water services infrastructure because of the competitions from various economic sectors (Wasreb Urban Water Financing Report, 2011). Furthermore, the human right to access clean water and sanitation is recognized by the Kenyan constitution thereby impacting the organization, development and management of water services in the country. Due to this, partnership with private sectors has been made critical in plugging the financial gap for infrastructure development projects. As indicated by WASREB IMPACT Report 2014, the greatest shortcoming of Water Service Boards is the lack of sufficient investment plans (to pre-attainability quality), for further development through financial plans and feasibility studies. The outcome has been low an incentive for cash and unacceptably low realization in investments.

Similar studies have been conducted in regard to financial availability and timely completion of projects. Olatunji (2010) asserted that cost overruns are caused by financial delays which may lead to increase in project cost. Generally, lack of finance to complete a project or delays in payments to deliver projects' activities by clients or projects' owners may lead to significant problems. According to a study done by Hussin and Omran (2014), nearly 70% of the housing construction projects abandoned in Malaysia were caused by financial problems of the developers. In addition, Sambasivan and Soon (2013) are in agreement that the financial position of clients affects the completion time of projects. Government funded projects take longer in payments thereby negatively affecting timely completion of projects.

Moreover, Olatunji (2010) concluded by stating that whenever there is slow payments for the projects' activities by project owners, then the contractor may start to commit fewer project's resources and may even resist work if there is cash flow problem. In Kenya, the water sector should continue to make efforts in sourcing for financial support from development partners and develop to its potential the commercial financing. To achieve this, there is the need to have adequate financial planning and sound management practices. There is urgent need to have a conclusive sector investment plan that indicates the necessary investment that is required to achieve the progressive realization of the right to access clean and safe water based on the demands that are priority.

According to Mutai (2017), funds set aside by county governments to finance infrastructure projects determine the timely completion of those projects because a project cannot be executed without resources. Mutai (2017) further explains that funds are disbursed late thereby leading to a delay or non-completion of projects. County governments have limited resources and difficult to access funds as they rely on the national government for funds and their revenue collections are very low. Mutai recommends that an economic unit should ensure that funds are available on reliable estimates before the commencement of an infrastructure project.

According to Munyoki (2014), adequate funds should be set aside before initiation of a project to ensure that projects have adequate funds, insufficient funds may cause the project to stall, and the budget should include a contingency of 15% of the project cost. At any given period, the project should have adequate funds. Munyoki (2014) further explains that contractors should be thoroughly vetted to ascertain their financial capability, if they show a sign of cash flow problems then they should not be awarded the tender, Munyoki (2014) further explains that contractors should cushion the client from some risks through insurance covers and security deposits.

6.1.3 Influence of Monitoring on the timely completion of Projects:

Project monitoring is the on-going assessment of the project being implemented in relation to design schedule, infrastructure and the use of inputs and services by project beneficiaries. Monitoring projects enables the project manager to determine what is happening in the project, what may likely happen in the future. One may be able to tell whether previous performance has the probability to continue or no change in the project management is required. Time, cost and schedule are the three metrics that project team members try to keep in track. Monitoring therefore helps in comparing the planned performance against the actual performance and take corrective and preventive measures on the findings. When there is late correction, then it may lead to time and cost overrun for the project (Narbaev, 2013). In a study done by Wambugu (2013), stated that concluded that inadequate monitoring in infrastructure projects led to redoing of work in

cases of poor workmanship and thereby delaying the time of completing a project. Also, inadequate monitoring may cause cost overrun of the project thereby resulting to abandonment of the projects.

Routine monitoring improves the overall efficiency of project planning, management and implementation. Monitoring plays a crucial role in ensuring projects are executed to their entirety in a timely manner, it is important to set aside enough financial and human resource for during the project planning phase (Makori, 2016). Supervision should be enhanced and agreed on a practical arrangement to support the relevant project activities, the skills level of the project supervision team should be enhanced to enable proper monitoring and this will ensure timely completion of the project being implemented. According to (Makori, 2016), monitoring is a crucial in the implementation of a project.

According to Ndungu (2014), the ability of the monitoring team in Kiambu water service board to supervise water projects was very poor, effective monitoring partially depends on the adequacy of supervisory personnel and timely decision making and subsequent action, the ineffectiveness of project supervision team is the main cause of delay of water projects in Kiambu, Ndungu (2014) recommends making sufficient preparations for forecasting mechanisms to be incorporated in the execution plan to facilitate early identification of any potential threat so that proper mitigation actions are taken to reduce their negative impact on the timely completion of water projects

Other researches were done on monitoring projects. A research done Gwadoya, (2012) on fishpond projects, it revealed that there was lack of skilled manpower, the projects were seriously underfunded and there some of projects material resources were being mishandled. The study recommends that monitoring of government projects should be effective to facilitate smooth implementation of projects that will maximize the benefits to the government projects.

On the other hand, a study done by Adan (2012) on community-based projects in Mogadishu Somalia, he noted that monitoring of those projects revealed that there was need for increased resources such as financial and skilled human resources that would be required in the process of planning and implementing and monitoring the community based projects. When there is lack of proper monitoring, quality of the product is compromised, Olatunji (2012). Besides, Chrism and Armstrong (2013) also agrees that to achieve quality, it is important to have efficient monitoring and good workmanship standards.

According to Munyoki (2014), adequate preparations should be done as well as proper monitoring of construction projects to ensure timely completion. The project team should recruit competent and experienced project supervisors, proper monitoring plans and good supervision should be to ensure successful project delivery. The researcher of this study therefore intended to establish to what extent does monitoring process influence of the on the completion time of water projects.

6.1.4 Influence of Community Participation on Timely Completion of Projects:

Community based water management framework was developed in the 1980's. It rose as a reaction to the global emergency of water shortage and decreasing water resources. Water management frameworks that adopted a participatory approach vested in community to provide and safeguard their own water supply facilities. In this regard, a community-based water management structure would be worried about the community's inclusion in the designing, planning, implementation and the sustainability of water projects. These offered greater chances of functionality, efficiency, effectiveness, improvement and sustainability of livelihoods of the projects.

Stakeholder participation in community development in Kenya has been accentuated in the Constitution and other enactment including the Water Act (2016). These have given a platform to individuals to participate in public water projects that intend to enhance in the management and delivery of services. According to Mutai (2017), stakeholders should be incorporated and consulted from the commencement of project identification, planning, implementation and in the monitoring process. The leadership of counties ought to ensure that the key stakeholders are incorporated in the programs of the county for inclusivity and ownership. According to Munyoki (2014), stakeholders of a project should be sensitized on their role in project planning and implementation, they should be aware that lack of proper participation will delay the contract duration and definitely increase the project costs. Munyoki (2014) advocates for regular stakeholder engagement sessions in the life period of the project, this will ensure all parties are cognizant of their roles in ensuring the project contract does not take longer than intended time because of the inefficiency of a project player.

According to Makori (2016) the extent to which a community participates in the implementation of a project determines the level of partnership and control over the critical resources allocated this ensures that the project is completed in within the stipulated time, Community participation enhances the ownership and sustainability of the project. Makori further explains that community participation ensures that the ideas and perspective of community members are taken into consideration in the implementation of the project; participation improves the project quality, enhances credibility and provides better solutions to the socio-economic problem that the project aims to solve.

The top-down-approach has been related with numerous government schemes frequently implied government agency involved in giving professional leadership services and projects without involving the community beneficiaries, (Ademola and Tackie-ofosu, 2013). The top-down model is organized around the utilization of professional leadership given by external resources that plan, execute, and assess development. Down-Top approach on the other hand has been related with stronger systems of involvement, which include control over choices, needs, plans, and implementation. In this regard, it leads to socio-political transformation, personal empowerment and economic development.

According to Nyabaga (2017), the level to which the different stakeholders are involved determines the accuracy of decisions made, it improves ownership and sustainability which is a critical element in the project implementation process, Nyabaga (2017) recommends that the relevant stakeholders should be invited to take part in the identification of the project scope and planning, participation improves the quality of project management, enhances the accuracy of information, enhances the credibility of the project outcomes and improves the relationship with the stakeholders this enables timely completion of projects.

Bright (2013) argues that it is crucial for project managers to identify the stakeholders of a project and define their needs and expectations of the project, According to the World Bank(2013) , proper partnership with stakeholders will ensure the completion of the project within the traditional constraints of time, budget and scope. A stakeholder is anyone that has interest in the success or failure of the project, defining the stakeholders is a vital part of project implementation and it starts by cultivating a healthy relationship with the stakeholders. Stakeholders assist the project team to decide on issues from the commencement, during planning and at the implementation phase of the project, this ensures that the project is completed within the stipulated time, therefore stakeholders should understand and appreciate how the project operates including the scope of the project, milestones and the goals. Quite a number of rural developments projects in developing countries have failed to deliver services that benefit the community over a period of time, due to lack of understanding of the importance of community involvement and sustainability (Toyobo and Muili 2013). Muhele (2013) is in an agreement that community participation influences the implementation of water projects and sanitation projects especially in the informal settlements. In her study on the contributing factors influencing sanitation practices in Kibera slums in Nairobi-Kenya. She has shown that the slum community members have the power to decide which projects they would want to be implemented, where the location of the projects shall be, at what time, who would be involved as well as decide on who shall be the first beneficiaries of the projects.

On the other hand, Ahkbar et al, (2017) also noted that water projects in the informal sectors have declining due to borrowing ideas from developing countries by involving expert strategies thereby ignoring the local community who are the final beneficiaries of such projects. This has led to cost and time overruns eventually. For instance, Habitat International in Dhakar Bangladesh failed miserably to implement the pro-poor water and sanitation project that was aimed at serving nearly 30% of the households in the informal settlement by 2015. One of the reasons why it failed is the lack of involving the community in decision making pertaining the project. Later the community spread propaganda in the slums that the projects was led by UK and USA experts and their objective was to contaminate the water by inducing natural family planning for the for the slum residents. This led to the local opposing the projects by objecting the installation of water pumps, destruction of already implemented projects, vandalizing the materials and already laid down structures as well as demonstrating. The level community participation increases community capacity and ownership and therefore increases the sustainability of the projects (Munger et al, 2011).

6.2.1 Administration Theory of Management:

This study was based on Fayol's administration theory of management. This theory mainly touches on the functions of management. It is important to have a solid management plan in order to complete projects on time. According to Fayol, management is the coordination of all resources through the process of planning, organizing, coordinating, controlling and directing so as to achieve a given objective. Based on these management roles, the theory is therefore concerned on how

an organization should be managed so as to make the best of its resources to attain its goals. The five Fayol's principles relate in project management in a way to forecast and plan, to direct, to coordinate and to control. Planning is the act of anticipating the future and acting accordingly, This requires an active participation of the entire organization, Planning takes into consideration the available resources both human and non-human(Finances), It involves formulation of the budget for the different projects to be implemented, the budget should be adequate to ensure timely completion of the anticipated projects. Organizing is making available of both human and non-human resources required for the planned activities, Funds allocated in the budget should be made available to ensure smooth implementation of the project activities as per the disbursement schedule in the work plan, this will enable timely completion of the projects being implemented. Controlling is making sure that everything happens according to the established rule and expressed command, by confirming whether everything is being implemented as per the original plan, It assists project supervisors to know whether the activities are being implemented in conformity with the plan. Controlling is executed in a four-step process: Establish performance standards based on the objectives of the institution, measure and report on actual performance, compare the results with performance and standards and lastly take corrective measures if deviations exist. Directing is the maintaining of activities and momentum among workers. Coordinating is the harmonizing of worker's efforts.

This theory can be applied to the factors influencing the timely completion of water projects, a lapse in the implementation of any of the functions of management will cause a delay in the completion of the project therefore it is the responsibility of the team to ensure the functions of management are adhered to, this will enable timely completion of water projects.

6.2.2 Social Development Theory:

The second theory is the social development theory which emphasizes on the concept of participation development that must be adopted in rural development. This theory was endorsed in Dublin Conference on Water and the Environment in 1992, as a set of doctrines focusing on water managed at the community level and the demand should be end user driven (Katz and Sara, 2010). Under this approach, rural water supply projects adopted transparent and clear rules that allow the consumers to select location, service and technology of facility that best fit their needs, with a clear comprehension of the responsibilities and costs that bears this option.

The theory outlines community participation as a way of ensuring sustainability of projects. It instils a sense of ownership in the project thereby enhancing the efficiency and effectiveness of the investment. Community participation is a key element in the implementation of water projects. It determines the successful completion of water projects.

6.3 Conceptual Framework:

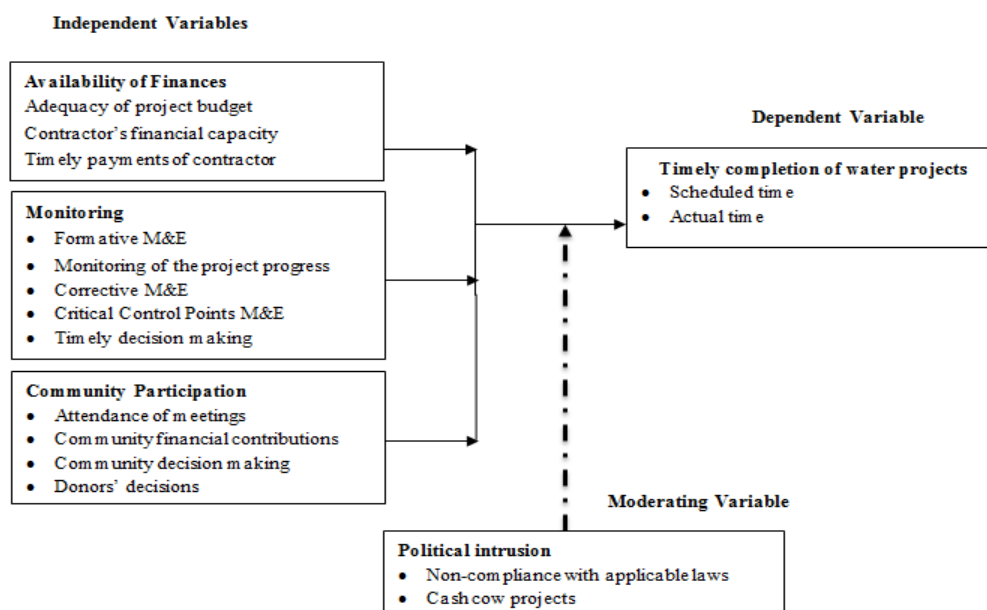


Figure 1: Conceptual Framework

7. RESEARCH METHODOLOGY

7.1 Research Design:

Research design ensures that the researcher answers the research questions in unambiguous way from the evidence obtained. This study adopted a descriptive method, the method was adopted because the participants are observed in a natural and unchanged environment and the data collection allows for the acquisition of detailed information that may be either quantitative or qualitative in nature. It employed mixed method of research designs to enable triangulation on issues by using different data collection sources to approach the research problem at different angles.

7.2 Target Population:

The research was conducted in Tana River sub-county. The population consisted of both ongoing and completed water supply projects undertaken in the County for the past five years. The target population of this study was 240. The population included officers of the county department of water (engineers, procurement officers, accountants, technicians, chief officer and County Executive Committee (CEC) Member), contractors and end users as shown in table below:

Table 1: Target Population

Respondents	Population size	Percentage
County water department officers	20	8
Contractors	20	8
End users	200	84
Total	240	100

Source (County department of Water and Natural Resources Management, 2018).

7.3 Sample Size and Sampling Procedures:

A sample size is a small group obtained from a reachable population. In this study, a sample of 148 individuals was involved in the study (Mugenda and Mugenda, 2003).

Table 2: Respondents for Data Collection

Respondents	Population size	Sample size	Percentage
County water department officers	20	10	50%
Contractors	20	10	50%
End users	200	128	64%
Total	N=240	s=148	

Sampling is the procedure of choosing persons for a study in a way that they represent the large population where they are selected from (Mugenda and Mugenda, 2003). A table of (Krejcie and Morgan of 1970) was used to determine the sample the individuals with a confidence level of 95% and a margin error of 5%. Simple random sampling table was used in this study to determine the individuals to be involved.

7.4 Data Collection Instruments:

This research study relied on both primary and secondary data collection. The tools that were used to conduct the study include questionnaires and interview. The questionnaires survey instrument comprised of open-ended and close-ended questions that was used to get information on completion time of water projects and the determinants that influence their completion time. On the other hand, the interview was helpful in clarifying issues that were not captured satisfactorily by the respondents in the questionnaire tool.

7.5 Data Collection Procedure:

The researcher began after obtaining permission from the county department of water and energy. The researcher explained to the respondents the aim and the purpose of the research and assures them of confidentiality all through the process. The researcher collected both primary and secondary data. To obtain primary data, the researcher administered questionnaires to 20 the water department officers and the interview schedule was administered to the water users. The findings were recorded for interpretation and analysis.

7.6 Data Processing, Analysis and Presentation:

Kothari and Gang, (2014) argue that data collected must be processed, analyzed and presented in accordance with the outlines laid down for the purpose at the time of developing the research plan. Data analysis involves the transformation of data into meaningful information for decision making. It will involve editing, error correction, rectification of omission and finally putting together or consolidating information gathered. The collected data will be analyzed quantitatively and qualitatively. Descriptive and inferential statistics will be done using SPSS version 23 and specifically multiple regression model will be applied. Set of data will be described using percentage, mean standard deviation and coefficient of variation and presented using tables, charts and graphs. Fraenkel and Wallen, (2014) argue that regression is the working out of a statistical relationship between one or more variables.

8. RESEARCH FINDING AND DATA ANALYSIS

8.1 Relationship among variables:

This section contains a description of the responses of the questionnaires and the interview and how they relate to the variables of the study.

8.1.1 Timely Completion of Projects:

This study aimed at establishing the completion and time schedule of the ongoing and complete projects respectively.

8.1.2 Status of Projects:

The respondents (CDW officials and Contractors) were required to indicate whether the projects were on-going it completed. The table below indicates the status of the projects.

Table 3: Current Status of Projects

Status of the projects	Frequency	Percent
Complete	2	15.38
On-going	11	84.6
Total	13	100.0

Table 3 indicates that most of the projects are still on-going with a representation of 84.62% while only 15.38 % were completed.

8.1.3 Completion Timeliness of Projects:

Of the completed projects, the respondents were asked further to indicate whether they were completed as per the initial time schedule or not. The table below shows their responses.

Table 4: Project Completion as Per Initial Time Schedule

Timely completion of Completed project	Frequency	Percent
Completed In time	0	0
Completed Late	2	100
Total	2	100.0

Table 4 shows that all the completed projects were not completed as per the initial time schedule.

Table 5: On-Going Projects Schedule Status

Project (ongoing) was on schedule	Frequency	Percent
Yes	2	18.18
No	9	81.82
Total	11	100.0

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The results as per table 5, it indicates that most ongoing projects were behind schedule. From the table, it shows that only 2 (18.18%) of 13 projects were on schedule whereas 9 (81.82%) are behind schedule. It is therefore most likely that those ongoing projects would be completed late since they are behind schedule.

8.2 Influence of Financial Resources on Timely Completion of Water Projects:

The first objective of the study was to determine how availability of finances influences timely completion of water projects. The results were as follows:

8.2.1 Adequacy of the Projects' Budgets and Timely Completion of Water Projects:

The respondents (CDW officers and Contractors) were asked to indicate on the project budgets whether were adequate or not.

Table 6: Adequacy of Project Budgets

Budget Adequate	Frequency	Percent
Yes	13	100
No	0	0
Total	13	100.0

The results indicated that all the water projects had adequate budgets. This was shown by 100% of the respondents.

8.2.2 Timeliness of Payments of Contractors' Certificate

The respondents were asked to indicate whether payments of contractors' certificate were made on time. When contractors' certificates are paid on time, it enables them to have funds to finance construction activities within the required time frame.

Table 7: Payments of Contractors' Certificates

Payments of contractors' certificates were made on time	Frequency	Percent
Always	0	0
Often	2	15.38
At times	4	30.77
Rarely	7	53.85
Total	13	100.0

The results in table 7 shows that the 0% of the respondents indicated that payments of contractors were always made on time while 84.62% of the respondents indicated that payments of contractors' certificates were at times or rarely made on time although 100% indicated that the projects budget were adequate. There is a high possibility that the delays in project completion 81.82% is caused by the delays in making payments to the contractor. The projects clients will therefore have to make efforts to pay the contractors on time so as to enable them to execute the projects construction activities as per the scheduled timelines.

8.3 Extent of Influence of Financial Resources on Timely Water projects Implementation:

Respondents were asked to indicate whether they agreed or disagreed with the following statements in relation to financial resources and the completion of water projects in the county. On the scale of rating between 1 -5, 1 was equated to strongly disagree, 2 equated to disagree, 3 equated to neutral, 4 equated to agree and 5 equated to strongly agree.

Table 8: Extent of Financial Resources Influence on Water Projects Completion

	Mean	Standard deviation
Timely completion of water projects in the county is significantly influenced by adequacy of project budget	4.51	0.762
Timely completion of water projects in the county is significantly influenced by contractor's financial capacity	4.58	0.991
Timely completion of water projects in the county is significantly influenced by timely payments of contractor	4.66	0.886

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Table 8 results indicate that on average, majority of the respondents (M=4.51, STD=0.762) strongly agreed with the idea that timely completion of water projects in the county is significantly influenced by adequacy of project budget. Also, majority of the respondents (M=4.58, STD=0.991) strongly agreed with the idea that timely completion of water projects in the county is significantly influenced by contractor’s financial capacity. Similarly, majority of the respondents (M=4.66, STD=0.886) strongly agreed that timely completion of water projects in the county is significantly influenced by timely payments of contractor.

Table 9 Testing the First Hypothesis by Use of Chi-Square

Stating the hypothesis at 95% significance level:

H_0 ; Financial resources do not influence the completion of water projects.

H_1 ; Financial resources significantly influence the timely completion of water projects.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.75 ^a	4	.012
Likelihood Ratio	35.02	4	.022
Linear-by-Linear Association	.037	1	.786
N of Valid Cases	13		

The calculated chi-square=14.75

$$\chi^2_c = 14.75 > \chi^2_{0.05} = 9.488 \text{ at 4 degrees of freedom and 0.05 level of confidence.}$$

Since the calculated chi-square value of 14.75 is greater than the critical chi-square value at 0.05 level of confidence, the alternative hypothesis is accepted. Therefore, financial resources significantly influence the timely completion of water projects.

8.4 Influence of Monitoring Process on Timely Completion of Water Projects:

The second objective of the study was to examine how monitoring process influences the timely completion of water projects. The researcher sought to get a general view of the monitoring process.

Table 10: Linkert Scale Rating of Monitoring Process and Timely Completion Of Water Projects.

	Mean	Std dev
Monitoring has influence on completion time/schedule of the project	4.11	0.912
Timely completion of water projects in the county is significantly influenced by formative projects monitoring	3.98	0.569
Timely completion of water projects in the county is significantly influenced by continuous projects monitoring	4.56	0.871
Timely completion of water projects in the county is significantly influenced by corrective projects monitoring and evaluation	4.33	0.768
Timely completion of water projects in the county is significantly influenced by critical control points projects monitoring	4.57	0.931
Timely completion of water projects in the county is significantly influenced by timely projects decision making	4.77	0.987

The findings from table 10 indicate that on an average trend, majority of the respondents agreed with the idea that timely completion of water projects in the county is influenced by monitoring. For example, majority of the respondents (m=4.11, STD=0.912) argued that monitoring has influence on completion time/schedule of the project. Also, majority of the respondents agreed that timely completion of water projects in the county is significantly influenced by: formative projects monitoring (m=3.98, STD=0.569); continuous projects monitoring (m= 4.56, STD=0.871); corrective projects monitoring and evaluation (m=4.33, STD=0.768); critical control points projects monitoring (m=4.57, STD=0.931); and timely projects decision making (m=4.77, STD=0.987).

Table 11: Second Hypothesis Testing by Chi-Square Test on Monitoring Process

Stating the hypothesis at 95% significance level:

H_0 ; Monitoring process does not influence the completion of water projects

H_1 ; Monitoring process significantly influences the timely completion of water projects

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.11 ^a	4	.011
Likelihood Ratio	21.02	4	.021
Linear-by-Linear Association	.021	1	.821
N of Valid Cases	13		

The calculated chi-square=12.11

$\chi^2_c = 12.11 > \chi^2_{\alpha, 0.05} = 9.488$ at 4 degrees of freedom and 0.05 level of confidence.

Since the calculated chi-square value of 12.11 is greater than the critical chi-square value at 0.05 level of confidence, the alternative hypothesis is accepted. Therefore, monitoring process significantly influences the timely completion of water projects

8.5 Influence of Community Participation on Timely Completion of Water Projects:

The third objective of the study was to assess how community participation influences timely completion of water projects in Tana River County. The researcher sought to get general view of the influence of monitoring process. The researcher used questionnaire for the county water department and used the interview schedule for the end users / consumers.

Table 12: Rating of Community Participation Indicators and Timely Completion Of Water Projects In Tana River.

	Mean	STD
Communities are actively involved in project planning and implementation of water projects	3.76	0.782
There is partnership between community and the donor during planning and implementation of water projects in this area	3.65	0.667
The opinions of the community are taken in planning, implementation and operation water project	3.58	0.867
Donors have absolute decision in every aspect of the project implementation and operation	4.01	0.892
The community has a sense of ownership of the water projects	3.76	0.792

From the findings in table 12 indicates that the majority of the respondents supported the idea that community participation influences the completion of water projects in time. For example, majority of the respondents agreed that communities are actively involved in project planning and implementation of water projects (m=3.76, STD=0.782). Also, majority of the respondents agreed that there is partnership between community and the donor during planning and implementation of water projects in the area (m=3.65, STD=0.667). Further, majority of the respondents agreed that: the opinions of the community are taken in planning, implementation and operation water project (m=3.58, STD=0.867); Donors have absolute decision in every aspect of the project implementation and operation (m=4.01, STD=0.892); and the community has a sense of ownership of the water projects (m=3.76, STD=0.792).

Table 13: Third Hypothesis Testing by use Of Chi-Square

Stating the hypothesis at 95% significance level:

H_0 ; Community participation does not influence the completion of water projects

H_1 ; Community participation significantly influences the timely completion of water projects.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.31 ^a	4	.002
Likelihood Ratio	31.02	4	.032
Linear-by-Linear Association	.031	1	.991
N of Valid Cases	70		

The calculated chi-square=32.31

$\chi^2_c = 32.31 > \chi^2_{0.05} = 9.488$ at 4 degrees of freedom and 0.05 level of confidence.

Since the calculated chi-square value of 32.31 is greater than the critical chi-square value at 0.05 level of confidence, the alternative hypothesis is accepted. Therefore, community participation significantly influences the timely completion of water projects.

9. DISCUSSION OF KEY FINDINGS

The study sought to establish how availability of finances influences timely completion of water projects in Tana River County. The study revealed that there is a great relationship between availability of finances and timely completion of water projects. The study found that 100% of the participants affirmed that timely payments of contactors' certificates influence the timely completion of projects and all the respondents affirmed that the water projects' budgets are adequate. However, 84.62% of the respondents indicated that payments of contractors' certificates were not paid on time and consequently, there was delay in completion of 8 out of 11 ongoing projects inferring delay in completion of water supply projects in Tana River County as a big challenge. These findings have the same opinion as Makori(2016) who acknowledged that Provision of adequate funds will enable the completion of a project within the stipulated time , and (Nyabaga, 2017) who stated that a substantial number of development projects lack adequate funding to successfully sustain their project activities, the limited resources at the disposal of the project implementation team are channelled towards the actual implementation of the project activities without taking into account how the funds will sustain the project activity. Therefore, it is crucial that clients and contractors release adequate funds at the right time so as to facilitate project activities to foster timely completion of projects.

The study also examined how monitoring process influences of timely completion of water projects in Tana River County. From most of the respondents (m=4.11, STD=0.912) argued that monitoring has influence on completion time/schedule of the project. Also, majority of the respondents agreed that timely completion of water projects in the county is significantly influenced by: formative projects monitoring (m=3.98, STD=0.569); continuous projects monitoring (m= 4.56, STD=0.871); corrective projects monitoring and evaluation (m=4.33, STD=0.768); critical control points projects monitoring (m=4.57, STD=0.931); and timely projects decision making (m=4.77, STD=0.987). The responses were subjected to chi square test and the results concluded that the monitoring process significantly influences the timely completion of water projects in Tana River, the findings concur with the literature of Munyoki (2014), Ndungu (2014) and Makori (2016)

Lastly, the study also determined how community participation influences of timely completion of water projects in Tana River County. majority of the respondents agreed that communities are actively involved in project planning and implementation of water projects (m=3.76, STD=0.782). Also, majority of the respondents agreed that there is partnership between community and the donor during planning and implementation of water projects in the area (m=3.65, STD=0.667). Further, majority of the respondents agreed that: the opinions of the community are taken in planning, implementation and operation water project (m=3.58, STD=0.867); Donors have absolute decision in every aspect of the project implementation and operation (m=4.01, STD=0.892); and the community has a sense of ownership of the water projects (m=3.76, STD=0.792), The responses were subjected to chi square test and the results concluded that the community participation significantly influences the timely completion of water projects in Tana River. These findings approve (Bright, 2013) statement that it is crucial for project managers to identify the stakeholders of a project and define their needs and expectations of the project this will ensure projects are completed within the scheduled time. The findings have the same opinion with the literature of Nyabaga (2017), Ademola (2013), Toyobo (2013) and Muhele (2013).

10. CONCLUSION AND RECOMMENDATION

The conclusion of the study is guided by the study objectives. From the findings, it is evidence that the alternative hypothesis which stated that there is significant relationship between availability of finances and timely completion of water projects was accepted. This means there is high collaboration between finances and timely completion of projects.

The study revealed there is a significant relationship between the monitoring process and timely completion of projects. The alternative hypothesis for this was rejected while the null hypothesis was accepted.

Lastly, the alternative hypothesis that stated that there is significant relationship between community participation and timely completion of water supply projects was accepted. This means that community should be involved in infrastructure projects in decision making to take ownership of the projects.

10.1 Recommendations:

From the research study findings, the researcher recommends that:

- i) To ensure timely completion of water projects, the clients should ensure that they release the financial resources on time to enable the contractor to execute the project within the scheduled time.
- ii) Monitoring is very important in projects since it helps the implementers in ensuring that the projects are on track to completion. Therefore, TAWASCO should come up with a comprehensive monitoring and reporting mechanisms to project implementers could adopt in supervising on-going projects.
- iii) The community should be empowered by equipping them with the right knowledge and skills to enable them take part in decision making to enhance ownership of the projects and hence sustainability of those projects.

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