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EFFECT OF BLENDED FINANCE APPROACHES ON THE EXTENT OF IMPLEMENTATION OF WATER AND SANITATION PROJECTS IN KENYA

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REG NO. MDF/102761/2017

A RESEARCH PROJECT SUBMITTED TO THE RESEARCH FACULTY IN THE STRATHMORE BUSINESS SCHOOL IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER'S IN DEVELOPMENT FINANCE OF STRATHMORE UNIVERSITY

NOVEMBER 2021

Declaration

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ABSTRACT

Investments in water and sanitation are critical ingredients for the development and growth of economies. Blended financing is a structuring approach that enables different stakeholders to pool their resources together in investments for financial return, boosting economic growth in developing countries. The development of the blended financing market has led to eminent traction towards developing sustainable infrastructure, bridging the financial gap to attain the Sustainable Development Goals enabling the private sector's participation. However, little has been documented on the effectiveness of blended financing on the implementation of Water and Sanitation and Hygiene (WASH) projects in Kenya. As a result, information on funding blended and its efficacy on attracting commercial funding is not known and where it is known; that information is limited or has not been shared with the public, creating a gap in knowledge use of blending financing. Therefore, this study sought to evaluate the effectiveness of different blended financing models in Kenya's WASH projects. Specifically, the research was after investigating the effects of output-based approach, credit guarantee approach, technical assistance approach, credit rating approach and the moderating effect of type of investor on the relationship between blended financing approaches and the implementation of water and sanitation projects in Kenya. The research was anchored on the resource dependency theory. The study utilized a descriptive research design to collect both quantitative and qualitative data. The population of the study is 100, and the sample size of the survey is 80, comprising of representatives from donors of the projects, water service providers, staff members from the Water Sector Trust Fund, and officials from banks which provided credit towards financing the WASH projects from 9 projects in 6 counties namely; Murang'a, Nyeri, Kajiado, Embu, Kisumu, and Nakuru. The Water Companies in the selected regions have implemented World Bank projects funded through the blended financing approaches that form this research's objectives. The analysis was quantitative and utilized both primary and secondary data. Primary data was collected through questionnaires, while secondary data was sourced through secondary data collection guides. The data was analyzed through the use of descriptive and inferential statistics. The study was able to obtain a 64% response rate from the sample of 80 stakeholders in the WASH projects. The regression results showed that blended financing approaches predict 20.1% of the changes in implementation of water and sanitation project in Kenya. Further, the moderate regression indicated that 46.4% of the changes in implementation of WASH projects are determined by blended financing approach and the type of investor. The study concluded that credit guarantees, and technical assistance have a positive and significant influence on WASH projects. The research further concluded that output-based approach and credit rating approach have no significant influence on implementation of water and sanitation project in Kenya. Further, the study concluded that donors and water service providers investments had a significant effect on the implementation of WASH projects in Kenya. The study recommends that project managers should seek strategic alliances that will open the financing options to the WASH projects. Further, collaboration with donor agencies and devolved governments will help in expanding the capacity and implementation success of WASH projects in the country.

KEYWORDS: Blended Financing**,** Water and Sanitation Sector**,** Result Based Financing

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ABBREVIATIONS AND ACRONYMS

ABSA	Amalgamated Banks of South Africa
ACGSF	Agricultural Credit Guarantee Scheme Fund
AFD	Agence francaise de development
AOD	Aid on Delivery
CG	Credit Guarantee
CGTMSE	Credit Guarantee Fund Trust for Micro and Small Enterprises
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organization
FGDs	Focused-Group Discussion
FIRA	Fideicomisos Instituidos en Relación con la Agricultura
FTB	France Trade Bank
GDP	Gross Domestic Product
GLAAS	Global Analysis and Assessment of Sanitation
IFAD	International Fund For Agricultural Development
IFC	International Finance Corporation
IT	Information Technology
JMP	Joint Monitoring Program
KESHP	Kenya Environment Sanitation and Hygiene Policy
KFW	Kreditanstalt für Wiederaufbau
KNBS	Kenya National Bureau of Statistics
MFIs	Micro Financial Institutions
MRG	Minimum Revenue Guarantee
NGOs	Non-Governmental Organizations
NSONES	National Society of Exploitation of Water of Senegal
NWMP	National Water Master Plan
OBA	Output-Based AID
OBI	Output Bases Incentives
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development

OPIC	Overseas Private Investment Corporation
PBF	Performance-Based Financing
RBF	Result Based Financing
RDF	Rural Development Foundation
RWST	Rustenburg Water Services Trust
SDG	Sustainable Development Goals
SFMF2	Sarona Frontier Markets Fund 2
SMES	Small and Medium Enterprises
SPSS	Social Package for the Social Sciences
TA	Technical Assistance
TNUDF	Tamil Nadu Urban Development Fund
TRIP	Trade Related Intellectual Property Rights
ULBs	Urban Local Bodies
UNACT	United Nations Action for Cooperation Against Trafficking
UNCDF	United Nations Capital Development Fund
UNCTAD	United Nations Conference on Trade and Development
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
WAS	Water and Sanitation
WASH	Water and Sanitation and Hygiene
WASREB	Water Service Regulatory Board
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WRMA	Water Resources Management Authority
WSP	Water Service Providers
WSPF	Water and sanitation Pooled Fund
WSTF	Water Sector Trust Fund
WTO	World Trade Organization

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DEFINITION OF TERMS

Blended Finance	This refers to the various practices adopted to provide additional funds to sustainable development activities through involvement of the private sector
Credit Guarantees Approach	This approach involves encouraging lending by reducing the loss of creditor experiences if a borrower defaults or reduces the risk of default on loan
Credit Rating Approach	This process allows for the utilization of rating tools by lending institutions to assess their borrowers' default risk
Output-Based Aid Approach	This is an approach that involves the use of a subsidy to cover a funding gap, allowing the poor to access essential services that they otherwise not access if the subsidy was not extended
Project Implementation	This refers to the level and state of completion of an undertaking which is measured based on the set goals/objectives
Technical Assistance Approach	This is defined as the process of providing advice or skills in specialized personnel, training and scholarships, grants for research, and associated costs.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Access to water, sanitation, and hygiene is an essential aspect of human life. According to UNICEF (2015), there is a direct link between water, human life, human health, plants, and animals' health. It is critical not just for health reasons but also for social and economic development (WHO/UNICEF, 2015). United Nations Sustainable Development Goal 6 (SGD6) focuses on the provision of water and sanitation. Specifically, goals 6.1 calls for universal, equitable access to safe and affordable drinking water while 6.2 focuses on adequate and equitable sanitation and hygiene for all (SGDs). Globally, the population is expected to grow from 7.6 billion to 9.8 billion by 2050 (United Nations Population Division, 2017). This increase in population increases pressure on the existing water and sanitation facilities and resources around the world.

The WHO/UNICEF Joint Monitoring Program (JMP) on water supply, sanitation, and hygiene reported that as of 2017, 2.2 billion people had no access to safely managed water, 4.2 billion lacked safely managed sanitation, and 3.0 billion hand washing facilities (GLAAS, 2019). More than 80 per cent of wastewater resulting from human activities is discharged into rivers or sea without any treatment, leading to pollution (Gavalas & Syriopoulos, 2015). Water and sanitation-related diseases remain among the significant causes of death in children under five; more than 800 children die every day from diarrhoeal infections linked to poor hygiene. Proper sanitation is a crucial foundation for achieving the Sustainable Development Goals, including good health (United Nations, 2016).

In Europe, as of 2017, 92% of over 900 million people living in the Region used safely managed to drink water services. However, 16 million people lacked access to essential drinking-water services, and more than 31 million people lacked access to basic sanitation with approximately (WHO-Regional Office for Europe, 2020). In the United States, a report by Environmental Finance Center [EFC] (2017) indicated that 1.6 million people in the United States lacked access to a toilet, a tub or shower, or running water, with some communities such as Sandbranch having no running water for 138 years since it was established.

In Africa, the status of WASH is low and unimproved. UNICEF and WHO JMP (2019) indicated that approximately 402 million people had limited, unimproved, and no drinking water service in Sub-Saharan Africa, while 709 million had limited and unimproved sanitation services. In Nigeria, only 11% had access to essential water 42% used basic sanitation services (NBS, 2018). In South Africa, an estimated proportion of 46.3% of households had access to piped water in their dwellings in 2018, depicting the WASH sector's low and under-developed status in some African countries (Stats SA –GHS, 2018).

In East Africa, WASH status is generally unimproved. In Rwanda, only 57 % of the population access safe drinking water, and 64 % access improved sanitation services (UNICEF-Rwanda, 2020). In Tanzania, only 57% (25 million) of the population have access to an improved source of safe water, and 30% (40 million) have access to improved sanitation (Water Organization, 2020). In Uganda, only 19% had access to improved sanitation facilities as of 2019 (SNV, 2019). In Kenya, only 59% of Kenyans had access to essential water services (WASH Joint Monitoring Programme Report, 2019). The economic impact of not investing in water and sanitation costs 4.3 per cent of sub-Saharan African GDP (United Nations, 2016). Efforts to build sufficient water and sanitation services have been primarily undermined by low financing and low prioritization by the countries (Montgomery & Elimelech, 2007).

According to Kolker, Kingdom, Trémolet, Winpenny, and Cardone (2016), the WASH sector has been heavily affected by low revenue collections, high overhead costs, poor management, and lack of financial and technical efficiencies, which undermine operating efficiency and constrain the sector's ability to access alternative sources of finance. In some countries, the WSP has been left out of the borrowing framework. This has made the sector highly unattractive to commercial financing due to its risky nature and because the domestic lenders have little experience in providing credit facilities to WASH projects. Due to these challenges, the WASH projects have remained vastly underfunded and undeveloped (Pories, Fonseca & Delmon, 2019).

The huge financing gap without commercial financing has made development communities develop innovative ways of attracting investors to the seemingly unattractive sector, thus

providing funds with relatively lower interest rates and more extended repayment periods (Pories, Fonseca & Delmon, 2019). Over the years, the blended financing model has been adopted and accepted widely around the globe. The approach has the risk-reducing mechanism of attracting commercial financing towards SDG related investments (Charitz, Lorenzato & Santoro, 2018). It leverages various financial instruments to incentivize the sector to consider investments they would otherwise not consider under normal circumstances (Deloitte, 2017). According to Tew et al. (2016), the use of blended finance has the potential of raising large sums of money for development projects from the private sector with small amounts of ODA.

Several countries in Africa have explored blended financing options. Between 1996 and 2002, the water and sanitation ministry set a US $500 million in Senegal. In the fund, donor funds accounted for 80%, private players 13%, National Society of Exploitation of Water of Senegal (NSONES) 3%, Senegalese government 2%, and commercial banks 2%. In South Africa, the municipality of Rustenburg created Rustenburg Water Services Trust (RWST), which benefited from blended finance options by attracting commercial financing. The RWST could access commercial finance from ABSA to finance the water and wastewater infrastructure expansion of US $37 million at friendly rates (Water Resources Group/IFC, 2013).

In Kenya, despite the government's effort to reform the WASH sector, water coverage in the country falls short of the Vision 2030 targets and the Ministerial Strategic Plan (Ministry of Water and sanitation and Irrigation, 2019). Data from the Ministry of water, sanitation, and irrigation show that 62.9% of the population uses water from safe sources. Kenya's water utilities lose 42% of the water they produced (Ministry of Water and sanitation and Irrigation -Non-Revenue Water Management Report, 2018). Water service providers only serve 51% of the population in the service areas. They have only reached 23% of the total population due to their low creditworthiness index to secure commercial institutions' credit services. The annual cost of operations and maintenance in the water supply is estimated at Ksh 128 billion, in which Ksh 39.5 billion is expected to come from public development finance. Still, the available budget allocation is Ksh 6.7 billion (KNBS Economic Survey, 2019). This shows a glaring financing gap that hinders effective and progressive

investments in the WASH sector in Kenya. Further, there are few studies focusing on how how the different blended finance approaches (i.e., OBA, technical assistance, credit rating, credit guaranteed, etc) affect implementation of WASH projects in Kenya. This study is aimed at contributing to literature by providing evidence using projects being implemented across (Murang'a, Nyeri, Kajiado, Embu, Kisumu, and Nakuru)counties in Kenya as case study.

1.1.1 Blended Finance Approaches

During the third international financial development conference in 2015 held in Addis Ababa, the UN body agreed to capitalize on a new investment vehicle that would drive sustainable economic growth of developing and emerging markets by blending financing sources. The concept is meant to strategically crowd in the private sector into development finance investments through commercial financing to provide additional funds previously not directed towards sustainable development activities (OECD, 2015). This structuring approach enabled different stakeholders to pull their resources together in investments in return, boosting economic growth in developing countries (Blended Finance Convergence, 2016). The Convergence body identified different blending trends that stakeholders could adapt depending on their ultimate goals: design stage grant, concessional capital, guarantee, risk insurance, and technical assistance. These four vehicles employ a mechanism that is expected to alleviate the rate of risk involved in investing in development activities through the reduction of barriers that initially would have hindered the private sector in investing in development (United Nations, 2016).

Blended financing has been used in different countries to finance development projects. In 2013, Sarona Frontier Markets Fund 2 (SFMF2) partnered with Global Affairs of Canada and Overseas Private Investment Corporation (OPIC) to set up a funding mechanism for SMEs. OPIC provided a guarantor ship and loan through a certificate of participation sold in the US capital markets, which acted as a catalytic to resource mobilize. The initiative attracted individuals, pension funds, NGOs, and Foundations. The fund basket grew from the initial US $ 15million to US$ 150 by the year 2016, increasing the number of SMEs served (Tew & Caio, 2016).

In 2016 the World Bank approved an Output-Based-Aid (OBA) program in Bangladesh to provide sanitation services at affordable rates to the lower households. OBA subsidies were extended to two leading MFIS to develop products' sanitation and grow their reach to lower households at an OBA subsidy of US $3million. This was for households to invest their financial resources in latrine purchase and installation while the MFIS provided credit loan products tailored to the locals' needs (World Bank, 2016). Through this intervention, the weekly repayment was reduced by 11% per household targeted.

In Cambodia, Asia, blended finance was in non-sovereign concessional lending guarantees, grants, and technical assistance to facilitate piped water access (OECD, 2015). Before the intervention, only 7% had access to piped water, and the cost of private connection was high for the locals at 34% of income, coupled with inadequate access to investment financing and lack of security to secure credit facilities (Sy, Warmer and Jamieson, 2014). In 2014, AFD (Agence Francaise de-development) initiated access to finance the project. The project included three tools (a concessional line of credit, grant funding, and a guarantee package) of US $24.2 million to France Trade Bank (FTB)-a Cambodian bank-to extent more attractive loans to small and medium-sized water service providers in small towns this was guaranteed by AFD at the US $5 million (World Bank, 2016). In 1998, a US $20million was secured through a risk policy strategy (World Bank 2017a). The loan secured from Citibank was not used entirely because it developed better results than anticipated. The other banks got the confidence to renew the experience, and in 2000, banks took part in the design, build, and finance the construction of a new water treatment plant in the North of Senegal. A local bank (CBAO) financed a US$ 7 million direct loan to NSONES to provide subsidized sewerage systems for the most vulnerable communities (Sene, 2019).

1.1.1.1 Output-Based Approach

Conventionally, there are four major approaches used in blended finance. The first one is result-based financing, which is also called Performance-Based Finance. It refers to a financing model that attaches financial incentives to achieve pre-defined results (Øvretveit, Amoah, Kasule, RahimZai, 2018). This is an innovative approach that is focused on outcomes rather than activities. The system incentivizes private sector involvement in public sector investments enabled by financing by public agents or large NGOs (Instiglio, 2017).

The approach is designed to award incentives to either service providers or reward people in need of the service. An example of RBF was in Haiti, where NGOs were sub-contracted to provide services delivery where the contracts were output-based or fixed price with award fees (Eichler, Siligman, Belth &Wright 2009).

Result based financing assumes a variety of forms. There is Output-Based Aid (OBA) approach, which comes as a subsidy to cover a funding gap and thus allowing the poor to access essential services which they otherwise not access if the assistance was not extended (Musmissen, Jhannes, and Kumar,2010), there is also Performance-based contracting where the provision of services is leased to private service providers (Loekinsohn,2008). Another form of RBF is performance-based financing, which aims at lowering demand-side barriers by reducing funding subsidies so that service providers can provide user free exemptions or affordable service to the vulnerable population or allow the people to pay less (Basinga, Gertler, Binagwaho, Soucat, Sturdy & Vermeersch, 2011). RBF can also come in the form of Output Bases Incentives (OBI) given to both users and providers through vouchers to enable the consumption of desired services by a particular group in a population (Bellows, Bellows & Waren, 2011). Other forms of RBF are cash on delivery aid given for delivering pre-determined results (Birdshall & Sanedoff, 2010) and conditional cash transfers program (Fisban and Schady 2009) provided for consuming certain services.

Ogutu (2019) reported that OBA funded projects were influenced by financial management requirements, the regulatory framework, risk management requirements and level of stakeholder involvement. Olima (2015) reported that projects were more effective if the donors enjoyed a high level of risk assessment priviliges and deal with risks that threaten implementation and use. Aimable (2015) agrees, pinioning that OBA projects have to be monitored to assess their effect on the beneficiaries. Most projects were not monitored adequately, this impacted their sustainability. Gikama (2020) reports that Kenya is engaged in a five-year nationwide WASH project that is funded by the USAID. The study affirmed that for the project to be successful, proper targeting would be paramount to ensure that the water resources reach the people that they are intended for. This study sought after the effect of the output-based approach on the implementation of WASH projects in Kenya.

1.1.1.2 Credit Guarantee Approach

Another approach of blended financing is credit guarantees. These are designed to encourage lending by reducing the loss of creditor experiences if a borrower defaults or reduces the risk of default on loan (Bender, 2015). Bender (2015) held that the guarantee comes in different forms designed to comfort lenders when lending. Credit guarantees could come as a percentage of the loan in the event of default or be designed in a way that lowers the probability of default by extending the maturity period and reducing the periodic premiums or by increasing recovery in case of default. Credit guarantees, therefore, form a vital mechanism for enhancing flows to infrastructure project finance, especially in developing countries (Griffith-Jones & Lima, 2004).

Credit guarantee schemes raise funding in this kind of agreement since they reduce the bank's risks and enhance entrepreneurial incentives. Further, Credit guarantees are often promoted as an instrument to overcome the lack of lending, which is occasioned by a lack of information asymmetry, which is a core reason commercial banks are generally reluctant to provide loans. Roper (2009) indicates that the government's credit guarantee is to create an appropriate lending environment. In the Czech Republic, (Dvouletý, Čadil, & Mirošník, 2019) found that firms supported by loan guarantees were reported no improved performance in just two years after the provision of donor funds. Dvouletý (2017) even reported that projects supported through soft loans and credit guarantees had reduced value to assets, low income and larger debts. However, Kehinde (2020) was adamant that guaranteeing credit through provision of microfinance services had resulted in increased iunvestment in WASH infrustructure which had a positive effect on WASH projects. Alaerts (2019) argues that instead of increasing the volume of financing, it is crucial that weimprove planning and opolicies, strengthen institutions and improve incentives to address relucance of users to pay for water services. This study explores the impact of the credit guarantee approach and its influence on the implementation of water and sanitation projects in Kenya.

1.1.1.3 Credit Rating Approach

Another approach has been the use of credit rating. Credit rating has been used as a tool by lending institutions to assess their borrowers' default risk (Carey & Tracey, 1998). A credit rating creates a link between the returns and risks. Investors use the rating to assess the risk level and compare the expected return rate and the risk of an investment before making an

investment decision. From a credit rating perspective, a lower chance of obtaining statutory approvals or putting the infrastructure in place, or making the process of bringing them easier lowers the associated exposure risks (Tsunoda, Pai & Agrawal, 2014). When investing in Minimum Revenue Guarantee (MRG), long-term investors assume a credit exposure to the guaranteeing authority. Thus, Government or donors issue letters of credit and insurance contents to raise the projects' guarantor's credit rating (Griffith-Jones & Lima, 2004).

The use of credit rating for lending purposes has been debatable. Holden et al. (2014) argued that credit ratings could serve as a welfare-improving coordination device, but only if agencies had a sufficiently negatively biased incentive structure. The argument was some credit rating agencies were biased in awarding the ratings—the traditional full shadow rating on credit risk analysis for an institution's creditworthiness for lending purposes. According to the WASREB report (2011), they improved the system and developed a more reliable reporting index. World Bank WSP report (2015) indicated that Creditworthiness Index provides a simplified snapshot of the financial and operational performance of WSPs.The Creditworthiness Index is designed to be the first stage of a lender's credit analysis and due diligence. According to a report on blended finance in the Least Developed Countries in 2019 by OECD (2019), Credit and risk guarantees mobilized the most private finance in absolute terms, at 63% of the total volume reported in 2012-2017 (OECD/UNCDF, 2019) and the average volume of private finance mobilized in LDCs was consistently lower for all leveraging mechanisms. Simple co-financing agreements were the most frequent leveraging mechanism representing 56% by several deals overall (OECD, 2019).

Owen and Okech (2021) found a high correlation between credit rating and project approval, emphasizing that investor had increased their credit default awareness after the global financial crisis. As such, operational, liquidity and environmental risk factors were considered before implementing WASH infrastructural development. Ngadze (2021) asserts that very few water projects in developing economies in Sub-Saharan Africa are bankable. Friedman (2016) enunciates that the need for securities from lenders has increased the cost of financing water and sanitation projects. Investopedia (2017) adds that in the financial sector, licensure laws, capital requirements and regulatory compliance requirements have

been the main inhibitors of credit access for development projects. This study will address how credit rating requirements affect the implementation of WASH projects.

1.1.1.4 Technical Assistance Approach

The last approach used in blended financing is Technical Assistance. DFID (2015) defined Technical Assistance as providing advice or skills in specialized personnel, training, scholarships, grants for research, and associated costs. It entails transferring information and tools from one entity to another to address an identified need for change (Wesley & Buysse, 1996). It is a process of developing and implementing a creative, cost-effective method of providing targeted support to an organization, system, or individual to create an innovative approach to an emerging complex issue (Blasé, 2009).

According to Action Aid Report (2005), the largest areas of phantom aid included technical assistance. Donors spend so much money on consultants, research, and training rather than on development investments. Mwega (2016) argues that donors allocate a more significant percentage of funds on technical assistance. He further emphasizes that much of technical assistance is, therefore, money that the country does not receive into government coffers since it is paid directly to the consultants or education and training institutions outside Kenya by the aid-giving country or international agency.

Herschan, et al., (2020) identified government assistance, technical support from NGOs, simplicity and community engagement as the critical success factors for WASH programs in low middle-income countries. Without knowledge sharing, use of guidance documentation and international and local collaboration, WASH programs were reported to fail their mandate. Similarly, Machado, dos Santos, Quindeler and Alves (2019) announce that water quality control, post-construction support and the existence of a financial scheme were key to ensuring that Rural Water Supply Services (RWSS) remain sustainable in Brazil. Lelegwe (2018) elucidated that technical assistance was a key drriver of sustainability of donor-unded projects. Mentoring and sustained technical assistance to staff was key to keeping the implemented projects operational. This study will address the relationship between technical assistance and succesful implementation of WASH projects in Kenya.

1.1.2 Implementation of Water and Sanitation Status in Kenya

Investments in water and sanitation are vital ingredients for the development and growth of economies. Adequate and reliable water supply is essential in sustaining human life, growth of economies, and ecosystems (OECD, 2011). In Kenya, water access plays a crucial role in economic development and poverty reduction as the water supports main economic activities such as agriculture, industries, and energy production (Development Initiatives, 2018). Article 43 of Kenya's Constitution, 2010 recognizes access to universal water supply and improved sanitation as a citizen right. Thus, the government is under the obligation to provide such to the citizens (Ministry of Water and Sanitation and Irrigation, 2019).

The annual costs of investments and rehabilitation for water supply are estimated at US $303 million (World Bank, 2017). Existing resources can only finance approximately US $193 million per year. Currently, water service providers serve 51% of the service areas and 23% of the total population. Communities operate many small piped –water system in rural and peri-urban areas. These utilities lack familiarity with commercial banks, and the banks have no experience with the steps required to make the WSP creditworthy (OECD/UNCDF, 2019). Therefore, WSP faces the challenge of giving collateral to secure loans, nor are they adequately self-funded. Also, rising interest rates pose a threat. The banks feel that the financial sector is weak and think it is risky to invest in the industry without risk mitigation support (World Bank, 2016).

One such intervention is the *Maji Maisha program.* The program aimed at raising the US $200,000 for investment to cover operating and maintenance costs (World Bank, 2017). The communities gave 20% while K-rep financed 80% of the project costs. K-rep bought a partial credit guarantee from the US AIDs development credit authority of 50% of K-reps exposure through the program. This enabled K-rep bank to provide incentives to rural and peri-urban communities to access loan financing to rehabilitate and expand small piped water systems. During implementation, 40% of costs were transferred to the community, which helped reduce the debt service costs and provided water at affordable rates. This achieved great success. In 2012, 35 organisations had borrowed US$3.4 million from K-rep, raised the US $1.2 million of equity, and accessed OBA grants of US $2.8 million, enabling 190,000 households to access water (Ministry of Water and Sanitation and

Irrigation, 2019). In the current research the implementation of WASH project was measured using timeliness, quality of program progress tracking, quality of program structure and coordination, assurance/availability of funds, compliance to design and quality and level of satisfaction with the project implementation.

1.2 Statement of the Problem

Various water institutions have been established to improve access and utilization of water and sanitation service and enhance accountability through decentralized provision of service. However, despite several government efforts, access to water and sanitation remains low with significant inequalities (Development Initiatives, 2018). This is attributable to a lack of adequate financing support for Counties and service providers, resulting in inefficient services, stagnation in coverage, poor performance, or non-performance (Mati and Mugo, 2018). The National Water Master Plan (NWMP) 2030 estimates an investment of Ksh 1.8 trillion to achieve 100% water coverage and sanitation in Kenya by the year 2030. A review of the National Water Master Plan 2030 indicates that the government's access to water and improved sanitation by 2030 is unattainable if no interventions are made. Further, the available WSP does not have adequate access to credit facilities by commercial institutions (Claasen, 2016). This is mainly due to low creditworthiness, perceived risks in the sector by the financiers, and delays in assessing the water projects financed, which dis-incentivize commercial financing in the water and sanitation sectors (Development Iniatives, 2018).

According to Advani (2016), the financing gap could be partially filled through a blending financing model through private sector lending to utilities with shorter revenue-generating investments and substantial gains for the participating parties in development (Bender,2015). However, Pereira (2017) noted that there is still some confusion about how they work and how they foster development. The researcher affirms that blending approaches often lack transparency, accountability and stakeholder involvement, meaning that they mostly fail to support pro-poor activities, are often directed at middle rather than low-income countries, and may give preferential treatment to donors' own private-sector firms. Attridge and Engen (2019) report that most of the project finances have affected by poor leverage ratios, with some failing to align with country plans. Further, poor investment

climate, lack of opportunities for sustainable investment, and poorly developed approach have hindered the potential of blended finance (Clark, Reed, & Sunderland, 2018).

Kenya has adopted blended financing strategies with projects achieving varying degrees of successes and failures. Previous studies and reports are done in Kenya (GLAAS, 2017, Mati and Mugo, 2018; Advani, 2016; Chepyegon and Kamiya, 2018) have generated useful information on the WASH sector in Kenya. Aarts (2012) investigated water management within community-based projects at the Upper Ewaso Ng'iro river basin. Omondi (2017) specified on investigating WASH projects introduced by Amref Kenya. Mati and Mugo (2018) focused on innovative funding strategies and mechanisms, while Chepyegon and Kamiya, (2018) examined literature and reports regarding WASH programs. Oino, Towett, Kirui and Luvega (2015) also used secondary sources in determining sustainability of community-based projects. Despite the above studies, information on funding blended and its efficacy on attracting commercial funding is not known and where it is known; that information is limited and has not been shared with the public, and lacks conclusive documentation (Development Initiative, 2018). Further, with reports indicating their inefficiency in meeting sustainable/country goals, there is a gap in knowledge on the use and effectiveness of blending financing, which limits policy formulation and decision making in the sector. Therefore, this study is motivated by the need to bridge this gap by utilizing both primary data and desktop review to provide the effect of blended finance approaches on the extent of implementation of water and sanitation projects in Kenya.

1.3 Research Objectives

This study aimed at determining the effect of blended finance approaches on implementation in the water and sanitation projects in Kenya.

1.3.1 Specific Objectives

i. To investigate the effects of output-based approach on the implementation of water and sanitation project in Kenya.
ii. To determine the influence of credit guarantee approach on the implementation of water and sanitation project in Kenya.

iii. To establish the effect of technical assistance approach on the implementation of water and sanitation project in Kenya.

iv. To establish the effect of credit rating approach on the implementation of water and sanitation project in Kenya.

v. To examine the moderating effect of type of investor on the relationship between blended financing approaches in the implementation of water and sanitation project in Kenya.

1.4 Research Questions

i. To what extent do output-based approach affect the implementation of water and sanitation project in Kenya?

ii. What is the influence of credit guarantee approach on the implementation of water and sanitation project in Kenya?

iii. What is the effect of technical assistance approach on the implementation of water and sanitation project in Kenya?

iv. What is the effect of credit rating approach on the implementation of water and sanitation project in Kenya?

v. To what extent does the type of investor moderate the relationship between blended financing approaches in the implementation of water and sanitation project in Kenya?

1.5 Scope of the Study

The study focused on blended financing approaches used to finance WASH projects in selected areas and the effectiveness of such systems in attracting private sector financing of tasks between the years 2012-2019 in Kenya. This study assessed WASH funded projects. The study covered six counties in Kenya, where the Water Sector Trust Fund coordinated WASH projects financed through blended finance approaches. The study will specifically investigate output-based approaches, credit guarantees, technical assistance and credit rating as blended financing approaches and their impact on the performance of WASH projects in Kenya.

1.6 Significance of the Study

1.6.1 To policy makers

The information acquired from this study will provide important information to policymakers, water sector personnel, the country's local authorities, donors, and the ministry of finance. This study will give rational information in addressing the financial gap through blended financing in the water and sanitation sectors. Hence, it will help decision-makers explain how to adequately finance the country's water sector to ensure that all the population gets access to clean and safe water for utilization. This research will inform the available blended finance models that could be further explored to finance development goals.

1.6.2 To Practitioners

The study will essentially be helpful to Water Sector Trust Fund as an organization. It will inform the organization if the existing blended financing models are sustainable and if other models could further finance the funds' projects. It will also act as a fundraising tool for the institution since they can provide the findings as a supporting the factors that enhance success among donor funded projects.

1.6.3 To Scholars

It will help other academicians and practitioners in the development field who want to understand blended financing models and how it could solve the financing gap experienced in the Water and Sanitation Sector. Lastly, this study's conclusions will provide additional knowledge in water and sanitation, and it will form the basis for further research that may be carried out in the future.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This paper aimed to assess the effectiveness of blended financing models in implementing water and sanitation projects in Kenya. This chapter looked at different literature from various authors and try to relate to blended financing and the blended financing models on the implementation of water and sanitation projects in Kenya.

2.2 Theoretical Review

The research was grounded on the resource dependency theory that was developed by Pfeffer and Salancik in 1978 and revised in 2003 as the main anchor for the study.

2.2.1 Resource Dependency Theory

The resource dependency theory (RDT) was pioneered by Pfeffer and Salancik in there in 1978 and later revised in 2003. The approach recognizes the external influence of the external factors on the activities of a firm. The two scholars held that a firm's survival depended on the firm's ability to acquire critical resources from the environment (Pfeffer & Salancik, 1978). Pfeffer and Salancik (2003) define resource dependence as the dimensions of power and authority, which is widespread in the environment in which organizations are situated. They critiqued other theories for concentrating on internal processes of resource use instead of considering processes about gaining resources (Pfeffer & Salancik, 2003).

However, since firms do not possess all the resources they require for their daily functioning, they depend on the environment for scarce resources (Malatesta & Smith, 2014). Firms that experience scarcity of resources tend to fail in the long run. A shortage of resources significantly affects and disables goods and services (Moulton and Eckerd, 2012). As such, firms tend to obtain the resources they lack by developing relationships with others (Schiele, Ellis, EBig, Henke & Kull, 2015). Verbruggen, Christiaens, and Milis (2011) and Rivas (2012) argued that for firms to ensure continual survival and reduce uncertainty, firms must gather, harness, and secure critical resources and capabilities from internal and external sources by co-opting a mixture of corporation and strategies with other firms.

According to the Food and Agricultural Organization [FAO] (2014), access to clean energy, water, proper sanitation, and food is essential for well-being, poverty reduction, and sustainable development. Thus, clean energy, water, and sanitation provided synergies towards poverty reduction and sustainable development. Potential synergies exist between the development and commercially-oriented public approaches to engaging the private sector, where the latter might be put to greater development use (Bilal and Große-Puppendahl, 2015). Therefore, a joint undertaking between public and private sector players can have more benefits than where the government or development communities work alone.

The theory guided the current study on how firms pursue various techniques and strategies to reduce uncertainty on resources by entering into relationships with other firms and entities. The theory is relevant in this study twofold: Firstly, it shows how critical resources are, especially in the WASH sector, which remains vastly underfunded. The public organizations, development communities, and governments seem unable to meet the necessary financial resources to improve the WASH status in their respective territories, especially in third world countries. Secondly, the theory presents interdependence, which is the heart of blended financing, aiming to strategically crowd in the private sector into development finance investments through commercial financing to provide additional funds. The theory illustrated how public and private entities depend on each other to provide additional WASH projects funding. Financial resources are key to ensuring success of donor funded projects and this theory helps in explaining how financial resources management and relationship management strategies can all be employed to promote success of donor funded projects. Thus, this theory informed how financial resources management can enhance output-based financing, credit rating and guarantee approaches and explain how investor relations can impact the volume of donated funds and technical assistance offered to donor-funded WASH projects.

2.3 Empirical Review of Literature

This section reviews the existing empirical literature on blended finance and the implementation of development projects.

2.3.1 Output-Based Aid Approach of Blended Financing and its impact on WASH project implementation

Output-Based Aid (OBA) comes as a subsidy to cover a funding gap, allowing the poor to access essential services that they otherwise not access if the subsidy was not extended (Musmissen, Jhannes, and Kumar, 2010). Several studies have been done on OBA has been used in development finance. RBF has been viewed as a way of improving or accelerating access to essential services to the people. A study by Tremolet et al. (2010) on the possible ways the Government of Denmark could engage with the private sector through impact investment funds and the roles donors could play to leverage private capital in impact investing. The scholars concluded that OBA is one of the results-based mechanisms used to increase access to essential services.

OBA has been used to provide services to the poor and complement or bridge a gap in funding. Koening and Jackson (2016), in their research on private impact in development, discussed Result-based financing as one way used by developing country governments and donors in cooperation with the private sector to incentivize the provision of services and to stimulate innovation. They concluded that RBF could inform Out Put-based Aid, Advanced market commitments, development impact, bonds, or social impact incentives. According to them, Output-based aid (OBA) tends to be used to target subsidies for low customers by providing service providers with the incentives to serve marginalized areas. Their views tally with those of Musmissen, Jhannes, and Kumar (2010), who held that OBA is mostly meant to bridge a funding gap and allow the poor to access essential services that they would not have accessed without the OBA.

In a study on result-based financing investigated the effectiveness and efficiency of performance-based funding in the health sector, Grittner (2013) collected data from PBE programs in 13 developing countries in Africa, Asia, and South America. The results showed that the use of RBF was more effective in improving healthcare supply and healthcare coverage than other funding schemes. However, the study found no enough evidence that monetary and incentives triggered better healthcare providers' performance. This implies that using different blended financing approaches, such as technical assistance, was also influential in providing health care. Vanhove, Van Ackere, Vandekerckhove and

De Buck (2018) looked into evidence-based practice and its impact on supporting prevention or in mitigating effects of expected hazards. The researchers reported that early warning systems were set up to forecast when humanity would be exposed to certain crises, thus responding apropriately and on time. The paper revealed that the current evidence supporting the effectiveness of early action protocols on financing was scarce. The study explicates that there should be development of effective monitoring and evaluation protocols to ensure that financing is made available for hazards such as droughts and floods that may not be easy to predict, thus mitigating their previously evidenced impact by enabling quick reaction from associated stakeholders.

In 2015, Castalia Strategic Advisors (2015) reviewed the result-based financing scheme in WASH to assess the performance of RBF and design methods of improving it. A sample of 30 projects financed by RBF was considered in the study and reviewed case studies in more than 20 countries. The study entailed examining documents and interviewing stakeholders to collect data. The study found that RBF worked well if private providers were contracted to supply services to consumers on behalf of the government and also performed well in developing countries with low government capacities implying that the effectiveness of OBA was influenced by the context to which it was applied and the method used to provide services to the consumers. Further, the study found no sufficient evidence that RBF was more efficient than conventional financing and whether such projects were sustainable, contradicting Grittner (2013) findings, whose research concluded that the use of RBF was better than the use of other funding schemes.

Rodriguez, Suardi, Ham, Mimmi and Goksu (2014) investigated the application of output-based approaches on the effectiveness of water projects. The study carried out case studies of various projects that had adopted tenets of OBA financing during project implementation and determined that the strategy had been successfully applied to tackle water scarcity in Sao Paulo, Brazil, to increase household sewerage connections in Uruguay, to improve water access to poor households in Metro Manilla, and to improve access to water and sanitation to the urban poor in Morocco. This study noted that externalities, access constraint, poor service delivery, operation or maintenance and low infrastructure capability were the main issues with water projects. Esseku and Roberts (2018) identified the RBS as

an effective strategy for promoting sustainability of government-funded projects, arguing that requiring certain standards to be met increases facilitation and monitoring of the projects, thus improving access to sanitation services in Ghana. This was after affirming that several projects to increase access to sanitation had stagnated due to varying reasons such as irregular payments and misappropriation of funds which was strengthened by poor oversight during, and after implementation.

A review of empirical studies displays a lack of documentation on the effectiveness of OBA. McGinnis, McKeon, Desai, Ejelonu, Laskowski, and Murphy (2017) carried out a systematic review on costing and financing of water, sanitation, and hygiene (WASH) in schools. The scope included case studies from Africa (Kenya, Uganda, and Ethiopia), the Asian-pacific region (India and Bangladesh), and Latin American countries. A review procedure was developed using a chrome handbook for a systematic review of interventions. The data captured studies of the period between 1990-2015. The data was sourced from four databases, and a total of 48 articles were screened based on their relevance, Country, setting, WASH elements, cost, and financing mechanism. The results showed a lack of information around WASH costing, particularly around software elements and a lack of overall WASH data in school settings compared to community WASH.

In Kenya, output-based aid was used by the World Bank through the Water Sector Trust Fund as a subsidy blended with commercial banks' lending to fund water and sanitation projects. It was mainly used to finance pro-poor projects since most marginalized communities cannot afford essential services like paying for water projects.

2.3.2 Credit Guarantees Approach of Blended Financing and its impact on WASH project implementation

Since investors seek to maximize returns and lower risks, they are willing to accept higher risks for more returns and lend unlimited capital at a market free rate of interest. Gatti (2013) held that ring-fenced project financing is the most appropriate manner to address these concerns. Therefore, dedicated funding and management of infrastructure projects by public and private sector partners on a project are more likely to attract investors than a project with no reliable approach since there is some reasonable degree of guarantee. Credit guarantees are designed to encourage lending by reducing the loss of creditor experiences

if a borrower defaults or reduces the risk of default on loan (Bender, 2015). Studies on the use of credit guarantees in development finance have been extant.

FAO (2013) studied credit guarantee systems for agricultural and rural enterprise development. The study sought to provide a revenue of agricultural CGs around the globe. The study thoroughly investigated four prominent case examples from four continents, which included: Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) in India, the Agricultural Credit Guarantee Scheme Fund (ACGSF) in Nigeria (the oldest CGS in sub-Saharan Africa), the Rural Development Foundation (RDF) in Estonia, and the large and well-established Fideicomisos Instituidos en Relación con la Agricultura (FIRA – Trust Funds for Rural Development) set of guarantee funds in Mexico and other 11 cases of CGs. The study found that CGs were neither the panacea nor the preferred option for development finance. However, the results showed that they were not bound to fail, but success attributable to the case-by-case context.

The use and success of credit guarantee have not been adequately documented in all countries across the globe. A review of CG programs done by OECD (2017) to evaluate publicly supported credit guarantee programs for SMES. The study adopted a case review approach to assessing the performance and cost-effectiveness of publicly funded credit guarantee programs for SMES. The data was collected from 23 OECD and EU countries. The study found that not all countries evaluated their performance and those who only focused on financed and not economies and informality. Gurmessa and Ndinda (2014) investigated the impact of credit guarantee scheme (CGS) on poverty alleviation among small scale entrepreneurs. The study adopted a systematic review approach. The analysis revealed that a series of factors such as financial conditions of the lending banks, regulatory framework, the borrowing firms' financial position, the intimate features of the scheme and the input and output market factors. The study affirmed that the lack of a blueprint for a singular successful model has resulted in the adoption of a wide variety of designs and operations across countries. The study affirmed a lack of empirical evidence on the role and impacts of CGS, especially in Sub-Saharan African nations.

Although the use of CGs has not always been documented (OECD, 2017), CGs were a preferred option of addressing the financing gap by the SMES (Haunsen et al.,2012).

Haunsen et al. (2012) assessed credit guarantee schemes for SME finance in Africa using Ghana, Kenya, Tanzania, and South Africa. The study collected data from our 100 organizations through interviews, surveys, and FGDs. The data were analyzed concerning the context of CGs aimed at catalysing increased bank financing for underserved firms. The study found that the utilization of CGs depended on the returns incorporated after taking care of the costs associated with the guarantee. Some of the guarantees successfully enabled banks to reduce financing barriers (such as high collateral requirements) and extend loan durations. In contrast, others did not change or soften the accessibility of credit at all.

2.3.3 Technical Assistance Approach of Blended Financing and its impact on WASH project implementation

DFID (2015) defined Technical Assistance as providing advice or skills in specialized personnel, training and scholarships, grants for research, and associated costs. Several studies have been done on technical assistance around the globe. Several scholars have studied the use of TA in development finance. A review by Timmis (2015) focused on lessons from donor support to technical assistance programs. The study was motivated by identifying sources, findings and the effectiveness and impact of donor support for technical assistance programs. The review got information from published articles and subject specialists from different countries and projects. The study found a strong consensus in the literature that capacity building activities must be partner-owned to be effective and sustainable. They should use partner country systems wherever possible, including partner budgets for aid delivery and local procurement processes for TA service delivery. Further, the review established that involving a broader range of actors as partners/ beneficiaries during capacity building interventions can improve effectiveness and impact. Lastly, monitoring and communicating capacity building outcomes is a pre-requisite to ensuring intervention effectiveness.

Technical assistance takes a variety of forms; a study by Sagar (2006) examined the models of best practices in the provision of technical assistance to facilitate the implementation of the TRIPS agreement in London in the United Kingdom (Trade-Related Intellectual Property Rights (TRIP). The study took the reference to terms set out in Article 67 of the TRIPs agreement, which focused on the developed nations' obligation to extend upon

request, technical and financial assistance favouring creating and least-developed WTO members. In this agreement, the TA type included the preparation of laws on protection and enforcement of intellectual property rights, prevention of their abuse, and support on the establishment and enforcement of domestic files. The study data was collected on levels of the TA extended to developing countries. A total of 25 interviews were done with TA stakeholders such as policy officials, business representatives from UN bodies WHO, WIPO, UNCTAD, and experts from NGOs. The data focused on TA recipients in developing countries, including Cameroon, India, Thailand, and Argentina. Forty-five more interviewers were done in each of the recipient countries. The study found out that most TA countries were centred on domestic legislation to protect intellectual property and strengthen enforcement measures.

Miller, et al., (2019) conducted a systemic review on 218 studies on the impact of external support programs on rural water supply. The main external support programs recorded were technical, financial, and administrative assistance, and they were all associated with improved household satisfaction, participation, and fee payment. However, aspects of a restrictive political environment, insufficient training and poor coordination had impacted the effcetiveness of external support programs. The World Bank (2015) prepared a summary report of the Greater Harare Water and Sanitation Strategic Plan and confirmed that in Harare, technical assistancce in the form of management training, revenue and cash collection support and funds management training. Monitoring, evaluation and maintenance support was also provided in the form of institution of technologies that enhanced accuracy, transparency and feedback of water infrustructure. The study concluded that different forms of external management support promoted legality, hence longevity and sustainability of projects under Harare Water. These two studies focused on external support influences on project performance and failed to look into how other financing strategies may influence outcomes of implemented programs.

2.3.4 Credit Rating Approach of Blended Financing and its impact on WASH project implementation

Investors use the credit rating to assess the risk level and compare the expected return rate and the risk of an investment before making an investment decision. Credit ratings are

anchored in commercial banks for lending. Over the years, the credit rating industry's growth also attracted studies and research on the same. Jeremias (2011) sharing on experience on Philippine Water fund in partnership with Guarantee Corporation, in his paper he states that they created a risk rating criterion, which took into consideration of economic base, political, management, technical, and financial risk assessment, providing a comprehensive outlook on the creditworthiness of the borrower. They concluded that it offered an independent and transparent lending standard and allowed utilities to understand how to improve credit scores and access cheaper financing.

Another study by Tsunoda et al. (2014) investigated the credit rating methods for public-private partnerships, infrastructure projects, and SMEs in South Asia. They found that investors use the rating to assess the risk level and compare the expected return rate and the risk of an investment before making an investment decision. Therefore, we can conclude from the two studies that credit rating plays a crucial role in accessing loans by lowering the commercial banks' exposure risks and building the bank's confidence in the customer's repayment capacity. Gavalas and Syriopoulos (2015) explored the integrated credit rating and loan quality model utilization in bank shipping finance. The researchers suggested that evaluating the borrowers credit quality is an essential to ensure there is efficient loan allocation by commercial banks and a deterrence to financial distress in firms. The study indicated that adoption of quantitative and qualitative criteria can be applied to ensure there is optimal financing of firms and improve the decision making within the commercial banks. The study does not explicitly identify the link between the credit rating approach and project implementation which is being examined in the current research.

Humprey (2015) reviewed the role of credit rating agencies on the operational capacity of multilateral development banks. The research showed that adoption of credit rating agencies recommendations had led to substantial and negative effect on the capacity of development banks to improve their development mission and improve lending to smaller nations. The paper showed that despite G20 countries calling for the review of credit rating agencies assessments the lack of standardized transparent and comparable criteria has resulted in poor allocation capacity and expansion of development missions. The paper however does not consider implementation of WASH projects in developing economies which is the aim of

the current study. Fonseca and Pories (2017) examined the various ways of expanding financing WASH projects and reducing inequities. The paper indicated that there is minimal utilization of micro and blended finance within the sector. Thus governments, should come up with regulations to improve the uptake of microloans and facilitate domestic and international investments. Further, to expand the efficiency and effectiveness in the utilization of available resources more redistributive policies should be adopted to ensure there is strategic allocation of resources. The study was however not focused on WASH projects in Kenya and did not examine influence of blended finance strategies on project performance. This gap was bridged by the current research.

2.3.5 Type of Investor and how it impacts the Implementation of Wash Projects

In their study on Pories, Fonseca and Delmon (2019) focussed on mobilization of finance for WASH projects across developing countries. The study relied on data from the World Bank and findings show that commitment of countries to mobilizing sustainable sources of finance is key to the performance of WASH initiatives. Further, it was evident that enhancing collaboration between governments, development partners and donors is key to WASH projects success. McGinnis, McKeon, Desai, Ejelonu, Laskowski and Murphy (2017) examined the costing and financing of water, sanitation, and hygiene (WASH) in schools. The study relied on 100 articles sourced from online referencing tools and performance systematic review of the literature. The findings showed that the main financing models central to performance of WASH projects were government and public financing, private and donor financing and users fees. The study noted that the different models had varied degrees of success depending on the goals of the program and the local context.

Dukhovny, Sokolov and Ziganshina (2016) examined the role of donors in addressing water problems in Central Asia. The results showed that despite the immense contribution of donors; there was lack of coordination in addressing water problems. Further, limited donor-support financially led to poor implementation of water-related projects within the region. The study specified on donor roles in WASH projects in Central Asia; the current study did not specify the role of donors. Sehring, Ziganshina, Krasznai and Stoffelen (2019) reviewed the role of international actors and initiatives for sustainable water management. The

findings revealed that involvement of institutional donors and non-governmental organizations was critical to sustainable management of water projects. The study also noted that improved financing from donor agencies was critical to water projects management. The study however does not highlight the link between blended financing approaches and WASH projects implementation.

Claasen and Sweerts (2016) are adamant that Kenya needs to attract private sector funding and improve the self-financing capacities of water service providers in the country. Nyamongo, (2017) reviewed the factors influencing implementation of monitoring and evaluation in water projects in Kenya. The research was guided by a descriptive survey design with data collected from 56 staff within water projects in Kajiado County. The findings revealed that resource availability largely affected the implementation of the water projects. The study also showed that technical expertise and donor demands affected the implementation of the monitoring and evaluation within the water projects. The study however does not identify the effect of donors on the implementation of WASH projects.

Mutonga (2015) conducted a study on the factors influencing sustainability of donor funded community water projects. The research adopted a cross-sectional survey focussing on water projects in Kitui County. The study results showed that involvement of community members was key to sustainability of water projects. The study also noted that availability of monitoring information, appropriate management and participation of community in management improved sustainability of donor-funded projects. The study however does not examine how donor involvement impacts the implementation of the water project which is considered in this study. Kiara and Luketero (2018) reviewed success determinants of donor-funded programs in Embu County, Kenya. Specifics of the descriptive research design were to determine the influence of technology, resource availability, type of funding and regularity of monitoring influence WASH projects' performance. All the above factors were determined to influence project performance significantly. However, the type of funding was more impactful, with commercial financing/result-based financing strategies having more impact than projects funded through pure grants.

2.4 Critique of the literature and Research Gaps

The theory of resource dependency guides the study. Though relevant in this study, the idea has been criticized for focusing more on resources as a controlling tool while neglecting other economic theories where costs and efficiency are critical (Donaldson, 1995). The literature review shows extant scholarly work on different approaches to blended financing. The literature indicates that OBA is mostly meant to bridge a funding gap and allows the poor to access essential services (Musmissen, Jhannes & Kumar, 2010; Koening et al., 2016). However, Castalia Strategic Advisors (2015) found no sufficient evidence that RBF was more efficient than conventional financing. Grittner (2013) held that RBF was more effective in improving healthcare supply healthcare coverage than other funding schemes. The literature thus presents conflicting results on the effectiveness of OBA as a tool for development finance.

The literature on credit guarantee applies credit guarantee in other sectors and not WASH with different characteristics and contexts. The study by Haunsen et al. (2012) assessed credit guarantee schemes for SME finance as a means for softening accessibility of credit facilities to SMES. However, the study provided credit for SMEs and not the WASH sector and could not make conclusions on WASH sector projects. The survey by FAO (2013) was on the use of credit guarantee in agricultural enterprises. The results showed that CGs were not the preferred option for development finance. The studies do not present conclusive results on the effectiveness of credit guarantee use in the WASH sector.

Studies by Timmis (2015) and Sagar (2006) on technical assistance are development finance programs and intellectual property programs. Their conclusions were not contexted specific and thus limited to only intellectual property programs. The literature on credit ratings by Tsunida et al. (2014) was on methods used for public-private partnerships and infrastructure projects but not the effectiveness of the plans, while the reviews by World Bank (2017) focused on creating awareness on water sector financing with little regard to the efficacy of credit rating in development finance in WASH sector projects.

Therefore, the available literature does not give sufficient information on the effectiveness of all the four approaches used in blended financing in the WASH sector. Some of the

studies showed that the use of RBF was not an effective method for development finance. There was little evidence or no evidence on the literature review based on the Kenya Water sector on the effectiveness of blended financing. The current sought to fill the research gaps in the previous studies by determining how effective each of the four blended finance approaches is on implementation of water and sanitation project in Kenya. The study utilized an explanatory research design to establish the existing relationships between blended financing and implementation of water and sanitation project in Kenya. This lack of conclusive research detailing the WASH sector approaches' significance forms the basis for undertaking the current study.

Table 2.1 Summary of the Empirical Literature Review

Author	Country	Objective	Approach	Findings	Gaps
McGraw's et al., 2017 (OBA)	Africa, the Asian Pacific, and Latin American Countries	• To study the costing and financing of water, sanitation, and hygiene (WASH) in schools	• A systematic review of inter	• There is a lack of information around WASH costing, particularly around software elements • lack of data overall for WASH in school settings as compared to community WASH.	• The study did not check the effectiveness of the blended approaches on the level of investment
Grittner (2013) (OBA)	13 Africa, Asia, and South America countries	• to investigate the effectiveness and efficiency of performance-based financing in the health sector	• Systematic review, • quantitative and qualitative data analysis	• use of PBF was more effective in improving healthcare supply and healthcare coverage other than other funding schemes	• The study only studied the PBF approach but did not study the other blended financing models.
Castalia Strategic advisors (2015) (RBF)	20 countries and 30 projects	• To assess the performance of RBF and design methods of improving it.	• Systematic review, • quantitative and qualitative data approaches	• no sufficient evidence that RBF was more efficient compared to conventional financing and whether such projects were sustainable • RBF works well if private providers were contracted to supply services to consumers	• The study was relevant to the current research but lacked to bring more information on OBA

Author	Country	Objective	Approach	Findings	Gaps
				on behalf of the government and also performed well in developing countries with low government capacities	
OECD (2017) (Credit Guarantee)	23 OECD and EU countries	• To evaluate publicly supported credit guarantee programs for SMES	• a case review approach	• not all countries assessed the performance of their plans, and those who did only focused on financing and not economies and formality	• the study did not check on the effectiveness of CGs on the level of investment
FAO (2013) (Credit Guarantee)	15 Credit Guarantee schemes in different countries	• To evaluate credit guarantee systems for agricultural and rural enterprise development	• a case review approach	• CGs were neither the panacea nor the preferred option for development finance were not bound to fail, but success attributable to the case-by-case context.	• The study was on agricultural and rural enterprise development but not WAS
Haunsen et al. (2012) (Credit Guarantee)	Ghana, Kenya, Tanzania, and South Africa.	• To assess credit guarantee schemes for SME finance in Africa	• Quantitative and qualitative approaches	• CGs was a preferred option of addressing the financing gap by the SMES • utilization of CGs depended on the returns incorporated	• The study was relevant, but the target population was different

Author	Country	Objective	Approach	Findings	Gaps
				after taking care of the costs associated with the guarantee • Some of the guarantees successfully enabled banks to reduce financing barriers (such as high collateral requirements)	
Tsunida et al. (2014) (credit rating)	South Asia countries	• To assess credit rating methods for public-private partnerships, infrastructure projects, and SMEs	• Quantitative and qualitative approaches	• most of the government in the South Asian region are increasingly focusing on development projects • provide enabling policy environment to stimulate the flow of large investments under private-public partnerships into infrastructure government.	• The study did not check the effectiveness of the method on the level of investment
World Bank (2017) (credit rating)	Selected countries around the globe	• to review on easing the transition to commercial finance for sustainable	• Systematic review • Case study approach	• framework for helping countries use public resources more efficient to crowd in new sources of	• The study did not show how investors used credit guarantee to

Author	Country	Objective	Approach	Findings	Gaps
		water and sanitation • to bring together a state of awareness on water sector financing • to find out how countries should finance their WSS projects		finance and to formulate practical recommendations	improve creditworthiness
Timmis (2015) (Technical Assistance)		• To identify sources, find's and the effectiveness and impact of donor support for technical assistance programs	• Systematic case reviews • Program intervention reviews	• involving a broader range of actors as partners/ beneficiaries during capacity building interventions can improve the effectiveness • existed strong consensus in the literature that capacity building activities must be partner-owned to be effective and sustainable and that they should use partner country systems wherever possible, including partner budgets for aid delivery and local	• The study results did not address the aspect of effectiveness

Author	Country	Objective	Approach	Findings	Gaps
				procurement processes	
Sagar (2006) (Technical Assistance)	Cameroon, India, Thailand, and Argentina	• To study models of best practices in the provision of technical assistance to facilitate the implementation of the TRIPS agreement	• Quantitative and qualitative data approaches	• Most TA countries were centred on domestic legislation preparation to protect intellectual property and strengthen enforcement measures.	• The effectiveness of TA was not tested

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2.5 Conceptual Framework

A conceptual framework is critical in research as it helps the researcher identify and construct his/her worldview on the phenomenon to be investigated (Grant & Osanloo, 2014). This study has identified the independent variables as the models used in blended finance and the dependent variable as the implementation of water and sanitation project in Kenya. In this case, blended financing options is measured/captured by output-based aid, credit guarantees, credit ratings, and technical assistance. The assumed relationship is that blended financing influences how WASH projects are implemented. Literature highlights several indicators that can be used to measure implementation of WASH projects. The research further examined the moderating effect of type of investor on the relationship between blended financing approach and implementation of WASH projects in Kenya.

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Independent variable **Moderating Variable** **Dependent variable**

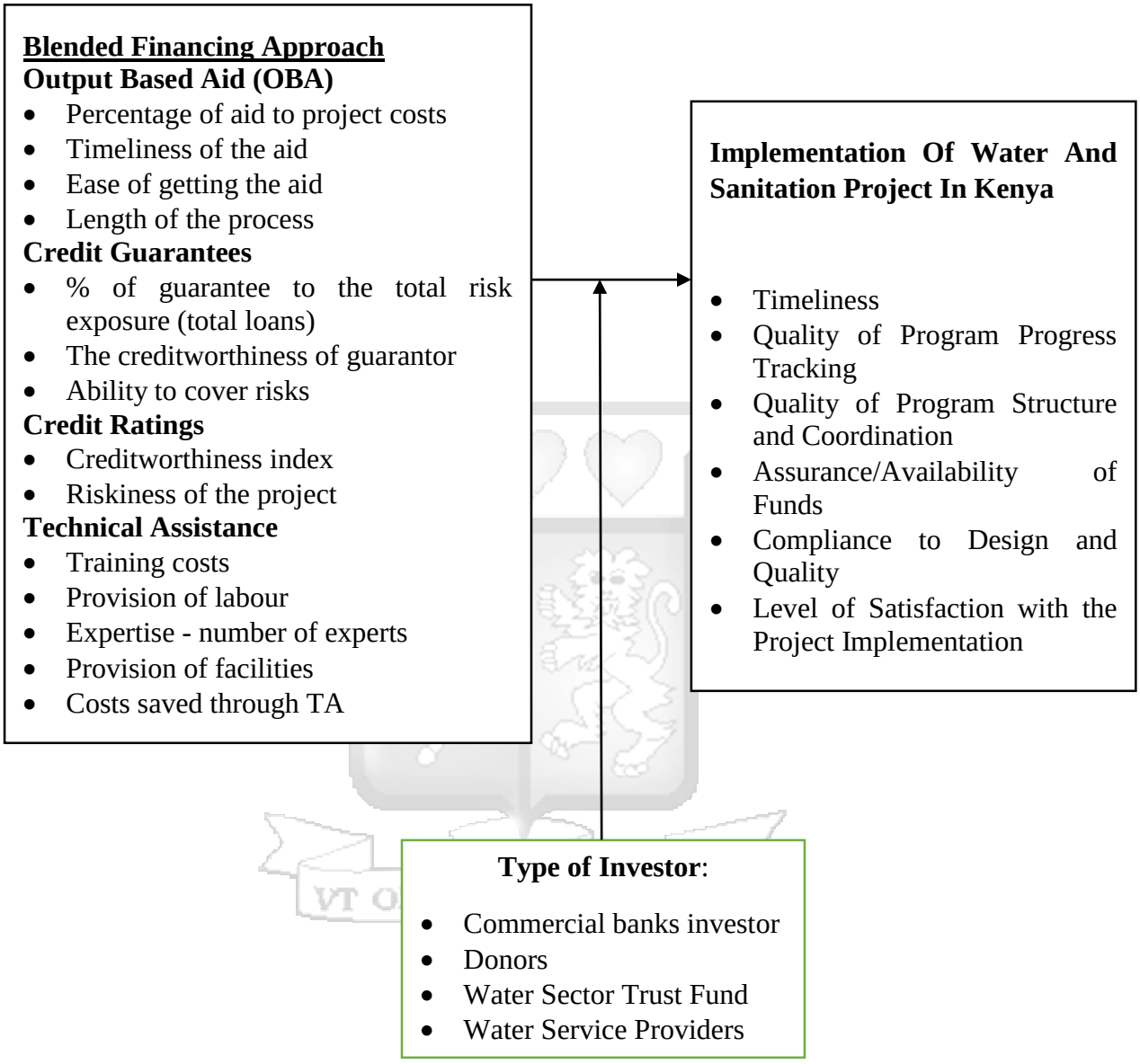

Figure 2: 1 Conceptual Framework

This study assessed how Output-based Aid has impacted the implementation of more water and sanitation projects, increasing the number of people served. Credit guarantees as a subsidy, was able to encourage more private investors in the sector. With the introduction of Water Services Providers' Credit ratings by the WASREB, the study established if it actually translates to more loans to the WSP's and, consequently, increasing projects.

Lastly, the study assessed the contribution of technical assistance in implementing the projects if it's positively correlated with the increase of projects in the sector. In a nutshell, the study was researching the effectiveness of the blended financing models on attaining sustainable water and sanitation projects and enabling achieving of the development goals 2030.

2.5.1 Operationalization of the Study Variables

Operationalization is the process of defining variables into measurable factors. The process establishes unclear concepts and allows them to be measured, empirically, and quantitatively. According to Daniel (2012), when operationalizing variables, the theory and research must be linked. The researchers should first understand the types of variables that can help them identify the impact accurately and stimulate future research (Tariq, 2015). In this study, all approaches used in blended financing have been defined as quantifiable indicators. Similarly, all the dependent variable (investment of projects in WASH projects) was broken into measurable aspects to analyze the data, as shown in table 2.2.

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Table 2.2 Operationalization of Study Variables

Variable	Measurement	Data Collection Tool	Data Analysis	Expected relationship with IV	Supporting Literature
Output-Based Aid	• Amount of OBA disbursements in Kshs to WSPs (Continuous variable) • Timeliness of the OBA disbursements in Ksh • Ease of getting the Output-Based Aid • Length of the process of getting the Output-Based Aid	• Secondary data collection guide (2012-2019) L • Questionnaire (Likert scale	• Means and deviation • Correlation coefficient • Regression analysis	• Positive relation with all the implementation of WASH projects	• Koening and Jackson (2016), Vanhove, Van Ackere, Vandekerckhove and De Buck (2018), Rodriguez, Suardi, Ham, Mimmi and Goksu (2014), Esseku and Roberts (2018).
Credit Guarantee	• Log of the total amount guaranteed in Kshs (which is equivalent to the total loans in Kshs) (Continuous variable) • Perceived creditworthiness of guarantor-(Categorical variable) • Perceived ability to cover risks	• Secondary data collection guide (2012-2019) • Questionnaire (likert scale)	• Means and deviation • Correlation coefficient • Regression analysis	• Positive relation with all the implementation of WASH projects	• Gurmessa and Ndinda (2014), Haunsen et al. (2012), FAO (2013), Dvouletý (2017), Alaerts (2019) Kehinde (2020).

Variable	Measurement	Data Collection Tool	Data Analysis	Expected relationship with IV	Supporting Literature
Technical Assistance	• Log of TA costs in Kshs (TA=costs of training, cost of expertise, advice, etc.) (Categorical variable) • Perceived unquantified assistance • Perceived level of support	• Secondary data collection guide (2012-2019) • Questionnaire (likert scale)	• Means and deviation • Correlation coefficient • Regression analysis	• Positive relation with all the implementation of WASH projects	• Nyamongo, (2017), Timmis (2015), Miller, et al., (2019), Lelegwe (2018), Machado, dos Santos, Quindeler and Alves (2019), Herschan, et al., (2020)
Credit Rating	• Creditworthiness index (This index was obtained from WASREB published reports) (Continuous variable) • The riskiness of the project (log of total loans disbursed by commercial banks to WSP in Kshs) (Continuous variable)	• Secondary data collection, questionnaire	• Means and deviation • Correlation coefficient • Regression analysis	• Positive relation with all the implementation of WASH projects	• Tsunoda et al. (2014), Gavalas and Syriopoulos (2015), Humprey (2015), Fonseca and Pories (2017), Friedman (2016), Ngadze (2021), Owen and Okech (2021)
Type of investor	• Commercial banks investor • Donors	• Questionnaire	• Frequencies, percentages	• Positive relation with all the implementation	• Dukhovny, Sokolov and Ziganshina (2016), Sehring,

Variable	Measurement	Data Collection Tool	Data Analysis	Expected relationship with IV	Supporting Literature
	• Water Sector Trust Fund • Water Service Providers			of WASH projects	Ziganshina, Krasznai and Stoffelen (2019), Pories, Fonseca and Delmon (2019) •
Implementation of WASH projects	• Timeliness • Quality of Program Progress Tracking • Quality of Program Structure and Coordination • Assurance/Availability of Funds • Compliance to Design and Quality • Level of Satisfaction with the Project Implementation	• Secondary data collection, questionnaire	• Means and deviation • Correlation coefficient • Regression analysis	• N/A	•

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the population, the sample and sampling methods, data collection methods, and data analysis methods, and the research procedures that was followed. It also describes the analytical tools to be used and the data collection instruments. This chapter sought to show the methodology used to investigate the effectiveness of the tools used in leveraging the private sector to contribute towards the successful implementation of water and sanitation projects.

3.2 Research Philosophy

Research philosophy deals with the source, nature, and development of knowledge (Bajpai, 2011). It is the basis of the research, which involves choosing a research strategy, formulation of the problem, data collection, processing, and analysis. The study adopted a positivist paradigm. Positivists believe in the use of natural science to generate knowledge. This paradigm helps researchers understand the objects by empirical tests and methods such as sampling, measurement, questionnaire, and focus group discussion. Positivism guided the study to generate conclusions based on the data collected and the study's findings.

3.3 Research Design

Kumar (1999) defined research design as a procedural plan adopted by researchers to answer questions objectively, accurately, economically, and with validity. A general approach is applied to undertake a research study (Malhotra, 2010), which specifies the procedures necessary for obtaining the information required to solve research problems (Kamau,2014). The study employed an explanatory research design. According to Gray (2014), explanatory research design sets out to explain and account for the descriptive information by asking ‘why’ and ‘how’ questions. The strategy seeks causes and reasons, and evidence to support or refute an argument, explanation, or prediction. The design is motivated by the need to establish how one variable affects or is “responsible for“ changes in another variable and is conducted mostly to discover relationships among different aspects of the phenomenon under study. This method is selected to provide information and results on the relationships

between the blended financing approaches and the implementation of WASH projects in Kenya. This would, in turn, evaluate the effectiveness of blended financing in the WASH sector in Kenya.

3.4 Population

Mugenda and Mugenda (2003) explain that the target population should have some observable characteristics to which the researcher intends to generalize the study results. The unit of analysis will be the WASH projects under *"Kenya Urban Water and Sanitation OBA Fund for Low-Income Areas (P132979 / TF016395),"* which has nine projects in 6 counties, namely; Murang'a, Nyeri, Kajiado, Embu, Kisumu, and Nakuru. The data was collected from different stakeholders grouped into four strata: donors, commercial investors, program implementers, and water service providers. These will form the unit of observation. The study's total population includes all persons who can provide relevant information on the use of blended financing in funding WASH projects under the program *"Kenya Urban Water and Sanitation OBA Fund for Low Income Areas (P132979 / TF016395)"*.

The target population represents all possible persons in each stratum who participate in the program and have first-hand information about the program. Suppose an entity has a variety of personnel working on different programs. In that case, the study does not focus on those who are not directly involved in the program's daily running since the information required is not subjective but objective. As a result, each stakeholder's possible numbers are minimal, giving a total of 100, as shown in table 3.1.

Table 3.1 Target Population

Strata of the Target Population	No. of strata in the population	Target Population	Counties where they work
Donors	2	8	All Counties
Commercial Investors	3	18	All Counties
Program Implementers	1	20	All Counties
Water Service Providers	9	54	Murang'a (3) Nyeri (2) Kajiado (1)

			Embu (1) Kisumu (1) Nakuru (1)
Total	**15**	**100**	

Source: Water Sector Trust Fund Quarterly RFB Reports

3.5 Sample Size

Wiersma (2005) stated that an ideal sample should be large enough to achieve the data's validity and reliability. To identify a representative sample, a purposive nonprobability sampling technique was used in this study. The purposive sampling technique is the participant's deliberate choice due to the participant's qualities (Cresswell & Plano Clark, 2011). Since the research focuses on the Water Sector Trust Fund's RBF program stakeholders, stratified sampling was employed to select the study's strata and purposive sampling technique to determine the respondents for the task. The target respondents were officials directly involved in implementing WASH projects, including program managers, program designers, accountants, procurement personnel, relationship managers and credit officers from the concerned banks, representatives from the projects' donors, and officials from the WSP firms. Yamane's formula (Yamane, 1967) was used to calculate the sample size of the study, as shown:

$$n = \frac{N}{1 + N(e^2)}$$

Where: n is the desired sample size, N is the population, e is the desired level of precision (e = ±5%). Assuming a 95% confidence level and e=0.5, the sample size is given as:

$$= \frac{100}{1 + 100(0.05)^2}$$

$$= 80$$

Table 3.2 Total Sample for the Study

Strata	Strata for the population	Target Respondent	N
Donors	2	Three from each donor (1 project coordinator and 1 M&E personnel, and 1 Investment Analysis)	6
Commercial Investors	3	Three from each bank (1 Relationship manager, and 1 Credit manager, and one official from strategic operations from each bank)	9
Program Implementers	1	20 Representatives from the departments, (Partnership Development (2), Resource Mobilization (2), Investments Manager (2), project Finance officers (2), Internal auditors (2), Planning and Research (2), RBF Manager (2), rural investments (2), urban investments (2) and M&E unit (2)	20
Water Service Providers/Trust Fund	9	Five from each WSP (1 Project finance officer, 1 Project Manager, 1 M&E Officer, 1 Technical Manager,1 Sociologist)	45
Total	**15**		**80**

3.6 Data Collection Methods

Data collection is the process of gathering and measuring information on variables of interest in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. Flottman, Stewart, and Tayler (2012) defined data collection as a systematic approach to gathering information from various sources to get a complete and accurate picture of an area of interest. This study collected using structured questionnaires to collect quantitative data. The use of questionnaires is cheaper to implement and is standardized, enabling easy comparisons of effects among the variables and improving the measurability of the size of the effect. In this study, data was collected by administering questionnaires to staff members from the concerned banks, WSTF, and WSPs by the researcher. The study also collected secondary data from published WSTF reports, donor reports and reports from the WSP, and other relevant sources.

3.7 Data Collection Procedures

The data collection process in this research adhered to a scientific approach that ensured that collected research data is reliable for adoption in the study. The researcher made sure that all the participants approached are debriefed on the aims of the study and the informed consent is obtained. Further, the study presented the relevant research permit from National Commission for Science Technology and Innovation and authorization to collect research data from the Ethics Review Committee. The study applied a drop and pick method in the collection of research data from the sample participants. The study further adopted Emails in the data collection. Bryman (2015) asserts that pilot study is important in that it tests how reliable and valid the instruments of a study are. The author indicated that atleast 10% of the sample population is suitable for pilot testing of the research instrument. The study assessed the quality of the research instrument through a pretest of the instrument among 8-participants who will not be considered in the main research.

3.7.1 Research Quality

To improve the quality of this study. The study tested for the validity and reliability of the study tools to ensure that they are free from errors and that they can be relied upon, valid, and can measure consistency (Bryman, 2015). The validity of the study tools was done through a thorough examination by experts and supervisors. Simultaneously, reliability was ensured by testing the Cronbach Alpha value of the study tools before the main study. Any errors and corrections were made and considered into the devices accordingly. The research quality was enhanced by ensuring that data collection is not biased, complete, and actual. Efforts were made to ensure that the data entered is accurate with minimal handling errors.

The Cronbach Alpha was explained using the below scale; $\alpha \geq 0.9$ – Excellent; $0.9.>\alpha \geq 0.8$ – Good; $0.8 >\alpha\geq 0.7$ – Acceptable; $0.7 >\alpha\geq 0.6$ – Questionable; $0.6.>\alpha\geq 0.5$ – Poor and $0.5 > \alpha$– unacceptable.

Table 3.3 Reliability Statistics

Blended Financing Approaches			
Variable	**Cronbach's Alpha**	**Number of Items**	**Comment**
Blended financing approach	0.770	4	Accepted
Output based approach	0.842	5	Accepted
Credit guarantee approach	0.735	4	Accepted
Technical assistance approach	0.865	4	Accepted
Credit rating approach	0.745	3	Accepted
Investment in Wash Projects	0.720	6	Accepted

3.8 Data Analysis and Presentation

Data analysis is the process of organizing and interrogating data in ways that allow researchers to see patterns, identify themes, discover relationships, develop explanations, make interpretations, mount critiques, or generate theories. Continuous variable data was entered directly into the software for analysis. In contrast, categorical data was coded and entered into a computer statistical software application for analysis Social Package for the Social Sciences (SPSS version 25) and Microsoft Excel 2019 to generate charts. Once entered, the data was cleaned and analyzed using descriptive and inferential statistics.

Descriptive statistics included the use of frequencies, percentages, and measures of dispersion and central tendency. Further, inferential statistics such as correlation and regression analysis were employed to test the relationships between blended financing models and the implementation of the programs. A multiple linear regression method tested the significance of the relationship between the independent and dependent variables. Multiple linear regression was run to establish the effect of each of the approaches on the level of investment. The model summary and ANOVA generated to test the variables' significant impact on the dependent variable.

$$Y=\beta_0 + \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+ \beta_5X_5+\varepsilon$$

Where:

Y = Implementation of Water and Sanitation Projects
X_1 = Output-based Aid (OBA)
X_2 = Credit Guarantees
X_3 = Credit Ratings
X_4 = Technical Assistance
X_5 = Type of investor
ε is a term depicting error margin
β_0 represents the constant
β_1 to β_5 are regression coefficients

The study variables were measured using a secondary data collection guide and the questionnaire. The study measured the variables, as shown in table 3.3.

3.8.1 Diagnostic Tests

Some preliminary diagnostic tests were run before a multiple regression analysis to ensure that there was no violation of the assumptions of normality, multicollinearity, and heteroscedasticity. The normality assumptions were done to confirm whether the residuals are normally distributed. The study adopted normal P-P plot in the tests. Simultaneously, multicollinearity was used to ascertain whether the independent variables are positively correlated, affecting regression results. The research relied on variance inflation factor and tolerance values to determine the collinearity between the research variables. Another assumption of linear regression is that there should be no auto correlation. One of the tests used for auto correlation is Durbin Watson test which checks for serial correlation (Anderson, Sweeney, & Williams, 2012).

3.9 Ethical Issues in Research

It is a requirement to seek authority to conduct any research study by the authorities in charge of research to ensure ethical standards are followed. The research aimed to get authorization from the University, the government, and the study's target institution. The research ensured that the respondent has given consent before contacting any investigation. As well, there is a need to disclose the purpose of the research study to the participants. The data was safeguarded and anonymity preserved by ensuring non-disclosures of any information regarding the participants to unauthorized parties (Ritchie, Lewis, Nicholls & Ormston, 2013).

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter aimed to focus on the presentation of the findings from the analysis implemented on the collected study data. The chapter focused on the demographic analysis, the descriptive summaries, the correlation results, diagnostic analysis, and the regression findings. The study applied charts, bar graphs, and tables in the presentation of the study findings.

4.2 Background Information

4.2.1 Response Rate

The study was quantitative with both structured questionnaires and secondary research data being employed in the examination. The study instrument was pretested among 8 participants and the reliability tests indicated there was an internal consistency within the instrument. Further, validity tests were established through development and review of the instrument with the assistance of the research supervisor. The research was focused on 80 stakeholders within the WASH projects in six counties within the country. The study relied on electronic data collection techniques and was able to obtain 64% (n=51) of the expected responses. This representation was deemed suitable due to the current conditions where most organizations have scaled down their operations.

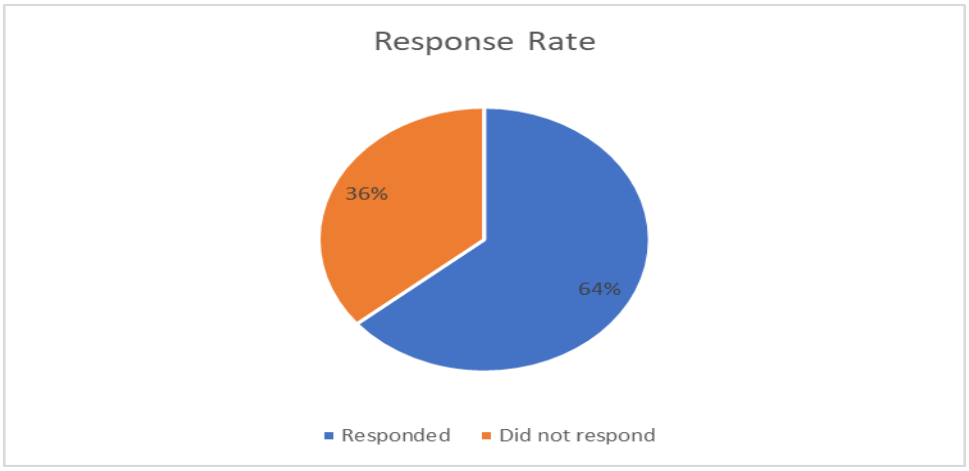

Figure 4.1 Response Rate

4.2.2 Demographic Information

The research reviewed the type of stakeholders, organizations participating and the projects the participants are involved with. The summary of the findings is shown in this section.

4.2.2.1 Type of Stakeholder

The findings of the study indicated that 63% (n=33) of the participants were water service providers, 6% (n=3) were donors, 15% (n=8) were from the Water Sector Trust Fund and 14% (n=7) were representatives of commercial investors.

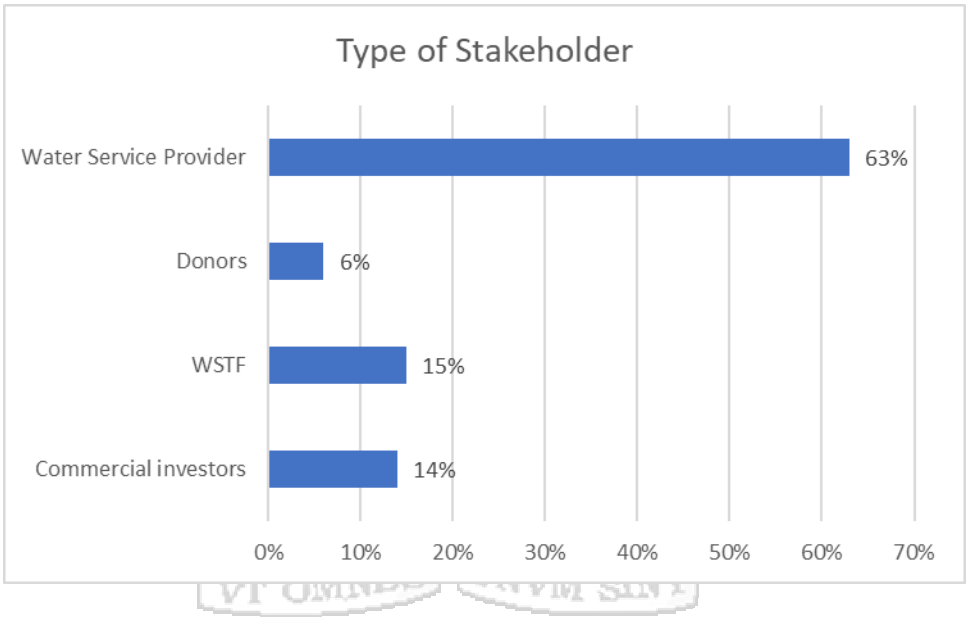

Figure 4.2 Type of Stakeholder

4.2.2.2 Designation in Organization

The research further reviewed the designation of the participants in the various organizations that were represented in the study. The findings are shown in Table 4.1 below.

Table 4.1 Designation of Organization

	Frequency	Percent
Relationship Manager	7	13.5
Marketing/Commercial Manager	9	17.3

	Project Coordinator	11	21.2
	Technical Officer	5	9.6
	Finance/Procurement Officer	12	23.1
	Auditor	7	13.5
Total		51	100.0

The results showed that most of the participants 23% were finance/procurement managers, 17% were marketing/commercial managers and 21% were project coordinators. The findings implied that due to the divergent designations of the participants the study was able to obtain views that were adequate to answer the study problem.

4.2.2.3 Participation in WASH Projects

The study also sought to determine which WASH projects the participant had participated in within the country. This was deemed necessary to determine how experienced they are with the workings of the WASH projects.

Table 4.2 Participation in WASH Projects

	Frequency	Percent
Murang'a South 1-water extension project	3	5.8
Murang'a South 2 (MUSWASCO)-water extension project	8	15.4
Murang'a water project	3	5.8
Naivasha (NAIVAWASS)-water extension project	7	13.5
Nyeri (NYEWASCO)-Sewer extension project	6	11.5
Embu (EWASCO)-Sewer extension project	3	5.8
Kisumu (KIWASCO) - water extension project	1	1.9
Mathira (MAWASCO) - water extension project	3	5.8
Nol Turesh (NOLWASCO)-water project	7	13.5
All the Above	10	19.2
Total	51	100.0

Findings demonstrate that most of the participants 19% (n=10) had participated in all the WASH projects being investigated, 15% (n=8) had participated in the Murang'a South 2 (MUSWASCO)-water extension project, 13% (n=7) had taken part in the Nol Turesh (NOLWASCO)-water project while only 2% (n=1) had participated in the Kisumu (KIWASCO) - water extension project. This indicated that the study was able to obtain information from stakeholders who have vast experience with the different WASH projects implemented across the country.

4.3 Descriptive Analysis

This section presents a summary of the 51 respondents' rating of various items of blended financing approaches, output-based aid, credit guarantee, credit rating, technical assistance approach, and investment in WASH projects. The data were analyzed by use of means, standard deviations, and percentages. The analysis was presented in form of tables.

4.3.1 Blended Financing Approaches

The first objective of the study sought to identify the available blended financing models in the water and sanitation sector in Kenya. The study opined that investments in WASH projects included a combination of a variety of approaches to achieve maximum success rate. The participants were presented with four main statements and the summary of their responses is shown in the table below. The table below presents the computation of the mean from the responses obtained from the structured research questions and the deviation represents the spread of the responses from the mean value. The study results were interpreted using the following criterion of the study mean.

Table 4.3 Analysis of Blended Financing Approaches

	N	Mean	Std. Deviation
The extent to which donors funded the WSP to undertake the project	51	4.2353	.58611
Extent to banks relied on the credit guarantees/assurance from the donor to accept to finance the WSP	51	4.0392	.63121
Extent to which banks relied on the creditworthiness index by WASREB to rate credit value of WASH projects	51	3.7451	.99686
Extent to which the projects received technical assistance in cash or in-kind	51	4.2745	.63493

The findings showed that the extent to which donors funded the WSP to undertake the projects was perceived by respondents to be at moderate and great extent estimated at 58% and 33% respectively. The analysis also indicated the extent to which banks relied on the creditworthiness index by WASREB to rate credit value of WASH projects was deemed by 29% as moderate, 31% to a great extent and 13% to a low extent. The results showed the extent to which the projects received technical assistance in cash or in-kind was perceived by 52% of respondents to be moderate and 36% to be of a very great extent.

4.3.2 Output-Based Aid Approach

The second objective of the study sought to establish the effect of output-based approach on the investments in Water and Sanitation projects in Kenya. The study noted that WASH projects were designed such that Output-Based Aid (OBA) from donors was used to subsidize the costs of providing WASH services to targeted beneficiaries. The summary of the responses from the 51 participants is presented in the table below. The study results were interpreted using the following criterion of the study mean.

Table 4.4 Analysis of Output-Based Aid Approach

	N	Mean	Std. Deviation
Adequacy of the amount of subsidies given to WSP to implement the projects	51	4.1961	.69339
Timeliness of the aid to the WSP with reference to the program timelines	51	4.0196	.61612
Length of procedures in having the aid secured/approved by the WSP	51	3.6471	.86772
Ease of disbursement of the aid to the WSP to implement the projects	51	3.7647	.90749
Performance of use of OBA to guarantee WASH projects	51	4.3137	.70683

The findings showed that 60% of respondents indicated that to a great extent, 4% to a low extent there was adequate amount of subsidies given to WSP to implement the projects. In regard to the ease of disbursement of the aid to the WSP to implement the projects was viewed by 60% of respondents to a great extent, 15% to a very great extent and 17% to a low extent. Concerning the performance of use of OBA to guarantee WASH projects there was regarded by 46% of respondents to a moderate extent as compared to 4% to a very low extent.

4.3.3 Credit Guarantees Approach

The third objective of the study sought to establish the effect of credit guarantee approach on the investments in Water and Sanitation projects in Kenya. The study noted that investments in the WASH projects were designed in a way that made the banks convinced/comfortable and guaranteed the safety of their investments in the WASH projects. The participants were asked to rate statements and the summary of their responses

is shown in the table below. The study results were interpreted using the following criterion of the study mean.

Table 4.5 Analysis of Credit Guarantees Approach

	N	Mean	Std. Deviation
Adequacy of the loans advanced to the WSP to do the WASH projects	51	3.8039	.69339
Level of guarantee provided by the guarantee procedures	51	3.4902	.83361
Level of risk exposure mitigated by the project guarantee procedures	51	3.6078	.80196
Likelihood of the projects to recover risks provided by the guarantee procedures	51	3.3922	.66569

Results showed that extent to which level of guarantee provided by the guarantee procedures was perceived by respondents to be at moderate and great extent estimated at 48% and 37% respectively. The findings noted that 69% of the respondents indicated that to a moderate etxent there was likelihood of the projects to recover risks provided by the guarantee procedures as compared to 9% who agreed to a very great extent. The findings noted that 57.7% viewed the level of risk exposure mitigated by the project guarantee procedures to a moderate extent.

4.3.4 Credit Rating Approach

The fourth objective of the study sought to establish the effect of credit rating approach on the investments in Water and Sanitation projects in Kenya. The research opined that investments in WASH projects employed the use of the credit rating method which uses the creditworthiness index provided by WASREB. Through the index, banks were able to estimate the risk exposure of the WASH projects. From these various stakeholders were

quizzed on the various aspects and a summary of the responses is presented below. The study results were interpreted using the following criterion of the study mean.

Table 4.6 Analysis of Credit Rating Approach

	N	Mean	Std. Deviation
Adequacy of the creditworthiness in assessing the riskiness of a project	51	3.9608	.72002
Extent to which banks used creditworthiness index developed by WASREB to estimate the	51	3.4902	.57871
Effectiveness of the creditworthiness index in convincing banks/private to give loans to the WASH projects	51	3.3922	.60261

The findings revealed that the adequacy of the creditworthiness in assessing the riskiness of a project was viewed by 27% of respondents to a moderate extent, 48% to a great extent and 23% to a very great extent. The results noted that 54% of respondents to a moderate extent indicate it there was effectiveness of the creditworthiness index in convincing banks/private to give loans to the WASH projects as compared to 4% who indicated to a low extent and 2% to no extent at all.

4.3.5 Technical Assistance Approach

The fifth objective of the study sought to establish the effect of technical assistance approach on the investments in Water and Sanitation projects in Kenya. The fourth approach noted that implementation of the WASH projects involved the provision of technical assistance towards the implementation of the projects. The assistance was in different forms such as the provision of labor, skills, expertise, or meeting of overhead costs. The summary of the participant's responses is presented below. The study results were interpreted using the following criterion of the study mean.

Table 4.7 Analysis of Technical Assistance Approach

	N	Mean	Std. Deviation
The extent to which banks provided labour (e.g to install water pipes) hired engineers to review BQS	51	2.8039	1.53648
Extend to which banks supported the development of skills within the project	51	3.3137	.81216
The amount of costs saved in totality through the TA	51	3.7255	1.13276

The extent to which banks provided labour (e.g to install water pipes) hired engineers to review BQS was viewed by 33% to no extent at all and 23% to a moderate extent. Further, the extent to which banks supported the development of skills within the project, was perceived by 42% of respondents to a great extent and 25% to a very great extent. Results showed the extent to which the amount of costs saved in totality through the technical assistance was viewed to a moderate extent by 42% of respondents and 9% to a low extent by the respondents.

4.3.6 Investments and Implementation of WASH Projects

The dependent variable for this study reviewed the implementation and investment channeled to WASH projects within the selected counties. The summary of the responses is presented below. The study results were interpreted using the following criterion of the study mean; very great extent (VGE), great extent (GE), to a moderate extent (ME), low extent (LE) and to no extent at all (NEA).

Table 4.8 Analysis of Implementation of Water and Sanitation Project in Kenya

	N	Mean	Std. Deviation
Project completion level/rate	51	4.0392	.74728
Amount of money sourced from private sector and banks	51	3.7451	.82081
Timeliness of the implementation of projects	51	3.8235	.81746
Assurance or availability of funds when the required-no delay caused by lack of money	51	3.8627	.74886
Satisfaction with the amount of money sourced from commercial banks and private sector	51	3.6275	.72002
Compliance of the projects with the initial program and design	51	3.9804	.61612

The findings showed that the extent of project completion level was viewed to a great extent by 44% of respondents and to a very great extent by 28%. The result indicated that 42% of respondents perceived to a great extent there was timeliness in the implementation of projects as compared to 31% who indicated to a moderate extent. The analysis showed that 48% of respondents to a great extent indicated that assurance or availability of funds when the required-no delay caused by lack of money as compared to 2% who indicated to no extent at all. The respondents indicated that to a great extent (62%) there was compliance of projects with the initial program and design.

4.4 Correlation Analysis

Bryman (2015) notes that correlation analysis is useful as it could indicate a predictive relationship between variables that can further be explored using other statistical tools. The study relied on Spearman rank correlation analysis.

Table 4.9 Correlation Analysis

Spearman's rho		Output-Based Aid	Credit Guarantees	Credit Ratings	Technical Assistance	Implementation of Water and Sanitation Project in Kenya
Implementation of Water and Sanitation Project in Kenya	Correlation Coefficient	.332*	.391*	.012	.341*	1.000
	Sig. (1-tailed)	.009	.002	.466	.007	.
	N	51	51	51	51	51

*. Correlation is significant at the 0.05 level (1-tailed).

The results showed that credit guarantees had a weak positive relationship with Implementation of Water and Sanitation Project in Kenya as shown by Rho = .391, Sig = .002<.05. The study also showed a weak positive association of output-based approach on the Implementation of Water and Sanitation Project in Kenya as shown by Rho = .332, Sig = .009<.05. Findings also indicated that credit rating had a weak and insignificant relation with Implementation of Water and Sanitation Project in Kenya as shown by Rho = .012, Sig = .466>.05.

4.5 Diagnostic Tests

4.5.1 Normality Tests

The study applied the P-P plot of the residuals to determine if the observations applied in the analysis were from a normal distribution. Based on the fit of the observation along the normality curve indicated that research data adopted was from a normal distribution.

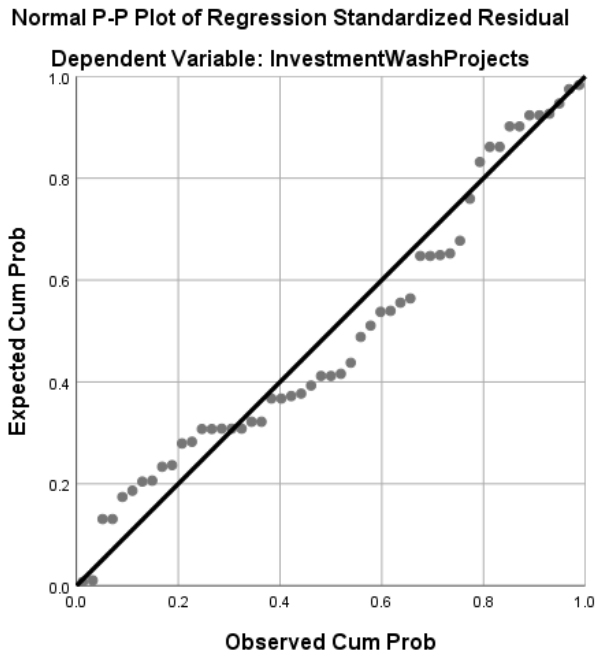

Figure 4.3 Normality P-P Plot

4.5.2 Collinearity Tests

Multicollinearity, a situation where one or more independent variable is explained by other predictor variables with a high degree of accuracy, may lead to type II error in hypothesis testing. The study applied the VIF and Tolerance value in the analysis.

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Table 4.10 Multicollinearity Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Output Based Aid	.598	1.673
	Credit Guarantees	.904	1.107
	Credit Ratings	.825	1.212
	Technical Assistance	.552	1.813
2	(Constant)		
	Output Based Aid	.549	1.822
	Credit Guarantees	.608	1.646
	Credit Ratings	.787	1.271
	Technical Assistance	.495	2.021
	Donor	.481	2.077
	Commercial Bank Investors	.511	1.958
	Water Service Provider	.496	2.015

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The results indicated that all the independent variables had VIF values that were less than 10 which was an indication of no severe collinearity within the predictor variables. Further, the analysis indicated that the study variables had tolerance values that were above 0.1 which reinforces the earlier observation that the study did not suffer from any collinearity problems. In the second model the results further showed no collinearity problems with control variables donor (VIF = 2.077), commercial bank investors (VIF = 1.958) and water service provider (VIF = 2.015).

4.5.3 Autocorrelation Tests

Autocorrelation tests are defined as the extent to which correlation is exhibited between values of the same variables across different observations in the data. The study adopted the Durbin-Watson statistic in the analysis.

Table 4.11 Autocorrelation Results

Model	Durbin-Watson
1	1.846
2	1.503

a. Dependent Variable: Implementation of Water and Sanitation Project in Kenya

b. Predictors: (Constant), Technical Assistance, Credit Guarantees, Credit Ratings, Output Based Aid

c. Predictors: (Constant), Water Service Provider, Output Based Aid, Credit Ratings, Credit Guarantees, Commercial Bank Investors, Technical Assistance, Donor

The Durbin-Watson statistic lies between 1.5 and 2.5. From the results of the regression analysis, the study yielded a coefficient of 1.846 which falls within the range thus denoting lack of serial correlation problems in the analysis. The second model showed no serial correlation in the residuals in the regression model.

4.5.4 Heteroscedasticity Tests

According to Bryman (2015) when using the Breusch Pagan test, the constant variance is established when the P-value of the test is greater than the critical value. The study utilized the test and the results are shown below.

Table 4.12 Breusch Pagan Test Results

Item	**Langrange Multiplier**	**P-Value**
Fitted for Implementation of Water and Sanitation Project in Kenya	6.23	0.26

The research findings yielded a P-value is 0.26, which is greater than the Alpha (0.05). This means that the error term is the same across all values of independents variables.

4.6 Regression Analysis

Mishra (2010) explains that regression analysis is widely used in social sciences to predict the dependent variable from the known value of the independent variable(s). This was applied in the study to identify the relationship between blended financing approaches and the implementation of WASH projects. Further, a hierarchical regression was implemented to determine the moderating effect of the type of donor on the relationship blended financing approaches and the implementation of WASH projects.

Table 4.13 Regression Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.448[a]	.201	.131	3.03344
2	.681[b]	.464	.377	2.56908

a. Predictors: (Constant), Technical Assistance, Credit Guarantees, Credit Ratings, Output Based Aid

b. Predictors: (Constant), Water Service Provider, Output Based Aid, Credit Ratings, Credit Guarantees, Commercial Bank Investors, Technical Assistance, Donor

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The study aimed at establishing the relationship between the independent and dependent variables and the findings showed an (R2) as 0.201 which shows that 20.1% of implementation of WASH projects are influenced by the blended finance approaches. The results further showed a coefficient of determination of .464 which indicated that jointly the type of donor and blended financing approach determined 46.4% of the changes in the implementation of the WASH projects in Kenya.

The study main hypotheses were stated as;

H_0 *There is no statistically significant influence of blended financing approaches on the* Implementation of Water and Sanitation Project in Kenya

The study applied ANOVA analysis to determine the statistical significance of the relationship.

Table 4.14 ANOVA Summary

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	106.406	4	26.601	2.891	.032[b]
	Residual	423.281	46	9.202		
	Total	529.686	50			
2	Regression	245.879	7	35.126	5.322	.000[c]
	Residual	283.807	43	6.600		
	Total	529.686	50			

a. Dependent Variable: Implementation of Water and Sanitation Project in Kenya

b. Predictors: (Constant), Technical Assistance, Credit Guarantees, Credit Ratings, Output Based Aid

c. Predictors: (Constant), Water Service Provider, Output Based Aid, Credit Ratings, Credit Guarantees, Commercial Bank Investors, Technical Assistance, Donor

The findings of the ANOVA analysis yielded a P-value of .032 which is less than the critical value of .05 which indicated there is a statistically significant influence of blended financing approaches on the Implementation of Water and Sanitation Project in Kenya. Thus, the null hypothesis is rejected in favor of the alternate.

Further, the study examined the statistical significance of the moderating effect of the type of donor on the relationship between blended financing approaches and the implementation of WASH projects. The results indicated a F-calculated = 5.322, Sig = .000<.05 which indicated that the type of donor significantly moderated the relationship between blended financing approach and the implementation of WASH projects.

Table 4.15 Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.491	5.203		3.362	.002
	Output Based Aid	.113	.212	.091	.533	.596
	Credit Guarantees	.350	.199	.244	1.758	.085
	Credit Ratings	-.494	.397	-.180	-1.244	.220
	Technical Assistance	.374	.143	.311	2.615	.007
2	(Constant)	13.856	4.876		2.842	.007
	Output Based Aid	.290	.187	.233	1.549	.129
	Credit Guarantees	.476	.206	.331	2.312	.026
	Credit Ratings	-.342	.344	-.125	-.993	.326
	Technical Assistance	.252	.191	.209	1.319	.194
	Donor	-5.112	2.204	-.373	-2.320	.025
	Commercial Bank Investors	.299	.488	.096	.614	.542
	Water Service Provider	-.758	.267	-.450	-2.837	.007

a. Dependent Variable: Implementation of Water and Sanitation Project in Kenya

The expected outcome of the regression equation adopted in the research is stated as;

$$Y=17.491+ .113X_1+ .350X_2+ -.494X_3+ .364X_4+5.203$$

The findings indicated that the coefficient of the equation $\beta_0 = 17.491$ which was statistically significant (Sig =.002<.05).

The first research hypothesis was;

H_{O1} There is no significant positive effects of output-based approach on the implementation of water and sanitation project in Kenya.

The coefficient for out-put-based approach $\beta_1 = .113$ was positive but not statistically significant (Sig =.596>.05) implying there is no significant influence of output-based approach on the implementation of WASH projects.

The second research hypothesis sought to test the following hypothesis;

H_{O2} There is no significant positive influence of credit guarantee approach on the implementation of water and sanitation project in Kenya.

The coefficient for credit guarantees $\beta_2 = .350$ showed a positive and significant influence since (Sig = .001<.05) which noted that a change in credit guarantee by a unit will result in a .35 change in the implementation in the WASH projects in Kenya.

The third research hypothesis tested;

H_{O3} There is no significant positive effect of technical assistance approach on the implementation of water and sanitation project in Kenya.

The coefficient for technical assistance $\beta_2 = .374$ was positive and significant since (Sig = .007<.05) which noted that a change in technical assistance by a unit will result in a .374 change in the implementation in the WASH projects in Kenya.

The fourth research hypothesis tested;

H_{O4} There is no significant positive effect of credit rating approach on the implementation of water and sanitation project in Kenya.

Findings of the study yielded a negative coefficient for credit ratings $\beta_3 = -.494$ which was not significant since (Sig = .220>.05) which noted there is no significant influence of credit ratings on the implementation in the WASH projects in Kenya.

H_{O5} There is no significant moderating positive effect of type of investor on the relationship between blended financing approaches in the implementation of water and sanitation project in Kenya.

The coefficient for donor funding was negative (*β = -5.112, Sig = .025<.05)* which indicated there was a significant and negative effect of donor funding on the implementation in the WASH projects in Kenya. The findings further yielded a positive coefficient of commercial bank investors (*β = .299, Sig = .542>.05)* which revealed there was an insignificant effect of commercial bank investors on the implementation in the WASH projects in Kenya. Lastly, the results showed a negative coefficient of water service providers (*β = -.758, Sig = .007<.05)* which established there is a negative and significant effect of Implementation of Water and Sanitation Project in Kenya.

4.7 Summary

The Kenyan government has been undertaking far-reaching programs focused on improving access to water within the country. These reforms and programs being executed are focused on improving accessibility to water and sanitation services across communities where there is a dire need for efficient water and sanitation management. However, to date, several of the government initiatives have not been able to meet their intended goals due to inadequate financing capacity and inefficiencies in the management of the available resources. To this end, numerous stakeholders have been participating in the implementation of water service projects with a view of improving the success of execution. One of the key practices that have been deployed is blended financing approaches. However, there is limited consensus on the effectiveness of the approaches in the implementation of WASH projects. This formed the rationale for the current study.

The study was anchored on a descriptive research approach with both primary and secondary sources of data being utilized. The study was able to obtain a 64% response rate from the sample cohort of 80 stakeholders. The findings indicated that the majority of the respondents were water service providers. Results of the overall regression model established the existence of a positive and significant relationship (*R_2=.201, f= 2.891, Sig = .032<.05)* between blended financing approaches and the implementation in WASH

projects. The moderated regression model indicated that 46.4% of the changes in the implementation of WASH projects in Kenya are determined by the blended financing approaches and the type of investor in the project.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The last chapter of the research focused on the discussion of the results, and conclusions. The chapter also presented the recommendations drawn from the results and the areas for further research.

5.2 Discussion of Findings

5.2.1 Output-Based Aid Approach and Implementation of WASH Projects

The study findings showed that adequacy of subsidies given to Water Service Providers are critical to the implementation of the projects. These results resonate with Musmissen, Jhannes, and Kumar (2010) who contends that subsidies offered through Output-Based Aid (OBA) have been key to improving access to essential services within communities. Similarly, Tremolet et al. (2010) noted that increased investments are achieved through undertaking of OBA activities that are key to getting private capitals to participate in delivery of essential services. Participants also demonstrated that timeliness of the aid to the WSP is key to meeting the program timelines. Furthermore, results showed that ease of disbursement of the aid and length of procedures in getting aid secured or approved are key to project implementation. Koening and Jackson (2016) argued that basing financing decisions on the results of development initiatives as long been used as an incentive to ensure there is timeliness in the undertaking. More so, the utilization of OBA initiatives has supported the increase in provision of essential services to marginalized areas.

The respondents also noted that performance of use of OBA to guarantee WASH projects was essential to better implementation success. This augurs with Grittner (2013) who established that utilization of performance-based funding mechanisms has been effective in improving coverage of projects and ensuring there is efficiency in the undertaking. The regression results established there is a positive and statistically insignificant effect of output-based aid on the implementation of WASH projects. Castalia Strategic Advisors (2015) also noted that utilization of results-based financing has been effective in expanding

the performance of projects. McGinnis, McKeon, Desai, Ejelonu, Laskowski, and Murphy (2017) also established that OBA is an effective and critical component to expanding access to WASH projects.

5.2.2 Credit Guarantee Approach and Implementation of WASH Projects

The participants also noted that adequacy of the loans advanced to the water service providers were vital to implementation of the projects. Bender (2015) notes that utilization of credit guarantees is key to improving the lending capability and extending the lenders ability to accept some risks. Results also revealed that the level of guarantee and the risk exposure mitigated by project guarantee procedures were key to the WASH projects. Same sentiments were echoed by Gatti (2013) who argued that investors will only accept some form of risks when the financing of projects is guaranteed. This will ensure that their concerns are addressed and as such will encourage their participation in projects. OECD (2017) also noted that credit guarantees have become a popular tool of enhancing access to financing options.

Participants moderately agreed that likelihood of the projects to recover risks provided by the guarantee procedures was a central theme. These findings concur with FAO (2013) who noted that utilization of credit guarantees was not a sure method of ensuring access to development finance as this is determined in case-by-case context. The study established that credit guarantees had a significant and positive influence on the Implementation of Water and Sanitation Project in Kenya. Haunsen et al. (2012) showed that credit guarantees have enabled financial firms to advance loans to institutions as it accommodates the risks associated with projects. Gatti (2013) also noted that guarantees have been central to improved financing of infrastructure projects by public and private sector institutions.

5.2.3 Credit Rating Approach and Implementation of WASH Projects

The respondents agreed that the adequacy of the credit worthiness in assessing the riskiness of a project is essential. The findings also showed that to an extent to which banks used credit worthiness index developed by WASREB to estimate the credit rating was key to the WASH projects. This is in line with Jeremias (2011) who in a study of water project in Philippines asserted that creation of risk rating criteria has seen commercial banks expand

their lending and improve access to cheaper financing options since institutions view the ratings as a transparent standard. Tsunoda et al. (2014) established that credit rating methods have played a central role in enhancing access to loans as commercial bank relate better scores with low risk and confidence in the customer.

The results did demonstrate moderate agreement that there is effectiveness in the credit worthiness index in convincing banks/private to give loans to the WASH projects. Gavalas and Syriopoulos (2015) in their study also showed that utilization of various credit rating systems has not been identified as a predictor of better project implementation. The findings indicated there exists a negative and insignificant effect of credit ratings on the Implementation of Water and Sanitation Project in Kenya. Consistent with our results Humprey (2015) noted that lack of a standardized credit rating assessment has led to poor allocation and expansion of development financing. Fonseca and Pories (2017) also noted that inadequacy of blended financing approaches has led to inequities to accessibility of financing options.

5.2.4 Technical Assistance Approach and Implementation of WASH Projects

The study results indicated that to a moderate extent commercial bank provided labour (e.g to install water pipes) hired engineers to review BQS. Timmis (2015) revealed that having multiple actors participating in technical assistance can be key to fostering the access to capacity building initiative and effectiveness within projects. The respondents did agree that the amount of costs saved in totality through the TA is ideal to the WASH projects. Sagar (2006) indicated that technical and financial assistance are vital in facilitating better project outcomes. The study showed that enforcement of TA initiatives can be critical to expanding and creating a favourable project environment. The regression analysis established technical assistance had a positive and significant influence on the Implementation of Water and Sanitation Project in Kenya. This is consistent with Timmis (2015) who established that expanding the project team capacity and offering technical assistance programs was associated with effectiveness in the project execution.

5.3 Conclusions

The study concluded that blended financing approaches have a positive and significant influence on the implementation of WASH projects. The research revealed that a combination of output-based, credit guarantee, credit ratings and technical assistance will significantly improve the Implementation of Water and Sanitation Project in Kenya positively. Based on the findings the research concludes that output based and credit ratings approach do not have a significant effect on the Implementation of Water and Sanitation Project in Kenya. The study results implied that utilization of both approaches have not yielded a significant contribution in the implementation of the selected projects.

The research concluded that credit guarantees have a positive and significant relationship with Implementation of Water and Sanitation Project in Kenya. The study established that obtaining adequate loans, ensuring the level of guarantee and procedures match the project, mitigating risk exposure in the project and ability of projects to overcome from risk associated with the guarantee are vital to Implementation of Water and Sanitation Project in Kenya.

The study further concluded that technical assistance approach had a positive and significant influence on the Implementation of Water and Sanitation Project in Kenya. The research confirmed that ability of banks to supplement the project with labor, supporting professional skills development, expanding their financial technical assistance and providing access to facilities are critical to the overall Implementation of Water and Sanitation Project in Kenya.

The study further examined the moderating effect of type of investors. The results supported the conclusion that there was a significant moderating effect of type of investor on the relationship between blended financing and Implementation of Water and Sanitation Project in Kenya. The study further concluded that donor and water service providers investments were significantly and negatively associated with Implementation of Water and Sanitation Project in Kenya. The research also concluded that investments by commercial banks and private investors did not have a significant effect on the Implementation of Water and Sanitation Project in Kenya.

5.4 Recommendations

5.4.1 Policy Recommendations

The study was able to establish that blended financing is key to increased implementation of WASH projects. This study recommends that regulators in WASREB, the government of Kenya and their development partners should engage with project managers with a view of extending their financing capacity to cover among other things their technical assistance. This will be instrumental to expanding the project outcome through better management of the undertakings and expansion of their capital outlay. The research further recommends that donors should review their policies when funneling funds to the WASH projects to ensure there is attainable success in the implementation. Further, donors can be involved through the planning and execution of the projects to ensure there are better results in the implementation of WASH projects.

The study also showed that credit ratings have an insignificant effect on the Implementation of Water and Sanitation Project in Kenya; this can be rectified through the formulation of standardized policy by WASREB and other policy-making players in the country to guide the rating in infrastructural projects. This would ensure that local financial institutions can rely on the rating systems as tool of the project capacity to satisfy the lending terms. This will be a sure method of expanding investments not only to WASH projects but other infrastructural programme across the country. The paper recommends that the regulatory body should create policies and guidelines to support coordination in the implementation of WASH projects across the country. This will ensure there are mechanisms to allow for information sharing on the various blended financing approaches that have been previously adopted and ultimately improved project execution.

Further, through their regulatory role the body can extend the technical capacity of the project teams, improve capacity building and create a result-based standard that can be used as a benchmark in implementation of future projects. The study also recommends that state and devolved governments can strategically participate in WASH projects being undertaken by non-state actors and local communities. This will go a long way in improving the credit worthiness of the projects which can improve confidence in the project by lenders. This can

help projects in seeking more loans and improve the participation of private institutions in WASH projects.

5.4.2 Practical Recommendations

The research recommends that project managers should create a performance-based standard within WASH projects that meet donor and financing institutions metrics. The utilization of these performance metrics can help the projects access to output-based financing approaches. Improvement in the guarantees obtained prior to project execution should also be encouraged upon projects managers as this will ensure potential investors have confidence in the project despite of any risks that are inherent. Further, managers should ensure that project ratings are consistent with the needs of the potential investors or donor agencies that they seek to collaborate with. This will ensure that credit ratings are acceptable when seeking new financing options and improve access to a wide range of investment options. The study also recommends that managers should form alliances with stakeholders who can offer access to key infrastructure facilities, training opportunities and a pool of technically-proficient staff who can be instrumental to achieving better success in the project implementation.

5.4.3 Contribution to Theory

The study was grounded on the resource dependency theory which advocates for firms to leverage their resource capacity and their strategic ability to achieve better execution of their operations. In the context of the current study, for WASH projects to meet the intended aims and performance goals, there is a need for the various stakeholders to leverage the available resources as a key predictor of their implementation success. From the review of the research results, it was evident that applying various resources that are at disposal of WASH projects can be key to improve implementation. Further, the theory showed that interdependence in blended financing is a key anchor to mobilizing development finance which is needed to successfully implement WASH projects.

5.5 Limitations of the Research

The study was limited in the data collection process by the closure of operations in main of the institutions being sampled in the study as result of public health recommendations in

light of the pandemic. Hence, the research resulted in electronic data collection which limited the final response rate that was expected. Further, the study was conducted across a sample of projects under the Kenya Urban Water and Sanitation for low-income areas. This may impact the applicability of the study results in other projects not included in the programme. The research was also limited by lack of a centralized information from the regulator such as the audited financial statements and completion rate of the projects. This affected the veracity of the secondary data that the study required to reinforce the data collected from primary sources.

5.6 Areas for Further Research

The study suggests that further research work should be conducted to review how various credit rating systems impact the level of Implementation of Water and Sanitation Project in Kenya. Further, research work can be considered covering more infrastructural projects being implemented locally to determine if blended financing approaches are central to local project outcomes. The study further suggests that more research work should be conducted to investigate how type of investors and stakeholder involvement impacts the implementation of WASH projects in Kenya.

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APPENDICES

Appendix I: Research Questionnaire (Water Sector Trust Fund)

Section A: Background

1) Indicate the type of investor you represent.

Donors	[ ]
WSTF	[ ]
Commercial Banks/Investors	[ ]
Water Service Providers (WSP)	[ ]

2) State the name of the institution/firm/organization you represent _____
3) Indicate your designation _____
4) Indicate which of the following WASH projects has your organization participated in?(can tick more than one)

Murang'a South 1-water extension project	[ ]
Murang'a South 2 (MUSWASCO)-water extension project	[ ]
Murang'a water project	[ ]
Naivasha (NAIVAWASS)-water extension project	[ ]
Nyeri (NYEWASCO)-Sewer extension project	[ ]
Embu (EWASCO)-Sewer extension project	[ ]
Kisumu (KIWASCO) - water extension project	[ ]
Mathira (MAWASCO) - water extension project	[ ]
Nol Turesh (Kajiado)-water project	[ ]

5) Indicate the role(s) of your organization on the implementation of WASH projects being implemented by WSTF_____
_____
_____
6) How has your organization contributed towards the investments in WASH sector?
_____
_____

Section B: Blended Financing Approaches

7) The investments in WASH projects included combination of a variety of approaches to achieve maximum success rate. The most critical approaches included use of donor subsidies to encourage WSP to invest in more projects, use well-structured programs which guaranteed banks or lowered the risk exposure (e.g use of escrow accounts for projects), use of technical assistance and use of credit rating index to assess the credit value of the WASH projects. With this in mind, kindly rate the extent to which the following support was provided during the implementation of the WASH projects

	Not at all	Low extent	Moderate extent	Great extent	Very great extent
The extent to which donors funded the WSP to undertake the project					
Extent to banks relied on the credit guarantees/assurance from the donor to accept to finance the WSP					
Extent to which banks relied on the credit worthiness index by WASREB to rate credit value of WASH projects					
Extent to which the projects received technical assistance in cash or in kind					

Section C: Output-Based Aid (Subsidies to WSP)

8) The WASH projects were designed such that Output-Based Aid (OBA) from donors was used to subsidize the costs of providing WASH services to targeted beneficiaries. With reference to the subsidies to WSP provided, kindly rate the following aspects of the subsidies shown in the table.

Indicator	Very poor	Poor	Fair	Good	Excellent
Adequacy of the amount of subsidies given to WSP to implement the projects					
Timeliness of the aid to the WSP with reference to the program timelines					
Length of procedures in having the aid secured/approved by the WSP					
Ease of disbursement of the aid to the WSP to implement the projects					

Performance of use of OBA to guarantee WASH projects					

Section D: Credit Guarantees

9) The investments of the WASH projects was designed in a way that made the banks convinced/comfortable and guaranteed the safety of their investments in the WAS projects by use of loan agreements, having escrow accounts and monitored approach of the daily revenues from the projects. Kindly rate the following aspects of the credit guarantees procedures during the implementation of the WAS projects.

	Very poor	Poor	Fair	Good	Excellent
Adequacy of the loans advanced to the WSP to do the WASH projects					
Level of guarantee provided by the guarantee procedures					
Level of risk exposure mitigated by the project guarantee procedures					
Likelihood of the projects to recover risks provided by the guarantee procedures					

Section E: Credit Rating

10) The investments in WASH projects employed use of credit rating method which uses credit worthiness index provided by WASREB. Through the index, banks were able to estimate the risk exposure of the WASH projects. Kindly tick the appropriate box to rate the use of credit rating during the implementation of WASH projects.

	Very poor	Poor	Fair	Good	Excellent
Adequacy of the credit worthiness in assessing the riskiness of a project					
Extent to which banks used credit worthiness index developed by WASREB to estimate the					
Effectiveness of the credit worthiness index in convincing banks/private to give loans to the WASH projects					

Section F: Use of Technical Assistance

11) The implementation of the WASH projects involved provision of technical assistance towards the implementation of the projects. The assistance was in

different forms such as provision of labour, skills, expertise or meeting of overhead costs.

	Very poor	Poor	Fair	Good	Excellent
The extent to which banks provided labour (e.g to install water pipes)					
Extend to which banks supported the development of skills within the project					
The amount of costs saved in totality through the TA					

Section G: Investments in WASH Sector Projects in Kenya

12) Rate the following aspect of the WASH project implemented through blended financing.

	Very poor	Poor	Fair	Good	Excellent
Project completion level/rate					
Amount of money sourced from private sector and banks					
Timeliness of the implementation of projects					
Assurance or availability of funds when required-no delay caused by lack of money					
Satisfaction with the amount of money sourced from commercial banks and private sector					
Compliance of the projects with the initial program and design					

13) How would you rate the effectiveness of the blended finance approaches (use of donor subsidies, use of guarantee procedures/measures to mitigate risk exposure to the banks, use of credit rating to convince banks to provide loans and use of TA) on investments in WASH sector?

Don't know [ ]

Ineffective [ ]

Effective [ ]

Appendix II: Ethical Review Committee Permit

Strathmore UNIVERSITY

2nd February 2021

Ms Stephen, Eunice Mueni
mueni.stephen@strathmore.edu

Dear Ms Stephen,

RE: Effect of Blended Finance Approaches on Project Investments in The Water and Sanitation Sector in Kenya: Case of Kenya Urban Water and Sanitation Oba Fund Programme

This is to inform you that SU-IERC has reviewed and **approved** your above **master's** research proposal. Your application reference number is **SU-IERC0931/20.** The approval period is **2nd February 2021 to 1st February 2022.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 48 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 48 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

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02 FEB 2021
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Appendix III: NACOSTI Research License