



The Revolutionary Government of Zanzibar

Zanzibar Water Investment Programme 2022 - 2027

Supporting the implementation of the Zanzibar Development Vision 2050 towards achieving blue economy



MARCH 2022 • MINISTRY OF WATER, ENERGY AND MINERALS

Foreword by the President of Zanzibar

It gives me great pleasure to endorse the launch of the Zanzibar Water Investment Programme 2022-2027 that has been formulated with the aim of ensuring that we have sustainable use and management of water resources in Zanzibar.

The successful implementation of this programme is vital taking into account the fact that water is one of the most essential natural resources that we need for our existence as well as for the attainment of all our national and international development plans.

It is gratifying to know that this programme is geared toward promoting investment in the sector, strengthening governance, enhancing capacity of various stakeholders, mobilizing resources, and ultimately, ensuring the optimal water supply to all the areas and people of Zanzibar. Therefore, together, we indeed need to promote cross-sectorial and integrated planning to be able to achieve the main goals of the programme.

Likewise, it is pleasing to know that the Zanzibar Water Investment Programme 2022-2027 has outlined measures that will be implemented to mitigate the risks associated with climate change variability and vulnerability. I commend the Ministry of Water, Energy and Minerals for this far-sighted approach of including various issues relating to climate change in this programme. Climate change poses a great threat to water availability and sustainability.

The Revolutionary Government of Zanzibar will do what it takes to ensure all objectives articulated in this document are appropriately achieved. I believe this programme is a useful road-map that will guide and inspire us to improve the water

sector in Zanzibar. I call upon all the people of Zanzibar to steadfastly support this programme to be able to achieve the aspirations we have in all sectors, knowing that the development of each sector directly depends on water availability and sustainability.

May God richly bless us in our endeavours.



DR. HUSSEIN ALI MWINYI
President of Zanzibar and Chairman of the
Revolutionary Council.

Preface

The Revolutionary Government of Zanzibar has demonstrated its serious commitment towards improving access to safe and clean water and sustainable environmental management through the creation of the Ministry of Water, Energy and Minerals in 2020 and increased budgetary allocation to the sector.

It is towards the recognition of the importance of water as a key ingredient to socio-economic development, that the Ministry of Water, Energy and Minerals has formulated the Zanzibar Water Investment Programme 2022-2027.

The Zanzibar Water Investment Programme 2022-2027 provides a strategic focus for the future that reflects the optimism and dedication to existing national plans, while continuing to innovate, improve, and evolve.

Water is finite like any other natural resource, but critical for the sustainable development of Zanzibar. Additionally, stable water supply is under threat from changing environmental conditions, climate change, groundwater pollution, and generally unpredictable weather patterns. The Zanzibar Water Investment Programme 2022-2027 will provide a framework and direction under which the resource will be managed and developed.

Zanzibar has not been spared from climate change variability and vulnerability, therefore this Programme outlines strategies and measures, which will be implemented for risk reduction,

climate change adaptation, and mitigation in order to secure the socio-economic wellbeing of our citizens and the sustainability of our ecological environment as a whole. Issues such as HIV/AIDS and gender have also been mainstreamed in the plan.

I wish to encourage all stakeholders to come on board and join hands with Government in accelerating efforts toward actualizing the objectives of the Zanzibar Water Investment Programme 2022-2027.



HON. SULEIMAN MASOUD MAKAME
Minister of Water, Energy and Minerals: Zanzibar

Acknowledgments

The Zanzibar Water Investment Programme 2022-2027 aims to address the water needs and aspirations of the Zanzibar people. The successful development of the Programme could not have been possible without the involvement and inputs of various key stakeholders, who encouraged ownership of the document by all.

Sincere appreciation also goes to the Ministry of Water, Energy and Mineral's management including the Zanzibar Water Authority (ZAWA), Zanzibar Electricity Corporation (ZECO), and Zanzibar Utility Regulatory Authority (ZURA) for spearheading the development of the Programme. Further, I wish to thank members of staff from the Ministry for their roles in ensuring that the Programme meets the aspirations of the people.

I wish to acknowledge the roles played by line Ministries and our Stakeholders in the water sector, as well as the Ministry of Water of the United Republic of Tanzania. Their inputs were highly valuable and enriched the Programme greatly.

Special gratitude is also extended to Global Water Partnership (GWP) for their readiness to support the water sector in Zanzibar and other parts of Africa. The Ministry is grateful for the support they

rendered during the process of developing the Programme.

We look forward to the continued support of all stakeholders in the implementation of the Programme and realization of the Ministry's vision.



DR. MNGEREZA MZEE MIRAJI

Principal Secretary: Ministry of Water, Energy and Minerals

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List of Abbreviations

AFDB	African Development Bank
AFREXIM	African Export-Import Bank
AIP	Continental Africa Water Investment Programme
AUDA-NEPAD	Africa Union Development Agency-NEPAD
CCM	Chama Cha Mapinduzi (CCM; lit. 'Party of the Revolution' in Swahili) is the dominant ruling party in Tanzania and the second longest-ruling party in Africa
CCS	Climate Change Strategy
DMAs	District Metered Areas
DWD	Department of Water Development
EC	Electrical Conductivity
GDP	Growth Domestic Product
HBS	Household Budget Survey
IWRM	Integrated Water Resources Management
JICA	Japanese International Cooperation Agency.
MKUZA IV	Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP) popularly known in Kiswahili as MKUZA
LGAs	Local Government Authorities
MOWNM	Ministry of Water, Energy and Minerals
NRW	Non-Revenue Water Management Strategy
PIDA	Programme for Infrastructure Development in Africa
RGOZ	Revolutionary Government of Zanzibar
SBP	Strategic Business Plans
SDGs	Sustainable Development Goals
ZanWIP	Zanzibar Water Investment Programme
ZAWA	Zanzibar Water Authority
ZCCS	Zambezi Climate Change Strategy
ZDS	Zanzibar Development Strategy
ZUWSP	Zanzibar Urban Water and Sanitation Project
ZWIP	Zanzibar Water Investment Programme

1. Introduction



1.1 Background

This document describes the Zanzibar Water Investment Programme 2022–2027 (ZanWIP 2022–2027) which has been developed to support the implementation of the Zanzibar Development Strategy (ZDS) in contributing to the achievement of the Zanzibar Development Vision 2050, the priorities of the CCM Election Manifesto of 2020–2025, and the vision and pledges of the President of Zanzibar and Chairman of the Revolutionary Council H.E Dr. Hussein Ali Mwinyi.

The ZanWIP aims to ensure mobilization of water security investments for the implementation and long-term sustainability of water supply for basic social needs and implementation flagship water investment projects for economic needs being implemented in the country.

The Zanzibar Development Vision 2050 presents the long-term planning blueprint for Zanzibar's development, and it lays out clear aspirations under four pillars; economic transformation (aims to shape the future of the economy); human capital and social services (building the next

generation's manpower), infrastructural linkages (backbone to make things happen) and the governance resilience (looks at governance and cross-cutting issues).

The main goal of the Vision is to transform Zanzibar into an Upper Middle-Income country by the year 2050. To achieve this, focus is on growing the tourism sector, intensification in agriculture, expanding the industry base, developing a thriving blue economy and ensure that water supply, sanitation and hygiene, health, housing, and other crucial services are available to support social development. At the same time water governance, blue economy, and climate resilience issues need to be well integrated to ensure inclusive economic growth in the country.

With projected increased economic activity and climate change impacts, Zanzibar needs to urgently mobilize finance and implement measures to narrow the Zanzibar water investment gap to address increasing water demand as the economy grows and address pressures exacerbated by climate change impacts on water resources.

Addressing the water investment gap calls for strategic planning and identifying of investments that will ensure that the gap is addressed whilst also ensuring inclusivity, build resilience and ensure sustainable management of water resources.

The Zanzibar Water Investment Programme builds on the priorities in the Zanzibar Water Sector Reform report prepared, in September 2021, by the Ministry of Water, Energy and Minerals. It also builds on consultations with key stakeholders on the priorities for the sector to enhance sustainable water supply and management of the water resources.

The document outlining the Water Sector Reform Report notes that despite the many activities implemented through the various intervention and the achievements,

"There are still serious complaints from citizens on access to water services. Similarly, given the priorities of the Revolutionary Government of Zanzibar on strengthening investment, it is important to ensure the good performance of the water sector in serving water consumers of all categories".

At the regional and pan-African level, this Zanzibar Water Investment Programme will also contribute to the decision of the Assembly of the African

Union Heads of State and Government on the Continental Africa Water Investment Programme (AIP), adopted as part of Programme for Infrastructure Development (PIDA) in Africa during the 34th ordinary session of African Union summit on 7 February, 2021. PIDA is coordinated by the Africa Union Development Agency (AUDA-NEPAD).

AIP aims to narrow the water investment gap in Africa by leveraging USD 30 billion in climate-resilient water investments by 2030 and create 5 million jobs towards the African water vision and SDG 6 targets. Delivery of water investments in Africa is lagging the continent's economic and social needs. The African Development Bank estimates that USD 64 billion is required annually to meet the 2025 Africa water vision of water security for all; but the actual figure invested stands between USD10-USD19 billion per year.

To ensure targeted interventions and actions to mobilize water investments, the AIP-PIDA Water Investment Scorecard has been initiated. The Scorecard will support African countries track progress in mobilizing investments, identify bottlenecks, and take action to narrow the water investment gaps and meet the investment needs for the achievement of SDG 6 targets.

This Zanzibar Water Investment Programme will also develop and implement the Zanzibar Water Investment Scorecard to track progress in mobilizing investments and address bottlenecks that constraint progress in water security in Zanzibar.

1.2 Development of the Zanzibar Water Investment Programme

The Zanzibar Water Sector Reform Report (Sept 2021) from the Ministry of Water, Energy and Minerals identifies the following key areas for improvement in the water sector, in the short-term, to ensure the uninterrupted availability of clean and safe water service.

- a. Policy and legal system and guidelines,
- b. Institutional structure, roles and responsibilities,
- c. Development and management of water resources,
- d. Water demand to various consumers groups,
- e. Sources, harvesting system and water facilities management,

- f. Water quality management,
- g. Water management resources
- h. Human and Financial resources, and
- i. WaterSectorMonitoringandEvaluationSystem.

The objective of the Programme is to narrow the water investment gap identified in Zanzibar Water Reform Report, by addressing the current and projected water demand in Zanzibar by ensuring sustainable investments in water resources management and service provision to achieve the Zanzibar Development Vision 2050 targets.

This main objective will be achieved through the following specific objectives:

- Development and implementation of a water investment scorecard to track progress in mobilizing investments, identify bottlenecks, and take action to for the achievement of water for basic needs, economic sectors and progress towards SDG 6,
- Strengthening the water governance and institutional arrangements and ensuring sustainable water resources management and service provision,
- Promoting cross-sectoral and integrated planning to ensure optimal water supply to all water using sectors,
- Enhancing the capacity of key stakeholders in managing the resource and providing service delivery,
- Diversifying water sources (undersea water, rainwater harvesting, reuse, stormwater, desalination etc.),
- Enhancing resilience to ensure water security in Zanzibar (increasing climate and pandemic resilience), and
- Contributing to social inclusion and empowerment.

2. Situational Analysis



PROMENADE TOURISM IN ZANZIBAR TOWN (SHUTTERSTOCK)

2.1 Overview of Country

Zanzibar is a semi-autonomous region of Tanzania in Eastern Africa. It is composed of the Zanzibar Archipelago (in the Indian Ocean), at 25–50 kilometers (16–31 miles) off the coast of the mainland, and it consists of many small islands and two large ones: Unguja (the main island, referred to informally as Zanzibar) and Pemba. The capital is Zanzibar City, located on the island

of Unguja. Unguja has an area of 1,464 square kilometers while Pemba has a land area of 868 square kilometers. Zanzibar has a small but rapidly growing population. According to the 2012 Census the total population of Zanzibar was 1.3 million inhabitants of whom 45.5% live in the Mjini Magharibi Region, which is one of three regions on Unguja.

In 2012, the average household size in Zanzibar was 5.1 persons per household - with a population growth rate of 3.1% annually, this puts pressure on

the infrastructure and resources, including water services and resources. The GDP growth in 2017 was 7.7% and in 2019 it was 7% - in 2020 due to COVID-19 pandemic it dropped to less than 3%.

2.2 Context and current state of the water sector

As noted by the Water Sector Reform report (Sept, 2021), Zanzibar relies on four major water sources, namely underground water, groundwater, rainwater, and seawater.

2.2.1 Water Resources

Statistics also show that Zanzibar has enough rainfall per year, where Unguja is 1,600Mm³/annum and Pemba is 1,900Mm³/annum¹. However, there is a significant loss of groundwater that is estimated to be 36% for Unguja and 52.3% for Pemba. Previous studies have shown that the amount of water that can be harvested from the groundwater per year is 339 Mm³/annum. However, that amount has never been reached. This attests that only a small amount of water is being used while demanding increases. Similarly, the Zanzibar rainfall average per year is good enough, but the amount of water being lost is high.

Freshwater resources are limited with water supply mainly dependent on seasonal rains and inefficient groundwater aquifers consisting of freshwater lenses floating on the underlying seawater. Climate change compounds the water security challenge. Climate variability has caused prolonged dry periods and unpredictable rainfall pattern making crop cultivation unproductive. Furthermore, increasing temperatures have occasionally caused sea level rise leading to saltwater intrusion in low-lying farm fields, notably rice farms. This impacts drinking water, tourism ecology, agriculture, forestry and fisheries.

2.2.2 Ground water resources

According to Zanzibar Water Authority (ZAWA) statistics of 2020, there are more than 315 water-producing wells in Unguja and Pemba owned by the Government. Similarly, public institutions own 16 wells; commercial institutions own 100 wells,

and other 1,275 wells are under private ownership. In addition, there are five springs (two (2) in Unguja and three (3) in Pemba) and seven (7) caves that are used to supply water to consumers.

Initial assessments highlight that vast amount of uncontaminated fresh groundwater is potentially hosted in deep rocks in Zanzibar, beyond the maximum 70-100m depth normally drilled on the islands, and even beyond the average maximum 300m depth for water wells worldwide.

These unexplored aquifers can provide a new source of the water needed to the population in the Zanzibar region. Deep groundwater can be detected and modelled based on analysis of data previously acquired by the oil and gas industry, and which are currently available to the Zanzibar petroleum authorities. A full analysis requires availability of oil and gas, which are:

- Boreholes complete with mud logging and gamma ray, resistivity, spontaneous potential logs, pressure and permeability tests, chemical analyses, drilling and daily reports; and
- Geophysical data (2D seismic). Previous applications of the Ruden Search Model methodology to the Tanzania mainland coastal region have successfully shown that groundwater with the quality necessary for human consumption or industrial uses exists at depths that were previously unexplored.

In particular, the models developed for mainland Tanzania suggested that the Kimbiji-type deep aquifers may extend below the ocean and the Zanzibar Islands. New focused models produced with this methodology can show if there is fresh groundwater in these aquifers, as well as its quantity and quality.

Further deep-sea ground water recharge analysis is required to reconcile satellite data and meteorological stations data. The modelled extent of the aquifers, their recharge volume and travel time should be analysed to estimate the sustainable extraction capacity of wells and economic aspects of any planned future development plans.

¹Meteorology department, 2020

2.3 Institutional arrangements in the water sector

The Ministry of Water, Energy and Minerals has the overall responsibility for water issues in Zanzibar. Water is supplied by ZAWA which was established through the Water Act in 2006.

The activities of ZAWA as per the Water Act are:

- Control, manage and protect all catchments areas and shall have the mandate to take legal actions against any violation,
- Assurance of water supply,
- Promote the conservation and proper use of water resources,
- Manage production and distribution of water sustainably,
- Advise the RGoZ in formulation of policies relating to the development and conservation of water,
- Specify standards of water quality, effluent, and water equipment,
- Enter transactions which the Board considers necessary,
- Propose necessary amendments of water tariffs and water service charges to the Board, and
- Perform any other function in pursuit of the provisions of the Water Act.

The origin of ZAWA is the Department of Water Development (DWD), which was in existence since independence in 1964. As of October 2021, the Ministry of Water, Energy and Minerals has re-established the DWD and a Director for the Unit is now in place.

The new DWD is expected to provide oversight in the management and development of water resources in Zanzibar. Currently, policy reform work has been initiated to increase regulation and clarify institutional responsibilities in the sector. The Ministry also has Planning and Policy, Administration and Human Resources, and Energy and Minerals Units, with Heads of Departments for each Unit in Pemba.

ZAWA is managed by a Board of Directors and a Director General, with a Technical Operation Department overseeing the construction, operation and maintenance of water supply facilities and monitoring and evaluating the

network operations, Water Development Department which monitors and controls water development in terms of production, manages water conservation, research and development and oversees planning and project management.

ZAWA also has the Commercial Department which oversees customer services, credit control and data management, and Finance and Administration Department.

2.4 Overview of planning and policy implementation

The policy and plans of the water supply sector have been formulated over time to support the water sector. The water master plan for the Zanzibar Urban Water Supply Development Plan 1991-2015 was developed with support of the Finnish Government along with financial support to develop distribution networks for the areas adjacent to the urban area.

In 2002, the Zanzibar Vision 2020 was launched with the aim of eradicating poverty. This Vision formed the basis for the National Water Policy (2004), the Water Act (2006), and the 2006 Water Regulation that set the water tariff and was implemented through the ZAWA Strategic Business Plans (SBP). The first SBP took place 2008-2013 and the second SBP 2013-2018.

The Zanzibar Urban Water Supply Development Plan 1991-2015 was implemented in three phases. Phase 1 focused on the development of water-related policies, improving the financial performance of water service providers. Phase 2 focused on water supply system rehabilitation and construction. Phase 3 focused on enhancement of the revenue collection system. The long-term plan was not updated with the introduction of the Vision 2020 and the development of the National Water Policy (2004) and the Water Act (2006).

Progress has been made in achieving several policy objectives set out in the Vision 2020 with regards to water development and supply – however, there remain several challenges.

The Vision 2020 set out the following targets:

- Develop and promote an efficient water supply and management system that will ensure reliable water supply for all purposes at a reasonable

cost – a number of wells have been developed over the years currently more than 300 wells have been developed to supply water;

- Establish and protect specific areas for sources of drinking water and expansion of rainwater catchment systems – the expansion of rainwater harvesting is limited due to lack of stakeholder awareness; some initial pilots have been initiated on the island;
- Promote community ownership and rights to water supply;
- Enhance equity of access, distribution, and sustainable supply of clean water to households in rural and urban areas – access has increased however, the water supply to demand ratio is less than 70% as of 2019 and water losses in the system are estimated to be over 30%;
- Ensure that the installed capacity for water supply functions adequately and is properly maintained – capacity to manage the network remains critical to management leakages and commercial losses;
- Encourage the development of rainwater harvesting technologies and activities; and
- Institute and maintain an efficient and effective water tariff, billing, and timely revenue collection system for all water users – a tariff collecting system was introduced and improvements made in customer database management. A water pricing strategy needs to be updated to take cognizance of the Vision 2050 aspirations and climate change impacts on the resource.

The National Water Policy (2004) set out several objectives, and some progress has been made towards achieving these. Policy objectives set out in the national document were on:

- Water resources ownership, which proposes the establishment of a water resources management board to manage and conserve water resources. It is currently set up as a Department in ZAWA.
- Need to satisfy basic water needs, the water supply to demand ratio as of 2019 was 67.8%.
- Ownership and management of water service, which envisages the transition of ownership and management of water to local communities.
- Fiscal independence of ZAWA aimed at being able to recover O&M costs; and
- Environment conservation – which promotes the development of water sources whilst ensuring environmental sustainability.

ZAWA has also developed Strategic Business Plans (SBPs) to support their operations. The first SBP 2008-2013 was supported by UN-Habitat, focused on enhancement of the organization, proactive water resource management, provision of efficient and effective water supply service and the improvement of financial sustainability. Main activities of the SBP were development of customer information database, water resource management, reduction of non-revenue water, and water tariff billing and collection. SBP II 2013-2018 was supported by AfDB and focused on water demand and supply; customer management and improving the billing system; ensuring financial independence of ZAWA and improving accounting system.

Over the years, support has also been received from JICA to support improvements in water supply and management in the sector. JICA has supported the Urban West Regional Water Supply Development Project and the Capacity Building Empowerment Project Phase II. The AfDB has implemented the Zanzibar Urban Water and Sanitation Project (ZUWSP) with a funding of USD 21 million – which was aimed at improving water distribution facilities through three packages. The first was the development and rehabilitation of existing wells; the second on improving the distribution network and monitoring and the third one was focused on improving water metering with more than 7000 meters delivered by 2016. The ZUWSP – also saw the introduction of District Metered Areas (DMAs) and monitoring facilities for distribution management. Other projects implemented are the Rural Water Well Drilling Project (CHINA, the Ras al Khimah Well Drilling Management Plan, the Scrap and the Non-standard Pipeline Replacement Programme, as well as Older Tank Repairs. Currently, several projects are planned with support from the Exim Bank – India and the RGoZ.

2.5 Overview of water demand in Zanzibar

The water demand in Zanzibar is expected to increase due to population increase and the high growth rate of demand. Zanzibar has seen a significant increase in tourist arrivals, with an average annual growth rate of nearly 18.7% between 2011 and 2019. In 2019 specifically, the number of tourist arrival was 538,264.

The agriculture water demand is also increasing as evidenced by the size of land under irrigation. The department of agriculture has built three small dams for water storage for irrigation and developed some wells in the past few years. The Ministry of Water, Energy and Minerals is currently

conducting a water demand study – which will look that the current and future demands of water on the island – this will be critical for the planning both on the supply-side and in managing the demand. The current figures which are being updated are shown in Table 1 below.

Table 1: Water demands and deficits in Zanzibar

Regions	Population as of 2019	Demand per capita per day	Regional Demand per day (litre/day)	Regional Production per day (litre/day)	Deficit per day (litre/day)
Urban West	746,902	140	104,566,280	84,895,998	19,670,282
North Unguja	232,085	140	32,491,900	21,665,333	10,826,567
South Unguja	146,049	140	20,446,860	19,712,000	734,860
North Pemba	258,802	140	36,232,280	21,775,588.1	14,456,691.9
South Pemba	241,767	140	33,847,800	32,816,942.4	1,030,857.6
TOTAL			227,585, 120	180,865,861.5	46,719,258.5

2.6 The role of water in achieving the Zanzibar Development Plan 2022/27 and Vision 2050 Targets

Water plays a critical role in enabling the achievement of the other sector aspirations as noted by the stakeholders consulted during the preparation of the Zanzibar Water Investment Programme. As already mentioned, the Development Vision 2050 aspires to achieve several goals under four pillars – economic transformation; human capital and social services; infrastructural linkages and the governance resilience. Each of these pillars has focus areas that contribute to its achievement. Below is a brief overview of how water interacts to enable the achievement of the various sectors:

The Economic Transformation pillar has seven priority areas:

- (i) Agriculture production – the vision is to intensify agriculture and increase annual cash crop production from 11,505 tons to 19,300 tons by 2030 and 27,800 tons by 2050. This will mean water is required to ensure that these targets are meant as planned;
- (ii) Industrialization and trade – the vision also aspires to increase the share to GDP for industrialization from 6.8% in 2019 to 21% in

2050 – to achieve these targets an assurance of water supply is needed for this increased demand to grow the manufacturing sector in Zanzibar;

- (iii) Finance and investment – as Zanzibar set itself as a financial services center reliable water supply is a critical pull factor for potential investors;
- (iv) Tourism – with regard to tourism the target is to grow the number of annual international tourist arrivals meaning more rooms are required and an increased demand with regards to water supply to hotels. The aspiration is to gradually increase the number of arrivals by international tourist from 538264 in 2019 to 1 400 000 in 2050;
- (v) Oil and gas;
- (vi) Creative and Digital Economy – critical for the advancement of innovation the water sector for supply and demand management and also supporting water information systems and monitoring and evaluation of the sector; and
- (vii) Blue economy – the management will be critical for inland water resources and integrated coastal zone management; investments are required to ensure that water pollution doesn't become a constraint to the development and implementation of the blue economy strategies.

The Human capital and social services pillar has six priority areas:

- (i) education and training;
- (ii) research and innovation;
- (iii) health;
- (iv) water, sanitation and hygiene;
- (v) social protection and employment; and
- (vi) culture, heritage and sports.

Water plays a critical role in ensuring that health targets are met, the COVID-19 pandemic shows the important role that water plays in managing transmissions. With regards, to education, research, and development – it is also important that water professionals are trained also focusing on creating employment in the sector that empowers youth and children.

The infrastructure linkages pillar has six priority focus areas which all need water during construction and supply for the operation and continued delivery of services. The priority areas include:

- (i) housing and settlements;
- (ii) land transportation;
- (iii) airports and air transportation;
- (iv) seaports and marine transportation;
- (v) energy; and
- (vi) information and communication.

Currently ZAWA is the highest consumer of energy showing that efficient use of energy by the authority is critical for the sector in the region. Development of alternative sources – like solar or wind energy becomes critical to ensure off-grid solutions for ZAWA who need lots of energy for pumping.

The Governance and Resilience pillar has four priority focus areas which are impacted by water and also influence water supply management. Land utilisation and management is critical in ensuring protection of water source areas through reserving

land for buffer zones; the environment and climate change priority area focuses on responding to climate change which is impacting the availability of water resources – it is therefore important to ensure that water sector adaptation is prioritized. This priority area also focusses on ensuring environmental sustainability – which is important in ensuring good water quality in the island.

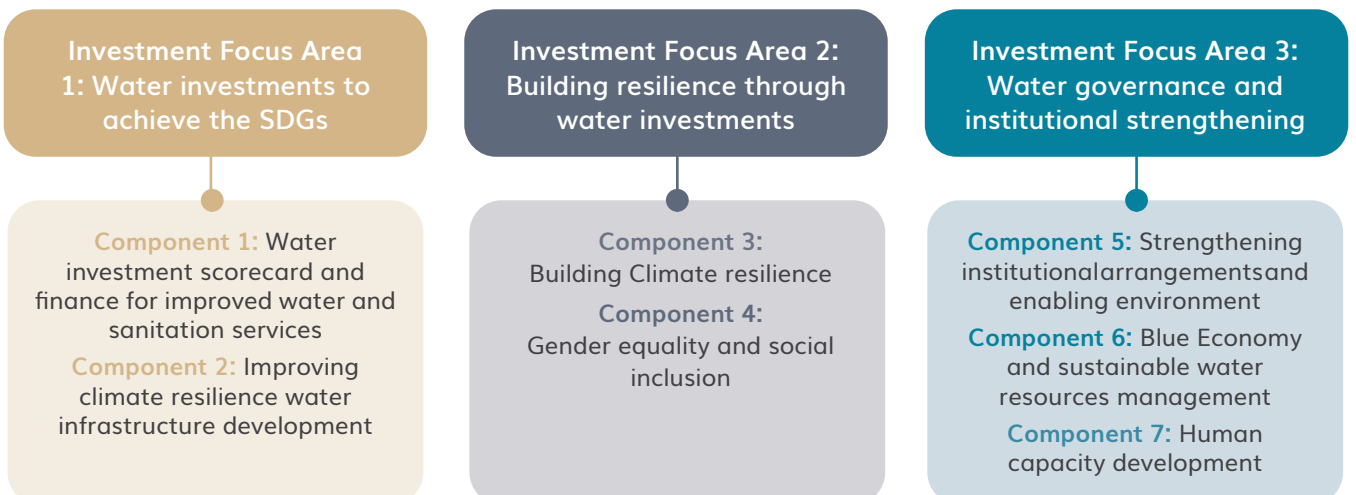
More specifically, the Development Vision 2050 set the following aspirations for the Water, Sanitation and Hygiene priority area under the Human Capital and Social Development Pillar:

- i. Sustainable access to safe and clean drinking water facilitated by an effective water resource management master plan and associated strategies, focusing on integrated water resources management to protect the water ecosystem;
- ii. Diversified potable water sources reinforced by the exploration of undersea freshwater, rainwater harvesting and reuse technologies as well as seawater desalination;
- iii. Optimal water supply management for agriculture, tourism, industry and other economic activities supported by continuous R&D on sustainable sources;
- iv. Sustainable sanitation service provision through effective sanitation-focused interventions, including the enforcement of the 'polluter pays' principle and the construction of sewerage treatment systems for households and industry; and
- v. Strong institutional framework for the sustainable and responsible collection, processing and disposal of solid, liquid and hazardous waste that focuses on empowering local government authorities (LGAs) and other relevant institutions.

3. Zanzibar Water Investment Programme



The Water Investment Programme identifies three key investment focus areas and seven components, shown below, where interventions for investments are identified, and these are:



3.1 Investment Focus Area 1: Water investments to achieve the SDGs

The Development Vision 2050 defines an economic transformation pathway aimed at achieving an upper middle-class status through growing several sectors (tourism, agriculture, housing, the blue economy etc.). This will lead to increase in water demand and the need for increased water investments to meet basic and economic needs. To close the water investment gap and ensure water enables the projected growth, a scorecard will be implemented to track progress in mobilizing investments, identify bottlenecks, and take action to narrow the water investment gap and meet the Zanzibar's water investment needs for the achievement of SDG 6 targets.

This will support Vision 2050 the pillar on human development, adequate and safe water, sanitation, and hygiene services that are crucial to human health and wellbeing. As such, a strategic and deliberate approach is needed to improve investments in water, sanitation, and hygiene in Zanzibar, contributing to SDG 6 titled "Ensure availability and sustainable management of water and sanitation for all". This investment focus area is aimed at ensuring that water investments are enhanced to achieve the SDGs through the following components:

Component 1:

Water investment scorecard and finance for improved water and sanitation services

Component 2:

Improving climate resilience water infrastructure development

The following section provides details on the components.

3.1.1 Component 1: Water investment scorecard and finance for improved water and sanitation services

In the water sector, huge investment for water resource management and increased water services provisions have been explored and supported by institutional capacity development. Thus, accessibility to water for many areas in urban and rural areas has significantly improved. For instance, according

to the Household Budget Survey (HBS) 2019/20 access to an improved source of drinking is 70.4% (urban areas 70.7% and rural areas 70.2%). However, as noted in the Zanzibar Vision 2050 the water supply to demand ratio is at 68% and this is set to increase as per the targets presented in the document. As already mentioned in the situational analysis, for example, water demand in the tourism and agriculture sector is increasing – as witnessed by the increase in the number of wells that have been developed to support agriculture and the development of small dams to irrigate more than 1500 ha.

Mobilizing investments and financial resource to support the water sector in Zanzibar is a critical area that needs immediate attention. Financial resource mobilization includes both domestic and international financing sources, including climate finance.

To ensure targeted interventions and actions to mobilize water investments, the Zanzibar Water Investment Scorecard will be initiated. The Scorecard will support the country to track progress in mobilizing investments, identify bottlenecks, and take action to narrow the water investment gap and meet the investment needs for the achievement of SDG 6 targets. The Scorecard will focus on three pillars to support greater water investment in Zanzibar:

(a) Pillar 1: Strengthening the enabling environment for water investments with strong, forward looking, and inclusive governance systems; as well as predictable accountable policies.

(b) Pillar 2: Clear and credible sector finance framework for water and sanitation investments that will ensure the viability of water investments, as well as incentives and cost recovery mechanisms essential for crowding in further long-term investment in the sector. This will track investments from (i) Public, domestic resources (ii) ODA financing by donors (iii) Private sector investments

(c) Pillar 3: Mechanisms that track investment performance, efficiency, and sustainability in a regular and transparent way.

Establishing a mechanism for tracking support by development partners in their respective endeavors of rendering support to the water sector in Zanzibar is key in maximizing such a resource by aligning their interventions to priority areas within the Zanzibar Vision 2050.

The scorecard approach will ensure that a well-coordinated mechanism for development partners to enhance mutual accountability for action in resource mobilization and implementation of actions leading to an increased funding stream targeting the whole spectrum of the water sector. Limited capacity of Zanzibar to prepare bankable projects to access finance from global and bilateral sources is one of the challenges for resource mobilization that will be addressed.

Investments must be made into the water supply system to increase the water supply to meet the demand from these different sectors. The system includes management of the drainage basin, which is the source of drinking water, raw water collection, transfer of raw water to water purification facilities, transportation of treated water, water storage facilities such as reservoirs, water tanks or water towers, additional water pressurizing components such as pumping stations and the pipe network for distribution of water to consumers.

To address the water investment gap and meet increasing water demand, a combination of the following can be done:

- Mobilizing water investments and finance for water security,
- Strengthening network management through increasing water efficiency,
- Managing demand, and
- Increasing water storage.

There are a number of opportunities to address the water investment gap in Zanzibar to meet increasing water demand. As the island has good rainfall coming in two seasons, Zanzibar has both perennial and ephemeral rivers. Pemba has exceedingly higher river density than Unguja. The discharge from these rivers is reduced drastically during the dry season. However, during the rainy season (Masika) all these rivers flood rapidly having discharge several times more than the available water during the low flow periods. Given that large proportions of the total annual rainfall runoff through the river system, it would be practical to explore ways of capturing this river flow and utilizing it for agriculture production and other uses. This means there is potential for rainwater harvesting during these seasons.

Currently, water service provision has been identified as one of the key flagship projects in the medium-term strategy to implement the

Zanzibar Vision 2050 – making it a high priority for government. Several challenges which need to be addressed to ensure sustainable supply are also faced:

- Increasing water investment gap and water demand due to population growth and an increasing need to grow the economy,
- Non-revenue water is currently estimated to be more than 35% in the country – both physical and water losses,
- Aging infrastructure in the water supply system, requiring replacement and maintenance,
- High electricity costs due to pumping of groundwater. ZAWA has the highest electricity bill on the island. The monthly bill in electricity is almost TZS.500 Million. The periodic maintenance is frequently needed which is also bring a burden to ZAWA,
- Limited water metering, which makes the enforcement of the water tariff a challenge in the water sector. Tariff is also not recovering the costs fully. Currently a flat rate is applied thus not considering the different uses of water,
- High dependence on groundwater as a water source, which is becoming depleted and, in some areas, salt-water intrusion is occurring,
- Climate change impacting water resources on the island – there is a clear relationship between rainfall and the groundwater recharge,
- Fragmented planning in the development of water infrastructure, sectoral approaches not considering multi-purpose infrastructure,
- The Irrigation Master Plan (2006) attaches great importance to harvesting and storing rainwater for irrigation purposes. However, the lack of awareness has seen such initiatives having limited uptake,
- Intrusion of salinity into underground water source, this is mostly happen in the coastal areas for Unguja such as Muyuni in South Region with its Electrical Conductivity (EC) of 5,000 μ S/cm and Matemwe Mlilile in North Region with its Electrical Conductivity (EC) of 1,000 μ S/cm respectively. For Pemba Island, Pondeani in South Region with its Electrical Conductivity (EC) of above 3,000 μ S/cm, Ndagoni South Region with its Electrical Conductivity (EC) of above 1,094 μ S/cm and Mtangani Electrical Conductivity (EC) of 1,651 μ S/cm.

The aim of this Component is to increase the amount of water available to users while protecting water resources. It is important to note that improving

efficiencies in existing water supply systems is critical for the functioning of the planned new infrastructure.

Table 2: Overview of Component 1

Water investment scorecard and finance for improved water and sanitation services

OBJECTIVES:	<p>The main objective of Component 1 is to mobilise water investments and ensure water security in Zanzibar through sustainable water and sanitation service provision.</p> <p><i>This will be achieved through improving efficiencies in water and sanitation services to reduce potable water wastage and achieve long-term sustainability of water supply and meeting the demand by increasing storage through improving efficiencies, loss reduction, NRW, demand management measures, maintenance etc.</i></p>	
<p>Investment priorities and Expected Outputs: The following are key priority water investments required to ensure the improvement of water supply and sanitation service provision to achieve the SDG 6 – through managing commercial and physical losses in the system, managing the demand, and increasing on the supply-side.</p>		
Investment priorities	Intervention	Expected Outputs
1. Mobilizing water investments and finance for water security and sanitation	<ul style="list-style-type: none"> Develop and implement a water investment scorecard and promote integration of water security and sanitation in implementation of SDGs on energy, food, blue economy ecosystems, health and others Develop a resource mobilization strategy for implementing the integrated water resources master plan (strategy) 	<ul style="list-style-type: none"> Zanzibar Water Investment Scorecard with the following pillars: <ul style="list-style-type: none"> (a) Enabling Environment for Water Investments (b) Mobilise water investments and financing (c) Investment performance and sustainability A resource mobilization strategy developed
2. Strengthen water supply and sanitation network management	<ul style="list-style-type: none"> Development a Non-Revenue Water Management Strategy (based on a NRW Audit) and sanitation strength Development and implementation of a Metering and Billing Improvement Plan Renewal of Customer Database and Billing System Development and enforcement of water pricing strategy 	<ul style="list-style-type: none"> Water supply and sanitation network management in Zanzibar strengthened through a strong Non-Revenue Water Management Strategy (contributing to reducing water losses by at least 5 % by 2025) Billing and Metering Improvement Plan developed and implemented (an increase of 60% meters being used in Zanzibar) Updated Customer Database and Billing Systems
3. Increasing efficiencies in water and sanitation service provision	<ul style="list-style-type: none"> Update Asset Management Plan for the water and sanitation network Development and implementation Leakage Action Plan Promote water efficiency technologies Water infrastructure maintenance and service (upgrade and replacement of old infrastructures) 	<ul style="list-style-type: none"> Updated Asset Management Plan for the water and sanitation supply network Leakage Action Plan developed and implemented (reduction of water losses through leakage by 30%) Promotion Schemes for Water Efficiency Technologies Updated Customer Database and Billing System (increase of 60% of customers connected to system and paying bills) Zanzibar Water Pricing Strategy developed and implemented
4. Promoting water demand management strategies	<ul style="list-style-type: none"> Formulation of strategies and measures for demand management in Zanzibar Development of a National Water Campaign 	<ul style="list-style-type: none"> National Water Demand Strategy (supported by a Campaign on Water Demand Management in Zanzibar)
5. Strengthen water and sanitation service regulation	<ul style="list-style-type: none"> Strengthening capacities and mechanisms for regulating water and sanitation services to enforce regulatory mechanisms for service provision 	<ul style="list-style-type: none"> Capacities for water and sanitation service regulation strengthened in Zanzibar
6. Promote inter-sectoral linkages in the provision of sanitation services	<ul style="list-style-type: none"> Close collaboration with LGA – to ensure the effective management of sanitation and wastewater resources Participate and contribute to the development of the wastewater quality index 	<ul style="list-style-type: none"> Enhanced collaboration with LGA in wastewater and sanitation management

3.1.2 Component 2: Climate Resilient Water Infrastructure Development

The Zanzibar Vision 2050 has identified different targets for growth in agriculture, industry, tourism, and service sectors. The Vision 2050 aspiration translates into a significant increase in tourist flows to Zanzibar; increase in irrigated agriculture; increase in manufacturing; and increase in other socio-economic activities leading to an increase in the demand for water. On the other hand, the capacity of the existing water supply system is not meeting the current water demands. Future water demands are also expected to be challenged by climate change.

Therefore, there is a need for water infrastructure development to satisfy the existing and future water demands for various socio-economic activities of the country by considering future climate changes.

The challenges associated with water infrastructure development include the following:

- Low water supply to demand ratio, not meeting existing water demands,
- Heavy dependence on limited water sources (groundwater),
- Climate change impact on water sources,
- Limited capacity of the existing water supply system,
- Old, aged infrastructure with inefficiency that requires replacement, and
- Limited capacity for water service providing utility in developing new infrastructure.

This component will cover the interventions that are required for infrastructure development to increase water supplies to various users and uses – to ensure that there is adequate safe and clean water supply.

Table 3: Overview of Component 2: Climate Resilient Infrastructure Development

Investment areas	Interventions	Expected Outputs
1. Diversify water sources including deep sea fresh water underground drilling (including researching underground water mapping)	<ul style="list-style-type: none"> • Conduct feasibility studies on water sources (wells, springs, rainwater harvesting, desalination, deep-sea freshwater drilling under sea, water re-use, etc) both water quality and quantity assessing the potential for developing them to supply water for different uses. 	<ul style="list-style-type: none"> • Feasibility study on water supply (abstraction and conveyance) from deep sea underground freshwater resources and other ground water sources (underground water mapping) • Potentials of water sources for development to improve water supply services • A strategy/plan for developing the different water sources developed
2. Implement the water infrastructure flagship programme	<ul style="list-style-type: none"> • Conduct pre-feasibility and feasibility studies to develop new water sources for various water uses. Consider integrated infrastructure development options related to water, energy and agriculture; and also consider options for circular economy approaches (resource re-uses) • Develop water infrastructure for improving water supply system (wells, springs, rainwater harvesting, desalination, deep water under sea, water re-use, etc) • Develop new and/or expand existing water supply network (reservoirs, treatment units, pumping and distribution network systems) 	<ul style="list-style-type: none"> • Feasibilities for developing at least 10 new water systems studied • 75% of new water infrastructures are developed and 50% of old infrastructure rehabilitated to expand the capacity of water supply systems • 50% of existing systems rehabilitated <p>Details in Annex 1 on proposed projects</p>
3. Develop alternative sources of energy for water supply	<ul style="list-style-type: none"> • Develop an energy efficiency strategy and conduct an options assessment for energy supply (focused on off-grid electricity) to pump water, treat raw water and distribute clean water to users • Solar power for water pumping stations 	<ul style="list-style-type: none"> • Alternative energy sources to support energy demand by water service provider
4. Strengthen the capacity of Ministry of Water/ZAWA/ZURA in project development	<ul style="list-style-type: none"> • Strengthen project development capacity (project preparation and/or technical review) • Strengthen procurement and contract management capacities 	<ul style="list-style-type: none"> • 15 staff trained in project development • Staff trained in procurement, transaction, and contract management • The necessary manuals developed to support Ministry/ZAWA's operations

3.2 Investment Focus Area 2: Building resilience through water investments

Zanzibar is vulnerable to climate change as a large proportion of the GDP, employment and livelihoods are associated with climate sensitive activities such as agriculture, fishing, and tourism. Moreover, the ecosystems (coastal and marine) are vulnerable to climate change. Water is a key driver for sustainable development in Zanzibar. Zanzibar is vulnerable to climate change and variability, especially in terms of the intensification of stress on water availability. Furthermore, increasing temperatures have occasionally caused sea level rise leading to saltwater intrusion in low-lying farm fields, notably rice farms and ground water sources.

It is the most vulnerable and marginalized that will suffer the impacts of climate change in the society. Ensuring that no one is left behind and promoting social inclusion will be critical in building resilience to climate change and pandemics. It is critical to also design programmes that ensure that gender equality and social inclusion to enhance resilience in the society.

This investment focus area will be implemented through two components:

- Component 3:** Building Climate resilience
- Component 4:** Gender equality and social inclusion

3.2.1 Component 3: Building Climate resilience

Zanzibar has a tropical climate, which is warm and humid, with constant average temperatures across

the year. Average rainfall is relatively high and has a bi-modal pattern. According to the Zambezi Climate Change Strategy (ZCCS), climate is changing with rising temperatures, increased rainfall variability, high wind speeds and high tide levels, and an increase in the frequency and intensity of extreme weather events, including droughts and floods. There are some indicative trends of increasing rainfall during wet seasons and decreasing rainfall during dry seasons.

It is in response to the above that the Government of Zanzibar developed a Climate Change Strategy (CCS) in 2014. A Climate Change Action Plan was also developed in 2016 that prioritized adaptation options. In 2011, Zanzibar developed a Disaster Management Policy which promotes prevention, mitigation, preparedness and response. Drought and Floods are included in the policy.

The Zanzibar Climate Change financing strategy and action plan identified priority sectors and activities in information, capacity, disaster risk management and settlement; resilient coastal and marine areas; climate smart agriculture and natural resources management; sustainable forests and energy; and climate resilient low-carbon tourism. It also includes cross cutting issues such as vulnerable groups and gender inequalities. The Climate Change Financing Mechanism is expected to increase resource mobilization for climate actions.

Moreover, the Zanzibar Vision 2050 identified sustainable management of environmental and natural resources and climate resilience as one of the four priority areas under Pillar 4: Governance and Resilience.

The Vision 2050 set the following key performance indicators and targets.

Table 4: Vision 2050 performance indicators for Governance and Resilience Pillar

Indicator	Baseline 2019	Target 2030	Target 2040	Target 2050
Proportion of areas affected by CC surveyed and improved (%)	4.1	20	60	90
Proportion of areas affected by environmental degradation surveyed and improved (%)	N/A	12	50	80
Proportion of terrestrial areas protected (%)	16 (2015)	25	30	35
Proportion of marine areas protected (%)	8.1 (2015)	13	16	20
Afforestation rate (hectares)	640 (2015)	4000	6500	10000

The Zanzibar Environment Management Authority was established in 2015 as the main government institution for coordinating environmental and climate programmes. The Climate Change coordination structure includes Steering and Technical Committees.

The main challenges related to climate change can be summarized as follows:

- Climate change impact on water sources (variability in rainfall, reduced groundwater

recharge) and ecosystems (terrestrial and marine/coastal),

- Increased water related disasters (floods and droughts), and
- Sea-water level rise leading to salt-water intrusion

This component will cover the interventions that are required for building climate resilience of water systems in Zanzibar.

Table 5: Overview of Component 3: Building climate resilience

OBJECTIVES:		
This main objective of this component is to ensure that the water resources and associated infrastructure of Zanzibar are resilient to climate change		
Investment areas and Expected Outputs: The following are key priority investment areas (interventions) that are required towards building climate resilience in the water systems in Zanzibar.		
Investment areas	Interventions	Expected outputs
1. Conduct climate risk analysis on water, WASH, water-related ecosystems	<ul style="list-style-type: none"> • Conduct studies on climate trends and projections to establish a scenario • Undertake climate vulnerability studies for the various economic sectors, natural systems and social systems • Conduct climate risk analysis and prioritize climate risks • Strengthen climatic and hydrological data collection, analysis and interpretation capacities and systems • Provide forecasting and early warning services 	<ul style="list-style-type: none"> • Future trends in climate variability and change better understood • Priority climate vulnerable sectors, natural and social systems identified • Major climate risks known and prioritized • Forecasting and early warning service provided
2. Develop water adaptation plan/strategy	<ul style="list-style-type: none"> • Conduct studies to assess how water is integrated in development plans, budgets, programmes • Conduct studies on how much issues of water are considered by the existing adaptation plans/strategies (including flood/drought risk management) • Identify adaptation options that will respond to the priority climate risks being identified under #1 above • Appraise adaptation options and prioritize them for action • Develop implementation and resource mobilization strategy/plan for climate action 	<ul style="list-style-type: none"> • Key water related issues identified for integration in the adaptation plan/strategy • Priority climate change adaptation actions developed • Resource mobilization strategy/plan developed for taking climate action
3. Strengthen capacity (institutional and human) to access climate finance	<ul style="list-style-type: none"> • Develop pipeline of projects ideas (water related) that can be developed into funding proposals targeting various climate finance • Organize webinars/workshops introducing the requirements for accessing the various climate finances • Provide technical support in preparing concept notes/funding proposals to access climate funds • Provide technical support to the Climate Change Focal Point and Ministry of Water in preparing project concept notes and funding proposals • Provide technical support in identifying implementing entities and/or strengthen Direct Access Entities (including accreditation of the People's Bank of Zanzibar) 	<ul style="list-style-type: none"> • A pipeline of at least 5 water-related project ideas for potential funding through climate finance developed • Capacity of at least 10 people for preparing and submitting project concept notes and funding proposals strengthened • Capacities of the Environmental Management Authority and the Ministry of Water, Energy and Minerals strengthened • At least 3 accredited entities submitted concept notes/funding proposals to access climate finance
4. Implement climate resilient water projects	<ul style="list-style-type: none"> • Strengthen the capacity of the Ministry of Water, Energy and Minerals to manage implementation of projects • Strengthen capacities of accredited entities (national) to implement/execute projects • Execute projects that will contribute to climate resilient water security in Zanzibar • Develop a system of managing knowledge and lessons for future programming and scaling up 	<ul style="list-style-type: none"> • Capacities of Ministry of Water, Energy and Minerals and implementing/ executing entities strengthened • Financed projects properly executed • A system for managing knowledge and lessons for scaling up developed and functioning

3.2.2 Component 4: Gender equality and Social Inclusion

Gendered inequalities in access to productive assets and resources including water are prevalent in Zanzibar and disproportionately increase the burden of climate change-induced consequences on women. This can largely be attributed to the patriarchal system around which much of the society is organized.

Thus, gender equality is essential for ensuring water security and building climate resilience. However, addressing structural inequalities that underpin vulnerability to climate-induced water challenges requires transformation through interventions to shift towards addressing the underlying social, political and economic structures that produce marginalization and inequality.

According to the Zanzibar Vision 2050, nearly 45% of Zanzibari women are employed in the informal economy and only 27.2% have right of land ownership as noted in the Land Policy of 2018, suggesting an inadequate share of economic growth. One of the aspirations is an equal and equitable society that protects and empowers women, children, people with disabilities and other people with vulnerable situations.

In Zanzibar several government documents indicated the need to address gender inequalities in water security and climate resilience building.

The main challenges are as follow:

- Reduced level of understanding and appreciation to the importance of integrating gender equality and social inclusion in water service delivery systems,
- Reduced level (15) of sensitization (policymakers) and political support for transformative actions towards gender equality and social inclusion in the water sector,
- Inadequate capacity in undertaking analysis on gender inequalities and gaps,
- Inadequate tools and guidelines to integrate gender issues in climate resilient water interventions,
- Gender inequalities in accessing water and related resources, information and decision-making power.

This component will cover the interventions that are required for addressing gender inequalities in Zanzibar:

Table 6: Overview of Component 4: Gender equality and social inclusion

OBJECTIVES:		
This main objective of this component is to contribute to addressing gender inequality issues in water security and climate resilience building in the country.		
Investment areas and Expected Outputs: The following are key priority investment areas (interventions) that are required to contribute towards gender equality of water supply systems in Zanzibar.		
Investment areas	Interventions	Expected outputs
1. Raise awareness and strengthen capacity on gender equality relating to water and climate	<ul style="list-style-type: none"> • Raise understanding and appreciation on gender equality and social inclusion in water service delivery systems • Train staff of the Ministry of Water, Energy and Minerals, the Environmental Management Authority and others on gender equality relating to water security and climate resilience building 	<ul style="list-style-type: none"> • Level of understanding and appreciation to gender equality raised • At least 10 staff members trained on how to integrate gender issues in water related initiatives
2. Undertake analysis on gender inequality issues relating to water and climate resilience building	<ul style="list-style-type: none"> • Develop/adapt some tools/guidelines to conduct gender analysis • Train staff members on aspects of conducting gender analysis • Conduct gender analysis relating to water and climate change 	<ul style="list-style-type: none"> • At least 10 staff trained on how to carryout gender analysis • Gender analysis study carried out and gender inequality issues identified • Intervention areas identified to respond to the identified inequality issues
3. Taking action to address gender inequality issues	<ul style="list-style-type: none"> • Identify the key government mandated institutions that will contribute towards gender equality and social inclusion in water and climate programmes • Develop gender action plan • Implement gender action plan 	<ul style="list-style-type: none"> • Action Plan for addressing inequalities (gender, social) developed • Actions implemented

3.3 Investment Focus Area 3: Water governance and institutional strengthening

Water resources management and development is always subjected to evolving dynamics and hence the need to institute effective governance systems with the view to ensure alignment with the key principles of integrated water resources management and development.

The governance systems need to be supported by appropriate operational environment in the form of policies, legislations, strategic plans and development programmes. The establishment of a water governance and enabling environment need to be anchored and supported by a well-informed, structured and participatory process for the benefit of instituting integrated planning where the needs of other sectors can be accommodated.

To achieve an integrated approach to water resources management in Zanzibar, there is need to strengthen the institutional setup and also ensure that there is an effective enabling environment. Also, resources are needed both financial and human – to support ensure effective water governance. Furthermore, there is need to strengthen the water resources management capacities through ensuring effective instruments are put in place to support these functions.

This investment area will be implemented through the following components:

Component 5: Strengthening institutional arrangements and enabling environment

Component 6: Sustainable water resources management

Component 7: Human and financial resource mobilization

3.3.1 Component 5: Strengthening institutional arrangements and enabling environment

The water sector in Zanzibar is coordinated and managed under key strategic frameworks i.e the Zanzibar Water Policy (2004) and the Water Act (2006). The latter provided for the establishment of the Zanzibar Water Authority (ZAWA) in 2007 where the responsibility to manage and develop water resources in the island was vested upon it. This

arrangement continued to exist until in 2021 when the Directorate of Water Development was constituted. Efforts in early 1990's led to the development of the Zanzibar Urban Water Supply Master Plan (1991-2015) which focused more on water supply.

The institutional instruments for the water sector in Zanzibar were developed a while ago and hence may not be able to address prevailing water challenges that are associated with emerging dynamics e.g. population increase, climate change, integrated approaches, etc. ZAWA has been managing two portfolios i.e., the main mandate of water supply as well as being responsible for water resources management. Unfortunately, water supply is normally given a higher priority (public attention, resources, political will etc.) compared to water resources management. In this case, due to the need to address public attention, ZAWA has continued to focus more on its key mandate of water supply while water resources management continued to lack a champion, and a dedicated directorate to spearhead the requisite institutional arrangements of Integrated Water Resources Management (IWRM).

Countries that do not prioritise water resources management are exposed to a range of risks and consequences. Investments in IWRM focusing on water governance, institutional strengthening are invisible and not in the public and tend to be neglected. Mismanagement of the water resources has a direct and negative impact on water supply.

The current institutional arrangements at the Ministry of Water, Energy and Minerals (MWEM) and ZAWA needs to be strengthened to drive an IWRM approach. This can be done through providing a platform that addresses the lack of integrated planning with water related sectors e.g; Agriculture, Tourism, Industry, Health, Education, Lands etc. Integrated planning and promoting platforms for multi-stakeholder dialogue is critical to enhancing IWRM implementation in a country.

Zanzibar is part of Tanzania through the Union Government but is autonomous in various areas including management and development of water resources. In this case, water resources management and development in Zanzibar is fully in the jurisdiction of Ministry of Water, Energy and Minerals in Zanzibar. The visibility of the Zanzibar's water sector has been limited in the regional and

international fora as it has been discussed as part of the overall Tanzania water sector. In order to

attract the much needed support there is need to raise the profile of the Zanzibar water sector.

Table 7: Overview of Component 5: Strengthening institutional arrangements and enabling environment

Investment areas	Interventions	Expected outputs
OBJECTIVES:	The main objective of this component is to strengthen the institutional setting of water resource management at the Ministry of Water through actualization of key aspects of Integrated Water Resources Management in the water sector.	
Investment areas and Expected Outputs: The following are key priority investment areas (interventions) that are required in actualizing IWRM in the water sector in Zanzibar.		
1. Review current water policy	<ul style="list-style-type: none"> Review the 2004 water policy, and identify critical gaps in relation to the Zanzibar Vision 2050 development ambitions and in addressing issues of sustainable water resources management, climate change, gender equality and social inclusion, among others areas Prepare policy papers on issues to be identified above Prepare and endorse the revised water policy 	<ul style="list-style-type: none"> A revised water policy that captures new and emerging issues in the water sector in Zanzibar
2. Develop an integrated water resources master plan (strategy)	<ul style="list-style-type: none"> Identify priority programme areas as part of implementing the revised policy being guided by the Zanzibar Vision 2050 Estimate cost for implementing the priority programmes on a five-year basis 	<ul style="list-style-type: none"> A strategic water resources master plan with estimated costing developed
3. Review the existing institutional arrangement for water governance in Zanzibar	<ul style="list-style-type: none"> Conduct studies to identify gaps in the existing institutional arrangement related to mandates, functional relations, coordination, and collaboration, etc. Propose changes to improve the institutional arrangement and functional relationships Get endorsement of the changes on the institutional arrangement 	<ul style="list-style-type: none"> Gaps in the existing institutional arrangement identified and amendments made
4. Establish a water sector coordination structure, and a multi-sectoral dialogue platform	<ul style="list-style-type: none"> Establish a government water sector coordination platform Establish a multi-stakeholder dialogue platform 	<ul style="list-style-type: none"> Government has established a water sector coordinating structure Zanzibar has established multi-stakeholder dialogue mechanism
5. Strengthen then newly established directorate of water resources development	<ul style="list-style-type: none"> Clearly define the mandates, responsibilities and relationships of the newly established Directorate Assess the capacity gaps of the Directorate Strengthen its capacity (budget, staff, visibility, tools, etc.) 	<ul style="list-style-type: none"> A capacitated, fully functional and established water resources department with the mandate to issue water use permits
6. Raise the profile of Zanzibar's water sector regionally and internationally	<ul style="list-style-type: none"> Develop a strategy for regional and international engagement Facilitate international and regional engagements 	<ul style="list-style-type: none"> A well-informed structured approach in rolling out publicity on water sector in Zanzibar.

3.3.2 Component 6: Blue Economy and Sustainable Water Resources Management

According to the Water Sector Reform report (Sept, 2021), by the Ministry of Water, Energy and Minerals that identified Zanzibar's Water Sector Improvement areas, the island receives enough rainfall to satisfy demands for the various socio-economic activities. Unguja receives 1,600 million cubic meter (MCM)/year while Pemba receives 1,900MCM per year.

Zanzibar largely depends on groundwater as the major source of reliable freshwater to cater

for water supply for the growing population and meet the requirements of developing industrial and other economic activity needs. According to the report by ZAWA and UN-HABITAT (2009), Zanzibar Islands (Pemba and Unguja) have an estimated capacity of groundwater abstraction at 339 MCM per annual. The recharge to groundwater aquifers is high. The highest recharge rates occur during the months of April to June and November to January with a mean recharge contribution of rainfall at 28% of the average yearly rainfall. There is still limited information on the exact amount of total

abstractions. ZAWA 2013/18 strategic plan indicate that at least 71 MCM were being extracted annually.

Limited information on groundwater abstraction is due to lack of registration of most private entities and homes for water permit, and lack of monitoring of such groundwater uses. The unmonitored groundwater abstractions, especially by private entities and individuals, is increasing the risk of saltwater intrusion into the aquifers, overexploitation and even groundwater mining, often caused by imbalance between withdrawals and the recharge rates.

Some studies attributed the high salinity observed in the Unguja coastal boreholes and wells to the lack of information on safe and allowable abstractions that would not exceed replenishment rate. It is noted also that most of the wells in Zanzibar islands abstract water from the shallow aquifers that are potentially vulnerable to pollution and alteration due to climate change effects. Moreover, the presence of large number of hotels near the coastal areas found to increase the amount of abstraction from the aquifers levels that are not proportional to the recharge rate of the aquifers and increasing the risks of saltwater intrusion. There are many challenges associated with managing the water resources of the island.

The main ones are:

- Inadequate knowledge about the water resource potential, mainly quantity and quality of groundwater,
- Inadequate protection of water sources. This includes encroachment into sites where boreholes are located due to urbanization and deforestation. Catchment degradation is also a challenge,
- Degradation of quality of water sources. This is mainly due to source pollution from untreated wastewater and other pollutions, and saltwater intrusion,
- Lack of integrated approach in managing the resource. This is mainly for coordinating multiple water uses, establishing water abstraction thresholds, and integrating water use and waste management (including minimizing impact on coastal zones and other natural systems),
- Over abstraction of water sources, especially groundwater. This is mainly due to inadequate regulatory frameworks and their enforcement. Competing water uses between different sectors,
- Limited capacity for managing water resources (both institutional and human).

This component will cover the interventions that are required for sustainable management of water resources in Zanzibar.

Table 8: Overview of Component 6: Sustainable Water Resources Management

OBJECTIVES:	The main objective of this component is to ensure that the water resources of Zanzibar are managed sustainably through actions that will protect the water source (quantity and quality), enhance water supply and increase efficiency in water uses.	
Investment areas and Expected Outputs: The following are key priority investment areas (interventions) that are required for sustainable management of water resources in Zanzibar.		
Investment areas	Interventions	Expected outputs
1. Assess water resource potentials; designate water source areas; and protect their catchment areas	<ul style="list-style-type: none"> • Conduct a comprehensive water resource assessment study • Identify, delineate, and designate water source areas, recharge zones and catchment areas • Protect water source areas, recharge zones and catchment areas 	<ul style="list-style-type: none"> • Water resource potential of Zanzibar well know and documented • Water source areas, recharge zones and catchment areas protected
2. Develop systems for integrated management of water resources in the catchments and marine (coastal zones) environments	<ul style="list-style-type: none"> • Identify hydro(geo)logical units for an integrated management of surface water, groundwater and coastal zones) • Develop management structures for such units • Identify activities for managing water and related resources in such units 	<ul style="list-style-type: none"> • Units for integrated management of water and related resources identified • Management structures for such units developed • Activities for sustainable management of water and related resources identified

<p>3. Strengthen water information system, including for monitoring water resources and for developing water allocation strategies/plans</p>	<ul style="list-style-type: none"> • Develop a water information system and establish a system that shows water balance, including modeling • Document existing water abstractions, and estimate the amount of their annual water abstraction for different uses • Develop a system for monitoring water abstractions and recharges 	<ul style="list-style-type: none"> • A water information system strengthened • Information on the existing water uses documented • A system for monitoring both replenishment and extraction levels are established
<p>4. Strengthen capacities and mechanisms for regulating water resources</p>	<ul style="list-style-type: none"> • Conduct a study on the existing system of water regulation (institutional arrangement, existing mechanisms and enforcement capacities) • Strengthen capacities and systems for regulating water resources • Conduct a water allocation study and develop an allocation strategy/plan • Register existing water uses (abstractions) and users • Develop a system (strategy or plan) for water allocation for different uses and from different sources • Issue permits to existing and new water abstractions based on water balance calculations • Monitor compliance of water uses per the issued licenses 	<ul style="list-style-type: none"> • Institutional responsibilities and mandates for regulating water resources defined • At least 10 staff trained on water regulation processes, procedures and mechanism. • Mechanisms (water allocation strategy/plan, guidelines, procedures, tools) developed to support water regulation • Existing water abstractions registered and permits issued (as appropriate)

3.3.3 Component 7: Human Capacity Development

Water sector needs continued development support in building the requisite expertise as well as providing the necessary tools to the experts for effective delivery of the sectoral mandate. Development of human resource is always a dedicated structural process with well-defined long term-goals and aspirations. It is an established fact that, the main ingredient for any development agenda at any location, setting, thematic area etc is a well skilled and informed human capital. Development and building of human capital will automatically lead to instituting broad open-minded ideologies, integrated thoughtfulness as well foresights. The latter are indirect benefits that have an everlasting impact in the society.

Human capital development in the water sector is a very crucial pillar in managing and developing water resources for the benefit of current and future generations. In this regard, the Ministry of Water in Zanzibar need to focus on efforts on building a strong human capital on water resources management and development of which can be achieved through dedicated collaborative endeavors in training and research.

The State University of Zanzibar is the premier national research and academic institution in the Island offering various degree courses. Unfortunately, the University does not have

a dedicated academic programme on water management or water resources engineering. Any person who wishes to undertake such programmes currently must enroll to study in Tanzania mainland or abroad and this is costly. These courses are foundational steps in building requisite technical capacity in water resources management and the University could take the advantage of offering premier international groundwater management courses as part of increasing its international visibility and collaboration. The existence of numerous monitored wells under ZAWA (close to 360 boreholes) plus other wells managed by Ministry responsible for Agriculture, Private Sector e.g., hotels is unique platform for undertaking exceptional and ground-breaking research in groundwater management due to existence of data for analytics.

The middle level career development programmes like short professional courses as well as technical programmes e.g., diploma courses on water resources management are the prime movers in implementation of infrastructural projects in the water sector. These courses produce skilled technicians who eventually lead the implementation phase of any water project. Unfortunately, there is no Training Institute in Zanzibar, under the Ministry of Water, Energy and Minerals offering such technical programmes e.g., catchment monitoring, well drilling, plumbing etc.

Table 9: Overview of Component 7: Human and financial resource mobilization

Investment Priorities	Interventions	Expected outputs
<p>1. Initiate a dedicated academic programme (BSc, MSc & PhD) at the State University in Zanzibar on water resources management and water resources engineering.</p>	<ul style="list-style-type: none"> • Carryout a need assessment study to determine what level (B.Sc, MSc, PhD), how many students and when to start such academic programmes • Develop the required curricular for the different programmes • Mobilize the necessary capacities and infrastructure to run the programmes including instructors, laboratory facilities, lecture rooms, etc. • Establish academic exchange or collaborative programmes with academic institutions outside of Zanzibar 	<ul style="list-style-type: none"> • Academic programmes on water resources management at the State University of Zanzibar initiated and running
<p>2. Establish a premier Water Institute to offer unique courses on water issues that are common to islands.</p>	<ul style="list-style-type: none"> • Conduct studies to identify priority areas that can fill unique gaps in capacity development for island states in Africa such as integrated coastal zone management, circular economy, and saltwater intrusion. 	<ul style="list-style-type: none"> • A Centre of Excellence/ Zanzibar Water Institute established
<p>3. Establish a collaborative research programme with international research and academic institutions</p>	<ul style="list-style-type: none"> • Conduct an inventory of research programmes by such as IHE-Delft, University of Twente, Leeds University as well as regional capacity building networks e.g Water Net 	<ul style="list-style-type: none"> • Collaborative water research programmes initiated



4. Summary and way forward



4.1 Summary

4.1.1 Investment Areas

The Zanzibar Water Investment Programme (ZanWIP) has the 30 actions categorized into following seven components and three Investment Focus Areas as depicted in the figure below.

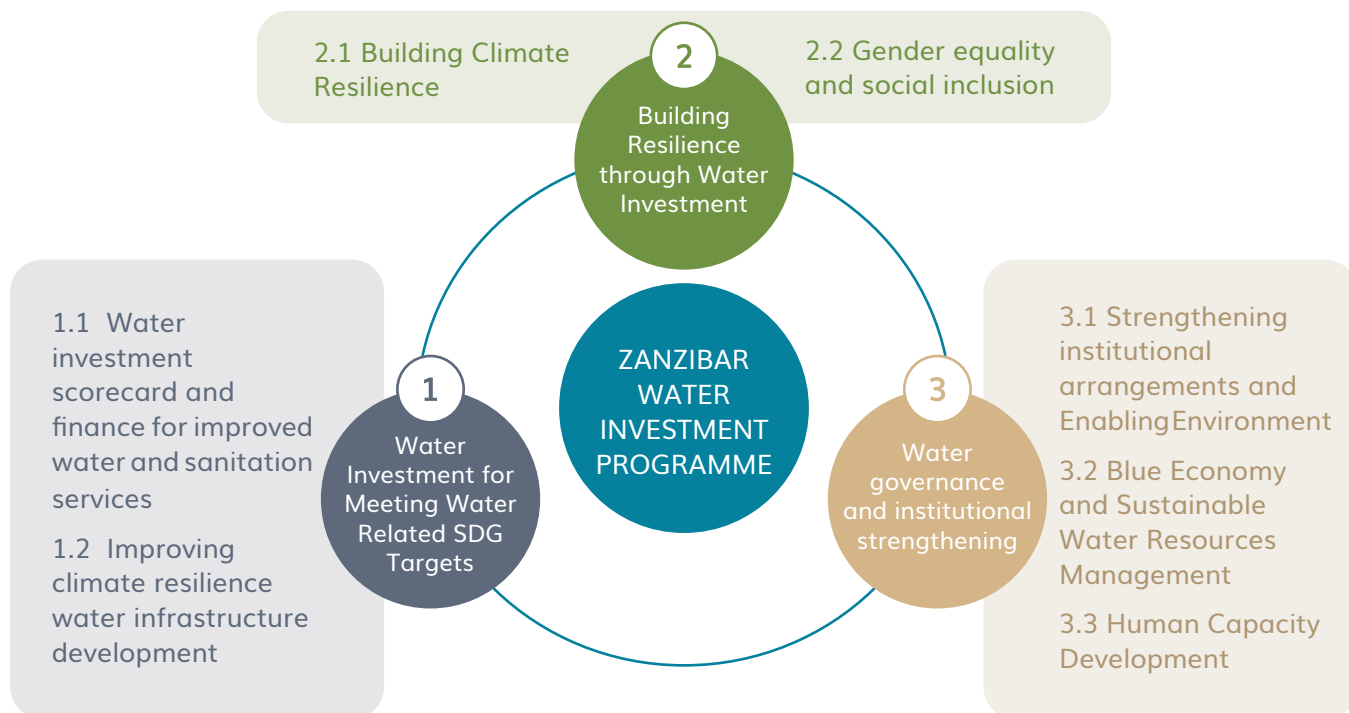


Figure 1: Zanzibar Water Investment Programme Overview

Sustainable Water Resources management and development in Zanzibar requires investment in three Investment Focus Areas. In addition to the actual investment to improve and expand water services, the aspects of building climate resilience and strengthening governance and institutions are critical areas.

4.1.2 Financial Resource Requirements

It is estimated that implementing the Zanzibar Water Investment Programme (ZanWIP) will require about 665.5 million US Dollars over 5 years (2022 -2027). The following table shows the budget summary:

Zanzibar Water Investment Programme

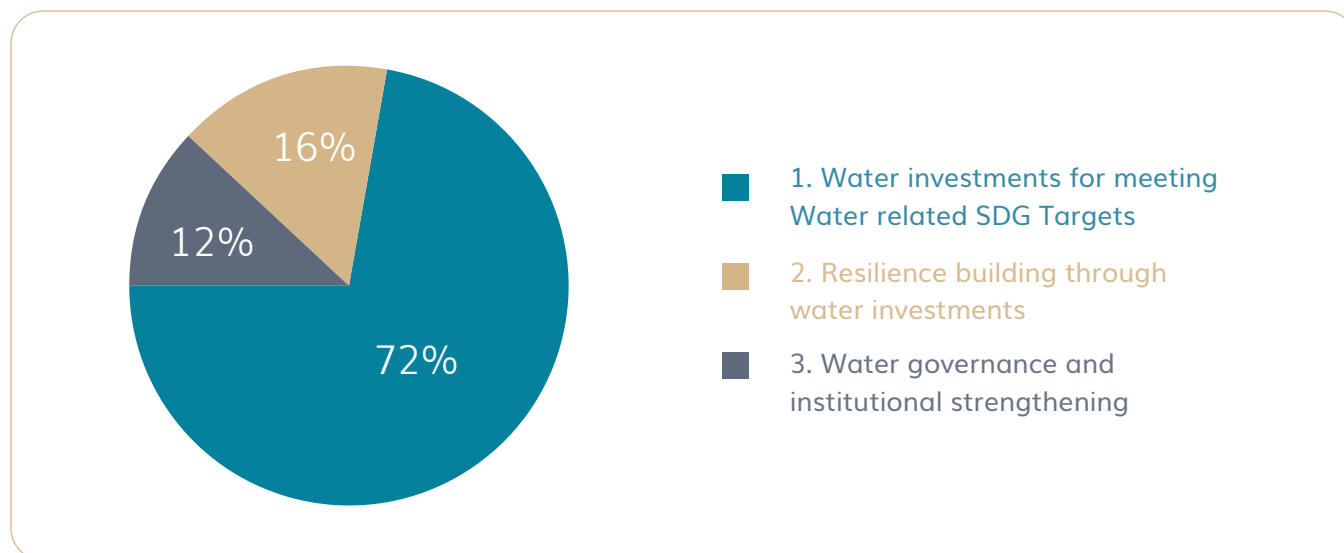
(A) Investment Focus Area	(B) Components	(C) Priority Interventions Area and Actions	Focus Area
1. Water Investments for meeting Water related SDG Targets	1.1 Water investment scorecard and financing water and sanitation services	1.1.1 Mobilizing water investments and finance for water security	USD 476 533 572
		1.1.2 Strengthen water supply and sanitation network management	
		1.1.3 Increasing efficiencies in water service provision	
		1.1.4 Promoting water demand	
		1.1.5 Strengthen water service regulation	
		1.1.6 Promote inter-sectoral linkages in the provision of sanitation services	
	1.2 Improving climate resilience water infrastructure development	1.2.1 Diversify water sources for various uses	
		1.2.2 Implement the water infrastructure flagship programme (2022 – 2027)	
		1.2.3 Develop alternative sources of energy for water supply	
		1.2.4 Strengthen the capacity of ZAWA/ Ministry of Water in project development	

(A) Investment Focus Area	(B) Components	(C) Priority Interventions Area and Actions	Focus Area
2. Building resilience through water investments	2.1 Build Climate Resilience	2.1.1 Conduct climate risk analysis on water, WASH, water-related ecosystems	USD 107 169 172
		2.1.2 Develop water adaptation plan/strategy	
		2.1.3 Strengthen capacity of MoWEM (institutional and human) to access climate finance	
		2.1.4 Implement climate resilient water projects	
	2.2 Gender equality and social inclusion	2.2.1 Raise awareness and strengthen capacity on gender equality relating to water and climate	
		2.2.2 Undertake analysis on gender inequality issues relating to water and climate resilience building	
2.2.3 Actions taken to address gender inequality issues			
3. Water governance and institutional strengthening	3.1 Institutional arrangements and Enabling Environment	3.1.1 Review current water policy	USD 81 810 610
		3.1.2 Develop an integrated water resources master plan (strategy)	
		3.1.3 Review the existing institutional arrangement for water governance in Zanzibar	
		3.1.4 Establish a water sector coordination structure; and a multi-sectoral dialogue platform	
		3.1.5 Strengthen then newly established directorate of water resources development	
	3.2 Sustainable Water Resources Management	3.2.1 Assess water resource potentials; designate water source areas; and protect their catchment areas	
		3.2.2 Develop systems for integrated management of water resources in the catchments and marine (coastal zones) environments	
		3.2.3 Strengthen water information system, including for monitoring water resources and for developing water allocation strategies/ plans	
		3.2.4 Strengthen capacities and mechanisms for regulating water resources	
	3.3 Human and Financial Resource Mobilization	3.3.1 Initiate a dedicated academic programme (BSc. MSc & PhD) at the State University of Zanzibar on water resources management and water resources engineering.	
		3.3.2 Establish a premier Water Institute to offer unique courses on water issues that are common to islands.	
		3.3.3 Establish a collaborative research programme with international research and academic institutions	
	TOTAL		

As shown in the following pie chart, the biggest financial resource requirement will be for implementing Investment Focus Area 1: Water Investments for meeting Water related SDG Targets which is about USD 476,5 Million (72%), and Investment Focus Area 3: Water governance

and institutional strengthening which is estimated to cost about USD 81,8 Million (12%). Implementing Investment Focus Area 2: Building resilience through water investments is estimated to require about USD 107,2 Million (16%).

Figure 2: Financial Resources Requirements



4.1.3 Implementation Arrangement

The overall responsibility for implementing the ZanWIP will be for the Ministry of Water, Energy and Minerals. However, implementation will

require participation and collaboration between various government institutions. The following table shows the key lead and collaborating institutions for the different components of the programme.

Investment Focus Area	Components	Lead Institution	Collaborating Institutions ²
1. Water Investments for meeting Water related SDG Targets	1.1 Water investment scorecard and financing for improving water and sanitation services	MOWEM	ZAWA, DWD, Ministry of finance and economy, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing, Zanzibar Investments promotion center
	1.2 Improving climate resilience water infrastructure development	MOWEM	DWD, ZAWA,, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing
2. Building resilience through water investments	2.1 Build Climate Resilience	MOWEM	DWD, ZAWA, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing
	2.2 Gender equality and social inclusion	MOWEM	DWD, ZAWA, ZURA, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing
3. Water governance and institutional strengthening	3.1 Institutional arrangements and Enabling Environment	MOWEM	DWD, MOWEM, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing
	3.2 Sustainable Water Resources Management	DWD	DWD, MOWEM, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing
	3.3 Human and Financial Resource Mobilization	MOWEM	DWD, MOWEM, Ministry of Agriculture and Natural resources, Ministry of Livestock and Fisheries, Ministry of Trade, Industry and Marketing

²Key: ZAWA: Zanzibar Water Authority; Directorate of Water Development (DWD); Ministry of Water, Energy and Minerals (MOWEM)

4.1.4 Financing Strategy

Investment Focus Area 3: Component 3.3 Human and Financial Resource Mobilization is included in the Zanzibar Water Investment Program. This mainly includes developing a resource mobilization strategy for implementing the integrated water resources development master plan.

Specifically, for implementing ZanWIP, the following financing strategies are identified:

- **Organize a water investment conference.** This will help Zanzibar to show its interest and commitment to invest to address the critical water challenges. The conference is expected to bring together various stakeholders (government, private, non-governmental, academic, research, financing partners, etc) and sensitize them on critical water challenges in Zanzibar and introduce the investment programme
- **Develop Information Package for different interest groups:** This is useful to show that areas are identified that can attract various investors. This includes packaging information for private sector investment in areas such as hotels, tourism, industry, agriculture, mining, real estate etc. For public sector investment (around policy, institutional, capacity development, water infrastructure development); for financing partners (commercial and development banks, bilateral and multi-lateral development partners, vertical finance (such as climate

funds); and investment for non-government organizations.

- **Develop Pipelines:** Project Ideas, Concept Notes and Funding Proposals for various funding opportunities
- **Strengthen capacities** of various government institutions to access various financing opportunities. Specifically strengthen capacity of Zambia to access climate finance
- **Strengthen partnership:** Partnership for resource mobilization, knowledge management and learning, information sharing, mobilizing technical assistance, and others.
- **Follow an integrated approach:** A water-energy-food nexus approach in preparing projects for investment and considering blending of various sources of funds (grants with loans; public finance for social services with private finance for profit; business as usual development finance with climate finance; etc.)

4.1.5 Monitoring and Reporting System

It is expected that the various investment projects will have their specific monitoring, reporting and evaluation systems. However, implementation of the ZanWIP will be tracked and reported based on the indicators/targets indicated in the document. The Ministry of Water Energy and Minerals will be in charge for overall implementation, tracking and reporting of the ZanWIP.



Annex 1: Proposed Location, Activities and Cost Estimates for Rain Water Harvesting Projects

N	Proposed Place	Name of Region	Proposed Activities	Cost (in Million USD)	Remarks
1	Kipange River	North - Unguja	Construction of Water Dam, Water Treatment Plant, Reservoir, Distribution network, pumping station and Power Development	100	Preliminary concept note is already prepared. <ul style="list-style-type: none"> • Kipange to Nungwi • Kipange to Matemwe • Kipange to Dimani
2	Mwanyanya River	Urban West - Unguja	Rehabilitation of Mwanyanya Spring area with Construction and development of New Springs, Water Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Distribution network and strengthening of existing transmission pipe from Mwanyanya spring to Saateni waterworks, pumping station and Power Development	75	Preliminary concept note to be prepared. <ul style="list-style-type: none"> • Mwanyanya to Dole • Mwanyanya to Saateni
3	Mtopepo River	Urban West - Unguja	Rehabilitation of Mtoni Spring area with Construction and development of existing Springs, Water Weir/Small Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Transmission and Distribution network and strengthening of existing transmission pipe from Mtoni spring to Saateni waterworks, pumping station and Power Development	60	Preliminary concept note to be prepared. <ul style="list-style-type: none"> • Mtoni to Chumbuni • Mtoni to Saateni
4	Ziwa Maboga	Urban West - Unguja	Construction of Water Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Distribution and Transmission network, pumping station and Power Development	50	Preliminary concept note to be prepared. <ul style="list-style-type: none"> • Ziwa Maboga to Shakani via Kisauni old quarry • Ziwa Maboga to Tomondo areas
5	Muyuni	South - Unguja	Construction of Water Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Distribution and Transmission network, pumping station and Power Development	35	Preliminary concept note to be prepared. <ul style="list-style-type: none"> • Muyuni areas • Muyuni to Kizimkazi via Kibuteni • Muyuni to Muungoni
6	Mtende	South - Unguja	Construction of Water Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Distribution and Transmission network, pumping station and Power Development	15	Not yet prepared. <ul style="list-style-type: none"> • Mtende areas • Mtende to Makunduchi
7	Urban West Region <ul style="list-style-type: none"> • Mwanakwerekwe • inazini • Kilimani • Mbweni 	Urban West - Unguja	Using the existing infrastructure (storm water drainage systems) constructed under ZUSP in different areas to harvest the collected water through their systems	50	Some of the infrastructures are already in place, a detailed analysis of viability of the project is to be done. <ul style="list-style-type: none"> • Mwanakwerekwe • Kinazini • Kilimani • Mbweni
8	Ole	North - Pemba	Construction of Water Pond for groundwater recharging	10	Preliminary concept note to be prepared.
9	Vitongoji	South - Pemba	Construction of Water Pond for groundwater recharging	10	Preliminary concept note to be prepared.
10	Wingwi	North - Pemba	Construction of Water Dam, Water Treatment Plant, Elevated & Ground Reservoirs, Distribution and Transmission network, pumping station and Power Development	50	Preliminary concept note to be prepared.
11	Kangani	South - Pemba	Construction of Water Pond for groundwater recharging	7.5	Preliminary concept note to be prepared.
TOTAL ESTIMATED COST				462.5	

Annex 2: AIP-PIDA Water Investment Scorecard Indicators Framework

IMPACT	Improved water security for everyone spurs economic growth through job creation, poverty reduction, improved health, and gender equality and social inclusion in Africa							
OUTCOME	Increased sustainable water investments in WASH, food security, energy, industry and nature-based solutions (Increased GDP, increased access to WASH services, increase in irrigated area per country vs irrigation potential, increase in proportion of potential hydropower capacity developed, increased investments in ecosystem services, improved water system efficiency)							
INTERMEDIATE OUTCOMES	Improved governance system that enables long-term planning, de-risking of investments, effective coordination, increased accountability, and active inclusion of women, civil society, and other undeserved groups			Increased financial flows and investments			Ensure efficiency and sustainability of water investments	
INPUTS	1 Enabling environment for water investments			2 Mobilise water investments and financing			3 Investment performance and sustainability	
	1.1 Water Investment Governance and Planning	1.2 Investment Climate (Market and Regulatory risks)	1.3 Social and environmental inclusion	2.1 Government expenditure	2.2 Official development assistance (ODA)	2.3 Private sector and philanthropic investments	3.1 Investment performance/ efficiency	3.2 Investment sustainability
	1.1.1a Water sector governance and institutional coordination 1.1.1b Water sanitation hygiene and pandemic (COVID-19) planning	1.2.1.1 Financial sector development	1.3.1 Gender equality and transformative water investments	2.1.1 Public budget commitment / allocation on (WASH, agriculture, energy, Nature and biodiversity protection) per capita	2.2.1 ODA commitment / allocation for water (WASH, agriculture, energy, Nature and biodiversity protection) per capita	2.3.1 Domestic private sector investment (WASH, agriculture, energy, Nature and biodiversity protection)	3.1.1 Structure of tariff mechanisms (including ring fencing)	3.2.1 Climate resilient water investments
	1.1.2 Integrated climate resilient national water, sanitation and hygiene investment plan and financing strategy (multiple sectors, rural and urban, climate-resilient, gender-sensitive, transboundary element)	1.2.1.2 Sovereign risk	1.3.2 Social inclusion (youth, gender, vulnerable and marginalised populations)	2.1.2 Public budget disbursement on (WASH, agriculture, energy, Nature and biodiversity protection) per capita	2.2.2 ODA disbursement for water (WASH, agriculture, energy, Nature and biodiversity protection) per capita	2.3.2 Public Partnerships on water (WASH, agriculture, energy, Nature and biodiversity protection)	3.1.2 Water and sanitation pricing efficiency	3.2.2 Water allocation efficiency and demand management
	1.1.3 Water and sanitation information and data management	1.2.2.3 Government payment risk Quality of overall governance	1.3.3 Inclusion of women in the decision making process	2.1.3 Public budget execution rate (WASH, agriculture, energy, Nature and biodiversity protection) per capita	2.2.3 Climate financing and investments (WASH, agriculture, energy, Nature and biodiversity protection)	2.3.3 Philanthropic finance to water sanitation and environment	3.1.3 Operation and maintenance (O&M) asset management plan	3.2.3 Economic, social and gender impact evaluation of water investments
	1.1.4 Water- related International Treaties and transboundary agreements		1.3.4 Environmental Impact Assessment	2.1.4 Gender budgeting system				
	1.1.5 Integration of water in national climate change and adaptation plans (NDCs, NAPs)							
	1.1.6 Integration of water and sanitation investments in national development plans							
	1.1.7 Capacity of institutions and human resources							
	1.1.8 Disaster management planning, early warning forecasting and response							

