

THE UNITED REPUBLIC OF TANZANIA



MINISTRY OF WATER

**Water Sector Development Programme
Phase II**

(2014/2015 – 2018/2019)

JULY 2014

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Abbreviations and Acronyms

AFD	French Development Agency
AfDB	African Development Bank
AGM	Annual General Meeting
BMP	Best Management Practice
BRN	Big Results Now
BWB	Basin Water Board
BWOs	Basin Water Offices
CBOs	Community Based Organizations
CLTS	Community Led Total Sanitation
COWSOs	Community Water Supply Organizations
CWS	City Water Services
D-by-D	Development by Devolution
DAHRM	Director of Administration and Human Resources Management
DAWASA	Dar es Salaam Water Supply and Sewerage Authority
DAWASCO	Dar es Salaam Water Supply Company
DCDO	District Community Development Officer
DDCA	Drilling and Dam Construction Agency
DED	District Executive Director
DEO	District Education Officer
DESO	District Environmental and Sanitation Officer
DEWATS	Decentralized Water Systems
DFID	Department for International Development
DHO	District Health Officer
DMO	District Medical Officer
DPs	Development Partners
DSS	Decision Support System
DUWSAs	District Urban Water Supply Authorities
EFA	Environmental Flow Assessment
EPICOR	A software for Financial Resource Planning
ESA	External State Agencies
ESIA	Environmental and Social Impact Assessment
EWURA CCC	Energy and Water Utilities Regulatory Authority Consumer Consultative Council
GCU	Government Communication Unit
GIS	Geographical Information System
GIZ	German Development Cooperation Agency
GoT	Government of Tanzania
HESAWA	Health, Sanitation and Water Project
HYDATA	Hydrological Database and Analysis Software
ICT	Information Communication and Technology
IDA	International Development Association
IDB	Internal Drainage Basin
IFRs	Interim Financial Report
ISCB	Institutional Strengthening and Capacity Building
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
IWRMD	Integrated Water Resources Management and Development
JICA	Japan International Cooperation Agency
JSM	Joint Supervision Mission
JWSR	Joint Water Sector Review
KfW	German Government –Owned Development Bank
KPIs	Key Performance Indicators

LBVC	Lake Victoria Basin Commission
LGAs	Local Government Authorities
LVB	Lake Victoria Basin
LVEMP	Lake Victoria Environmental Management Project
M&E	Monitoring and Evaluation
MCS	Maji Central Stores
MDGs	Millennium Development Goals
MIS	Management Information System
MKUKUTA	Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Tanzania
MoF	Ministry of Finance
MoHSW	Ministry of Health and Social Welfare
MoU	Memorandum of Understanding
MoEVT	Ministry of Education and Vocational Training
MoW	Ministry of Water
MTEF	Medium Term Expenditure Framework
MTR	Mid Term Review
NAWAPO	National Water Policy
NBI	Nile Basin Initiative
NELSAP	Nile Equatorial Lakes Subsidiary Action Plan
NPC	National Project Coordinator
NRW	Non Revenue Water
NSC	National Sanitation Campaign
NSGRP	National Strategy for Growth and Reduction of Poverty
NWB	Nile Water Basin
NWSDS	National Water Sector Development Strategy
OBA	Output Based Aid
O&M	Operation and Maintenance
OGP	Open Government Partnership
OSHA	Occupational Safety and Health Agency
PDS	Programme Delivery Support
PIM	Programme Implementation Manual
PIP	Programme Implementation Plan
PMO-RALG	Prime Minister's Office-Regional Administration and Local Government
PPP	Public Private Partnership
RAP	Resettlement Action Plan
RBWO	Ruvuma Basin Water Office
RS	Regional Secretariats
RUWASACAD	Rural Water Supply and Sanitation Capacity Development
RWSS	Rural Water Supply and Sanitation
RWSSP	Rural Water Supply and Sanitation Project
RWSTs	Regional Water Supply Teams
SAGCOT	The Southern Agricultural Growth Corridor for Tanzania
SCC	Sub catchment Committee
SES	Social and Environmental Safeguard
SESA	Strategic Environmental and Social Assessment
SESU	Social and Environmental Safeguard Unit
SH	Sanitation and Hygiene
SRBDP	Songwe River Basin Development Programme
SUMATRA	Surface and Marine Transport Regulatory Authority
SWAP	Sector Wide Approach to Planning
SWASH	School WASH
TA	Technical Assistance
TANROADS	Tanzania Roads Agency
TAWASANET	Tanzania Water and Sanitation Network
TWGs	Technical Working Groups

USAID	United States Agency for International Development
USD	United States Dollar
UWSAs	Urban Water Supply Authorities
VEO	Village Executive Officer
VHW	Village Health Worker
VPO-DOE	Vice-Presidents' Office- Department of Environment
WARMA	Water Resources Management Act
WASH	Water Sanitation and Hygiene
WASSA	Water Supply and Sanitation Act
WDMI	Water Development and Management Institute
WEO	Ward Executive Officer
WRM	Water Resources Management
WSDP	Water Sector Development Programme
WSPs	Waste Stabilization Ponds
WSSAs	Water Supply and Sanitation Authorities
WSWG	Water Sector Working Group
WUAs	Water User Associations
WWF	World Wild Fund for Nature
ZAMCOM	Zambezi Basin Initiative

Preface

For the past two decades, the Ministry of Water has been implementing sector reforms that aim at improving the integrated water resources management and improving water supply and sanitation services in both rural and urban areas. The guidance of the 2002 National Water Policy has continued providing the general direction of the sector in the course of attaining the aspirations of the National Development Vision by 2025; through implementation of the Water Sector Development Programme (WSDP). The WSDP prioritizes activities and budgets in a three-phased timelines of five years each (first phase 2007-2014; second phase 2014-2019 and third phase 2019-2025). The two pieces of water legislation: the Water Resources Management Act (WARMA) and Water Supply and Sanitation Act (WASSA); which were enacted in 2009, repealing all previous water laws except DAWASA and EWURA laws; provides mandates for both Policy and Programme implementation including establishment of various institutions.

Following the official launching of WSDP, which was done by His Excellency Dr. Jakaya Mrisho Kikwete, President of the United Republic of Tanzania in March 2007 in Moshi during Maji Week commemorations; implementation of phase I of the Water Sector Development Programme commenced on 1st July 2007. The first two and half years had several challenges that resulted in Programme restructuring in 2011, which prompted phase I extension to June 2014. The innovations that came with restructuring (such as the water sector Management Information System –MIS; and Water Point Mapping - WPM) have improved planning, budgeting, performance monitoring, financial management and reporting.

In May 2013, the Government introduced the Big Results Now (BRN) agenda, which have galvanized the implementation momentum by enforcing accountability through timely bound Key Performance Indicators (KPIs). This initiative has resulted in a revolution of performance as it has facilitated installation of a total of 16,784 water points in one year (July 2013-June 2014), benefitting a total of 4,195,997 additional people with access to clean and safe water supply; compared to the total achievement of 16,062 water points achieved in all previous 6 years of Programme implementation (July 2007 to June 2013).

As we move to the second phase of the Programme (2014-2019), we need to increase our commitment and dedication, building from phase I achievements. We need to remind our selves that through phase I, we recruited more than 1000 new staff; and we trained more than 1500 staff in various skills especially on financial management and reporting through water sector MIS. Further more, the phase I of the Programme has improved office accommodation through construction and rehabilitation of buildings; has acquired and distributed various work tools and equipment such as cars, computers and accessories; and has developed the technical systems such as the Water Point Mapping and the water sector MIS. Although we achieved much in this area, we still need to sharpen our efforts during WSDP II.

In Water Resources Management and Development; the National Water Board and all Basin Water Boards (BWBs) are effectively operational, and establishment of Catchment Committees (CC)/sub-Catchment Committees (SCC) Water User Associations (WUAs) are all underway but we seriously need more work for them in WSDP II. Processes to grant water permits, effluent discharge permits and drilling permits in all BWBs have been greatly eased and efforts to identify, demarcate and gazette water sources for conservation and protection are being given more priority. In water quality we have done well in retooling and equipping our water laboratories

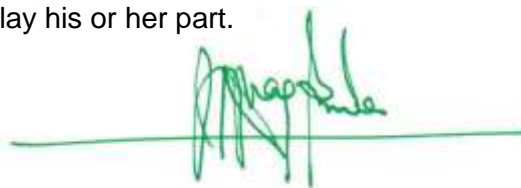
and some of them are now under a process of accreditation. It is my hope that by the end of 2015, all Basins will have integrated water resources management and development plans. In improving the water supply and sanitation services, by June 2014, the programme installed a total of 32,846 water points, benefitting 8,211,500 people in rural areas; and had installed a total of 236,541 house connections and constructed 549 public kiosks that in total benefits 2,700,000 people in urban areas including Dar es Salaam.

Those are WSDP achievements, which we need to sustain while we strive to gain more in phase II. We need to utilize lessons learned during WSDP I to deliver more outputs and outcomes during the next five years. While the Government commitment cannot be overemphasized, we need to further strengthen our partnerships with Development Partners (DPs) and other stakeholders including the private sector because WSDP is a joint undertaking that requires immense stakeholder participation.

To implementing agencies, I have two directives, first; *give more priority to supervision of projects to ensure that projects are completed within agreed timelines*; and second; *ensure that implementation of those projects adhere to technical standards while maintaining integrity, which is translated through the visibility of value for money*. I once again express my appreciation to the participation of both earmarked and Basket Development Partners during WSDP I (2007-2014); while I render my gratitude for the moral support and financial contribution of all Partners; I would like to take this opportunity once more, to make a call for continued support of every stakeholder during WSDP II (2014-2019), specifically Development Partners including the Private Sector, because we are jointly walking towards common goals and targets. I understand that while we immediately need funds from the DPs to reach the ambitious but very desirable WSDP II goals by the end of 2019; time to mobilise the funding for WSDP-II is a challenge, and that not all the required funds will be available immediately. This has necessitated projects prioritizations as indicated in the annexed costing sheets.

The Government commitment remains high, and so its ambitions to reach its aspirations. As we have vowed together through our joint water sector dialogue framework, we are determined deliver expectations; and we will accomplish priorities through BRN approach, which is a key tool for the sector to achieve WSDP targets by 2019.

It can be done, let every body play his or her part.



Hon. Prof. Jumanne A. Maghembe (MP)
Minister of Water

Executive Summary

WSDP I Overview

The Government of Tanzania, through the Ministry of Water is implementing the Water Sector Development Programme (WSDP), for the period 2006–2025; which has four components, namely: (i) Water Resources Management; (ii) Rural Water Supply and Sanitation; (iii) Urban Water Supply and Sewerage; and (iv) Institutional Development and Capacity Building. It follows a Sector Wide Approach to Planning (SWAP); with an overall objective of strengthening sector institutions for integrated water resources management and improve access to water supply and sanitation services. The desire is to attain the aspirations of the National Development Vision 2025; which envisions universal access to water supply services in urban areas by 2025; and covering at least 90% of the population with water supply services in the rural areas by 2025; while ensuring environmental sustainability through integrated water resources management principles. Implementation of the Programme is done throughout the country in all Local Government Authorities (LGAs), Basin Water Boards (BWBs), and Urban Water Supply and Sanitation Authorities (UWSAs).

Because of the long-term nature of the Programme (20 years), its implementation is done in phases of five years each. The first phase started in July 2007 and was to be accomplished in June 2012. However, the Mid Term Review (MTR) of April 2010, which was done by stakeholders, noted that the Programme was not on track in relation to its targets due to several challenges including inadequate capacity in procurement, contract management and reporting; delays in the flow of funds to implementing agencies; delayed completion of designs in rural areas and delayed development of the functional Management Information System (MIS); In 2011, WSDP was restructured by adjusting not only targets and activity re-prioritization; but also extend Phase I completion date to June 2014.

Summary of WSDP I Implementation

At commencement of WSDP phase I in July 2007, the Government of Tanzania and Development Partners had committed a total of 951million USD, but during implementation, more commitments were received, which increased the total WSDP phase I funding commitments to 1,364million USD; an increase equivalent to 43% of the original commitment. Between July 1, 2007 and June 30th, 2014, a total of US\$ 1,230million, equivalent to 90percent of the revised commitment, has been disbursed over the six years of implementation.

The results of WSDP phase I as of December 2013 can best be analyzed on component basis. Under **Water Resources Management (Component 1)**, the National Water Board and Basin Water Boards have been established and are operational in accordance to the Water Resources Management Act of 2009. 38 catchment water committees and 86 sub-catchment water committees have been identified and procedures to establish them initiated; and 90 Water User Associations established and an inventory of existing dams was conducted in 2008, which identified a total of 639 dams in the country. Water Quality Management and Pollution Control Strategy is in place and Water Quality Laboratories have been strengthened.

The **Rural Water Supply and Sanitation (Component 2)** by June 2014, the programme managed to achieve 32,846 water points, benefitting 8,211,500 people; thanks to the increased focus given to rural water supply under the Big Results Now (BRN), which managed to install about 16,784 water points in a span of only one year from July 2013 to June 2014; a direct indication that BRN can lead us in achieving the targets if commitment remains high. On rural sanitation **9,120 sub villages** have so

far signed commitments to construct improved sanitation facilities for all village households; and a specified sanitation service provider such as a hardware shop or mason is currently serving **3,433 villages**. This achievement has resulted in 312,528 (56%) households gaining access to improved sanitation and **204,215 (37%) households** have hand-washing facilities out of a cumulative target of **554,000**. On school WASH, **220 schools** out of a target of **238 schools** have achieved the target ratio of students to latrines.

The urban water supply and sanitation (Component 3) total of 236,541 house connections and constructed 549 public kiosks; which by December 2013 were providing water supply services to additional 2.7 million people in the DAWASA service area, 23 major urban regional centers, 96 district and small town utilities and 8 National Projects. Some 166,658 more people have access to sewerage by 13,374 additional connections. Regulation by the Energy and Water Utilities Regulatory Authority (EWURA) has impacted positively in supporting UWSAs efficiency in various indicators.

Under the Institutional Strengthening and Capacity Building (Component 4), capacity development interventions such as rehabilitation and construction of offices, procurement and distribution of vehicles, motorcycles, computers, photocopiers, other office equipment and scientific equipment in water resources and water quality improvement were procured and distributed to all implementing agencies. Furthermore, training in fiduciary management and operationalization of the MIS have contributed significantly in improving both financial management and reporting. Also under this component, increased interaction between MoW and other MDAs (PMO-RALG, MoHSW, MoEVT, RSs, LGAs) as well as with other IAs (BWOs, UWSSAs, MoW Agencies, National Projects) have been significant; resulting into improved coordination and performance.

The dialogue meetings (TWGs WSWG and SC) have met as scheduled, except for the Steering Committee (SC). Quarterly, semi-annual and annual reports have all been produced on schedule and the quality of these reports has registered substantial improvement. Financial statements were submitted to the CAG in a timely manner, facilitated submission of financial audit reports in satisfactory timelines.

Lessons learned in WSDP I, and Changes in WSDP II

1. WSDP STRUCTURE

S/N	WSDP I	WSDP II
i)	<p>WSDP-I had 4 COMPONENTS:</p> <ul style="list-style-type: none"> ▪ Water Resources Management, ▪ Rural Water Supply and Sanitation, ▪ Urban Water Supply and Sanitation ▪ Institutional Strengthening and Capacity Building). <p>Sanitation:</p> <ul style="list-style-type: none"> ▪ Sanitation was mainly put under Rural Water Supply and Sanitation Component; ▪ This caused some operational problems because of its cross cutting nature. 	<p>WSDP II will have 5 COMPONENTS:</p> <ul style="list-style-type: none"> ▪ Water Resources Management, ▪ Rural Water Supply and Sanitation, ▪ Urban Water Supply and Sanitation, ▪ Sanitation and Hygiene; and ▪ Programme Delivery Support. <p>Sanitation:</p> <ul style="list-style-type: none"> ▪ Sanitation remains under both urban and rural components because of their daily responsibilities. ▪ The new Sanitation Component mainly does oversight and coordination, while ensuring adoption of improved sanitation

S/N	WSDP I	WSDP II
	<ul style="list-style-type: none"> Its pace gained momentum with the inception of the National Sanitation Campaign in 2011 	<p>facilities for rural and urban households, and improved WASH facilities in public institutions and other public areas.</p>
ii)	<ul style="list-style-type: none"> Capacity building interventions under WSDP I were overlapping between technical components and component 4 (Institutional Strengthening and Capacity Building) 	<ul style="list-style-type: none"> Capacity building interventions are mainstreamed within all components But, its reporting will continue to be the mandate of component 5, of which its new name is Programme Delivery Support. Technical components will be required to provide quarterly reports on capacity building to the DAHR for consolidation and final reporting.
iii)	<ul style="list-style-type: none"> Coordination, capacity building and monitoring of Social and Environmental Safeguard policies and guidelines were done mainly in a less integrated and limited scope; Many stakeholders called for the establishment of a Unit within MoW with special staff assigned with job descriptions only for that purpose. The Social and Environmental Safeguard Coordination with mainly one staff started as part of WRM component and later shifted to component 4 under PCU. 	<ul style="list-style-type: none"> WSDP II establishes a separate Social and Environmental Safeguard Unit (SESU) within the MoW; led by the Head of a Unit in the same make like the GCU or ICTU are operating; to facilitate effective enforcement, capacity building and monitoring of adherence to the social and environmental policies and guidelines.

2. PROGRAMME OBJECTIVES AND STRATEGIC INTERVENTIONS

S/N	WSDP I	WSDP II
i)	<ul style="list-style-type: none"> Programme Development Objective (PDO) was sector institutions for IWRM strengthened Access to clean and safe water supply and sanitation services improved 	<ul style="list-style-type: none"> Both the PDO and general programme design are still relevant. Therefore no change of both the PDO and the general programme design during WSDP II
ii)	<p>Main intervention packages for WRM were:</p> <ul style="list-style-type: none"> Establishment and strengthening of IWRM institutions within the spirit of sector reforms; Preparation of IWRMPs for each Basin; Water resources assessment, Resource allocation, Regulation, Conflict resolution and demand management; Strategic development and management of water reservoirs, including Dam safety; trans-boundary WRM and 	<ul style="list-style-type: none"> Further momentum will be geared with completion, approval and implementation of the IWRMD plans Most of the strategic interventions do not change.

S/N	WSDP I	WSDP II
	improving water quality management.	
iii)	Main interventions package for Rural Water Supply and Sanitation were centered in implementation of water schemes in 10 villages per each district in Tanzania Mainland.	<ul style="list-style-type: none"> ▪ The 10 villages focus will be replaced with comprehensive planning for the whole district that will be implemented in phases; ▪ Project appraisal criteria for selecting priority projects will be based on District Water Supply and Sanitation Plan while considering updated Water Point Mapping Data. ▪ Residents near the water source and those who reside near major infrastructure will be given priority in access to safe and clean water; ▪ The MoW will prepare and disseminate guidelines for LGAs to prepare comprehensive District Water Supply and Sanitation Plans; ▪ Recurrent fund allocation will continue to be formula based while development allocations will be based on priorities submitted as part of district-wide plan; ▪ Preparation of District Water Supply and Sanitation Plans will consider various data sources including specific surveys and information contained in the Regional Master Plans prepared in 1970s and 1980s; ▪ BRN implementation tracking mechanism will be adopted.
iv)	<ul style="list-style-type: none"> ▪ Main intervention packages for Urban Water Supply and Sanitation were centred in the 19 regional headquarters, Dar es Salaam and National Projects. ▪ Little was done for District Headquarters and Small Towns 	<ul style="list-style-type: none"> ▪ In addition to the on-going interventions, great focus will be also placed on improving water supply and sanitation services in district headquarters and small towns, ▪ New strategic national projects that serve a bigger number of beneficiaries
v)	<ul style="list-style-type: none"> ▪ Main intervention packages were centred on rural areas until the inception of the National Sanitation Campaign in 2011, ▪ The NSC's strategic approach included household sanitation and school WASH. 	<p>National Sanitation Campaign will be further strengthened to cover:</p> <ul style="list-style-type: none"> ▪ Rural sanitation, ▪ Urban sanitation and, ▪ WASH in public institutions (schools, health centres etc), other public areas.
vi)	Institutional Strengthening and Capacity Building was supposed to support other technical components in strengthening their operational capacities to effectively implement the WSDP, but this mandate, especially in capacity building was found to be overlapping with those components.	Programme Delivery Support Component will continue with its traditional role in fiduciary management, coordination, performance monitoring, capacity development of supportive institutions, consolidation of capacity development reporting and increased publicity of sector interventions.

3. PROGRAMME TARGETS AND KEY PERFORMANCE INDICATORS

S/N	WSDP I	WSDP II
i)	<ul style="list-style-type: none"> ▪ Targets were generally pegged in 	Targets based on key performance indicators will be selected:

S/N	WSDP I	WSDP II
	<p>percentages</p> <ul style="list-style-type: none"> ▪ The only place where absolute numbers were referred to was the results monitoring matrix 	<ul style="list-style-type: none"> ▪ Expressed in absolute numbers rather than percentages, which can easily be reported and monitored.
ii)	<p>WSDP I started with adoption of MKUKUTA I targets of</p> <ul style="list-style-type: none"> ▪ Increasing the sewerage service coverage from 17% in 2003 to 30% in 2010; ▪ Rural water supply service coverage from 54% to 65%; ▪ Urban water supply service coverage from 73% to 90%; <p>(Note: in this last category, the definition of urban was only referring to the 19 UWSAs, excluding DAWASA service area);</p> <ul style="list-style-type: none"> ▪ 95% sanitation coverage ▪ 100% coverage of school WASH. <p>Those targets were revised during restructuring in 2011 into:</p> <ul style="list-style-type: none"> ▪ 60.5% rural water supply coverage by 2012; ▪ 88% urban water supply coverage (in 19 UWSAs); ▪ 22% sewerage service coverage and ▪ 60% improved sanitation coverage (confined to programme areas). <p>There were no strict KPIs until after BRN was introduced in 2013, which increased the momentum of</p>	<p>WSDP II includes strict accountability arrangements that are guided with signed performance agreements and key performance indicators as follows:</p> <p>WRM Key Performance Indicators (KPIs) include:</p> <ol style="list-style-type: none"> i) 161 water sources demarcated and gazetted for protection and conservation by 2019; ii) All basin Integrated Water Resources Management Plans (IWRMPs) approved by 2016; iii) 20 medium sized Dams rehabilitated by 2019; iv) 3 major Dams constructed by 2019; v) 150 groundwater monitoring boreholes drilled, and existing 120 rehabilitated by 2019; vi) 170 Water User Association established and the 90 existing WUAs strengthened by 2019; vii) 18 Catchment Committees and 36 sub catchment committees established and fully functional by 2019; viii) 9 existing laboratory buildings rehabilitated and 8 new water laboratories constructed by 2019; and strengthened with standard equipment; ix) Laboratory information system and water quality map developed by 2017; x) Comprehensive fluoride database and maps in fluoride belts developed by 2017; and xi) Recruitment of 1000 staff in various technical disciplines (Hydrologists, hydrogeologists, environmental engineers, water resources engineers, economists, community development officers, chemists etc) for deployment to MoW, Basins, and Water Laboratories. <p>WRM Targets are:</p> <ol style="list-style-type: none"> i) <i>Approved and effectively monitored water permits increased from 3,680 in December 2013 to 6,000 by 2019;</i> ii) <i>100% of eligible enterprises have attained wastewater discharge permits by 2019;</i> iii) <i>Comprehensive mapping of water sources and recharging areas to ascertain conservation and protection baselines and specific targets, done by 2017;</i> iv) <i>Annual Water Quality Yearbook is published by 2017</i> v) <i>5 water laboratories accredited by 2019.</i>

S/N	WSDP I	WSDP II
	implementation	<p>Rural Water Supply and Sanitation KPIs include:</p> <ul style="list-style-type: none"> i) 38,759 new water points constructed to serve 9,644,750 people by 2019; ii) 19,889 non functioning water points rehabilitated to restore water supply service to 4,972,250 people by 2019; iii) 17,686 water points installed from extension of existing infrastructure, which will serve 4,463,000 people by 2019; and iv) 386 engineers and 3,338 technicians for deployment to LGAs up to the ward level recruited. <p><i>The target is to install a total of 76,334 water points serving a total of 19,080,000 people in rural areas, thereby increasing the access percentage from 51% in June 2014 (19,395,697 beneficiaries) to 80% (38,475,697 beneficiaries) by 2019.</i></p> <p>Urban Water Supply and Sanitation KPIs and Targets</p> <p>For Dar es Salaam: the KPIs include:</p> <ul style="list-style-type: none"> i) 212km transmission main constructed and 2,000km water distribution network laid; ii) Water production increased from 300 million litres per day to 756 million litres per day; iii) 11 water storage tanks constructed; iv) 26 boreholes drilled and 10 kiosks constructed in low income areas; v) 500,000 household connections installed; vi) 7 water treatment ponds and 156 km of the public sewer line constructed; vii) 15,000 households connected to the conventional public sewer system; and viii) 76km access road to Kidunda dam constructed. <p>Target for Dar es Salaam is:</p> <p><i>To provide water supply services to 5,007,200 new beneficiaries in Dar es Salaam through 500,000 Household water connections, 26 boreholes and 10 kiosks; thereby increasing access from 68 percent in December 2013 to 95 percent by 2019; and reduce Non Revenue Water from 55 percent to 25.</i></p> <p>For 23 Urban Regional Centres: the KPIs include:</p> <ul style="list-style-type: none"> i) 22 treatment plants constructed, ii) 330 Km new transmission main constructed and 2,111km of distribution network laid, iii) 44 storage tanks constructed iv) 200,000 new house connections installed v) 60 wastewater treatment ponds constructed; and vi) 887 Km of sewer lines constructed; <p>Target for 23 Urban Centers is:</p> <p><i>To provide water supply services to 2,000,000 new beneficiaries in</i></p>

S/N	WSDP I	WSDP II
		<p><i>the 23 Urban Regional Centres through 200,000 Household water connections; thereby increasing access from 80 percent in December 2013 to 98 percent by 2019; and reduce Non Revenue Water from 37 percent to 25 percent.</i></p> <p>For National Projects, District Head Quarters and Small Towns: KPIs include:</p> <ul style="list-style-type: none"> i) 37 treatment plants constructed; ii) 1,091 Km of new transmission main constructed and 3,518 Km of distribution network expanded; iii) 306 storage tanks constructed; iv) 110,000 Household water connections installed; and v) Recruitment of 260 engineers and 1,040 technicians to enhance the human resources technical capacity. <p>The target is to provide water supply services to 1,100,000 new beneficiaries in District Head quarters, Townships and areas served by National Projects through 110,000 Household water connections; thereby increasing the access percentage from 53 percent in 2013 to 65 percent by 2019.</p> <p>NOTE: Criteria for coverage is 2 households (10 people) in average benefit through one connection and 200 people in average benefit through one kiosk or borehole in Dar es Salaam; while in regional centers, district headquarters and small towns it is 2 Households (10 people) in average benefit through one connection and 250 people through a water point or kiosk.</p> <p>Sanitation and Hygiene KPIs</p> <ul style="list-style-type: none"> i) Latrines in 3,500 primary schools rehabilitated including hand-washing facilities, menstrual facilities and formation of sanitation clubs by 2019 ii) Latrines in 700 secondary schools rehabilitated including provision of hand-washing facilities and formation of sanitation clubs by 2019 iii) WASH in 1,000 health facilities rehabilitated and management of healthcare waste strengthened in 600 health facilities by 2019 iv) 25% of households with water treatment and safe storage facilities by 2019 v) 8 WASH facilities constructed in highway bus stops by 2019 <p>The target is to increase the proportion of the population that uses improved sanitation facilities from 2.2 million Households (25%) in 2013 to 7.8 Million Households (75%) by 2019, while instituting measures to eradicate open defecation;</p> <p>Programme Delivery Support KPIs:</p> <ul style="list-style-type: none"> i) 6000 staff trained in enhanced MIS, contract management and SES guidelines by 2019; ii) 100 publicity electronic and print media adverts; and 14 detailed documentaries aired in both national and community media by 2019; and iii) MIS produces IFR, Contracts and other sector M&E reports by

S/N	WSDP I	WSDP II
		2017 <i>The target is 100% of implementing agencies adhere to planning, reporting, and SES guidelines by 2019.</i>

4. OPERATIONAL ISSUES

S/N	WSDP I	WSDP II
i)	WRM: although several challenges were recorded, the original operational set up in accordance to the design and operations are still relevant	Most of operational arrangements will remain the same
ii)	<p>Rural Water Supply and Sanitation:</p> <ul style="list-style-type: none"> ▪ Several operational challenges are noted in the lessons learnt area, ▪ These slowed implementation before BRN 	<p>Amongst enhancements to address the WSDP I challenges include:</p> <ul style="list-style-type: none"> ▪ Adoption of district wide planning; ▪ The use of one contract for Hydro-geological survey and borehole drilling with an increasing involvement of Basins; ▪ The use of project selection criteria and appraisal based on water supply data analysis on equity, sustainability, capacity development requirements, technology requirements, frequency epidemic outbreak and per capita income; while prioritizing low per capita cost projects and those that use renewable energy. ▪ Under equity and affordability circumstances, subsidies for Operation and Maintenance will be considered appropriate; ▪ The PIM will guide COWSOs on project management in a manner that protects both project assets and infrastructure. ▪ Funds that were transferred to the Cities and Municipal Authorities have been causing operational conflicts with UWSAs. This will be halted in stages up to the point when all funds for improvements of water supply services in urban areas are channelled through appropriate WSSAs, instead of urban LGAs; and ▪ Adoption of the sustainability strategy. ▪ Project quality control mechanism will be established where all designs will be checked for quality consistency before approval. This will be followed up with intensive technical monitoring.
iii)	<p>Urban Water Supply:</p> <ul style="list-style-type: none"> ▪ There were minimal number of operational challenges observed in WSDP I. 	<p>No big changes required other than:</p> <ul style="list-style-type: none"> ▪ Improving the access to soft loans for Category A UWSAs in order to ease more financing towards District HQs and Small Towns; ▪ Capacity enhancements especially for District HQs and Small Towns; and ▪ To develop and efficient operational framework for DAWASA water supply service area.
iv)	Prioritization by category A, B and C activities.	<ul style="list-style-type: none"> ▪ Costing sheets for components 1 and 3 have categorized their activities in priority A, B and C levels to enable easy financial allocation in accordance to the available financial envelope at

	<ul style="list-style-type: none"> ▪ There were no such categorization during WSDP I. 	<p>the time of execution. Component 2 categorization will be concluded after completion of District-wide plans by July 2015. However, those categorizations will further be worked out during ANNUAL WORK PLANNING AND BUDGETING.</p>
v)	<p>Maji Central Stores.</p> <ul style="list-style-type: none"> ▪ MCS has remained in its status quo due to difficulties in its moving into an executive agency due to various business weaknesses 	<ul style="list-style-type: none"> ▪ MCS will be strengthened (offices, stores and staff) to enable it play greater role especially in the following functions: <ul style="list-style-type: none"> ✓ Price harmonization to some items, which in WSDP I were bought with different prices in a range that was alarming (eg. Water meters); ✓ Bulky supply of important goods such as water pipes especially during construction peak periods; and ✓ Supply of spare parts for replacements, maintenance and rehabilitation to ensure sustainability of services in both urban and rural areas.

Summary of WSDP II Components and Sub-components Financial Requirements

Component	Sub Component	Financial Requirements (in, 000 USD)					TOTAL
		2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	
1. WRM	Water Resources Management	33,250	145,113	318,461	184,803	107,518	789,145
	Water Quality Management and Pollution Control	5,287	3,244	2,495	1,701	1,728	14,455
2. Rural Water Supply and Sanitation	Rural Water Supply Investments	150,299	126,428	107,790	94,210	84,295	563,022
	Capacity Strengthening incl. O&M	28,042	45,451	62,355	73,976	89,548	299,372
3. Urban Water Supply and Sanitation	Improvements of Water Supply and Sanitation in Dar es Salaam	56,340	168,520	114,601	68,760	47,545	455,766
	Improvements of Water Supply and Sanitation in 23 Regional Water Supply and Sanitation Authorities	35,077	129,847	122,539	54,923	36,616	379,002
	National Projects, District HQ and Small Towns (including sanitation)	43,853	147,497	144,581	99,748	45,336	481,015
	Capacity Strengthening	4,834	10,264	8,559	5,133	3,530	32,320
4. Sanitation and Hygiene	Rural Sanitation	3,050	35,910	46,540	30,920	21,280	137,700
	Urban Sanitation	1,000	3,700	3,700	2,300	1,600	12,300
5. Program Delivery Support	Fiduciary Management	3,038	3,560	3,898	2,935	3,063	16,494
	Program Coordination and Performance Monitoring	1,847	3,328	2,114	1,641	1,011	9,941
	Capacity Development	20,290	31,560	20,912	11,892	200	84,854
TOTAL		386,207	854,422	958,545	632,942	443,270	3,275,386

Percentage of Financial Requirements by Components

Component	Proposed WSDP II Allocation (in '000 USD)	Percentage of Total Requirement
WRM	803,601	25%

RWSS	862,394	26%
UWSS	1,348,103	41%
Sanitation and Hygiene	150,000	5%
Programme Delivery Support	111,289	3%
Total	3,275,386	100%

WATER SECTOR DEVELOPMENT PROGRAMME PHASE II JULY 2014- JUNE 2019

1 INTRODUCTION

1.1 Background

The Government of Tanzania, through the Ministry of Water is implementing the Water Sector Development Programme (WSDP), for the period 2006–2025. The Programme has four components, namely: (i) Water Resources Management; (ii) Rural Water Supply and Sanitation; (iii) Urban Water Supply and Sewerage; and (iv) Institutional Development and Capacity Building, the later was the component for strengthening and building capacity of sector institutions to effectively support implementation of the WSDP. The WSDP follows a Sector Wide Approach to Planning (SWAP), with an intention to eliminate overlaps and duplication of efforts in water resources management and in the delivery of water supply and sanitation services. Unlike the past, where water sector activities were implemented through discrete projects and sub-programmes in selected areas, the new Programme is simultaneously implemented in Local Government Authorities (LGAs), Basin Water Boards (BWBs), and Water Supply and Sanitation Authorities (UWSAs/DUWSSs) throughout the country.

The Programme Development Objective (PDO) is to strengthen sector institutions for integrated water resources management and improve access to water supply and sanitation services. By the end of the Programme, the Government of Tanzania (GoT) would have met its MKUKUTA sector targets and be well on the way to meeting the MDGs for improved water supply and sanitation coverage across all segments of the population, as well as have in place a sustainable regulatory framework for comprehensive water resources management and development.

The first phase of WSDP started in July 2007 and was to be accomplished in June 2012. However, the Mid Term Review (MTR) of April 2010 noted that a number of important consultancies and schemes under construction needed more time to completion and that the Programme was not on track in relation to its targets due to several challenges including: insufficient systemic planning, monitoring and reporting; inadequate capacity at all levels; delays in flow of funds; delays in procurement processing; higher unit costs per capita that affected outputs; delayed completion of designs and use of the sector Management Information System (MIS) that were causing several challenges in ensuring effective financial management and reporting. Consequently, at mid-term, it was agreed to restructure the WSDP, adjust targets and extend Phase I completion date to June 2014.

The restructuring plan with realistic revised targets, financing plan, work plan, procurement plan, and disbursement projections was approved in June 2011. Also, the results-framework and performance indicators, implementation arrangement, including the dialogue mechanisms, as well as the Programme Implementation Manual (PIM), were revised. The restructured plan also elevated the sanitation sub-component into the National Sanitation Campaign (NSC) under the coordination of the Ministry of Health and Social Welfare.

Major aims of the restructured WSDP were to strengthen planning, budgeting, procurement and reporting processes through the use of the Water Sector Management Information System (MIS) which became operational in 2011, the urban water supply database (MajIs), and streamlining the rural water infrastructure monitoring through the Water Point Mapping System. Several achievements have been recorded so far, which have led to improvements in both financial and physical progress reporting.

1.2 WSDP I 2007-2013 Evaluation (February – May 2013)

Evaluation of WSDP Phase I was conducted from February 2013 to may 2013. It reviewed performance of WSDP Phase I; assessed key areas that require strengthening or changes; and presented findings and recommendations for WSDP implementation improvements. Amongst key recommendations of WSDP I evaluation included the following:

- i) Priorities from the Integrated Water Resources Management Plans currently under preparation by all Basins need to be matched with the technical competence of the BWBs. There is need to plan for further technical assistance to Basin Water Offices to support the implementation of IWRM Plans. Therefore, interventions of recruitments, trainings, equipment and working tools, stakeholder awareness, establishment of institutions and their capacity building are key.
- ii) LGAs should plan for district as a whole (rehabilitation, investment, O and M). Use water point mapping data to identify priority Wards and Villages, and where possible, use cost effective technologies that benefit maximum number of un-served people.
- iii) Prepare Programme document and implementation strategy for the National Sanitation Campaign and provide operational guidance for local level actors. This should include giving more priority to on-site sanitation including the development and testing of strategies to improve fecal sludge management in urban areas the promotion of private sector participation in pit emptying services.
- iv) Ensure investments address equity, sustainability (O&M) and capacity development for all components.
- v) A streamlined strategy should set out clearly whether WSDP will make further investments in sewerage.

1.3 Experiences and Lessons from WSDP I

The experiences and lessons from WSDP I can be summarized as follows:

- i) The increase of financial commitments from 951 million USD of the Program at Programme commencement in 2007, to 1.4 billion USD by June 2014 calls for more accuracy in projecting WSDP II commitments;
- ii) MIS utilization addressed various challenges in financial reporting, needs to be up-scaled;
- iii) Efficiency of CWSTs (in LGAs) need to be augmented by a team of middle level officers for day to day follow up of implementation;
- iv) Capacity building (especially in implementing agencies and technical departments) still needs various interventions to augment current and previous efforts;
- v) The use of consultants to conduct hydrogeological studies (for boreholes drilling in LGAs), and later employing contractors to drill had several challenges, one contract for the all round of activities until the output is realized was proposed as a solution;
- vi) The National Sanitation Campaign was launched in June 2012 (much delayed), requires substantial focus and commitment in WSDP II. The focus of the campaign is WSDP II needs to be broader.

The lessons learnt under water resources management during the implementation of WSDP I include:

- i) Water User Associations have raised awareness to communities to participate in water resources management which in turn minimized water use conflicts, improved water allocation mechanisms, catchment conservation, willingness to pay for water use fee, applications for water use and groundwater drilling permits have increased. This outcome needs to be sustained and strengthened;
- ii) Growing tensions – encroachment and degradation of water sources as a result of growing human development activities in water catchments and groundwater recharge areas; to arrest the situation, awareness creation at all levels is essential and more

actors including communities and LGAs need to be involved in conservation of water sources and groundwater recharge area;

- iii) Inadequate water storage infrastructure impedes the nation's ability to deal with climate variability, which is impacting the food, energy, water and environmental security and causing huge economic loss. Climate change is going to further stress the nation's water resources. IWRMD plans will provide opportunities for integrating climate change adaptation measures in water use planning for various sectors;
- iv) The issue of data collection, rehabilitation and construction of water resources monitoring stations as well as information management system is still needed in all BWBs and need to be sustained;
- v) Low awareness on WRM have been a critical setback therefore if increased will result in political will and behavioral change which will raise the profile of water resources management considerably and an increase in the allocation of the necessary resources to manage water resources such as monitoring, enforcing regulations and improving access to information;
- vi) Protection of water sources from contamination is very important as it assures availability of water with good quality and it reduces treatment costs.

1.4 Structure of WSDP II Document

The simplified structure of WSDP II has six chapters that facilitate easy understanding by both implementing agencies and other stakeholders. It starts with introduction under chapter 1, followed by overview and situational analysis of WSDP components. Chapter 3 provides the WSDP II focus and framework, which narrates the WSDP II components and sub components objectives, KPIs and targets. Chapter 4 presents WSDP II priority interventions and their cost estimates. Chapter 5 presents financial requirements for each component and chapter 6 presents the Results Monitoring Framework with quantified target figures in absolute numbers in response to both core and operational indicators.

2 OVERVIEW AND SITUATIONAL ANALYSIS

2.1 WSDP I Overview

At commencement of WSDP phase I in July 2007, the Government of Tanzania and Development Partners had committed a total of 951million USD, but during implementation, more commitments were received, which increased the total WSDP phase I funding commitments to 1.364million USD; an increase equivalent to 43% of the original commitment. Between July 1, 2007 and June 30th, 2014, a total of US\$ 1.230million, equivalent to 90percent of the revised commitment, has been disbursed over the six years of implementation.

The results from the use of disbursed fund indicate good implementation progress. Under Component 1, the Programme has promoted institutional and legal reforms that promote integrated water resources management and development in the country; under component 2; the Programme has managed to achieve 32,846 water points, benefitting 8,211,500 beneficiaries in rural areas by June 2014; of which more than 50% was a result of the Big Results Now (BRN) agenda, which increased the pace of implementation such that 16,784 water points was installed in a span of only one year (July 2013 to June 2014), compared to 16,062 water points achieved in rural areas since July 2007 to June 2013. Also under component 2, the sanitation sub component has constructed 24,904 household latrines. The Government's Big Results Now (BRN) agenda, which require clear lines of accountability for speedy delivery of results, have started indicating that targets can be achieved if commitment is high. Under Component 3; the Programme has managed to install a total of 236,541 house connections and constructed 549 public kiosks; which by December 2013 were providing water supply services to additional 2.7 million people in the DAWASA service area, 23 major urban regional centers, 96 district and small town utilities and 8 National Projects. 166,658 more people have access to sewerage by 13,374 additional connections. Regulation by the Energy and Water Utilities Regulatory Authority (EWURA) has impacted positively in supporting UWSAs efficiency in various indicators.

Under Component 4; over 500 new staff recruitments and deployments to WSDP implementing agencies; training of more than 8000 staff; and acquisition and distribution of 250 vehicles and 477 motorcycles are amongst achievements of capacity building in WSDP I. In addition, the sector MIS is now fully functional and its updating mechanism to cover all aspects of M&E is being worked out together with an updating mechanism for the water point mapping system that puts all water points countrywide in an electronic map. With those systems, financial management and reporting have been improved. On stakeholder coordination, there has been increased interaction between MoW and other MDAs (PMO-RALG, MoHSW, MoEVT, RSs, LGAs) as well as with other IAs (BWOs, UWSSAs, MoW Agencies, National Projects); resulting into improved performance.

The dialogue meetings (TWGs WSWG and SC) have met as scheduled, except for the Steering Committee (SC). Quarterly, semi-annual and annual reports have all been produced on schedule and the quality of these reports has registered modest improvement. Financial statements were submitted to the CAG in a timely manner, facilitated submission of financial audit reports in satisfactory timelines.

The detailed situation in each of the WSDP components is provided in the following sub chapters.

2.2 Water Resources Management

Tanzania endorsed Integrated Water Resources Management (IWRM) and adheres to the *Dublin principles* which concisely state the main issues and thrust of water management that include: Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment; Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels; Women play a central part in the provision, management, and safeguarding of water; and Water has

an economic value in all its competing uses, and should be recognized as an economic good.

- **Policy Framework**

The National Water Policy (NAWAPO) 2002 is in line with the IWRM Principles and it advocates devolution of responsibility for water resources to River/Lake Basins and catchments management entities with active participation of local government and community based organizations.

- **Legal Framework**

The principal legislation governing water resources is the Water Resources Management Act No.11 of 2009 (WRMA) that provides for implementation of the National Water Policy of 2002. The legislation devolves water resources management to basin level entities. The main objective of managing water resources at the Basin level is to scientifically assess the water resource, so that it can be equitably allocated and efficiently utilized for various social-economic purposes and ensure sustainability of the water resources for present and future generations.

- **Institutional Framework**

With respect to institutional framework for water resources management in Tanzania, the role of the Ministry responsible for Water is that of co-ordination, policy and guideline formulation, and regulation. New institutions have been created comprising of the National Water Board, Basin Water Boards, Catchment Water Committees, and Water User Associations and District Facilitation Teams.

2.2.1 Water Availability

Tanzania is endowed with numerous and diverse water resources in the form of rivers, lakes, groundwater aquifers, ponds, reservoirs, and wetlands. The country is riparian to some of Africa's largest trans-boundary freshwater lakes including Lake Victoria, Lake Tanganyika and Lake Nyasa. Each of these water bodies exhibits unique characteristics and a complex range of water resources management and development issues and challenges. With its numerous water bodies, Tanzania is perceived to have abundant surface and groundwater resources for meeting its present consumptive and non-consumptive needs. Severe and widespread water shortages exist in many areas both because of climate variability, poor distribution of the resource in time and space, uncoordinated sectoral development plans, inadequate water security infrastructures, diminishing water resources, population growth coupled with increasing social-economic activities, catchment degradation, climate change and water use conflicts. Tanzania's annual renewable water resource is 89 cubic kilometers and the annual average of available water per capita was 2000 cubic meters in 2012. This amount is projected to reduce 30% to amount 1400 cubic meters per capita per year in 2025 as a result of depletion of water resources and increase of population

Rainfall

The country receives two major rainfall modals in the regions. One is uni-modal (Dec-April) experienced in southern, southwest central, southern west and western part of the country. The other is bimodal (Oct- Dec and March –May) found in the north, north eastern and northern coast. Most parts of the country receives rainfall less than 1000mm per annum except highlands and parts of the extreme South and West where 1400 - 2000mm can be experienced.

Ground water

Ground water availability is mainly controlled by geology and climate, and unevenly distributed.

Water quality

Water quality varies significantly to the vicinity of urban areas water sources are contaminated due to effluents from domestic and industrial wastes and storm water. The quality of groundwater is generally good acceptable for most uses, the main problems are salinity and high fluoride concentrations that may exceed 14mg/l in Pangani Basin.

WRM challenges

The Ministry, through WSDP Phase I, has been implementing various interventions targeting efficient and sustainable management and development of water resources for socio-economic development. Despite the achievements made, there are several water resources related challenges faced in the course of implementation of the planned interventions. The challenges include inadequate funds, inadequate staff equipment and institutional capacity.

2.2.2 Implementation of WSDP Phase I

In WSDP phase I, the interventions aimed at Operationalization and building capacities of the water resources management institutions as given in the NWSDS and Water Resources Management Act No 11 of 2009. The institutions included the Basin Water Boards, the Catchments and Sub catchment Committees and the Water User Associations.

2.2.3 Water Resources Interventions at basin Level

2.2.3.1 Strengthening Operations of BWBs

All nine Basin Water Boards are operational as per WRMA of 2009 and are able to hold their board meetings. Regular BWBs meetings have been conducted quarterly in all basins for the period between 2009 and March 2014. During BWBs meetings a total of 3680 water use permits were approved to ensure sustainable allocation of water; 9 provisional discharge permits were issued so as to control pollution in water sources; annual work plans, new water user fees and charges and 90 WUAs were also approved. Notable achievement has been made in annual water user fees collection.

The administrative capacities of the BWBs were improved during WSDP Phase I. 4 BWBs established Tender Boards, and hired procurement officers and accountants and prepared procurement plans. Technical human capacity improved after recruitment of new staff, although some of the recruited staffs who were posted to remote locations resigned, also while filling the gaps, experienced staff retired, including senior BWOs and directors. BWBs were provided with operational equipment and vehicles to support their day-to-day operations. Construction and rehabilitation of office and laboratory buildings in 4 Basins to improve working environment are ongoing. BWBs have prepared and implement communication strategies to promote improved understanding of and approach for addressing WRM challenges.

Catchment and Sub-Catchment Water Committees

In WSDP Phase I, the target was to establish 33 catchment and sub-catchment committees by the end of WSDP phase I. The establishment of Catchment and Sub-catchment Water Committees has been slow due to several reasons; among them are financial resources, human resources capacity and inadequate awareness on their roles and mandates. Also the absence of Water User Associations in many catchments in the basins, which are the primary units of formation, has caused the delay of forming the catchment water committees.

Formation of Water Users Associations

The target was to establish 93 WUAs by end of Phase 1 of WSDP. The total number of WUAs established so far in all basins is 90 (May 2014). The formation and operationalization of WUAs at the beginning of phase I was slow due to lack of guidelines and harmonized procedures, financial and human resources capacity. These operational challenges calls for various capacity strengthening interventions for existing WUAs alongside formation and capacity building of new WUAs at an increased speed.

2.2.3.2 Strengthening basin level water resources management operations (Water governance)

Providing operational support to the BWBs

Water Resources Monitoring, Assessment, Regulation enforcement and water use conflict resolution are main regulatory roles of BWBs. Effective implementation of this activity will ensure sustainability in water availability for social- economic development in the water basins. Planned activities in Phase I, were to ensure that water resources are protected, utilized and managed in a sustainable manner for socio-economic development. Interventions to strengthen BWBs were as follows:

Rehabilitation/construction of offices

In WSDP Phase I, the plan was to construct/rehabilitate 36 offices including BWBs offices, Water laboratories, Catchment and Water Users Association offices in all water basins. The aim was to have at least 9 Basin Water office buildings for each Basin completed to enable basins operate in good working environment. This activity will not be completed within the remaining time of WSDP Phase 1. Lake Nyasa basin building is in final stage of completion; Construction works for Lake Victoria, Tanganyika and IDB, for basins and Laboratories have started, additional fund is needed to finish the works. Office and laboratory buildings for Lake Rukwa, Rufiji, Ruvuma, Pangani, and Wami/Ruvu will be constructed in phase II of WSDP.

Provision of goods

In WSDP Phase 1, all 9 BWBs were provided with 36 vehicles (4 for each Basin); also 35 out of 90 motorcycles; 64 out of 66 planned computers, accessories and other office equipment including photocopiers were distributed to basins; other included 12 sets of operational equipment systems (geographical information systems and mapping equipment/hydro networks/laboratory/communication and groundwater monitoring equipment). Installation of the equipment in all BWBs was completed in December 2013. Operationalization of data collection commenced immediately after installation.

2.2.3.3 Water Resources Monitoring and Assessment

A survey for water resources monitoring stations conducted in the FY 2007/2008 revealed that: out of **442** rivers gauging stations **167** were operational; among **418** rain gauging stations only **180** were operational. Out of **67** meteorological stations, **57** were operational; Out of **203** water quality and pollution monitoring stations, **190** were operational and among **64** observation boreholes, **55** were operational. This situation crippled effective water resource monitoring and affected regular production of reliable water resources data for different users.

Water resources monitoring equipment procured under WSDP I have been installed and data are being collected, archived, and analysed and information products disseminated. A total of 320 monitoring stations have been rehabilitated and new stations constructed and installed in all 9 BWBs as follows; 198 hydrometric stations out of 243 planned (81%), 69 Weather stations out of 77 planned (89%), 45 Rainfall stations (manual and automatic) out of 92 planned (48%) and 8 groundwater-monitoring stations. In general there are 410 operational monitoring stations Operationalization of the equipment have improved ability of basins to carry out their mandated tasks of ensuring sustainable water resources management and development.

2.2.3.4 Inspection of Abstractions for Compliance

Basins Water Boards continued to carry out inspection of water abstractions to make sure that all users comply to water permit conditions. Where conditions were violated, re-adjustment of abstraction infrastructures was carried out and some were closed or demolished. A total of **1,069** water abstractions were inspected in 5 basins; Rufiji (83), Wami/Ruvu (46), Lake Victoria (65), Pangani (361), and Internal Drainage (514) in the year

2012/2013 and 6 people were fined for abstracting more water than the authorized in Great Ruaha catchment, Rufiji Basin. In Wami/Ruvu Basin, 26 illegal water abstractors were identified and infrastructures of 7 abstractors were destroyed along the Wami River. 217 water source encroachers including illegal miners were identified in Wami /Ruvu basin and action were taken to remove them.

2.2.3.5 Water resources allocation and demand management

Water use conflicts resulted from rising demand, diminishing water resources and emerging development activities requiring water, Water use conflicts have been experienced in almost every Basin. A total of 104 water use conflicts were reported and 68 resolved from 2009 (when the WRMA was enacted) to March 2014. Consultations to resolve the remaining conflicts are ongoing. BWBs are adopting a variety of approaches including formation of WUAs, stakeholder consultations, dialogue and improved awareness raise to address and resolve water use conflicts. .

To facilitate equitable allocation of water have been collecting data and updating database after installation of the monitoring stations. The reports are shared with stakeholders both at basin and national level. The Basins use the collected data for decision making on water allocation and all matters related to water governance (fair allocation have reduced water use conflicts). BWBs have been preparing Annual hydrological reports since 2009. The contents of the reports include annual information status of water in the basin, statistics on hydrology, water use and water quality. Basin Water Boards BWBs staff have been trained on a Nile Basin DSS database. Data will be computerized, database, GIS maps and DSS Models developed.

2.2.3.6 Water Sources Conservation and Pollution Control

All 9 Water Basins are experiencing degradation and encroachment of water sources. This is a serious and a growing problem impacting the water sources. In WSDP phase I, the target was to gazette 45 watersheds and 25 groundwater recharge areas in all basins. A total of 24 springs, 20 groundwater well fields, 5 rivers, 13 dams and 4 wetlands requiring immediate interventions have been identified for protection. Kawa Dam in Rukwa Basin and Makutupora groundwater well field in Wami/Ruvu have been gazetted as water sources protected areas and other 7 groundwater well fields in Lake Rukwa basin are at final stages of being gazetted. Awareness creation was carried out in all basins to raise the stakeholder participation on water sources protection and conservation. A program for effective and sustainable protection and conservation of water sources was prepared for implementation in WSDP II. Basins Water Boards continued to carry out inspection in industries and mines to ensure compliance to the set standards.

2.2.3.7 Environmental Flow Assessment (EFA)

In WSDP Phase 1, environmental flow studies were carried out in few BWBs as follows: (a) Lower Kihansi Environmental Management Project in the Rufiji basin with IDA support has established a highly contested water right for generating hydropower and restoring a unique and Kihansi gorge ecosystem; (b) The EFA in Pangani Main River was conducted between 2005-2010 with support from IUCN in Pangani Basin; (c) EFA for the Great Ruaha River and Ihefu Wetlands in Rufiji Basin, and options for the restoration of dry season flows; EFA in the Great Ruaha River and Utengule Swamp undertaken between 2008-2010 with support from WWF; (d) EFA of the Wami Sub-basin (Wami/Ruvu Basin) undertaken in April – December 2007 through USAID/Coca Cola-Atlanta support; and (e) EFA of the Mara River Catchment (Lake Victoria Basin) through WWF support. The results of the conducted EFAs are being used as inputs in the development of the basins IWRMD Plans).

2.2.3.8 Integrated Water Resources Management

The Integrated Water Resources Management and Development (IWRMD) approach has been adopted as a suitable way for efficient, equitable and sustainable development and

management of water resources. Development of the IWRMD Plans is a requirement of WRMA to integrate sectoral plans. IWRMD Plans for all the 9 Basins of Tanzania have been under preparation during WSDP I. The IWRMD plans for Tanganyika, Nyasa, Ruvuma and Internal Drainage Basins will be concluded in July 2014 while the two Plans for Rukwa and Rufiji are expected to be concluded in August, 2014. The IWRMD Plans of Lake Victoria and Wami/Ruvu Basins have been done up to the Water Resources Assessment stage with the support of LVBC and JICA respectively, whereby the Basin's Integrated Plans and corresponding Action Plans will be conducted in WSDP II. The IWRMD Plan for Pangani Basin was terminated and will be conducted in WSDP II.

2.2.3.9 Financial sustainability of Basin Water Boards

The WSDP promotes development of an equitable system of water user charges and levies in order to finance the costs associated with BWB water resources management. Generating adequate financing for WRM has remained the most challenging aspect of river basin management. Without adequate financing, it is difficult for the BWBs to function effectively and carry out its duties of promoting the optimal, sustainable, and equitable development and use of water resources. On meeting this goal, Basin Water Boards continued to collect funds from different sources, the main being water use fees. Pending on finalization of financing option study, the interim tariffs have been developed and approved in August 2013.

2.2.3.10 Climate Change Adaptation and Mitigation Measures

The National Water Climate Change Strategy has been developed, which identifies four major environmental problems in relation to water sector for urgent attention. These problems are Water catchments degradation; water management technologies; exploration and extraction of groundwater and access to good quality water for both urban and rural inhabitants. The strategic interventions and action plan have been developed to enable water resource management focusing on protection and conservation of water catchments, development of flood protection mechanisms, technical measures to increase water supply for different uses, increasing efficiency of water use, harvesting rain water for different uses, forecasting in particular for hydrological droughts, reinforcing coastal protection infrastructures and development of economic and financial incentives.

Cross-cutting adaptation measures include strengthening cooperation on transboundary and basin shared water resources, research and development, sharing and communicating information among stakeholders on adaptation of water resources to climate change, capacity building on climate change adaptation, mainstreaming gender and vulnerable groups into climate change adaptation and strengthening water resource monitoring control and recording.

The institutional arrangement for implementation of the strategy; at national level the Ministry of Water will be responsible for implementation of the Strategic Intervention and Action Plan. The Basin Water Boards will be responsible for implementation of the Strategic Interventions and action plan at Basin level, while District Councils and Water Users Associations/Cooperatives will implement the Strategic Interventions and action plan at local level. The strategy has identified stakeholders to lead the implementation of specific climate change adaptation options.

There are other interventions to address the climate change challenges undertaken at basin, national and regional levels. At basin level Hydrological and climatic monitoring stations to improve availability of water resources data have been installed. Staff in Rufiji basin has been trained on water resources assessment in Kilombero Valley and Usangu plain to address Climate Change issues through DFID support, while investment plan for agriculture to address SAGCOT and KILIMO KWANZA on southern part of the country to achieve efficiency of water use. Bathymetric study has been conducted for Lake Rukwa in Lake Rukwa Basin in order to establish data for monitoring and prove of allegation of lake

descending due to climate change (Lake Rukwa has descended for 7km in the past 50 years). The study result however shows that the depth of water has increased by 3m above the long-term minimum depth.

2.2.3.11 Water Storage, Ground Water Development and Dam Safety Management

In WSDP Phase I, total of **47** priority investments were proposed for consideration by the Interim National Water Board, of which only **24** were approved and included in the FY2009/10 procurement plan. The projects were further prioritised during programme restructuring in 2010, due to capacity limitations.

The projects implemented under phase 1 are:

Drilling of Boreholes for Augmentation of Dry

Season Irrigation to promote conjunctive use to minimise water stress; 30 boreholes drilled in Pangani Basin, whereby 22 **were** successful and shall be used by communities for irrigation purposes to improve their livelihood,

Construction and Rehabilitation of Dams

In Phase 1, the plan was to construct **3** New Dams (Farkwa, Ndembera and Kidunda) and rehabilitate 18 small and medium Dams in Internal Drainage Basin and 1 dam (Mchema) in Ruvuma Basin. Due to financial constraint 6 dams in internal drainage basin were proposed for rehabilitation.

Feasibility and detail designs for Ndembera / Lugoda Dam, Farkwa Dam and Kidunda as well as ESIA studies are on-going and will be finalised in phase II. The purpose of the Lugoda dam is to regulate flows in the Great Ruaha River, sources of hydropower and irrigation water. The purpose for Farkwa Dam is to supply water to Dodoma Municipality, to complement groundwater supplies to meet the rising population, irrigation in the Bubu area and Hydropower if possible, while for Kidunda dam the aim is to augment the water supplies for Dar es Salaam City and power generation. The realization of the project will depend on assurance of finances. Other 2 multi-purposes dams will be constructed under trans-boundary initiatives upon completion of the design and ESIA studies include, Songwe and Ruvuma.

Rehabilitation of six Dams in IDB

Internal drainage basin planned to rehabilitate **18** dams, 6 dams were planned for rehabilitation in phase 1 and 12 dams in phase II. The preliminary engineering studies for rehabilitation of the six (6) dams have been completed and, the environmental audit is on-going in Enguikment 1, Enguikment 2, Itobo, Uchama and Nkiniziwa. One dam (Leken) has been rehabilitated. The future plan is to start rehabilitation of these dams in WSDP phase II.

Environmental Audit for Mchema Dam

Consultancy for the environmental audit for rehabilitation of Mchema dam is completed. The consultant recommended that the dam should not be rehabilitated because the dam area has been encroached by human activities and resettling them will be beyond economic viability. Another site will be identified for construction of a dam.

Dam Safety Management

In Phase I the dam inventory exercise to identify dams with a safety risk was carried out in 8 Water Basin Boards, with exception of Lake Nyasa. The exercise found that there are a total of 639 Dams in Tanzania Mainland as at September 2009. A report on dam inventory, visual evaluation and classification of dams in Tanzania was prepared.

The survey revealed that the general condition of the dams is poor including failed or silted up and most had no early warning instrumentations. The findings helped in identifying dams that require immediate rehabilitation.

Management of Drilling Operations:

Updating information on drilling companies is ongoing to enable monitoring their activities and to provide technical support. So far, the number of registered companies is 137. In WSDP Phase I, BWBs were provided with modern water exploration equipment to improve performance in ground water investigation and water wells drilling for rural and urban water supply.

2.2.3.12 Transboundary Water Resource Management

Seven out of nine Water Basins of Tanzania are Transboundary, shared with other countries. Basins with transboundary Waters of Tanzania include Lake Victoria Basin (Rivers, Mara and Kagera); Lake Tanganyika Basin(L.Tanganyika); Lake Nyasa Basin (Lake Nyasa and Songwe River); Pangani Basin (L. Chala and Jipe and Uмба River); Internal Drainage basin (L.Natron); Ruvuma Basin (Ruvuma River) and Lake Rukwa Basin. The Legal framework for cooperation on WRM is available for all basins.

The Transboundary commissions and governance Institutions include the Nile Basin Initiative (NBI); Lake Victoria Basin Commission (LVBC); Zambezi Basin Commission (ZAMCOM); Ruvuma River Joint Water Commission (JWC), Lake Tanganyika Authority (LTA), Songwe River Basin Development Programme. The role of these organizations are to promote cooperation in Transboundary water resources management among riparian countries through a number of initiatives, namely, capacity building of both personnel and institutions and implementation of actual projects in selected Transboundary basins to demonstrate the benefits of cooperation.

Joint Monitoring Systems have been agreed and they are appreciated in all Basins where Agreements are in place. Amongst, information and data shared with riparian States include water Resources quantity and quality.

Nile Basin Initiative (NBI)

Funds for the implementation of Rusumo Hydropower project has been secured under the World Bank support.

Nile Basin Decision Support System (NB DSS): The project was finalized in December 2012. NELSAP distributed the Software for the NB DSS and the accompanied licenses. Tanzania received four (4) high capacity computers and two (2) servers from the NBI for NB DSS Unit at the Department of Water Resources. All BWBs have been trained on the use of the software and some have already started to adopt it to replace the HYDATA software.

Mara River Basin Integrated Water Resources Management and Development Project

The project has prepared feasibility studies in two areas for soliciting funding:

Pre-Feasibility Studies for an Irrigation Development and Watershed Management Project in the Lake Victoria Basin in Tanzania: The objective of the project is to improve the living conditions and income of rural populations in the five proposed irrigation schemes of Mara valley and Bugwema (Mara), Isanga valley (Mwanza), Manonga (Kahama), Ngono (Kagera). So far, three potential irrigation areas (Mara valley – 6,340ha, Bugwema – 2,030ha and Ngono – 13,630ha) have been proposed for full feasibility study and design, which commenced in January 2014.

SADC Water Programmes

(a) Shared Watercourse Support Project for Buzi, Save and Ruvuma:

The Project is implemented in Ruvuma River Basin in Tanzania, and it is designed to strengthen the river basin management institution. Projects include;

- i) Drilling of five (6) monitoring boreholes,
- ii) Community Project Implementation, related to water conservation

- iii) Improved Irrigation schemes
- iv) Drilling of boreholes and water supply to communities.
- v) Community based gravity water supply project
- vi) Project Management and capacity building; Ruvuma Basin Water Office (RBWO) has received three (3) motorcycles, Office furniture and equipment.

(b) Songwe River Basin Development Programme (SRBDP)

The Songwe River, which forms part of the international boundary, between Tanzania and Malawi has been changing its course as a result of floods rendering the boundary unstable. The two countries formulated the Songwe River Basin Development Programme to improve the social and economic development in the basin and stabilize the course of the river. The program involves 3 Phases: (i) Feasibility study; (ii) Detailed Design and Investment Preparation Project and; (iii) Implementation Phase. Under this programme three (3) multipurpose dam will be constructed along River Songwe.

Lake Victoria Basin Commission/East African Community Projects

(a) Joint Transboundary Management of Lakes Chala, Jipe and Uмба River Ecosystem: This programme includes the following interventions:

- i) Development of Lake Chala - Jipe and Uмба river ecosystem programme is at final stage to completion.
- ii) A Memorandum of Understanding (MoU) to enable the two countries of Tanzania and Kenya to work together in the eleven areas of cooperation is in place.

(b) Lake Victoria Environmental Management Project (LVEMP II)

Lake Victoria Environmental Management Project Phase II (LVEMP II) is an 8-year (2009 - 2017) regional project implemented in the 5 East Africa Community partner states. The project is designed to address major environmental concerns in Lake Victoria Basin, which have adverse effects on the LVB ecosystem, as well as the region's economy and livelihoods. The project has the following components:-

- i) Strengthening Institutional Capacity for Managing Shared Water and Fisheries Resources component:
- ii) Point Source Pollution Control and Prevention under LVEMP II
- iii) Watershed Management
- iv) Project Management and Coordination

Despite the initiatives, there is inadequate internal capacity for effective management, development and utilization of Transboundary water resources, combined with insufficient knowledge and skills amongst water resources management staff. Interventions are planned for in WSDP Phase II.

2.2.4 Water Resources Interventions at National Level

The situation pertaining to the interventions directly done at national level during WSDP phase I can be summarized as follows:

2.2.4.1 Development of a public awareness education campaign:

Information and policy dissemination is among interventions carried out at national level. The preparation and dissemination of simplified or popular version of the National Water Policy in both print and electronic media to the public was done in collaboration with stakeholders. Awareness raising to the general public was done through exhibition and dissemination of a materials.

The Water Resources Management Act No 11 of 2009 became effective in August 2009, after which, all BWBs in collaboration with stakeholders continued creating awareness on the new act and enforce compliance. A popular version of the Act has been prepared and dissemination to stakeholders is ongoing. 41 areas requiring regulations have been identified. Five regulations for 21 areas are in place and disseminated to stakeholders, regulations for 5 areas require studies before they are formulated, regulations for 4 areas are under preparation and 11 areas are notices and orders to be prepared when need arises.

Sections which are waiting studies prior to preparation of regulations include; water resources classifications and reserve, charges to be levied in water use and discharge of waste water, minimum distances for sinking or deepening of wells or boreholes, financing and utilization of funds in basin water boards and preparation of IWRMD plans.

Other activities are those related to cross cutting issues and Transboundary water resources management, studies, supervision of technical assistance under the department, and consultancies in collaboration with the BWBs.

Dam safety section which was established during WSDP Phase I has also been carrying out various activities related to dam safety management and development of dams safety regulations, as detailed in this report. Interventions in WSDP phase II is provided under chapter 4 of this report.

In Phase II more effort will be put on implementing activities indicated in the “Operational Programme for Effective and Sustainable Protection and Conservation of Water Sources.” Major areas of the Programme that will be implemented in Phase II include: Strengthening cross-sectoral collaboration, promote stakeholder awareness and participation; strengthening capacity and knowledge of water resources management institutions at basin and community level and; reinstating watersheds and promoting sustainable land use management.

2.2.4.2 Environmental Flow Assessment

A key provision of the NAWAPO 2002 is the priority water allocation for environment, only second to water for domestic water supplies. Environmental Flow Assessment (EFA) is a management tool for informing the decision making for establishing a reserve for ecosystem sustenance. Environmental flow assessment is based on the fact that the ecosystems are a beneficiary of the flow regime and a user of the river. It is required to quantify the ecosystems requirements, as well as other users’ requirements. Based on such requirements, IWRMD Plans have incorporated EFA into a real scenario to accomplish multiple water uses. In WSDP II BWBs will have concrete elements to prioritize and tradeoffs and create an adaptive management program to facilitate ecologically sustainable water management, including monitoring, governance and financing and implementation of other EFA recommendations.

2.2.4.3 Climate Change Adaptation

The Ministry in collaboration with GIZ has established a Water sector dialogue forum for stakeholders on climate change. The forum serves as a platform for coordination and exchange of experience and its members meet every quarter to share lessons and research findings on climate change. To enhance collaboration, arrangements are being made for the Ministry and Tanzania Meteorological Agency (TMA) to establish a mechanism for sharing climatic data, following the launching of the National Climate Change Strategy, which is coordinated under the Vice President Office, The Ministry has prepared a water sector strategic action plan to implement the strategy. Moreover, with the coordination of the Prime Minister’s Office there is an initiative to establish a National Early Warning System for Disaster Risk Management.

2.3 Water Quality Management

The largely silent killers in the national economies are the multitude of economic costs/losses due to freshwater pollution. Deterioration of water quality due to naturally occurring phenomenon and anthropogenic activities is evident in many parts of the country. Clean, safe and adequate fresh water is vital for the survival of all living organisms and the smooth functioning of ecosystems and economies.

With the increasing need for water quality monitoring to ensure that economic and social community needs are satisfied and aquatic ecosystems sustained, it was planned in WSDP phase I to focus mainly in strengthening water quality laboratories network with provision of new laboratory equipment and chemicals; rehabilitation of laboratory buildings; development of water quality management and pollution control strategy; development of criteria for determining pollution levels (permanent water quality standards). It was also planned to conduct inventory on the status of water laboratory buildings, laboratory equipment, chemicals, sampling procedures and methods, quality control procedures, work load associated with each laboratory, reviewing financing aspects and determining optimal investment needs. The target was to have fully functional laboratories including accreditation of Central Water Quality Laboratory. During the restructuring there were additional activities including development of strategy for scaling up and piloting findings of defluoridation research into community water supplies and identifying hotspots of mercury, cyanide and arsenic (as national strategic interventions), development of computer based system for water quality mapping and implementation of CD Plans. The target of reducing water related environmental pollution from 20% in 2003 to 10 % by 2010 was revised because it was not measurable. The revised target was to institute and operationalize water quality management and pollution control mechanisms by 2012.

2.3.1 Strengthening of Water Quality Laboratories

During WSDP I, Water Quality Laboratories were strengthened and water quality-monitoring programmes were also implemented. The strengthening of water quality laboratories included provision of new equipment, chemicals and transport facilities. Training was also among the areas identified as capacity gap in the implementation of activities relating to water quality management., Thus staff were enriched with skills and knowledge in various disciplines including Laboratory Statistical Analysis (2), Assessment of Laboratory Competency (1), Procurement (4), Basic Laboratory Practices (4), Good Laboratory Practices (37) and use of Water Quality Analytical Manuals (86). Acquired laboratory working tools, improved skills and knowledge have increased the capacity and competency of the laboratories to undertake water quality analysis precisely and accurately. In addition to these interventions; four laboratories namely Central, Mwanza, Mbeya and Iringa were earmarked for accreditation before the end of WSDP I. This is an important step in raising the credibility and recognition of water laboratories at national and international level. At present, Mwanza Water Quality laboratory has completed the required processes and can be accredited before the end of 2014. The target is to accredit the laboratories by phases so that the water quality management is implemented as required by legislations and policies in the country.

2.3.2 Water Quality Monitoring and compliance

In order to strengthen the water quality-monitoring activities in the country, the Water Quality Management and Pollution Control Strategy was developed. The operationalization of the strategy has led to systematic water quality monitoring and timely control of pollution. During WSDP I water quality-monitoring programmes were undertaken to ascertain both trends and compliance. The programmes were designed to provide adequate information for water resources management depending on water-quality conditions and designated uses. The monitored variables included physico-chemical and microbial parameters for groundwater, surface water and drinking water as detailed here under.

2.3.2.1 Groundwater Quality

The monitoring programmes revealed that during the implementation of WSDP I, groundwater development was concentrated on boreholes and shallow wells for domestic purposes over a wide part of the country (mainly rural areas). They were also commonly used in the peri-urban fringes where there were no distribution networks and places with unreliable surface water supply. High level of fluoride, chloride, iron and manganese were reported in boreholes and shallow wells. High fluoride was recorded in Arusha, Manyara, Kilimanjaro, Singida, Mbeya, Simiyu and Mara regions.

In addition, Dar es Salaam, Mtwara, Arusha, Ruvuma, Kigoma, Lindi, Tanga and Dodoma reported abnormal concentration of chloride in groundwater sources. High levels of iron were reported in Tanga, Mtwara, Coast and Kagera while elevated levels of nitrate were also found to affect groundwater quality in some areas of Tanzania .The reported levels were in the range of 5-55 mg/L for fluoride; chloride ranged between 998-16,264 mg/L iron ranged from 2-26.5 mg/L. High concentrations of nitrate (168-347 mg/L) have been reported in both shallow and deep groundwater aquifers in Dodoma and Singida while most of the shallow wells monitored found to be prone to bacteriological contamination. Nitrate and bacteriological contamination were linked to pollution from sewage effluents. The allowable limits of the mentioned parameters for domestic use according to Tanzania drinking water standards are 4mg/L for Fluoride, 800mg/L for Chloride, 75mg/L for Nitrate and 1mg/L for Iron.

Although, the natural groundwater quality in Tanzania is still considered potentially good and acceptable for various uses but water quality data and information necessary for rational planning is woefully inadequate. These are attributed with lack of water quality database and map to facilitate the optimal development of groundwater. .

2.3.2.2 Surface Water Quality

The quality of surface water sources from the majority of the basins has not shown major changes during the implementation of WSDP I. Those basins included Lake Victoria basin (Lake Victoria), Rufiji basin (all rivers in Kihansi catchment, Wami/Ruvu basin (Lugufu and Ngerengere Rivers and Mindu dam) were bacteriologically contaminated. These demonstrated potential threats that can be imposed on open water sources. High concentration of algae growth was also revealed in Lake Victoria and Mindu dam. In Lake Victoria the pollutants were high in littoral zones compared to pelagic zones. This signifies that pollutants along the Lakeshores are very high and assimilation processes along the littoral zones are poor compared to pelagic zones thus the pollution load is high. The pollution was linked with the effluents from agriculture runoff, domestic and industrial effluents, which are rich in nitrogen and phosphorus.

Together with water quality programmes undertaken for water surface, it was noted that there has been little or minimal research on alleviating water quality problems in the country. Consequently there are no state of the art practices adapted to the Tanzanian context such as well-researched scientific based models and parameters to evaluate the future of water bodies in view of actual pollution loading as well as cost effective management. Thus mathematical models which have the capacity to predict the future and analyze 'if what' or site-specific scenarios need to be developed to bridge the gap of water quality information.

2.3.2.3 Water Quality for Drinking and Domestic Use

Water quality monitoring programmes for drinking water supply entities (urban water supply networks, small towns, national water projects and LGAs) were also undertaken during the implementation of WSDP I .The programmes were designed to assess various water quality variables such as physical-chemical parameters and coliform bacteria. The results showed that the majority of water supply entities are taking initiatives to ensure that the water supplied to the community is clean and safe.

2.3.2.3 Specific water quality monitoring programmes

Specific water quality monitoring programmes for microbial were also undertaken during implementation of WSDP I. These specific monitoring programmes involved fish processing industries and water used for aviation services for International Air Ports in the country. The main objective of these monitoring programmes is to assess the management effectiveness in the area of microbial contamination. The measured variables are *E. coli*, Coliforms, *Clostridium perfringens*, Total Plate Count, *Pseudomonas aeruginosa* and residual chlorine. The results revealed that the water used complied with the intended uses.

2.3.2.4 Fluoride Removal in Drinking Water

Consumption of water with elevated fluoride levels has negative effects to human health. To reduce the health effects associated with high levels of fluoride in drinking and cooking water, in 2008 Tanzania drinking water standard was reviewed and set from 8mg/L to 4mg/L. These were attributed by research findings from Ngurdoto research station that came with a promising and affordable defluoridation technology for both household and community levels. A strategy for scaling up defluoridation activities and piloting research findings in the fluoride belt has also been developed. The strategy provides means of disseminating the bone char defluoridation technology as well as ways of sustaining the technology.

During the implementation of WSDP I, it was realized that the sustainability of water quality management has policy, technical, institutional and financial components. Thus restricted funding which was usually combined with fragile institutions and limited technical capabilities hindered the efforts to deal with an expanding range of water quality problems. Therefore, in WSDP II there is a need to have a focus, prioritize and institutionalize effective water quality management activities so that limited funds are strategically utilized to implement water projects while maintaining the water bodies and environment sustainably for socio-economic development.

2.4 Rural Water Supply and Sanitation

2.4.1 Water Supply and Sanitation Services as a Result of Investments in Rural Areas

The overall objective of Rural Water Supply and Sanitation (RWSS) is to improve the provision of clean and safe water supply service and promotion of improved hygiene and sanitation services in rural areas through Local Government Authorities (LGAs). Key implementers of rural water supply and sanitation component are MOW, PMO-RALG, Regional Secretariats and Local Government Authorities. Within the decentralized structures of PMO-RALG, LGAs will facilitate communities to play a leading role in implementation of the water supply and sanitation projects. Through the Water Sector Development Program (WSDP), funding for the rural water sub component has quadrupled since 2007. Status of interventions in the three sub components is provided here under:

2.4.2 Situation of Water Supply and Sanitation Services in Rural Areas

According to the Water point-mapping study conducted in 2011/2012 throughout Tanzania, there were 64,704 existing water points, out of which, 45,754 water points (62%) were functioning, serving a total of 11,438,500 beneficiaries in rural areas. By June 2014, the total of 32,846 water points built out of the WSDP phase I efforts, serving a total of 8,211,500 additional people in rural areas; thanks to the increased focus given to rural water supply under the Big Results Now (BRN), which managed to install about 16,784 water points serving a total of 4,195,997 new beneficiaries in just one year (July 2013 – June 2014). Despite the achievement, the subsector still faces outstanding challenges, including:

- i) Technology Options: The original design of WSDP favored hand pump technologies by 48% (Water Sector Development Programme (WSDP), 2006, MoW), but due to

various reasons including availability of water sources which caused a shift in the selection of water supply technologies from the program preference of hand pumps schemes to piped scheme, low mechanical advantages which needs extra effort at the depth more ta 40 meters and high per capita cost of hand pump projects which ranging from 70 to 103 USD. These piped schemes serve more people but also require more funds to implement. Some of these are, Implementation of the rural water supply and sanitation program (ten village schemes), improve water supply service in semiarid and dry areas by construction of small and medium charcoal dams; and other earmarked projects which include construction of Mwakaleli, Kakonko, Masoko, Nelson Mandela, Matema, Kidete, Nyamongo, Gabimori, Komuge, Masonga, Ujuni, Haruzale, Lukululu, Igurusi, Okakajinja, Makete, Kisange Lufise Mhogoro, Magulo, Simboni, Lambo na Mamba. And water supplies implementation of Phase I for Same-Mwanga-Korogwe, the change in technology options caused an increase in the investment unit costs.

- ii) Lack of effective O&M financing and follow up mechanism.
- iii) Capability issues in terms of staff with required expertise at RS and LGA levels (Local Government Authorities and Private Sectors)
- iv) Diminishing of water resources due to environmental degradation (climate change) and human activities caused by ineffective integrated water resource management
- v) Inadequate capacity of consultants and contractors in finnce and water supply technical know how.

2.4.3 The National Sanitation Campaign

Situational analysis

The Tanzania Demographic Health Survey, 2010 suggests that only 13.3% of the people in the country have access to improved sanitation facilities, whereas nearly 6.5 million people continue to practice open defecation; this is also supported by the results of the Joint Monitoring Programme Report (JMP, 2010). This implies that though Tanzania made substantial progress on the sanitation and hygiene fronts following the launch of the President's "Mtu Ni Afya" Campaign during 1974-1980, when sanitation coverage reached nearly 90% (which constitutes mostly un-improved toilets), limited progress has taken place since. Moving up the sanitation ladder in particular remains a significant challenge.

Sanitation and hygiene condition in schools is still inadequate. The rapid increase in primary school enrolment, since the abolition of school fees for primary education in 2002, has placed a heavy burden on existing school infrastructure and particularly on Water, Sanitation and Hygiene (WASH) facilities. Many new schools and classrooms are built with no WASH facilities. According to data from the Ministry of Education Vocational Training (MoEVT),¹ a total of 240,000 additional latrines are needed for primary schools in Tanzania Mainland to meet national standards.

Existing data from BEST, collected annually for routine education sector monitoring provides data on the number of drop holes per school but is silent on the quality of latrines. Data from the school WASH mapping survey² conducted in 16 districts of Tanzania Mainland covering 2,697 schools has shed additional light on the situation of school WASH and provides qualitative as well quantitative data beyond hardware to include functionality and utilization.

The results from the mapping survey revealed that nearly 38% of the primary schools (both government and public) have no water supply on the school premises; 84% of the schools

¹ BEST – Basic Education Statistics, the routine Education sector information system

² 2010 School WASH Mapping UNICEF, Water Aid, SNV

do not have a functional hand washing facility; 96% lack WASH facilities suitable or accessible to children with disabilities and 52% do not have doors on girls' latrines. The study indicated that on average, 56 pupils share a latrine drop hole in public and private primary schools, a situation, which is confirmed by MoEVT own data on school sanitation from Basic Education Statistics (BEST) for 2012. Annual comparison for trends using 2011 and 2012 data by region show a national average of 53 pupils per latrine in 2011, which has worsened to 56 pupils in 2012.

On the other hand, menstruating girls and pupils with disabilities have additional sanitation needs in the school environment. Specifically, the standard designs for WASH facilities need to ensure that latrine construction enable universal access to sanitation services. Other than physical infrastructure like latrines, girls need other enablers that include special disposal facilities for sanitary materials if using water closets for example, privacy, availability of clean water as well as social components such as supportive teachers (and fellow pupils), access to reliable factual information on puberty and access to affordable sanitary materials. The lack of these enablers can result in girl's and disabled pupils ineffective participation in class, school days lost each month or even drop out from school altogether.

There are no clear mechanisms for budget allocation for school water, sanitation and hygiene, and monitoring and accountability remain weak. Lack of adequate budget for recurrent expenditures on school WASH is a huge challenge to sustainability- as adequate financial resources is key to ensure availability of soap and materials for post-defecation cleaning and in ensuring operation and maintenance WASH facilities in schools.

Water, Sanitation and hygiene in health facilities (WASH-HFs): Many health facilities in Tanzania (Hospitals, Health Centre, and Dispensaries) have low access to WASH services. Existing information indicate that only 34% of health facilities have access to regular water; 63% have access to sanitation, and 59% facilities have soap for hand-washing. These are shocking statistics given the critical role of clean water and safe hygiene practice in newborn care and infection control. In hospitals, the main challenge is the reliability of water sources: 96% of hospitals have at least on-site water sources, but only 42% have year-round supply. Reliability of supply also affects lower-level health facilities with on-site water sources. But the greater problem is that a third of health centers and almost half of all dispensaries have no safe on-site water supply at all³.

Lack of regular water supply including safe drinking-water, adequate sanitation and improper hygiene practices in health facilities is a serious problem, given that patients, particularly women and children, not only endures long waiting time but are also highly susceptible to infections due to poor hand hygiene, which includes no or inadequate hand washing before and after patient contact or after using the toilet.

While the government has continuously supported the availability of sanitation and hygiene services at healthcare facilities by constructing hospital incinerators and developing guidelines for the management of healthcare wastes, however, in most settings, sanitation services are poorly provided. Health care wastes are poorly managed due to lack of facilities for collection, temporally storage and final disposal. Most hospitals, health centers, and dispensaries have no incinerators for safe disposal of pathological waste as well as used pharmaceuticals containers, sharps, obsolete drugs and by and large other forms of waste generated in healthcare facilities. Ineffective management of this form of waste is injurious to health and can cause serious contamination into surface as well as ground water,

Moreover, the recognition of the growing gap and urgent need to close the gap for WASH in health facilities is gaining momentum. The link between newborn care, maternal mortality and WASH in health facilities is attracting a lot of attention. Clean delivery procedures are key to preventing neonatal deaths. Unhygienic practices during delivery that cause death of

³ NBS and Macro International, 2007

the newborn baby are also likely to have an impact on the health of the mother. Even though it is clear how important is for mothers to have access to safe water, sanitation and clean birthing, they often have little influence on expenditures and decisions that would improve these services.

Inequality of access to sanitation: Disparities exist across different regions, between urban and rural areas, and between people of different socio-economic levels in the society, especially the rich and the poor as well as for the disadvantaged groups, and different minority groups. A recent study by WSP shows that in Tanzania the poorest quintile is 41 times more likely to practice open defecation than the richest (WSP, 2012). Only 7% of the rural population has access to improved toilet facilities, compared to 26% of the population in urban areas (WHO/UNICEF, JMP 2012 Report update). Intra-urban inequalities can be of a similar magnitude to the urban-rural divide. Informal settlements (which make up 70% of majority of urban areas) often have little recourse to formal sanitation services. Similarly there are substantial intra-rural disparities in access, with more remote communities lacking access to water and sanitation. Although data is limited, it has been found that in some parts of the countries sanitation coverage to rural populations without road access is less than half that of rural areas with road access; a similar picture emerges when data based on ethnic or religious groups is analyzed.

Increase in population, urbanization and climate change will escalate the sanitation crisis: Tanzania is a relatively large country with a rapidly growing population. The country is predominantly rural at present, but the population is projected to rise from just under 45 million currently, to 75 million by 2030, and 110 million by 2050⁴. This trend is pronounced in urban areas which are growing at a rate twice that of their counterpart rural areas: the UN projects that the urban population in Tanzania will grow from 9.4 million in 2005 to 29 million by 2030, and is expected to become a 50% urban nation by 2050⁴. The growth rate in Dar es Salaam is one of the highest in Africa, and is likely to become a mega-city (a population greater than 10 million) by 2040.

Urbanization in Tanzania is largely informal and unplanned, with the majority of its residents living in informal settlements. At between 50 and 80%⁵ depending on the city, Tanzania has one of the highest rates of informal settlements in Sub-Saharan African cities. Over 70% of Dar es Salaam's residents reside in unplanned settlements, and in Mwanza, situated on Lake Victoria; about 75% reside in informal settlements, with about 25% in the valley bottoms and on steep hillsides. Rapid population growth and urbanization is clearly an important stressor, with concurrent increases in demands for water and production of faecal sludge and solid waste, and pressure on natural resources leading to environmental degradation.

Majority of urban areas lack functional drainage and wastewater treatment systems, improved sanitation facilities and appropriate systems for disposal and management of faecal sludge and solid wastes. The situation is being much worse in peri-urban and unplanned settlements. The culmination of these factors has led to an increased risk of flooding, land-slides and other hazards, destroying poorly built latrines and leading to contamination of surface water from sewerage, contributing to outbreaks of cholera and other water-related diseases. The current vulnerability to natural hazards is highly likely to be exacerbated by climate change, where projections expect increased yearly rainfall, increased intensity, and more frequent floods over much of Tanzania. This is likely to have major impacts on urban areas, in terms of infrastructure, assets and people.

⁴ World Urbanization Prospects, United Nations, (2012)

⁵ Upgrading low income urban settlements; Country Assessment Report Tanzania, World Bank (2002)

Impact of unimproved sanitation in Tanzania

Health and Economical losses: About 5,800 cases of cholera are reported annually and 18,500 children under 5 die annually from diarrhea with about 90% of death attributed to poor water, sanitation and hygiene conditions. According to a study done by the Water and Sanitation Program of the World Bank, poor sanitation costs the Tanzanian economy TZS 301 billion (USD 206 million) annually. This translates to a loss to the Tanzanian economy of 1% of its national GDP.

Lack of adequate sanitation facilities contributes to high levels of stunting among children in Tanzania: Evidence from multiple regression analysis with DHS VI-2010 data shows that in rural Tanzania, children are shorter (stunted) in communities where human faeces are managed improperly, suggesting a strong link between sanitation and nutrition. This has significant impact to early child development- as stunting impacts on intellectual and cognitive ability, impaired learning, increased absences from school, and decreased future economic productivity.

Baseline data for phase II: Benchmark for phase II on household sanitation and hygiene is taken from the baseline data compiled by MoHSW in 2013. The report reveals that, 25% of households have access to improved sanitation, 29.5% have no access to any form of sanitation and 9.3% have hand-washing points (MoHSW, 2013). The NSC II aims to increase access to improved sanitation at household level from 25% to 75% by 2019. The increase is equivalent to 5.6 million households being 1.8 million and 3.8 million for urban and rural areas respectively. In addition, the NSC II intends to achieve open defecation free status at household level (ODF) by 2019.

With regard to school WASH, existing data from BEST, collected annually for routine education sector monitoring provides data on the number of drop holes per school but is silent on the quality. Data from the school WASH mapping survey⁶ conducted in 16 districts of Tanzania Mainland covering 2,697 schools has shed additional light on the situation of school WASH and provides qualitative as well quantitative data beyond hardware to include functionality and utilization. The results from the mapping survey revealed that nearly 38% of the primary schools (both government and public) have no water supply on the school premises; 84% of the schools do not have a functional hand washing facility; 96% lack WASH facilities suitable or accessible to children with disabilities and 52% do not have doors on girls' latrines.

Sanitation and Hygiene under WSDP

At the beginning of the Water Sector Development Programme (WSDP), the sanitation and hygiene activities were mainly oriented to create awareness and construction of demonstration latrines in the Programme villages. With regard to school WASH, the focus was on establishment of sanitation clubs and provision of hygiene education. After the re-structuring, the focus changed to target behavior change and improvement of infrastructure for household and school respectively. The re-structuring led to the introduction of the National Sanitation Campaign that aim to achieve at least 1.52 million households with improved sanitation and hand washing points as well as 812 schools with fully furnished WASH facilities.

Major activities undertaken through the NSC in the phase I includes; Development of Messages and Concepts; Engagement of the households through Community Lead Total Sanitation; Engagements of Masons and hardware owners; Experiential events; Radio – national reach through well-known sources; Development of training and promotional material etc. Further, with regard to school WASH the following activities are currently being

⁶ 2010 School WASH Mapping UNICEF, Water Aid, SNV

undertaken; Rehabilitation of school latrines; Provision of hand washing facilities; and Formulation of school Sanitation Clubs.

Progress tracked by 31st March, 2014 indicate encouraging performance where 312,528 improved latrines are reported to be constructed in 113 LGAs; 204,215 functional hand washing facilities installed at household level and 9,120 sub-villages have signed declaration to improve their toilets and stop open defecation. On the other hand, 220 schools have rehabilitated toilets meeting a 1:40 and 1:50 drop hole per pupil ratio for girls and boys respectively.

Regarding WSDP II, the scope of the campaign is broadened to capture more fields of sanitation in the struggle to address the subject in holistic approach. Key focus areas in phase II are; household sanitation; school WASH (both primary and secondary); Health facilities; and transport hubs.

Under WSDP II a special component for sanitation and hygiene (component 4) has been established to deal with the sub-sector in broader terms. The component 4 will deal with all issues pertaining to sanitation in phase II unless stated otherwise. It will provide a linkage to the three components namely; WRM, RWSS and UWSS, which have elements of sanitation in it. Specifically, the component will deal with all issues related to sanitation and hygiene except the sewerage and wastewater stabilization ponds, which are managed by UWSS.

Lessons Learnt from NSC Phase I

- i) Sanitation and hygiene services are community based therefore needs a robust monitoring system to capture the progress. Likewise, cheap means of transport to enhance routine monitoring at grass root level is of paramount significance.
- ii) District wide approach to planning that take into account water, sanitation and hygiene is critical in providing long term sustainable service levels
- iii) Technical Assistance –there is limited capacity (in terms of knowledge, skills, number of staff and experiences) to manage sanitation and hygiene interventions
- iv) Strengthening institutional capability at MoHSW, MoEVT, PMORALG , Regions, LGAs is critical for accelerated delivery and increased oversight in implementation
- v) With the majority of schools having unimproved toilets and some no toilets at all, interventions on hardware are critical. This should go hand in hand with encouraging lasting behaviour change and strengthening the supply chain for sanitation & hygiene products and services
- vi) Incentives are required to increase efficiency in delivery of results, promote sustainability and integration between water, sanitation and hygiene interventions
- vii) Funding flow predictability to implementing agencies remains a significant challenge. Funds are always not released on time and sometimes falls short of approved budget allocations
- viii) The existing monitoring and information management system for sanitation and hygiene data from village to national level make it difficult to verify the results reported
- ix) Adequate human resource (Health extension workers) is critical for effective delivery of sanitation and hygiene services at scale.

2.4.4 BRN Initiative

The Tanzania Development Vision (TDV) 2025 review that was done by the Government in 2009/2010 revealed that even with notable growth of the economy, poverty persists particularly among peri-urban and rural populations. In overcoming the threat, social equity investments that guarantee inclusion of the disadvantaged in the planning and prioritization of interventions so as to fast-track provision of the basic services for broad-based and pro-

poor growth are proposed. In fast tracking the implementation of TDV 2025, the Government introduced a three years special programme from 2013/2014 to 2015/2016; famously known as the **Big Result Now** initiative for which six sectors were selected including water sector. This water sector BRN programme has been mainstreamed within WSDP.

The Big Result Now initiative aspires to achieve 67% rural water coverage by 2015. Although the water supply coverage that were being reported before the BRN indicated that about 57% of people in rural areas; the detailed lab data analysis of water point data, found that due to degraded infrastructure, the actual baseline coverage was about 40% with 5.3 million rural residents having lost supply to water because of inadequate maintenance of infrastructure. Since its commencement in July 2013, the BRN interventions have been attached to rural water supply component focusing on the following areas:-

- i) Expansion of the existing rural infrastructure;
- ii) Rehabilitation of disfunctional water points;
- iii) Construction of new infrastructures;
- iv) Establish effective Operation and Maintenance of community water supply and sanitation schemes for sustainability through CWSOs;
- v) Streamline and integrate data management;
- vi) Improve and optimize procurement;
- vii) Performance management and improving delivery;
- viii) Improve capability through proper staffing and capacity building.

2.4.5 Management Support

This subcomponent provides support to LGAs' capacity strengthening to carry out the planned interventions. The interventions under this sub component included rehabilitation and construction of office accommodation, where 68 offices were rehabilitated and 65 constructed; purchasing and distribution of motor vehicles to LGAs, and other working equipment like computers, printers and accessories. Other interventions included providing technical support, supporting monitoring by Regional Secretariats and local level monitoring by CWSTs and capacity enhancements for preparation of WSDP reports. The responsibilities of technical supervision and monitoring can be summarized as follows:

2.4.6 Supervision and Monitoring by CWSTs

Council Water and Sanitation Team (CWST) supervises and monitors the consultants in the implementation of rural water supply projects in phase I contracts. CWSTs have been supervising and monitoring consultants and borehole drillers who were part of RWSS subprojects implementation team. One of the key tasks in CWSTs is to review consultants' documentations, conduct physical project inspections through field visits and approve payments to consultants. During WSDP I, it was noted that due to other responsibilities facing the heads of departments at LGAs, who were also members of CWSTs, the need to have middle level officers to augment their day to day efforts was found to be necessary.

2.4.7 Oversight of LGAs by RSs and PMO-RALG

Regional Secretariats (RSs) provide technical oversight to LGAs by reviewing designs and tender documents, contracts for drilling and supervision options and construction of sub projects in some of the ten selected villages in each LGA. Generally, the task was clearly conducted as per plan; though shortage of finances remained as a potential challenge for maximum performance. PMO-RALG consolidates reports from RSs, which normally are submitted to the Ministry of Water for final consolidation and sharing with stakeholders.

2.4.8 RUWASACAD Phase II

The water sector has been implementing a Rural Water Supply and Sanitation Capacity Development (RUWASACAD) phase 2, with the purpose to enhance implementation of the Capacity Development of RWSTs, CWSTs and BWOs. The project aims to extend the technical support for implementation of CD plans to all LGAs, RSs and BWOs with three pilot regions (Tabora, Singida and Mwanza) and six LGAs (Sikonge, Uyui, Singida, Manyoni, Kwimba and Sengerema districts). Staff mainly from JICA project areas attended technical training in Japan while training of participants from the project areas was done in Mwanza City and Tabora Municipality.

2.5 Urban Water Supply and Sanitation

Urban Water Supply and Sanitation is the component, which include utilities in 19 regional headquarters, DAWASA, 109 District Headquarters and small towns and areas serviced by 7 National Projects. With exception of DAWASA, all WSSAs are graded under three categories of A, B and C which are defined as follows:-

Category 'A': Authorities, which cover full costs of their respective operation and contribute to investment. In this category are Arusha, Mbeya, Morogoro, Moshi, Mwanza, Tabora, Tanga, Dodoma, Iringa, Shinyanga, Songea, Musoma and Mtwara WSSA.

Category 'B': Authorities that meet operational and maintenance costs and salaries for permanent staff with the exception of part of energy bills and investment. The authorities are Bukoba, Kigoma, Sumbawanga, and Singida and

Category 'C' Authorities that meet operational and maintenance costs but are subsidized with electricity, salaries of permanent staff and investment costs. Authorities, which belong to this category, are Babati, Lindi and all 109 District Headquarters and small towns and 7 National Projects.

Key implementers of the component 3 are the UWSAs (Urban Water Supply & Sanitation Authorities represented by DAWASA, by 19 Regional town utilities, by 7 National Projects and 105 District towns and gazetted Small Towns), EWURA and MoW. Each utility is responsible for planning, design, construction supervision and management of their water supply and sanitation systems during and after project completion. The utilities have entered into Memorandum of Understanding with MoW according to the Business Plans reviewed by EWURA. These MoUs describe how to handle project implementation, routine operations and maintenance, and how to secure professional services assisting these Utilities to improve efficiency of service performance and to expand their services over time. An implementation arrangement under this component focuses on:-

Regulation and Monitoring of the Regional town utilities/WSSAs

For water utilities to discharge their duties legally, they need to obtain a license issued by EWURA. Up to January 2013, 19 Regional town utilities have acquired permanent license. DAWASA and DAWASCO have also obtained permanent license. The District and Small Towns utilities have been given provisional licenses while their application are under scrutiny. EWURA also continues approving tariffs, and continues monitoring the performance of the water utilities.

EWURA Consumer Consultative Council (EWURA CCC)

One of the roles of EWURA CCC is to represent the interests of consumers. EWURA CCC also receives and disseminates information and views on matters of interest to consumers of regulated services, and to established regional and sector consumer committees. EWURA CCC strives to ensure efficiency of water supply services as provided by the water utilities. To date 20 Regional Consumer committee offices have been established.

Investment Financing

All Regional town utilities have entered into a “Financial Resource Utilization Agreement” which qualifies the utility to receive, on an annual basis, capital development grants to implement investment plans on submission of quarterly and annual progress reports, and audits. WSDP provides a window for Regional town utilities of category ‘A’ and DAWASA, to access sub-loans and this has been operational. Alternatively, to fill the financing gaps, arrangements for accessing the soft loans, treasury bonds and commercial loans from financing Institutions are under way. The Category ‘A’ Regional town utilities and DAWASA are encouraged to apply for the loans. AfD and KfW have shown interest in creating revolving funds for loans through local banks, with the aim of facilitating Utilities’ access to soft loans.

Utility Clustering Study and Twinning

Acceleration of the commercial viability of Utilities in District Towns, Small Towns and National Projects, may be partly achieved through clustering/twinning of smaller and larger Utilities, thus create a larger customer base, improve revenue collection, share experiences in management and technical operations, and reduce operating costs. Pilot clustering has started in Tanga, Morogoro, Mbeya and Moshi water utilities. In Morogoro Region, the Morogoro UWSA is intending to cluster itself with the small towns of Mvomero and Dakawa, while in Tanga Region; the Tanga UWSA intends to cluster itself with Muheza, Korogwe and Pangani. In Mbeya Region, the Mbeya UWSA will cluster with Mbalizi and in Kilimanjaro Region; Moshi UWSA intends to cluster with Himo.

DAWASA / DAWASCO Institutional Reforms for Sustainable Operation

Following the termination of the lease contract with the international private operator the City Water Services Co. Ltd (CWS) and since the creation of DAWASCO, the original Lease Contract with CWS was used as the contract governing the relationship between DAWASA and DAWASCO as the new public utility. However, the performance of DAWASCO has been below expectation, particularly with regards to the financial and operational sustainability. An efficient operational arrangement is required to be put in place after expiration of the existing lease contract on June 2015.

During WSDP Phase I implementation, activities under this component were implemented **under the two sub components**; Management support and Project investment. All these sub components acquired significant achievements. Most of the planned activities under management support were done accordingly except for few areas in Capacity Development Plan, which was not well done as per expected output. Investments on water supply and sewerage infrastructures received sufficient support from both Government and DP’s funding as most of the planned project under WSDP I were implemented.

2.5.1 Water Supply and Sewerage Services as a Result of Investments in Urban Areas

Implementation of investments projects attained significant progress during WSDP I as quite a number of new water supply systems were either completed or are currently at advanced stage of completion. The situation pertaining to implementation processes is as follows:

Special Programme for Dar es Salaam

This program involves improvement of water supply services in Dar es Salaam, Bagamoyo and Kibaha. The purpose of this program is to improve water production from 300 million litres per day to 756 million litres per day, rehabilitation and expansion of distribution network to reduce NRW. The program also involves improvement of wastewater management. The program is being implemented via projects with status provided as follows;

Kidunda Dam: Feasibility study and detailed design for Kidunda the nine-month contract was extended due to late payments and also to allow for additional assignment of design of

a mini hydropower plant and preparation of satellite maps for Dar es Salaam service area. The design has been completed and final design report, draft tender documents and ESIA have been submitted and reviewed by Panel of Experts. ESIA and design of an access road and transmission line are at advanced stage. Construction will be done in WSDP II.

Kimbi and Mpera Groundwater Sources; drilling of 8 exploratory boreholes and 20 production boreholes have started. Drilling of productive boreholes will spill over to WSDP II.

Lower Ruvu Water project: Expansion of Lower Ruvu water treatment plant the works were fully completed by end of November 2013, and handed over to DAWASA in February 2014. Outstanding activities are commissioning of the treated water pumps, which could only be carried out after the completion of the laying of the new parallel pipeline from lower Ruvu treatment plant to University reservoir in Dar es Salaam. Construction of Lower Ruvu transmission pipe has reached 36.54 km out of 56 km (by end of March 2014) and completion is scheduled for August 2014. Distribution networks will be done during WSDP II.

Construction of Ruvu river breach control weir at Kidogozero: The contractor substantially completed the works by end of November 2013 and is currently in the 12 months defects liability period rectifying defects and minor outstanding works.

Upper Ruvu Water Project: Review of designs for expansion of Upper Ruvu treatment plant and transmission pipe to Kimara storage tanks has been completed. Two Contractors for expansion of treatment plant and transmission pipe are on site from 15 February 2014. Also the supervising consultant of works has been procured.

NRW Reduction in Dar es Salaam: The level of NRW in Dar es Salaam is excessive at over 50%. DWSSP had financed a baseline study and preparation of technical specifications for a performance based contract for non-revenue water reduction in Dar es Salaam. The study was completed in October 2011. DAWASCO has established an independent NRW unit, which has become operational and signed an agreement with MIYA of the Netherlands in July 2013, to carry out a mini study on two pilot DMAs (Kawe and Boko) and develop a strategy for NRW, which will be used to solicit funds for a large-scale NRW reduction effort. A comprehensive citywide project for NRW reduction to acceptable levels will be done under WSDP II.

Rehabilitation and Expansion of Distribution network; Preparation of designs for rehabilitation and expansion of distribution network in Dar es Salaam City have been started and construction will be implemented in the WSDP Phase II

Investment in Regional Towns, District towns, Small Towns and National projects

Completed projects

Improvement of water supply and sewerage in towns of Mwanza, Iringa, Singida, Dodoma (Kisasa area), Masasi-Nachingwea and Mbeya was completed. Also immediate projects in Babati, Lindi, Mtwara and Sumbawanga were completed. In small towns projects in Kibiti, Ikwiriri, Kibaigwa, Mpwapwa, and Utete were completed.

On going projects

Projects of improving water supply and sanitation in Bukoba, Musoma, Lindi, Kigoma, Sumbawanga, Dodoma, Tabora, Morogoro and Lindi regional towns are in progress. Also projects in small towns of Gairo, Kilosa, Bunda, Turiani Mvomero and Chalinze water supply project phase II are in progress.

Immediate works (Quick wins projects)

A total of **105 small** towns and 7 National Projects received funds for implementation of immediate works (quick-wins) for improving water supply services to customers. The works involves rehabilitation and extension of existing system

Completed project studies and designs in District Headquarters, Small Towns and National Projects

49 design contracts for improving water supply services were completed in District Headquarters, Small Towns and National Projects of Urambo, Sikonge, Karatu, Katesh, Orkesumet, Kilwa Masoko, Same, Mwanga, Kahama, Ushirombo, Pangani, Muheza, Chalinze, Loliondo, Kisarawe, Mkuranga, Kilindoni, Kasulu, Kishapu Maswa, MaketeNjombe, Mafinga, Kilolo, Ludewa, Makambako, Mbinga, Namtumbo, Tunduru, Sengerema, Geita, Magu, Nansio, Misungwi, Rujewa, Vwawa, Kasumulu, Mbalizi, Kyela, Tunduma, Mlowo, Tukuyu, Itumba, Tarime, Mugumu, Bunda and National Projects of Wanging'ombe, Mugango/Kiabakari and Chalinze phase II

2.5.2 Urban Water Supply Results from Implementation of WSDP I

As a result of WSDP I interventions; the population with access to improved water supply services in the 19 regional urban centres have increased from 78% in 2006 to 86% by December 2013. The coverage in district head quarters and small towns have remained at 53%, which is also the status for the 4 new regional headquarters for new regions that were launched in 2013. The water supply service coverage in Dar es Salaam reached 68% by December 2013 from 55% in 2006. Coverage of sewerage services during the same period improved from 17% 2006 to 20% in December 2013.

The results in percentage above are calculated from the actual data of installation of total of 236,541 house connections and constructed 549 public kiosks; which by December 2013 were providing water supply services to additional 2.7 million people in the DAWASA service area, 23 major urban regional centers, 96 district and small town utilities and 8 National Projects. 166,658 more people have access to sewerage by 13,374 additional connections. The average hours of services in urban areas for the whole period of WSDP I have remained at 9 hours in Dar es Salaam and 18 hours in other towns. The different scenario existed for the non revenue water, where it decreased from 37% in 2007 to 35% in 2013 in other towns; it increased from 53% in 2007 to 55% in 2013 in Dar es Salaam; calling for joint concerted efforts to curb the problem during WSDP II. The increase of NRW is due to various reasons including presence of old distribution network in many towns, which need to be replaced.

Experience from WSDP phase I shows a clear gap of service levels among utilities in urban areas, regional level as well as those at district and small towns. This gap is due to rapid increase of population in urban centers as the result of urbanization, which does not match with the low rate of water infrastructure investments. The fact that most of the projects implemented under phase I involved increase production of water without considering water supply network, was another challenge because most of water supply infrastructure and distribution networks in regional and districts towns are old and require rehabilitation. Existence of old water supply networks contributes to increase of NRW in these towns. Also, low investments in conventional sewer systems have been a reason for slow progress in meeting sewerage targets. Following this experience, WSDP II focuses on a number of interventions to address the challenges.

2.6 Institutional Development and Capacity Building

This component aimed at facilitating other components to effectively implement the WSDP. Its sub components included Operationalization of the new Role of the Ministry by strengthening MoW capacity in policy formulation, oversight and coordinating capacity building interventions in the implementing agencies. The intervention areas included strengthening the legal and regulatory framework, facilitating procurement services, financial mobilization and management, audit services, MIS, communication and dissemination services, provision of technical and managerial assistance, and provision of office accommodation to staff, working tools and development of human resources skills.

2.6.1 Summary of Achievements on Various Interventions

In addition to the financing status provided under 2.1.1 of this document; WSDP I achievements under this component include:

- i) Adoption of the corporate strategic plan and new Client Service Charter in 2010;
- ii) After approval of the MoW ICT Strategy in 2010, the ICT Unit that coordinates the functional WSDP Management Information System (MIS) has been strengthened. The MIS have contributed a great deal in improving WSDP financial reporting. Currently, efforts are underway to make sure that the MIS also produces output progress reports;
- iii) Rehabilitation of Ubungu Maji Office complex was completed in 2012;
- iv) Procurement and distribution of 250 vehicles (120 to LGAs, 21 to RSs, 33 to MoW departments, 32 to UWSAs, 36 to BWOs, 1 to MoHSW, 1 to PMO-RALG and 6 trucks to DDCA);
- v) Procurement and distribution of 407 motorcycles, 429 computers, 241 printers, 175 facsimiles, 129 photocopiers and various other ICT equipment to implementing agencies;
- vi) On the area of TAs, the TAs for Procurement, M&E, Financial Management, Programme Management TAs for components 1 and 3 were successfully procured and engaged with relatively good results. The only TA that faced operational difficulties was the TA for component 2 who was later designated to be the overall Programme Management Support Consultant (PMSC).
- vii) On performance monitoring, the dialogue mechanism worked efficiently especially after its restructuring in 2011. M&E arrangements and reporting has been improving over time. Annual reviews, financial audits and performance assessments were done as planned with exception of technical audits, which were done thrice in six years instead of annually;
- viii) The sector communication strategy was developed and disseminated to LGAs, WSSAs and BWOs. As part of its implementation, a total of 93 radio and TV programmes and adverts were aired; and more than 40,000 posters and fliers were distributed to stakeholders especially during maji week events;
- ix) On human resources, more than 700 new employees were recruited and deployed to MoW and various other outpost stations. Also, more than 3000 employees were trained mainly in the areas of financial management and procurement management.
- x) Although CD plans were prepared for each implementing agency; their implementation faced various challenges on inadequate commitments by the institutional managers to own the capacity development initiatives and processes;
- xi) Capacity building of executive agencies lagged behind schedules due to operational challenges including delays in fund disbursements;
- xii) On Social and Environmental Safeguards, several milestones were achieved especially with regard to screening of projects; but the issue of where to anchor the safeguards' coordination and enforcement is still outstanding. The proposal for WSDP II is to establish a dedicated Unit within MoW that will be responsible for Social and Environmental Safeguards coordination and enforcement.

2.6.2 Summary of Procurement Status

WSDP I had several achievements in the area of procurement although there was also outstanding challenges especially in the area of contract management. On processing of contracts, the WSDP I plan was to procure a total of 2,235 contracts, out of which 1886 contracts (84%) were signed. 252 contracts (11%) were cancelled, 20 contracts (1%)

transferred to WSDP II and 77 contracts (3%) have been agreed to be implemented during 2014-december 2015 as part of WSDP I through its additional financing package. Inadequate skills in contract management and speeding of procurement processes need various solutions during WSDP II including training in contract management and conducting tailor courses in procurement and records keeping.

3 WSDP II FRAMEWORK, OBJECTIVES, KEY PERFORMANCE INDICATORS AND TARGETS

The feasibility of WSDP II framework lies in the fact that it is the second phase of WSDP 2006-2025 implementation. It is not a new Programme. Due to this fact, the Programme Development Objective (PDO), which is strengthening sector institutions for integrated water resources management and improve access to water supply and sanitation services do not change. Both evaluation of WSDP phase I, and the scan report on experiences and lessons from WSDP I found that the PDO and its Programme design in general were still relevant in the next immediate future. However, for the purpose of sharpening its implementation drive and results; the lay out of WSDP II components, component objectives, specific objectives, key performance indicators (KPIs) and targets have been reviewed as detailed in sub chapters 3.1 and 3.2 hereunder.

3.1 WSDP II Institutional and Operational Enhancements

Amongst key strategic institutional and operational enhancements for efficiency of WSDP II include the following:

- i) **Sanitation and Hygiene as Component 4:** WSDP II introduces Sanitation and Hygiene as the new component, therefore, instead of the four components under WSDP I (WRM, RWSS, UWSS and ISCB); WSDP phase II will have five components (Water Resources Management –WRM; Rural Water Supply and Sanitation – RWSS; Urban Water Supply and Sanitation – UWSS; Sanitation and Hygiene – SH; and Programme Delivery Support – PDS);
- ii) **Capacity Building Interventions Within Components:** Unlike WSDP phase I, where capacity building interventions were coordinated by component 4 (Institutional Strengthening and Capacity Building); Capacity Building interventions during WSDP II will directly be implemented within technical components; but each technical component will be quarterly reporting to the DAHR for consolidation of progress reports, technical guidance and support.
- iii) The decision in (ii) above justifies a change of name for component five into Programme Delivery Support, which will now focus in supporting the other four components to deliver the outputs and outcomes. The clarity on the strategic enhancements with regard to WSDP II components and sub components is provided for in the components outlay sub section. The operationalization of CD plans will require substantial commitment by component champions (component leaders) and heads of implementing agencies to ensure that the capacity of implementing agencies are enhanced during WSDP II.

3.1.1 WSDP II Components and Sub-components

(a) Component 1: Water Resources Management: This component has been enhanced to sharpen its objectivity with two sub components that are the Water Resources Management and Water Quality Management. The Water Resources Management sub component has seven intervention areas and the Water Quality Management has two intervention areas.

The seven intervention areas under the Water Resources Management sub component include:

- i) Basin Level Water Resources Institutional Strengthening;
- ii) WR Monitoring and Assessment, Allocation, Regulation, Conflict Resolution and Demand Management;
- iii) Water Resources Conservation, Protection and pollution control;
- iv) Water reservoirs and Dam Safety Management;

- v) Transboundary Water Resources Management;
- vi) Implementation of IWRMD Plans; and
- vii) National Reforms and Investments.

The two intervention areas under the Water Quality Management Sub-component include:

- (a) Implementation of Water Quality Management for compliance: The strategic interventions will include implementation of (i) Implement water quality management and pollution control strategy to safeguard public health (ii) conserving aquatic ecosystems to improve ambient water conditions (iii) Facilitate the implementation of Climate Resilient Water Safety Plan (iv) Implement water quality management and pollution control strategy for conserving aquatic ecosystems to improve ambient water conditions (v) Implementation of Defluoridation Strategy (vi) Research and development to improve water quality management (vii) Develop water quality data management framework and information dissemination.
- (b) Management support and capacity development to support managerial systems of water quality management: The strategic intervention areas will include (i) Rehabilitation of the existing laboratory buildings and construction of water laboratories in regions which do not have; (ii) Implement both field and laboratory quality assurance and quality control programs; (iii) Implementation of field and laboratory safety management programs; (iv) procurement of operational equipment, chemicals and installation; and (v) Coordination of implementation of water quality management interventions for sustainability.

The implementation arrangements for this component do not deviate from the arrangements that were prevailing in WSDP I although more autonomy in terms of procurement and financial management are envisaged for Basins in WSDP II.

(b) Component 2: Rural Water Supply and Sanitation: This component has much benefitted from the Big Results Now programme, where its WSDP II general cradle is found. The Rural Water Supply Component has been categorized with three sub-components, which are:

- i) **Capacity Strengthening and Sustainability:** This sub component has two intervention areas, which are management support interventions and sustainability including operations and maintenance (O&M);
- ii) **Infrastructure Investments:** This sub component has three intervention areas, which include new project development, rehabilitation of non-functional projects and extension of projects to install water points in areas previously not covered by the scheme services (in coordination with Basin Water Boards)
- iii) **Sanitation:** This sub component will ensure integration of sanitation requirements are adhered to all water supply projects from planning stage, design, implementation up to operation and maintenance.

For each LGA, first the number of specific BRN projects that are in the pipeline for implementation (new construction, extension, rehabilitation and O&M) are identified with their costs and expected number of water points and beneficiaries (with KPIs for each LGA); followed by additional projects that can be implemented in a respective year basing on self assessed capacity to deliver the outputs that are water points and number of beneficiaries (this came directly from LGA inputs during the recent WSDP II planning meeting of all LGAs. The general implementation arrangement will not change although there will be more coordination role from PMO-RALG, which is much discussed under Programme Coordination.

Amongst new operational enhancements to note for WSDP II include reduction/removal of the necessity of MoW-No-objections with exception of project design approval; one contract

to cover both underground water survey and productive bore hole construction; the use of project prioritization criteria to select priority projects basing on Water source availability, present water supply status, equity, overall workload, capacity of society and implementing agencies, society development, income per capita, unit operation and maintenance cost; and per capital cost aiming to sustainability of water supply services, Preparation of Council water supply master plan in lieu of favouring affordable villages. Recognizing that now Sanitation and Hygiene is a separate component does not mean that Rural Water Supply has now no responsibilities. As a matter of policy, Rural Water Supply will continue to integrate sanitation in design and implementation of projects as required by NAWAPO 2002. The MoHSW will stiffen its coordination role to ensure that all Sanitation and Hygiene stakeholders and all implementing agencies deliver their parts.

More over the BRN procedures of implementation for new, rehabilitation, extension, operation and Maintenance of projects will have to be adopted in WSDP II as it has taken in to account lessons learned in WSDP I. In BRN implementation process, the categorization of projects has been introduced to cope with time required, scope of the project and financial requirements, whereby the projects which cost less than 200 million will have in house implementation while the project which cost more than 200 million but less than 1 billion will have in house consultancy services and for project costing more than 1 billion will have to be fully outsourced services. Hence in house implementation has been re-introduced to minimize cost and time of implementation for smaller projects. The time taken to design the project has been reduced from 19 months to one month when supervision is done as in house service.

(c) Component 3: Urban Water Supply and Sanitation: This component has been categorized into three sub components, namely:

- i) Water Supply and Sanitation Improvements in Dar es Salaam, Kibaha and Bagamoyo.
- ii) Water Supply and Sanitation Improvements in 23 Regional Water Supply and Sanitation Authorities; and
- iii) Water Supply and Sanitation Improvements in National Project Areas, District Headquarters and Small Towns.

The intervention areas under each sub component are two: (i) management support that entail capacity strengthening and (ii) priority investments that aim at improving water supply and sanitation services in urban areas. The interventions at MoW mainly relate to capacity strengthening, internal technical auditing and technical support.

With relatively better planned on-going activities for Dar es Salaam that will definitely be inherited during WSDP II (that will focus much on the distribution of water to the current dry connections and to new 100,000 connections); major change will be in the area of financing investments in major UWSAs that are commercially viable, in addition to funds from the basket. For District Head quarters and Small Towns, the basket will need to increase its allocation as a matter of priority because of the current underfinancing situation that have resulted in very low investments, which affects water supply services. Where clustering will help resolve capacity challenges, the funds will now need to be channelled directly to Small Towns special accounts. The MoW will need to collaborate with PMO-RALG to ensure that qualified engineers who have no dual responsibility run Small Towns and that they focus much on how to improve services in the specific town. This component will continue implementing sewerage interventions and report progress to both EWURA and MoW that will then channel to component four coordinator.

(d) Component 4: Sanitation and Hygiene: This component will continue with the arrangements agreed under the National Sanitation Campaign, which will include three sub components:

- i) Rural Household Sanitation and Hygiene;

- ii) Urban Sanitation and Hygiene; and
- iii) WASH in Public institutions (Schools, Health Facilities etc), and other Public Areas

This component greatly focuses on the implementation of the National Sanitation Campaign. It doesn't have much change rather it is introduced to enhance its coordination that will facilitated increased speed of implementation. Its dialogue mechanism structures (the Sanitation and Hygiene Steering Committee and its Technical Committee will continue to oversee the implementation of its planned activities. Amongst its interventions is to ensure that all LGAs plan for the Household Sanitation and Hygiene (sub-component) priority activities in their budgets without forgetting School WASH (sub component) activities to facilitate appropriate executions of budget allocations. Components 1, 2 and 3 will continue working closely with component 4 in the course of ensuring the that its they meets its targets.

(e) Component 5: Programme Management and Delivery Support

Component 5 is made of 4 sub components, which are:

- i) **Fiduciary Management:** this sub component has three intervention areas that include Financing and Financial Management; Planning and Budgeting; and Procurement Management;
- ii) **Programme Coordination and Performance Monitoring:** this sub component has four intervention areas that include Programme Coordination, Management Information System (MIS), Monitoring and Evaluation (M&E) and Social and Environmental Safeguards;
- iii) **Capacity Development:** this sub-component has five intervention areas including Capacity Development within the component at MoW HQ, capacity strengthening of WDML, capacity strengthening of DDCA, capacity strengthening of Maji Central Stores and implementing interventions through GCU that enhance Communication and Publicity of sector policies, programmes, projects, strategies, water legislation, regulations, orders, declarations, guidelines and standards; and
- iv) **Social and Environmental Safeguard:** this sub component has three major intervention areas including provision of technical guidance and follow up on adherence to the Environmental and Social Management Framework (ESMF) that has merged the former Resettlement Policy Framework (RPF) into a single ESMF; provision of technical support to implementing agencies and provision of training to ensure that clarity of the ESMF instruments prevails in all implementing agencies.

To facilitate timely programme delivery of planned outputs, component 5 will have the following enhancements:

(a) Fiduciary Management

Financing and Financial Management:

Financing and Financial Management: In addition to the current WSDP financing framework (WSDP Basket and Earmarked Projects); additional windows will be introduced during WSDP II to increase availability of funds especially for specific undertakings guided by the principles of BRN i.e focusing on results and accountability and timely service delivery. The aim is to increase the number of connections for urban water supply services and to increase the number of water points in rural areas. It is expected that financial management during WSDP II will be further enhanced through increased capacity on the use of MIS/EPICOR for financial reporting.

Planning and Budgeting: the new MTEF planning and budgeting cycle that was introduced during 2013/2014 will continue to be used during WSDP II, where Budget approvals will be done by Parliament before 30th June of each year so as to allow early disbursements to facilitate implementation as from 1st July. This action, which will continue to be strengthened

through MoF, will contribute in facilitating better and timely results for water sector, which has been complaining of delays in disbursements especially for works, which previously were sometimes done during rain season. This calls for affirmation of commitments earlier than the previous practices because Budget preparations starts in January and approvals by the end of June, which is a very short period. Since Budget Guidelines will be issued by December each year, DPs should start planning for indicative financial support by November and finalize commitments by January each year because the indicative figure are required to be part of budget ceilings. To avoid duplication of resources experienced during WSDP I, the focus of WSDP II will be on improved coordination of plans between components.

Procurement: To deal with concerns regarding slow procurement processing during WSDP I; periodical contract execution monitoring by MoW/DP teams, tailored trainings on contract management and strengthening the coordination of procurement processes within MOW (PMU and User Departments) and between MOW and other Implementing Agencies including LGAs; are amongst steps to bring procurement efficiency in WSDP II.

(b) Programme Management, Coordination and Performance Monitoring

Programme Management and Coordination: The PS will be responsible for overall program management and coordination while the PCU will have the role of day to day program coordination. To enhance program coordination, the posture of the Water Sector Working Group at PMO-RALG needs further strengthening to include more senior engineers, economists and auditors so as to effectively coordinate LGAs.

Management Information System (MIS): MIS enhancements to cover output reporting requirements is given its posture in WSDP II to ensure comprehensive real-time WSDP II progress reporting. To realize the outcomes, tailored trainings for proper data and information inputs for enhanced MIS system users (national and sub-national levels) are prioritized.

Monitoring and Evaluation (M&E): Implementation of the Integrated Water Sector Monitoring Framework that includes interventions such as the customary or traditional daily and periodical follow ups inputs, implementation processes and outputs; annual sector reviews, Mid-term reviews and end of the phase evaluation; is given priority.

(c) Capacity Development (within component 5)

This sub-component needs to be objectively oriented focusing on the required enhancements in skills and positive attitude to work so that mandates allocated through OPRAS are effectively executed, outputs are realized in time and targets are met. Any capacity development undertaking (tools, equipment or training) needs to be directly linked to the enhanced personnel productivity outcomes. Office accommodation for MoW (Maji House) resurfaces again in WSDP II because of its necessity with regard to the fact that the current MoW Maji Ubungu Office complex lies within the Morogoro Road Reserve space, and can be handled with demolition notice anytime. Other intervention areas under this sub component include:

Executive Agencies: The executive Agencies features in WSDP II as important Programme Delivery Support Institutions. The categories of Executive Agencies that will contribute to the outputs and outcomes of WSDP II are the following:

- i) The **Water Development and Management Institute (WDMI)** will need to increase its outputs (trained technicians, engineers and other cadres) because of the ever-increasing sector demand; for example technicians are required up to ward level to enhance water point sustainability in rural areas. In this case, WDMI will need various support items from WSDP II including construction of lecture rooms, classrooms, laboratory, rehabilitation of existing buildings and training of staff.
- ii) The **Drilling and Dam Construction Agency (DDCA)** capacity to work in areas where the private sector is reluctant to bid makes it suitable to be supported and

allowed to bid for specified contractual obligations. The current support from Government will diminish as it regains its expected operational recurrent and development business strength. The support to rehabilitation of its earthmoving equipment and facilitating it to acquire modern geophysical equipment are amongst interventions that will enhance its capacity to deliver both WSDP II and BRN expectations especially in areas where water source is a major challenge.

- iii) **Maji Central Stores (MCS):** As a prospective Agency, MCS needs to be supported with office accommodation, Store buildings and training in supplies, marketing business planning so as to enhance its capacity to deliver goods required in bulky the implementing agencies.

Communication and Publicity: This is an another intervention area that didn't feature strongly during WSDP I, as a result, clarity of the National Water Policy of 2002 (NAWAPO 2002); the National Water Sector Development Strategy (NWSDS); the Water Sector Development programme (WSDP) including its Programme Implementation Manual (PIM); Water Supply and Sanitation Act No. 12 of 2009 (WASSA) and the Water Resources Management Act No. 11 of 2009 (WARMA); is still a concern to many people especially the general public. The request by Basins that they require the Government Communication Unit (GCU) to traverse all Basins preparing documentaries and airing them in TV and Radio including Local TVs and Radio to enhance publicity of their mandates as per the WARMA is one of the concerns that prompted its proposed posture for WSDP II.

(d) Social and Environmental Safeguards (SES)

To enhance its efficiency, a separate Social and Environmental Safeguard Unit (SESU) at the Ministry of Water led by the Head of the Unit is proposed. Amongst mandates of the SESU will be to provide technical guidance and make follow ups (monitoring) to all implementing agencies to adhere to the Environmental and Social Management Framework and Guidelines (the requirements for screenings, EIA, ESIA, RAPs and all Compensations processes) regarding implementation of projects done by all WSDP components.

Also, the unit will deal with provision of technical support to implementing agencies and provision of training to ensure that clarity of the ESMF instruments prevails in all implementing agencies.

3.2 WSDP II Component Objectives and Targets

3.2.1 Component 1: Water Resources Management

(a) Overall and Specific Objectives

The overall objective of Water Resources Management is to ensure availability of water for socio-economic development and environmental sustainability. The focus will be implementation of IWRMD plans.

In order to achieve these objectives, the following are four strategies:

- i) Strengthening institutional capacity for improving the management of water resources in all the 9 Basin Water Boards including the systems for water resources planning, management and development as well as intervening in stress-reduction. In this area the aim is to operationalize and build capacities of the Water resources management Institutions as given in the NWSDS of 2006 and Water Resources Management Act No. 11 of 2009. The institutions include the National Water Board, Basin Water Boards, Catchment and Sub catchment Water Committees and Water User Associations;
- ii) Coordinating the development and implementation of Integrated Water Resources Management and Development (IWRMD) plans, considering Basins priorities and water sector climate change strategic action plan.

- iii) Implementation of priority water resources (single, and multi-purpose dams and exploratory boreholes drilling and others) management and development investments as identified in BWBs IWRMD Plans; and
- iv) Strengthening the capacities at National level to provide support to the BWBs and coordinate implementation of WSDP and crosscutting water resources management related issues.
- v) Water quality monitoring strengthened and mobile water quality laboratory services established;
- vi) Water quality management sustained through appropriate policy and legal frameworks and collaboration among institutions enhanced; and
- vii) Water safety plans for rural and urban areas established

(b) WRM Key Performance Indicators

- i) Demarcate 161 water sources and initiate water catchment management interventions in all 9 BWBs by 2019;
- ii) 9 River and Lake Basin Integrated Water Resources Management and Development Plans approved by 2016; disseminate and create awareness to stakeholders and initiate implementation of Plans by 2019;
- iii) 3 strategic multipurpose dams constructed by 2019
- iv) 20 medium size dams rehabilitated in dry areas by 2019; and studies for 5 multi-purpose dams initiated;
- v) Water resources research center established and functional by 2019.
- vi) 30% of IWRMD plans recommendation implemented by 2019
- vii) A comprehensive water resources database established and operational by 2019
- viii) 40% implementation of climate change and water sources protection by 2019
- ix) A comprehensive water resources database established and operational by 2019
- x) Drill 150 ground water monitoring and rehabilitate existing 120 bore holes in all 9 BWBs
- xi) 170 New Water Users Associations for all 9 BWBs established and strengthened, 90 existing WUAs strengthened and capacitated to perform their mandated WRM functions
- xii) 30 Catchment and 56 sub catchment gazzetted by 2019;
- xiii) 18 catchment committees and 36 sub-catchment committees established and functioning as per WRMA 2009 by 2019
- xiv) Water quality, Hydrological and hydro-geological monitoring stations regularly producing reliable data increased from 410 in 2013 to 600 by 2019,
- xv) Functional Decision Support System database strengthened for all 9 BWBs and at DWR- HQ for information dissemination to stakeholders by 2019.
- xvi) Implementation of Climate Change adaptation Strategy action plan by 2019
- xvii) Implementation of CD Plans for 9 BWBs and National Level by 2019
- xviii) Comprehensive fluoride database and maps in fluoride belts developed by 2019
- xix) 9 existing laboratory buildings rehabilitated and 8 new water laboratories constructed; and strengthened with standard equipment by 2019

- xx) 5 water quality laboratories accredited by 2019
- xxi) Laboratory information management system (LIMS) and water quality map developed by 2017
- xxii) Integrated mathematical water quality modeling tool to predict the future and analyze site-specific scenarios developed by 2019.
- xxiii) Water Safety Plans implemented; and
- xxiv) Capacity Development Plans for all Water Quality Laboratories Implemented by 2019
- xxv) Recruitment of 1000 staff in various technical disciplines (Hydrologists, hydrogeologists, environmental engineers, water resources engineers, economists, community development officers, chemists etc) for deployment to MoW, Basins and Water Laboratories.

(c) WRM Targets

- i) Approved and effectively monitored water permits increased from 3,680 in December 2013 to 6,000 by 2019;
- ii) 100% of eligible enterprises have attained wastewater discharge permits by 2019;
- iii) Comprehensive mapping of water sources and recharging areas to ascertain conservation and protection baselines and specific targets, done by 2017;
- iv) Annual Water Quality Yearbook is published by 2017; and
- v) 5 water laboratories accredited by 2019.

3.2.2 Component 2: Rural Water Supply

(a) Overall and Specific Objectives

The overall objective of the Rural Water Supply and Sanitation component is to provide improved quality and quantity of drinking water for the rural population sustained through improved district level capacity, effective local water user entities, private sector participation and integration of sanitation in the design and implementation of rural water projects.

(a) Specific objectives of Rural Water Supply and Sanitation

- i) Water supply services in rural areas improved;
- ii) Rural water supply projects are cost effective and sustainable;
- iii) Rural Water Supply projects are owned and managed by beneficiaries and backstopped (technically and financially) by DWE as per BRN initiatives for sustainable services.
- iv) Sanitation, operation and maintenance are integrated in the design of rural water projects

(b) Rural Water Supply Key Performance Indicators

- i) 38,759 new water points constructed to serve 9,644,750 people by 2019;
- ii) 19,889 non functioning water points rehabilitated to restore water supply service to 4,972,250 people by 2019;
- iii) 17,686 water points installed from extension of existing infrastructure, which will serve 4,463,000 people by 2019; and
- iv) 386 engineers and 3,338 technicians for deployment to LGAs up to the ward level recruited.

(c) Target

The target is to install a total of 76,334 water points serving a total of 19,080,000 people in rural areas, thereby increasing the access percentage from 51% (19,395,697 beneficiaries) in June 2014 to 80% (38,475,697 beneficiaries) by 2019.

3.2.3 Component 3: Urban Water Supply and Sewerage

(a) Overall and Specific Objectives

The overall objective of the Urban Water Supply and Sanitation component is improved and sustained quality and quantity of water supply and sanitation services for urban populations managed by financially autonomous and commercially viable Urban Water and Sanitation Authorities (UWSAs) while providing efficient and cost-effective services.

Specific objectives include:

- i) Households, businesses and institutions connected with 24 hours water supply services;
- ii) WSSAs are able to finance operation and maintenance costs for sustainability of infrastructure, assets and services; and operating costs minimized;
- iii) WSSAs are able to finance a significant part of their new investments from loans; and have improved sewerage systems as part of an overall sanitation strategy for each town.
- iv) Appropriate lifeline tariffs as per National Water Policy directions are set, and free water using agreed criteria is provided to the most poor;
- v) Good customer relations are established and operational;
- vi) Non-Revenue Water (NRW) is significantly reduced;
- vii) Modern billing systems as a prudent measure to improve billed revenue collections are used in all WSSAs;

(b) Urban Water Supply and Sanitation Key Performance Indicators

For Dar es Salaam: the KPIs include:

- i) 212km transmission main constructed;
- ii) 2,000km length of the distribution water supply network laid;
- iii) Water production increased from 300 million litres per day to 756 million litres per day;
- iv) 11 water storage tanks constructed;
- v) 26 boreholes drilled and 10 kiosks constructed in low income areas;
- vi) NRW reduced from 55% in 2013 to 25% in 2019;
- vii) 500,000 household connections installed;
- viii) 7 water treatment ponds and 156 km of the public sewer line constructed;
- ix) 15,000 households connected to the conventional public sewer system; and
- x) 76km access road to Kidunda dam constructed.

For 23 Urban Regional Centres: the KPIs include:

- vii) 22 treatment plants constructed,
- viii) 330 Km new transmission main constructed,
- ix) 2,111 Km of pipes to expand the water supply distribution network laid;
- x) 44 storage tanks constructed

- xi) 200,000 new house connections installed
- xii) 60 wastewater treatment ponds constructed;
- xiii) 887 Km of sewer lines constructed; and
- xiv) To reduce Non Revenue Water from 37 percent to 25 percent in 2019;

For National Projects, District Head Quarters and Small Towns: KPIs include:

- i) 37 treatment plants constructed;
- ii) 1,091 Km of new transmission main constructed;
- iii) 3,518 Km of distribution network expanded;
- iv) 306 storage tanks constructed;
- v) 110,000 Household water connections installed; and
- vi) Recruitment of 260 engineers and 1,040 technicians to enhance the human resources technical capacity.

(c) Urban Water Supply and Sanitation Targets

- i) To provide water supply services to 2,257,200 new beneficiaries in Dar es Salaam through 150,000 Household water connections, 26 boreholes and 10 kiosks; thereby increasing access from 68 percent in December 2013 to 95 percent by 2019; and reduce Non Revenue Water from 55 percent to 25 percent.
- ii) To provide water supply services to 2,000,000 new beneficiaries in the 23 Urban Regional Centres through 200,000 Household water connections; thereby increasing access from 80 percent in December 2013 to 98 percent by 2019; and reduce Non Revenue Water from 41 percent to 25 percent.
- iii) to provide water supply services to 1,100,000 new beneficiaries in District Head quarters, Townships and areas served by National Projects through 110,000 Household water connections; thereby increasing the access percentage from 53 percent in 2013 to 65 percent by 2019.

NOTE: *Criteria for coverage is 2 households (10 people) in average benefit through one connection and 200 people in average benefit through one kiosk or borehole in Dar es Salaam; while in regional centers, district headquarters and small towns it is 2 Households (10 people) in average benefit through one connection and 250 people through a water point or kiosk.*

The water supply targets can be met if the WSSAs manage to increase water connections in their areas in the rate of 40,000 per year in total for Regional WSSAs, 100,000 water connections per year for Dar es Salaam; 20,000 water connections per year in total for District Headquarters and Small Towns and at least 2000 water connections for National Projects. These are in addition to other endeavours like kiosks and public tapes.

3.2.4 Component 4: Sanitation and Hygiene

Summary of focus, strategy and approach

Sanitation and hygiene component of Phase II of WSDP is designed to address the sanitation crisis facing the country. During phase II of WSDP significant efforts will be made to stimulating demand for improved sanitation facilities and hygiene services. Particular attention will be to decrease open defecation and to ensure households upgrade their latrines (rural and urban). This will be done through strong behaviour change promotion targeting both rural and urban settings. Greater focus will be given to ensure effective enforcement of laws, standards and regulations.

In urban settings increased attention will be in maintenance and upgrading of existing drainage, waste water treatment, alongside expansion of the network to cover newly settled areas (particularly in informal and peri-urban areas). In urban areas with high risks of flooding-priority will be to tackle the existing deficit in improved sanitation coverage. Special attention and targeted technical support will be provided to communities/households most at risk e.g. to upgrade latrine design in flood prone areas or re-build latrines following collapse during flooding events. This will be done through provision of technical support to town councils, municipalities and utilities in developing appropriate and affordable systems for solid waste, sludge disposal, wastewater treatment and storm water management. Greater focus will be given to ensure enforcement of laws, regulations and standards.

The component will address sanitation crisis in institutions (schools and health facilities). This will be done through direct delivery of sanitation and hygiene infrastructures (in priority areas) and behavior change promotion- designed to ensure sustained and lasting behavior change in schools and health facilities. Greater focus will be given to ensure enforcement of laws, regulations and standards. The component will generate evidence and good practices for advocacy to engage and influence wider transformation changes on delivery of sanitation and hygiene services in health and education sectors. These include among others, working with education and health sectors to ensure coherence of approaches and ensure there are clear mechanisms for budget allocation for water, sanitation and hygiene in schools and health facilities including clear monitoring and accountability framework. This will be critical to ensuring sustainability- as adequate financial resources is required to ensure availability of soap and materials for post-defecation cleaning and in ensuring operation and maintenance WASH facilities in schools and health facilities.

The component will engage the private sector (through appropriate Public Private Partnership arrangements) to leverage investments and delivery of improved sanitation infrastructures in public areas (e.g. transport hubs in urban areas and bus stop in highways). Greater focus will be given to ensure enforcement of laws, regulations and standards from design to implementation of sanitation and hygiene interventions. This will entail engaging and working closely across sectors (e.g. transport, works, trade and investments).

The component will promote use and deployment of appropriate sanitation marketing approaches for sanitation and hygiene services and products. Greater emphasis will be to promote approaches that address market failures and promote availability of sanitation and hygiene products and services in rural and urban settings. This will entail engaging and working closely with finance institutions, artisans, businesses and entrepreneurs. Where appropriate, the component will use results-based approaches to incentivize efficiency in delivery of results, promote sustainability and integration between water, sanitation and hygiene interventions

The component will work closely with other components of WSDP II (i.e. water resources, rural and urban water supply and sanitation) to ensure effective integration of water, hygiene and sanitation interventions to maximize health benefits. To achieve this, the component will promote a council wide approach to planning that aim to leave nobody behind. This will be done through joint planning, budgeting and implementation at all levels of delivery.

The phase II of the WSDP will also take aboard the urban sanitation mainly focusing on promotion of behavior change, improvement of infrastructures (in schools, health facilities, highways and transport hubs), strengthen public private partnership in service delivery, capacity building to ensure increased awareness and commitment and quality service delivery, strengthening sector coordination and promotion of Household Water Treatment and Safe Storage (HWTS).

The Sanitation and Hygiene component will continue with the arrangements agreed under the National Sanitation Campaign, it will include three sub components:

- i) Rural Household Sanitation and Hygiene;

- ii) Urban Sanitation and Hygiene; and
- iii) WASH in institutions (Schools, Health Facilities etc) and Public Areas

(a) Objective

To provide access to improved sanitation and hygiene facilities to 75% of the population in Rural and Urban settings by 2019

Specific objectives:

- i) To have additional 50% of the population access improved sanitation and hygiene services by 2019
- ii) To eliminate open defecation practices in rural and urban areas by 2019
- iii) To increase the proportion of schools (primary and secondary) with improved WASH facilities by 2019
- iv) To facilitate the provision of improved WASH facilities in transport hub and highways by 2019
- v) To increase proportion of health facilities with improved sanitation and hygiene services from 65% to 80% by 2019
- vi) To increase proportion of households practising treatment and safe storage of drinking water from 11% to 25% by 2019

(b) Key Performance Indicators

- i) Latrines in 3,500 primary schools rehabilitated including hand-washing facilities, menstrual facilities and formation of sanitation clubs by 2019
- ii) Latrines in 700 secondary schools rehabilitated including provision of hand-washing facilities and formation of sanitation clubs by 2019
- iii) WASH in 1,000 health facilities rehabilitated and management of healthcare waste strengthened in 600 health facilities by 2019
- iv) 25% of households with water treatment and safe storage facilities by 2019
- v) 8 WASH facilities constructed in highway bus stops by 2019

(c) Target

To increase the proportion of the population that uses improved sanitation facilities from 2.2 million Households (25%) in 2013 to 7.8 Million Households (75%) by 2019, while instituting measures to eradicate open defecation.

3.2.5 Component 5: Programme Delivery Support

(a) Overall and Specific Objectives

The overall objective of the Programme Delivery Support component is to provide facilitative services that support all other components to deliver planned outputs and expected outcomes. Under this component, specific objectives include:

- i) Facilitating financial mobilization, allocation to priority activities, and financial disbursements for implementation of activities in accordance to approved financial forecasts and disbursement schedules;
- ii) Coordinating the preparation of MTEFs, annual plans, annual budgets and annual procurement plans;
- iii) Providing the overall Programme management and coordination; performance monitoring including progress reporting and periodical assessments;

- iv) Coordinate capacity building within components including capacity enhancements of executive agencies;
- v) Ensuring appropriate publicity and dissemination of policies, programmes, strategies, water legislation, guidelines, technical standards, regulations, orders etc so as to ensure that clarity prevails across all stakeholders

(b) Programme Delivery Support Key Performance Indicators

- i) 6000 staff trained on the use of improved MIS, contract management, SES guidelines etc by 2019;
- ii) MIS produces all financial, contracts and physical progress reports by 2019
- iii) 100% of implementing agencies adhere to SES guidelines and standards by 2019;
- iv) 14 detailed TV documentaries (9 for basins and 5 for components) prepared and aired in all major national coverage TVs and sub-national locality TVs by 2019;
- v) 50 WDMI staff attained long term training by 2018 to facilitate WDMI to deliver WSDP II aspirations;
- vi) 100 publicity adverts for TV, Radio and print media are prepared and done by 2019;

(c) Programme Delivery Support Target

100% of implementing agencies adhere to planning, reporting, and SES guidelines by 2019.

4 WSDP II STRATEGIC INTERVENTIONS

4.1 Component 1: Water Resources Management

The overall objective of Water Resources Management is to ensure availability of water for socio-economic development and environmental sustainability. In order for water resources management component to effectively contribute the overall objective, the following are the main intervention areas at both National level and Basin level:

4.1.1 Basin Level Water Resources Institutional Strengthening

The powers and functions of the BWBs are outlined in the Water Resources Management Act No. 11 (2009). BWOs are regulatory bodies by law, their core functions are to collect hydro-meteorological data, issue and enforce water use and waste discharge permits, protect water sources and support planning and management of water resources, granting, monitoring, and enforcing water use permits.

4.1.1.1 Strengthening Operational Capacity of BWBs

The BWBs operational capacity will be strengthened through:

- i) Targeted training in areas of operational hydrology, financial management, human resources management, hydrogeology, establishment and strengthening of WUAs; assessments on climate change vulnerability.
- ii) Establishment of Water Resources Research Centre which will focus on applied research and emerging technologies in water resources management and development
- iii) Awareness and publicizing the roles of the BWBs to raise their profile
- iv) Improved transparent and accountable water governance (fair allocation of water, pollution control and water source protection) using the approved regulations;
- v) Provision of operational equipment and support in installation and maintenance of monitoring stations.
- vi) Review and implementation of the CD Plans prepared in Phase I to ensure adequate capacity building;
- vii) Improved working environment through rehabilitation and construction of office buildings and provision of furniture, transport and office equipment and tools;
- viii) Provision of incentive to BWBs staff to make them more effective, recognized and improve their regulatory roles;
- ix) Implement performance assessment framework at BWBs;
- x) Improved revenue by instituting the new tariffs, and preparation of basin operational plans,; and
- xi) Operational support to Basin water boards in data collection and dissemination.
- xii) Improved policy and multi-level institutional coordination to optimize water resources development and management.
- xiii) Improved WR monitoring, enforcement and compliance
- xiv) Improved catchment protection and conservation
- xv) Improved management and development of trans-boundary waters
- xvi) Improved contract management

Basin water boards will continue to:

- i) Establish new CCs/SCCs, WUAs and strengthening of the existing ones through provision of office space, specific training, transport etc.
- ii) Monitor performance of WUAs as per WRMA and their plans
- iii) Implement communication strategies.
- iv) Improve water demand management.
- v) Prepare, publish and disseminate information products –quarterly news week on state of water resources in the basin.
- vi) Development of sustainable and strategic water storage infrastructures (including rainwater harvesting, conjunctive use, and managed aquifer recharge)

4.1.1.2 Formation and Strengthening of Catchment Committees (CC) and Sub-Catchment Committees (SCC)

The enactment of WRMA No. 11 of 2009 and its regulations have provided legal mandate for the establishment of CCs and SCCs.

The WSDP phase II will support BWBs to continue with strengthening and formation of new WUAs(170) as primary institutions necessary for formation of Catchment and Sub catchment Water Committees and will subsequently start establishment of 65 Catchment and Sub-catchment Water Committees.

BWBs will support strengthening capacities of CWCs/SCWCs to enable them perform their roles as stipulated in the WRMA.

4.1.1.3 Formation and Strengthening of WUAs

Stakeholder participation is a critical success factor, to be achieved through formation and strengthening of Water Users Associations (WUA); WUAs are the vehicles through which communities participate in water resources management and governance. Criteria for WUA formation include existence of water use conflicts, water source encroachment, water pollution and demand from water users. In WSDP Phase II, BWBs will facilitate formation and strengthening of 170 WUAs

WUAs are formed by the agreement of the majority of a group of water users for one or a combination of the following purposes: (i) manage, distribute and jointly conserve water from a source (ii) acquire and operate any Permit under the provisions of this Act;(iii) resolve conflicts related to the joint use of a water resource; (iv) collect water user fees on behalf of the Basin Water Boards; and (v) represent the special interests and values arising from water used for a public purpose.

In WSDP II, WUAs will be provided with manuals and guidelines as well as awareness creation, capacity building, and clear guidance from the BWBs. Basin Water Boards will be financially and technically supported in formation and building capacities of WUAs.

WUAs will be facilitated to implement their mandated roles through (i) timely sharing of information, (ii) study tours to successful WUAs, (iii) securing other sources of income (tariff collection) and financial management (iv) dissemination and awareness creation on the WRM (v) office space and equipment.

4.1.2 Strengthening basin level water resources management operations

Several interventions are important under this area, including:

4.1.2.1 Water Resources Management Act and Regulations

In WSDP phase II, all BWBs will continue with awareness creation on the WRMA No. 11 of 2009 and its corresponding regulations as important tools in enforcement of water resources management functions at basin level. The BWBs will be supported in areas of capacity building, finance and recruitment of skilled personnel to enable them continues with their

regulatory and enforcement roles, data collection and dissemination and supervision of strategic WRM infrastructure development.

4.1.2.2 Providing operational support to the BWBs

In Phase II all BWBs office buildings will be rehabilitated, constructed and furnished. Five BWBs Headquarters office will be constructed and 18 sub basin water offices will be rehabilitated. Furthermore, 130 WUAs offices, 27 Catchment and sub-catchments water committee offices will be constructed. Also, office equipment, vehicles and working tools will be provided to the BWBs to cover the gaps. Catchments and WUAs will require transport and other facilities.

Water Resources monitoring network will continue to be strengthened as recommended by Basin IWRMD plans. Data collection, archive, analysis and dissemination of information products for various uses will be done in all BWBs. Water resources data and information management system will be established and strengthened in all BWBs. The data are important for planning, informed decision, early warning and design of infrastructures. The scope of work for Gauge Readers will be expanded to include data collection, enforcement and compliance. With this new mandate, they will be trained and employed on contract terms. The quarterly News Letter (**Maji Yetu**)⁷ will be revived for wider dissemination of information.

BWBs will prepare annual hydrological reports as well as status of water resources annually and share the reports with stakeholders. BWBs will establish collaboration mechanism for sharing data and information with other stakeholders.

4.1.3 Strengthen Water Resources monitoring and assessment

The following activities will be done to facilitate water resources monitoring and assessment:

- i) All basins will continue with rehabilitation/construction of hydro-meteorological, hydro-geological and water quality stations to improve availability of data.
- ii) Strengthen management of groundwater resources development through monitoring the use and quality and awareness raising in all Basins. In this regard, BWBs will continue to strengthen groundwater-monitoring networks by drilling new 150 observations/monitoring wells and install data loggers.
- iii) Detailed environmental flow assessment in major rivers will be done in all basin and implement the recommendations. BWBs will undertake river health monitoring by assessing chemical, biological and habitat integrity of rivers. This will be done on major rivers as recommended in the basin IWRMD plans.

4.1.3.1 Water Resources Enforcement and Compliance

Compliance on application of water use permit will be strengthened, through awareness creation at user level and charging the defaulters. The BWBs will monitor compliance through enforcing water use permits and effluent discharge standards as per WRMA No. 11 of 2009. BWBs will enforce precautionary and polluter pays principle to defaulters. Basins will continue to carry out inventory of all water users to determine illegal abstractions and update basin water registers BWBs will continue to carry out verification and re-registration of water use permits and replacement of old permits.

Enforcing the WRMA No. 11 of 2009 will regulate groundwater exploration and drilling operations. Exploration and drilling licenses will be issued and monitored. BWBs will continue to issue and monitor compliance of drilling permits. Driller's licenses will be issued and monitored to avoid unprofessional drilling. Awareness creation to stakeholders will

There is a need to have a mechanism of sharing information on the status of water resources.

continue to be implemented in all basins. This will enhance drilling of productive boreholes for various uses including irrigation and curb uncontrolled drilling.

4.1.3.2 Water Resources Allocation and Demand Management

Water allocation will be carried out considering the principle of sustainability so that the resource remaining is viable for the use by the present and future generation. Allocation of water for basic human needs will continue to receive highest priority followed by environmental requirements and other uses will be subject to social and economic criteria. In this regard, the following will be implemented:

- i) Water use and discharge permits will continue to be granted by BWBs to different users and ensure compliance.
- ii) BWBs will allocate water based on recommendations from the water bodies classification study.
- iii) BWBs will continue to raise awareness on water allocation procedures.

There is an increasing demand of water in all basins due to population growth and increase of socio-economic activities resulting into water stress. Water demand management is essential for sustainability of surface and ground water resources.

The following activities will be undertaken to improve demand management:

- i) Carry out public education and awareness campaigns to promote water use efficiency technologies, behavioural changes in water use and options available to improve water use, as well as the social, economic, environmental and regulatory implications of over-use;
- ii) Incentive mechanisms will be introduced to motivate wise use of water;
- iii) Establish and implement programmes to control and regulate water uses upstream of major infrastructure investments;
- iv) Determine the economic value of water for different uses, as well as the economic cost of water resources degradation in order to facilitate a more economic allocation of water and promote protection and conservation of water resources;
- v) BWBs will provide guidelines and standards monitor, evaluate and approve construction and maintenance of water source infrastructures, such as canals and intake gates;
- vi) Manage groundwater demand by determining safe yields of aquifers, facilitating groundwater recharge and promoting groundwater use where available; and managing and controlling groundwater exploration and drilling activities;
- vii) Manage major river flows by undertaking site-specific interventions to identify perceived or anticipated river flow problems, possible solutions and implement the recommendations; and
- viii) Criteria will be established by respective Basin Water Boards to assist in apportioning water.

4.1.3.3 Water use conflict management

Water use conflicts are increasing in all Basins as a result of water scarcity and increasing uses of water for social-economic activities. To address this challenge, training in conflict management and negotiation skills will be conducted to the BWBs, Catchment Water Committees and WUAs to enable them address various types and scales of water use conflicts. Education and awareness on WRMA and NAWAPO will continue to be provided to water users.

4.1.3.4 Water Resources Conservation, Protection and Pollution Control

Catchment degradation and water pollution have continued to be major challenges in water resources management. The efforts initiated in WSDP I such as "Operational Programme for Effective and Sustainable Protection and Conservation of Water Sources" will continue to be implemented in collaboration with stakeholders. The BWB will implement the following ;

- i) Continue with identification and demarcation of catchments, groundwater recharge areas, wetlands and water sources for protection
- ii) Mapping and gazette potential water sources as water protected areas
- iii) Compensation for demarcated water sources and resettlement of communities
- iv) Strengthen cross-sectoral collaboration and promote stakeholders awareness and participation
- v) Promote and encourage livelihood projects that reduce pollution and enhance conservation of water sources
- vi) Engage politicians and influential groups to spearhead the agenda for protection and conservation of water sources at all levels
- vii) Review and implement water quality and pollution control monitoring programs in all basins characterize (identify, determine levels and types of pollution and mapping) point and non-point sources of pollution
- viii) BWBs in collaboration with key stakeholders will conduct research and studies to restore water sources (Rivers and groundwater potential zones).
- ix) Environmental flow assessment (EFA) is based on the fact that the ecosystems are a beneficiary of the flow regime and a user of the river. It is required to quantify the ecosystems requirements, as well as other users' requirements. In WSDP II BWBs we will have to conduct EFA.
- x) Assessment of Rivers Health was done in major rivers during IWRMD plans preparation in the Basins of Nyasa, Tangnyika, Ruvuma, Pangani and Wami-Ruvu. During WSDP II, BWBs will continue with the implementation of this activity as recommended in their IWRM Plans and to the undone Basins of IDB, Rukwa, Rufiji and Victoria.
- xi) Water bodies' classifications and development their associated protection rules will be done in WSDP II to protect water quality, ecosystems, and other special characteristics of the water sources. The rules will be used to regulate activities, such as hindrance of anthropogenic activities and development that may impact surface water quality. The standards in each classification will be developed that are used to determine if the designated uses will be protected.

4.1.4 Climate Change Adaptation and Mitigation Measure

IWRMD plans recommendations on climate change together will be implemented together with the prepared water sector strategic interventions and action plan for implementing the National Climate Change Strategy in all basins in collaboration with stakeholders. The interventions will include the following:

- i) Create awareness and build capacity to Water Resources Management Institutions on climate change vulnerability assessment and adaptation;
- ii) Monitoring the impact of climate change on groundwater (decline of groundwater levels due to prolonged drought, sea water intrusion due to sea water level rise, etc);
- iii) Construction of strategic dams for water security and floods control: Three (3) medium to large dams (Farkwa, Ndembera and Kidunda) whose studies are ongoing will be constructed as multipurpose water storage infrastructures.

- iv) Rehabilitation of existing dams: Five (5) dams in Internal Drainage Basin and 10 medium dams identified in other basins will be rehabilitated.
- v) Demarcate and map flood prone areas to minimize flood risk;
- vi) To promote rainwater harvesting and conjunctive use of surface and groundwater as additional source of water for Rural and urban water supply as well as for economic uses in areas found with groundwater potential. Drilling of exploratory boreholes and installation of pumps in successful boreholes for augmentation of dry season irrigation in Rufiji Basin (9 BHs) and Internal Drainage Basin (9 BHs) will be done.

In WSDP II, water resources management at national level will focus on: strengthening water resources management institutions; enhance National level capacity building; enhance cross-sectoral coordination and collaboration; facilitate establishment of centre of excellence; resources mobilization to support implementation of projects and programmes; management of trans boundary water resources; raising water resources management profile, coordination of the implementation of IWRMD plans, climate change strategic interventions and water sources protection and conservation program .

4.1.5 Strengthening water resources management institutions:

- i) The achievements of WSDP phase II objectives will depend on the active role of WRM institutions at all levels. In order for the NWB and BWBs to function effectively to address the multi-sectoral water resources management and development challenges the following are planned interventions:
- ii) To Capacitate the NWB to perform its roles and responsibilities as per WRMA No. 11 of 2009. The NWB will be upraised on IWRMD plans and their recommendations for approval and implementation follow up.
- iii) To allocate resources to enable the NWB carry out its mandated roles, including facilitation of its quarterly meetings as per regulations
- iv) To enhance awareness and management capacity in government institutions, stakeholders and user groups and mediation of conflicts
- v) Establishment of cross-sectoral coordination mechanisms and formal involvement of stakeholder group such as the initiatives under the 2030 WR Group, Inter-ministerial High level forums and building of water stewardship partnerships;
- vi) To continue with decentralization and delegation of decision making at the River Basin , LGAs and community levels;
- vii) *Establishing WRMIS:* The envisaged WRMIS will be a basin-tailored River Basin Management Model (RBMM), a river basin simulation model to be used for planning, management and decision-making;
- viii) Implementation of Performance Assessment Framework at DWR

4.1.6 Enhance National level capacity building

The national level capacity building interventions will include:

- i) Recruitment of skilled manpower to fill the gaps in all essential fields;
- ii) Review and implement the CD-Plans
- iii) Training of existing staff on IWRM for the national and basin staff, and all other water related institutions;
- iv) Provision of essential and specialised equipment, including vehicles and computing equipment;
- v) Facilitate current meter calibration so as to obtain reliable flow data

- vi) Infrastructure development,(Office accommodation and furniture);
- vii) Development of remaining regulations, strategic operational tools such as technical standards, guidelines and manuals, National Water Register, hydrological year book and a national water atlas;

4.1.7 Development and Implementation of National Communication and Awareness Strategy

Envisaged interventions include:

- i) Developing a National Communication and Awareness Strategy for water resources;
- ii) Training and capacity building needs for water resources management staff to develop and implement the strategy;
- iii) Implementation of the strategy including seminars, workshops, training and study tours;
- iv) Provision of specialized equipment and software;
- v) Dissemination of information material on water resources management to stakeholders

4.1.8 Strengthen Training Institutions for IWRM

The MoW will collaborate with the water sector training institutions to:

- i) Strengthen and improve curricula and equipment to meet sector needs;
- ii) Support the establishment of required laboratory facilities and teaching staff requirements;
- iii) Identify and work with internationally recognised institutions Promote a national award for best performing students in IWRM, and for innovations in water resources discipline.

4.1.9 Disaster Management; Flood and Drought Management

Flood and drought management interventions will include:

- i) Preparation and agreements on disaster response organisational structures;
- ii) Preparation, financing and implementation of disaster advance warning systems;
- iii) Development of disaster contingency plans and procedures and training of personnel in their use;
- iv) Development of dam-safety measures to mitigate the impacts of floods and droughts; and
- v) The identification and conducting of studies on climate change responses.

4.1.10 Establishment of Water Resources Research Centre

Water resources management and development in the country have been facing several challenges that require specialized researches due to its multi-facial importance to economic, social and environmental sustainability. Ongoing development studies such as the IWRM&D Plans for the water basins have faced challenges among others the absence of researched information of the respective watersheds. Major challenges encountered in WRM in the country include climate change impacts on water resources (mainly rainfall variations), siltation in water infrastructures and water bodies, unsuccessful boreholes drilling due to absence of appropriate geophysical support information, lack of suitable tools for assessing and predicting water status and the land use changes, and linkages of multi-sectoral plans on water resources and environmental management. Mechanisms for addressing solutions to these distinctive challenges require specialized and dedicated team of trained personnel who also work at a focused centre with optimum concentration.

Establishment of Water Resources Research Centre will enable the water resources sub sector and the water sector in general to have a centre of excellence that focuses its research activities at emerging technologies and issues that by nature require studies/research in order to fully grasp their implications and therefore inform the practical water management activities in the country. Also research and development specific studies are required to arrive at a better understanding of WRM issues so that appropriate interventions can be designed. Specific research activities are also required to forecast trends in water resources availability, groundwater resources potential, and recharge mechanisms in the basins, water use against socio-economic and environmental processes. The planned main research areas and interventions are:

- i) Climate change issues and their impacts on water resources;
- ii) Land use change and its impacts on water sources and resources;
- iii) Erosion and Sediment transport and their impacts on water resources infrastructure;
- iv) Surface water and groundwater availability and sustainability in different basins;
- v) Advanced analysis of different water resources data in order to facilitate informed decisions to different stakeholders;
- vi) Collaborate with other institutions to address water security issues;
- vii) IWRM promotion including Water Resources Database and MIS in the Country and establishing a Geo-Database Model for rivers and Watersheds; and
- viii) Gather global water resources data from different sources. This include open sources data available and data sets that needs purchase in order to compliment the data available in the country and jointly use the two data sets in research activities that aim to further the knowledge of water resources in the country.
- ix) Research and publish information to promote investments in the basins

4.1.11 Cross-Sector Coordination and collaboration

Water resources management is a multi-sectoral activity that requires an effective collaboration and coordination mechanism among stakeholders at all levels. In WSDP Phase II coordination and collaboration will be enhanced as follows:

- i) **Coordination within the Component:** Improve communication within the components and implementing agencies (such as BWBs) by establishing a communication desk at the national level.
- ii) **Coordination with other components:** Internal communications and collaboration will be enhanced through timely sharing of information and exchange of expertise.
- iii) **Coordination with other sectors and stakeholders:** Improve communication through timely sharing of information and exchange of data and expertise.

The collaboration mechanism initiated through the 2030 WRG cooperation, will be enhanced through high-level inter-ministerial fora, and other stakeholder fora involving the private sector, government institutions and NGOs for sustainable multi-sectoral coordination and collaboration. The initiated climate change dialogue forum for stakeholders, which serves as a platform for coordination and exchange of experience will be enhanced.

Basins will be facilitated to establish stakeholders' forums to share data and information on WRM. The BWBs will be encouraged to participate in RCC (Regional Coordination Committee) and DCC (District Coordination Committee) meetings.

Strengthening TWGs by co-opting members from other components (comp. 2-5) and *vice versa*; and add new members from key stakeholders (PMO RALG, Energy, minerals, forest, lands, environment, fisheries, tourism, livestock)

Trans-boundary cooperation and collaboration

- i) Continue with dialogue on establishment of data, information, knowledge and expertise exchange platforms at regional and international levels.
- ii) Participate in the implementation of regional and international projects and programmes.
- iii) Strengthen coordination of trans boundary water resources management issues at National level.

4.1.12 Development of Regulations, Procedures and Guidelines

- i) Studies needed to provide data and information for the formulation of remaining regulations will be carried out and regulations will be prepared;
- ii) Continue with preparation of guidelines, procedures and criteria as per WRMA
- iii) Continue with the dissemination and awareness creation on water resource management and development regulations, guidelines, procedures and criteria

4.1.13 Monitoring and enforcement of Dam Safety Management:

Initiatives for dam safety management will be undertaken to avoid future risks associated with dams. The proposed interventions include

- i) Coordinate and monitor enforcement of dam safety regulations and guidelines developed during phase I;
- ii) Monitoring of ongoing dams construction and review dam designs;
- iii) Continue with dissemination of dam safety regulations and guidelines to stakeholders
- iv) Development of design manuals for small dams.
- v) Continue with inventory of dams in all basin water boards and updating the dam database.
- vi) Capacitate Basin Water Boards on dam safety issues to enable them carry out Dams inspection in their Basins.
- vii) Conduct quick economic assessment of the existing large dams to ensure dam safety and advice on remedial or intervention measures.
- viii) Conduct researches on dam failure assessment and maintenance for sustainable dam construction
- ix) Procure and install dam monitoring instrument in large dams (Nyumba ya Mungu, Mtera, Kihansi).
- x) Coordinate bathymetric surveys in all strategic dams.

4.1.14 Trans-boundary Water Resource Management

The interventions on trans boundary waters during Phase II will be:

- i) To prepare needs assessment and strategy for utilization of transboundary water resources at national level as stipulated under Article 98 – 100 of Water Resources Management Act, No. 11 of 2009;
- ii) Establish joint management mechanisms for each shared water body to deal with integrated water resources management including promotion of joint inter-state catchment management and protection;
- iii) Implement IWRMD plans as identified for each BWB and promote regional cooperation and integration with riparian states;

- iv) Prepare and implement training to relevant basin and Ministry staff, and provide support to MoW towards maintaining international agreements; monitoring trans boundary water resources; negotiations and conflict management between users of trans boundary waters;
- v) In collaboration with riparian countries collect data, information and carry out research on trans boundary waters to promote technical collaboration; and
- vi) Establish a register of all international and regional agreements concerning the utilization and management of trans boundary waters to which Tanzania is a party

4.1.15 New Priorities from IWRMD plans

As a requirement of the WRMA 2009, all basin water boards are in a process of preparing Integrated Water Resources Management and Development (IWRMD) Plans. The IWRMD plans are multi-sectoral plans which provide the roadmap for rationally managing and developing River and Lake Basin's water resources for multi-sectoral needs, in medium to long term while maintaining the ecosystem integrity. The implementation of IWRMD will be financed from BWBs resources, Government coffers, Development Partners as well as developers for water supply, hydropower, irrigation, flood control or multipurpose investment programs. Interventions contained in the IWRMD Plans include appraising the plans to stakeholders as awareness creation on the rationale and benefits of the same. Other immediate interventions are:

- i) **Carry out studies for new dam sites:** Water security for the ever-rising water demand for social and economic development will be considered for under WSDP Phase II. The interventions will entail carrying out feasibility studies, detail designs and ESIA for new potential dam sites in all basin water boards according to the recommendations of IWRMD plans, and will be implemented in phases or as funds becomes available. The intervention aims at having studies that will be ready for implementation when funds are made available.
- ii) Improve mechanisms for water allocation based on the proposals from the plans given the sectoral needs and maintenance of ecosystem integrity.
- iii) Carry out SESA for all BWB plans
- iv) Active involvement of LGAs as key stakeholders in implementation of the plans
- v) Review BWB CD plans based on the recommendations and proposal given in the IWRMD Plans.
- vi) Given the growing water use demand for major water using sectors (Kilimo Kwanza, BRN initiatives, SAGCOT, Power Master Plan, etc) , the BWB will be required to verify if these ambitious programs are in line with the respective IWRMD Plans and be proactive in advising the proponents of the same accordingly.

Priority activities proposed by IWRMD Plans include;

- i) Institutional and personnel capacity development
- ii) Water resources management policies, strategies and laws reviews, and/or amendment
- iii) Proposed Multipurpose dams - to overcome natural variability by supply-side infrastructure to assure reliable supply and reduced risks
- iv) Demand management measures such as water use efficiency, water recycling and use of best available technologies
- v) Water sources conservation and pollution control measures
- vi) Data and information collection, analysis and management

- vii) Regular hydrometric equipment operations, checks and maintenance
- viii) Climate change mitigation and adaptation measures
- ix) Environmental flows and other measures implementation
- x) Groundwater protection and recharge areas conservation
- xi) Floods and droughts management
- xii) Water resources pricing and tariffs review
- xiii) Monitoring and evaluation of the progress of IWRMD Plans implementation and their reviews

4.1.16 Sustainability of IWRMD Plans

The IWRMD Plans appraisal and awareness creation will facilitate mainstreaming water issues in the various political and socio-economic levels of the country. The plans are based on multi sectoral plans and stakeholder's involvement, therefore groundwork and conducive environment for implementation of the same has already been laid down. The Financing Options for Water Resources Management Study which is planned to be conducted in WSDP II is expected to propose additional means of financing the implementation of water resources management activities including the IWRMD plans. The WRMA, 2009 requires that IWRMD Plans be reviewed every five years to ensure their relevancy, acceptability and sustainability.

The following are performance indicators to ensure sustainability:

i) Enabling environment:

- Revision and amendment of policies, laws, standards, regulations
- Institutional capacity building of implementing agencies such as LGAs, RS, DC, BWBs and NWB to ensure they administer according to IWRMD Plans.
- The agenda of water resources management and development is mainstreamed into national development policies, strategies and plans
- Allocation of appropriate and sustainable funding of water resources management and development in national budgets

ii) Management instruments:

- Monitoring and research programs to document progress, impacts and causes of major water resources issues;
- Transparent, coherent and consensus-based planning and strategy making involving all key water using sectors;
- Water conflicts across the sectors are mediated through participation of appropriate stakeholder groups
- Improvements in data and information management;
- Change in mind set in demand management of users' behavior, promote water use efficiency, equitable water allocations and use;
- Economic instruments (appropriate pricing and tariffs) and enforcement frameworks are in place;

4.1.17 Sustainability of Water Resources

The sustainability of water resources management will be enhanced through awareness creation to stakeholders at all levels, for them to be involved in water resources management, LGAs are important stakeholders in WRM, hence will be sensitized to be involved in WRM. Amongst interventions for sustainability of WRM include:

- i) Awareness creation on the developed IWRMD plans- a holistic basin approach for integrating multi-sector and multi-objective planning and management, to ensure sustainability and protection of water resources.
- ii) Collection and publication of information and data on water status
- iii) Mechanism for operation and maintenance of Monitoring networks and water resources equipment.
- iv) Construction of water reservoirs to facilitate improved allocation of water especially for large water users.
- v) Capacity building and awareness creation to the NWB members and BWBs members to enable them perform their functions effectively and efficiently.
- vi) The nature of Basins activities and their core functions cannot be run commercially. BWBs need to be supported through government budget , projects or other interventions
- vii) Establishment and strengthening of the WUAs, Catchment and sub-catchment committee and forums so that they can perform their functions as per the WRMA 2009.
- viii) The enforcement of the WRMA and its regulations to ensure that Water resources are utilized within sustainable limits (safe yields of surface and groundwater and assimilative capacities for discharge of pollutants) to minimize the effects of externalities of investment decisions on water quantity and quality, to ensure the protection of the water resource, and to better incorporate environmental issues such as environmental flows and habitat protection into management decisions.
- ix) Continue issuing of water use and discharge permits (and other water permits): the income from water permits (including water use and pollution discharge permits) will be retained within the basins and used to support costs of managing the basins' water resources sustainably. The BWBs will from time to time review the water user tariffs to reflect real time needs for water resources management in the basins according to established criteria (which will also be reviewed from time to time).

4.1.18 Performance Assessment Framework

Performance of DWR and BWBs will be monitored by effectively implementing robust Performance assessment Framework (PAF). The PAF developed in Phase 1 to assess performance of the Basin Water Boards was not user friendly and it was not familiar to the basin staff. The on-going process to review the framework for BWBs and establishing the new one for DWR will be accomplished in WSDP Phase II. The reviewed framework will be tested in two basins of Lake Rukwa and Lake Nyasa and later replicated to other basins. Training of Trainers at national level will be conducted for a few staff who will afterwards train the basin staff. The BWBs will use the framework to carryout self-assessment and submit the results to the Ministry for comparison with assessment done by the Ministry. The DWR will use the established framework to carryout self-assessment. A mechanism will be developed to reward good performers and punish non-performers.

4.1.19 Contract Management

Contract management has increasingly become a challenge in getting the various contracts completed on time. During the implementation of WSDP II; Component I will need strong assistance from contract management team of the MoW. A team of experts from Component I and other relevant components will be established to provide assistance on the process of contract management.

4.2 Water Quality Management

In WSDP phase II water quality management will consider two intervention areas namely (i) implementation of water quality management for compliance and (ii) management support

and capacity development to support managerial systems of water quality management. The objectives of the sub-component are to safeguard and enhance public health; conserve ecosystems to improve ambient water conditions as the basis for informed management throughout the decision making process; to build capacity to water quality laboratories and to enhance institutional collaboration for sustainability of water quality management. The intervention areas will have different strategic interventions as detailed hereunder.

4.2.1 Water Quality Management and Pollution Control Strategy

The strategic interventions will include the following:

4.2.1.1 Water quality management measures to safeguard public health

A number of technology options are employed for supply of clean and safe water to communities, which include shallow wells, deep boreholes, springs, gravity flow schemes, valley dams and rainwater harvesting for drinking water. These comprised both piped untreated and/or treated and direct point source water supplies. It is recommended that pollution preventive measures, and sanitation are given first priority in maintenance of community water supplies. The major contaminants of water include microbiological indicators represented by fecal coliforms, and toxic elements notably mercury, cyanide, arsenic, fluoride and nitrates. Therefore, surveillance and water quality monitoring should be carried out to ensure that the water supplied is clean and safe.

The implementation will include monitoring the quality of drinking water in urban water supply networks, small towns, national water supply projects and local government authorities whereby (a) regularly monitoring of water sources/water systems will be undertaken (b) testing water sources before project approval, and after project completion (c) provision of technical support on corrective measures to improve water sources/water systems found not complying with the required standards.

4.2.1.2 Implementation of the Climate Resilient Water Safety Plan

Climate change may adversely affect the water quantity and quality in various water sources and in water supply systems. For example changes in water quality may affect existing treatment methods by increasing costs of treatment. Climate change can undermine the yield of many schemes in both Rural and Urban by affecting the livelihood of communities. In developing and implementing Water Safety Plan (WSP), the effects of climate change will be factored into the risk assessment. The WSP, once implemented, will help to prevent adverse consequences arising due to water quality problems even in the event of the foreseen climate change effects. The implementation will start with (a) preparation of Water Safety Plan guiding document (b) training on the use of the plan (c) piloting/testing of the plan in identified/selected water schemes in Rural, Urban and National Water projects (d) up-scaling of the implementation of water safety plan programmes in the country.

4.2.1.3 Pollution control measures to conserve aquatic ecosystem and improve ambient water conditions

Outstanding natural water resources, endangered species habitats, sole-source aquifers, and other water bodies that are identified for special management and protection should be monitored comprehensively; and if detrimental effects are detected, then more intensive monitoring will be carried out. Waters that have been assessed and determined to meet their designated uses and that are not impaired or threatened should be monitored less intensively on a rotational screening basis to confirm that new problems have not emerged. Temporal frequency, spatial density, suites of parameters or indicators, and other design factors should be tailored to the conditions, uses, and goals for the water that is monitored.

In order to effect water quality monitoring the following activities will be undertaken (a) monitor water quality in strategic and potential water sources of public interest for management and development (b) ascertain performance of wastewater treatment facilities and advice accordingly

4.2.1.4 Implementation of Defluoridation Strategy

Most water sources in Tanzania (especially in northern and central regions) have fluoride concentrations far above WHO and Tanzania guidelines of 1.5 mg/L and 4 mg/L respectively. In order to address this problem, the Government of Tanzania through the Ministry responsible for Water established a defluoridation research station at Ngurdoto-Arusha known as Ngurdoto Defluoridation Research Station (NDRS) which was mandated with a task of coming up with an appropriate solution for water supplies in high fluoride regions. A number of technologies have been tested, and currently the cow bone char method is considered to be the best. In addition, defluoridation units for both household and community levels have been developed, tested and found to be cost-effective.

A Strategy for scaling up and piloting the findings from NDRS has been developed. Implementation of the Strategy will be carried out through (a) assessing the extent of fluoride contaminated water sources and produce GIS maps indicating the status of fluoride levels in water sources in the fluoride belt area. This will take into account available information and generation of compressive fluoride database (b) conduct survey to know the actual number of exposed population, (c) advocating fluoride issues among stakeholders through holding meetings and organizing education sessions, (d) dissemination of bone char defluoridation technology and (e) training on operational and maintenance of defluoridation units and/or plants.

4.2.1.5 Research and development to improve water quality management

Research should focus on bridging the gap in areas where other relevant information required in decision-making may not be available. It is important to ensure that this information is packaged in a way that it meets the needs of decision makers for sustainable implementation of water resource management. The main research objective is to protect human health and the environment by providing methods, approaches, and tools needed to assess, restore and protect aquatic systems, and explore measurable improvements in water quality.

Thus research on water quality management may involve (a) methods validation and/or development of laboratory analysis methods (b) identification of hotspots areas and researched to establish baseline information (c) develop integrated modeling tool(s) for water quality (d) to explore biological responses including measurement of algal biomass or characterization of community health through multiple assemblages (fish, aquatic macro invertebrates, and algae), (e) clarity studies to determine organic and inorganic contributors in specific water bodies of public interests and (g) research on aquifer interface for fresh and sea water along coastal regions.

4.2.1.6 Development of water quality data management framework and information dissemination

Among the challenges to all water laboratories is inadequate tracking mechanism of samples that may affect the quality of the data produced. The development of Laboratory Information Management System (LIMS) is opportunity tool to address the challenge. This will improve and fasten different laboratory activities. On the other side water quality data and information is vital for any planning and decision making in the water sector. However, in the country essential water quality data and information necessary for rational planning is woefully scattered and often not accessible easily. A comprehensive and coordinated central water quality database and availability of water quality map will make viable accessible of water quality data and information and improve decision for planning and development of water projects. Activities to be implemented under this intervention include (a) establishment of Laboratory information management systems (LIMS) for collection, processing, storage and retrieval of laboratory data and results and (b) establishment of comprehensive, interdisciplinary central water quality database whereby existing data will need to

assembled, digitized, analyzed and synthesized into the database (c) development of national water quality map.

4.2.2 Management Support and Capacity Development to Support Managerial Systems of Water Quality Management

This intervention area will include; Rehabilitation of the existing laboratory buildings and construction of water laboratories in regions which do not have; Implement both field and laboratory quality assurance and quality control programs; Implementation of field and laboratory safety management programs; procurement of operational equipment, chemicals and installation ; and coordination and implementation of water quality management interventions for sustainability.

4.2.2.1 Rehabilitation and construction of Laboratory buildings

Rehabilitation of Existing Laboratory buildings and Extend water quality services by construction of water laboratories in regions The aim of the Government is to ensure that water quality monitoring is undertaken systematically so as to identify extent and status of the quality of the water sources so that the problems are detected and remedial actions employed timely. This involves laboratory analysis, which should be conducted in acceptable working environment for the analysts and other staff. . Thus there is a need to improve working environment through rehabilitation of the existing laboratory buildings and be furnished as per requirement of ISO 17025 toward accreditation process. Also there is a need to extend water quality services by construction of water laboratory in regions, which do not have. Thus laboratory buildings will be rehabilitated and well-furnished and extension of water quality services by construction of water laboratory in regions which do not have namely Tabora, Manyara, Geita, Kilimanjaro, Lindi, Njombe and Katavi will be carried out. Activities to be carried out will include (a) rehabilitation and/or construction of laboratories and (b) procurement of laboratory furniture.

4.2.2.2 Implement both field and laboratory quality assurance and quality control programs

Valid data are essential to assess the state of the environment, to track rehabilitation in areas of concern and evaluate progress. The execution of a quality assurance/quality control programs provide information necessary to assess the validity and to substantiate the conclusions drawn from these data. Calibration of instruments, intra- and inter-laboratory quality control programs will be initiated according to ISO 17025 requirements. This is emphasized in order to ensure reliable data collection. The credibility and potential of Laboratories that acquire the international performance certification (accreditation) will be promoted in relation to provision of reliable and accurate data. Thus in phase II the following will be undertaken (a) establishment of quality assurance and quality control programs and (b) continues with the process of accreditation whereby at least five water laboratories will be accredited. The recognition and accreditation of water laboratories will ensure that data obtained are reliable and therefore adding value to quality assurance dimension.

4.2.2.3 Implementation of field and laboratory safety management programs

Field and laboratory safety programmes intend to provide basic information about hazards that may be encountered in both field and laboratory and address safety precautions to prevent field and laboratory accidents and minimize exposure to hazardous chemicals. Thus implementation of field and laboratory will result in effective management of chemical inventory, protection of human health and safety, reduction of the impact of hazardous chemicals on the environment, reduction of hazardous waste disposal costs and enhanced regulatory compliance.

Activities to be implemented here will include (a) development of field and laboratory safety manual and (b) conducting training programmes on laboratory safety compliance as Occupational Safety and Health Administration (OSHA) regulations.

4.2.2.4 Operational equipment, chemicals and installation

Capacity building aims at ensuring that water sector organizations are able to demonstrate timely and quality services. To achieve this working environment and quality of level of services offered to our customers should be improved. The integrity of water quality laboratories network is crucial to the implementation of Water Resources Management Act, 2009 and the Environmental Management Act 2004 for providing the public with clean and safe water and prevention of water quality pollution. To strengthened these laboratories will include procurement and servicing of working tools including standard methods, certified reference materials, consumables, laboratory equipment, chemicals, glassware, vehicles, computers and procurement of analytical mobile water quality laboratories to monitor both water sources and drinking water quality in remote areas particularly in rural areas.

4.2.2.5 Coordination and implementation of Water Quality Management interventions for sustainability

Whenever the water quality management is discussed, the issue of the sustainability should be forecasted. The scope of sustainability of water quality management should include creating an enabling environment with appropriate policy and legal frameworks; institutional development, including community participation, awareness raising and human resources development (including motivation and commitment) and strengthening managerial systems. Sustainability should foster collaboration among institutions, and build both human and social capital. Thus capacity building will define the efficiency mechanisms that are necessary to ensure sustainability of water quality management. The intervention will range from (a) skills development and training (b) institutional collaboration and coordination and forming water quality forum for addressing water quality issues in the country(c) public participation (d) establishment of funding mechanism to raise the profile of water quality management through monitoring and enforcement.

The summary of costs for the interventions is as given in the table 4.1 and the details of activities and cost estimations provided in annex 1

The challenges that face water sector such as climate change, population increase accompanied with the increase in demand for water for various socio and economic uses; calls for huge water supply investments in both rural and urban areas. Such huge investments if they do not match with efforts to implement interventions in water resources management and development can be catastrophic as water stress will be looming phenomena. Therefore, it is thought to increasing water supply services for domestic, industries, irrigation and other socio economic needs; It is needed to also increase investments in water resources management so as to make sure that water resources is available and sustainable.

4.2.3 Financial Requirements for WRM Component

The challenges that face water sector such as climate change, population increase accompanied with the increase in demand for water for various socio and economic uses; calls for huge water supply investments in both rural and urban areas. Such huge investments if they do not match with efforts to implement interventions in water resources management and development can be catastrophic as water stress will be a looming phenomena. Therefore, as we think of increasing water supply services for domestic, industries, irrigation and other socio economic needs; we need also to increase investments in water resources management so as to make sure that water resources is available in a sustainable manner to cater for our needs and the needs of future generations.

The proposed WSDP II the total requirement for all WSDP II proposed WRM interventions to bear the cost estimate of **803,601,000** USD. Table 1 below provides the summary of resource requirements for each priority intervention.

Table 1: WSDP Cost Estimates for WRM Interventions (Cost '000 USD)

Intervention Area	Intervention Package	2014/15	2015/16	2016/17	2017/18	2018/2019	TOTAL
Basin Level Water Resources Institutional Strengthening	Office Accommodation	6,966	16,732	10,532	5,300	3,700	43,230
	Operational Equipment and Installation	200	19,760	2,800	2,800	2,800	28,360
	Formation and Strengthening of WRM Institutions	291	5,555	3,604	3,067	2,629	15,145
	Implement CD plans-Capacity Building	1,689	8,214	3,989	2,084	1,949	17,923
	Sub-Total	9,146	50,260	20,925	13,250	11,078	104,658
WR Assessment, Allocation, Regulation, Conflict Resolution and Demand Management	WR Monitoring, Assessment and Enforcement	2,558	19,632	10,640	10,127	9,951	52,908
	Institute WR Demand Management	468	1,708	1,254	454	454	4,338
	Sub-Total	3,026	21,340	11,894	10,581	10,405	57,246
WR Conservation and Protection	Protection and conservation of water sources and Environment	9,640	772	4,678	3,878	3,108	22,795
	Implementation of climate change adaptation measures as identified in the Water Sector Strategy	173	10,132	5,196	5,196	5,196	25,893
Water Storage and Dam Safety Management	Priority WRM Infrastructure and Monitoring and enforcement of dam safety	3,659	6,810	221,032	113,140	41,192	385,834
Trans-boundary WRM	Implementing agreements on Shared Waters and capacity building	67	67	67	67	67	335
Implementation of IWRM&D Plans	Implement IWRM&D Plans	5,329	49,868	49,254	33,791	31,025	169,268
National Reforms and Investments	Institutional Strengthening and Capacity Building at National Level (DWR)	-	1,413	1,400	1,095	945	4,854
	Enhance Communication and collaboration with stakeholders	30	130	200	200	100	660
	Improve availability and access to data on WR Complex areas	1,970	3,840	3,445	3,240	3,292	15,788
	Address WRM Cross-cutting issues.	100	150	140	140	130	660
	Improve Cross-Sectoral Coordination in WRM	100	150	130	125	110	615
	Guide BWBs in implementation of WSDP, Performance Assessment Framework and other related sectors in WRM	10	181	100	100	150	541
	Sub-Total	21,078	73,513	285,642	160,973	86,035	627,241
	GRAND TOTAL WR SUB-COMPONENT	33,250	145,113	318,461	184,803	107,518	789,145
Implement Water Quality Management for Compliance	Implement water quality management and pollution control in the area of safeguarding public health	93	90	90	90	90	453
	Implementation of climate resilient Water Safety Plan	53	88	88	88	35	350

	Implement water quality management and Pollution control in the area of conserving and enhancing aquatic ecosystems to improve ambient water conditions	250	128	134	128	140	780
	Implement defluoridation strategy in fluoride belts	561	175	134	2	20	892
	Conduct Research and Development to improve water quality management activities	28	179	62	43	22	334
	Develop water quality data management framework and information dissemination	234	505	36	97	97	969
	Sub Total	1,219	1,165	544	448	404	3,780
Support to Water Quality Management	Laboratory buildings and furniture	1,918	802	524	0	0	3,244
	Implement Laboratory Quality assurance and Quality control Programmes	538	174	460	174	286	1,632
	Institute field and Laboratory Safety Programmes	304	0	91	0	0	395
	Operational Equipment, Chemicals and Installation	704	657	265	467	611	2,704
	Coordination and implementation of water quality management interventions for sustainability	605	446	612	612	429	2,704
	Sub-Total	4,069	2,079	1,952	1,253	1,326	10,679
	GRAND TOTAL WQM SUB-COMPONENT	5,288	3,244	2,496	1,701	1,730	14,456
	GRAND TOTAL COMPONENT 1	38,538	148,357	320,957	186,504	109,248	803,601

4.3 Component 2: Rural Water Supply and Sanitation

The planned activities for implementation of Rural Water Supply projects is aiming to score the WSDP II target of reaching 80% of rural population with clean and safe water by 2019. With lesson learned from the WSDP I, the prioritization and identification of required interventions are classified in five category as:-

Infrastructure Investments:

- i) New construction
- ii) Rehabilitation
- iii) Extension and

Sustainability:

- iv) Operation and Maintenance
- v) Institutional Capacity building

4.3.1 Infrastructure Investments

(a) New Construction

Component two will continue to implement projects under the new construction intervention, which will concentrate on those rural areas, which have not been reached by water service. In this intervention the expected outputs include construction of water schemes in 2,052 villages, which will install 38,549 water points that will serve 9,644,750 additional people. The intervention is planned to end in 2019 and will cost **USD 289.2 million**.

(b) Rehabilitation of Water Projects

As most of the projects implemented during the WSDP Phase I are functioning, rehabilitation of the nonfunctional projects in different areas. The intervention is planned to rehabilitate water projects in 1107 villages by restoring 19,889 water points, which will serve 4,972,250 people. The total cost for this intervention is **USD 131.63 million**.

(c) Extension of the Existing Projects

Considering that WSDP Phase I have managed to construct different water projects, which also can be expanded to serve more people in the nearby areas, the intervention is also important to be implemented in WSDP II. There have been some projects requiring fund for extension like that of 100 nearby villages from Kahama-Shinyanga distribution main. This intervention is expected to bring service to 946 more villages with a total of 17,852 water points, which will serve 4,463,000 beneficiaries. The total amount of funds required is **USD 128.07 million**.

4.3.2 Capacity Strengthening

This component provides support to local governments under the Rural WSS sub-projects, which aims at strengthening the capacity of RSs and LGAs in the implementation of their WSS Plans, and improving WSS services to the rural population.

This sub component will comprise of the following activities:

(a) Provision of working tools

The working tools have to be provided to the implementing agencies as follows:

Table 2: RWSS Working Tools Requirements

Institution/No	Desk top Computer	Printer	Scanners	Vehicles	M/Cycle
MoW	-	-	-	-	-
MoHSW	-	-	-	-	-
PMORALG	1	1	1	-	-
MoEVT	-	-	-	-	-
RSs	4	4	4	4	-
LGAs	20	20	20	20	20
Grand Total	25	25	25	24	20

(b) Rehabilitation and construction of offices:

It is planned to construct **37** new offices in the new established **40** LGAs and rehabilitation of 40 offices at 40 LGAs.

(c) Hire new engineers, technicians and transfer technicians from BWOs to LGAs:

There is still a big capacity gap in the LGAs. The KPIs for recruitment and transfer of staff includes engaging 336 engineers for LGAs, 3,338 technicians for deployment up to each ward in mainland Tanzania and 50 engineers for RSs. The engineers will be engaged on contract basis and will be dispatched to LGAs and RSs offices, 68 technicians will be transferred from within the implementing agencies. The engineers who will be engaged with contracts will later be employed on permanent and pensionable basis by their respective LGAs and RSs.

(d) Training of MoW (DRWS), PMORALG, RWST, CWSTs/Communities

Organize training and awareness to build common understanding of WSDP principles; approach and rules for effectively participate in implementation of WSDP. The interventions and KPIs for training include:

- i) **Hands on training:** This is essentially for technicians and engineers, for attaining required practical knowledge for implementation of rural water supply and sanitation project cycle, which will be conducted at list once a year at their working station by using mobile caravan. Also, this exercise will involve 168 Centers of Excellency staff, 1,500 COWSOs and 3,500 local artisans yearly. The training will also include already established COWSOs in respective LGAs **Training on procurement and Contract management for officials at all levels:** This will also be done twice annual to officials at both levels to 252 staff from implementing agencies.

The total investment cost for Capacity Strengthening of RWSS Institutions is **USD5.6 million**

4.3.3 Sustainability of Rural Water Supply and Sanitation

The prevailing situation of declining access to clean and safe water in rural areas is a major challenge facing sustainability of rural water supply service. Nationwide, it is estimated that about 37,000 water points built over the last 20 years, out of which more than 40% are not functioning. The non-functioning water points are sufficient to serve about more than 5.3 million people in the rural areas. The reasons behind are:

- i) Lack of O & M programs in the designs of rural water supply and sanitation projects;
- ii) Choice of technology with respect to affordable and sustainable water source.
- iii) Lack of sustainable supply chains for spare parts;
- iv) Inappropriate institutional set up regarding O&M;
- v) Inadequate technical oversight and support;
- vi) Poor management of funds at community level;

For sustainability of rural water supply and sanitation projects and services, the following interventions will be prioritized during the implementation of WSDP II:

(a) Operation and Maintenance

Operation and Maintenance

In WSDP phase II operation and maintenance will be considered as one of major activities towards sustainability of water supply and sanitation services in rural area. This intervention includes data collection, support operation of complicated and sophisticated projects, taking care of major expansion and major breakdowns which are beyond the capacity of COWSOs, facilitate supply chain and provision of technical support in rural areas.

(b) Management options: Autonomy and Private Operators

Other methods of operating the rural water supply schemes is by using autonomous entities – Water User Groups, Water User Associations and (especially) Private operators. In some area they were found to be more successful at achieving sustainability. In particular, autonomy helped ensure that funds are available when needed for repairs by improving

revenue collection and reducing mismanagement. The potential of private operators comes with a risk of excessive profiteering. But putting in place a good contract, substantial bond and regulatory support from district levels will reduce this risk. Therefore is important Encourage private operators of rural water supply schemes, in order to create stronger incentives for sustainability. State the advantages and disadvantages of private operators during facilitation and take account of the interests of private operators during design. Also, it important to develop standard contracts for private operators with terms that prevent excessive profiteering and that encourages good management.

(b) Management options: Autonomy and Private Operators

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(c) Establishment of Rural water supply facilities supply chain

Due to the increasing number of communities preferring piped schemes call for establishment of supply chain for water supply equipment, pipes, materials, tools and spare parts covering all technologies. Due to the above shortcomings, it has been decided to assess the current existing capacity, commitment and concept of private sector based on supply chain that is required for establishment of an effective and sustainable strong supply chain for water supply and explores other options such as Public Private Partnership (PPP) supply chain. Also, this will Integrate the existence of Maji Central Store which is a government entity dealing with selling of water supply facilities including spare parts in the water sector service for supply chain of spare parts for water schemes. More over the BRN initiative introduce an establishment of center of excellence for fast moving spare parts and technical assistance that will be available within 24 hours after breakdown at the LGAs level.

(d) Establishment of rural water management models

Having Registrars in place, COWSOs establishment and registration should be streamlined and regularly monitored by village government and LGAs. The LGAs have an important role to play in providing technical support and help reduce the risk of mismanagement, in particular in accessing spare parts and to support for complex maintenance works. For day-to-day operation and maintenance of individual projects has to rest with the COWSOs.

As per BRN initiative the LGAs shall establish an effective mechanism to ensure COWSOs adhere to the public financial regulations including banking of money collected and produce the financial report that should be clearly known to all community members in transparent manner. This should be put on open notice board so that every villager will be informed on collection, expenditure and balances weekly. Report on financial matters to community should be provided on monthly basis. At Ward level there will be a technician as a technical supervisor of the community water supplies to backstop daily operation and maintenance activities of the water supply facilities to all COWSOs established in that Ward. At the areas

where complicated and sophisticated infrastructure or plants are installed, qualified scheme operators should be employed by the respective LGAs.

(e) Improve community participation in planning processes

Facilitators of new projects need to strike a careful balance between participation and decisions that support sustainability. This is a difficult skill that should not be sidelined in the rush to spend new money. Simple handouts with simple information on technological and management options as well as pricing guidelines can help, as can exchange visits to nearby schemes. A priority from now onwards should be to bring to an end the current piecemeal approach to rural water supply and make a strategic shift towards district-wide planning and action that considers how best the funds available can be used to benefit the district as a whole, considering the need not only for new investments but also for rehabilitation and for viable operation and maintenance arrangements

(f) Monitoring and Regulation

Monitoring and regulation will be strengthened through the following interventions:

- i) Make use of established supervision and project commissioning checklist as a simplified mechanism for project implementation regulation and for obtaining project operation database.
- ii) Update Water point Mapping (WPM) data for closer ongoing monitoring of sustainability.
- iii) Make use of comprehensive established monitoring checklist to collect data at COWSO level on a regular basis, including financial performance data.
- iv) Develop a standard Memorandum of Understanding (MoU) between LGAs and each COWSO, outlining regulatory mechanisms.

The summary of interventions and financial resource requirements for Implementation of Rural Water Supply Interventions are summarized in Table 3 below:

Table 3: Summary of RWS Interventions and Cost Estimates

Intervention Area	Category	Villages	Population	Water Points	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	Total	Total USD
					USD (millions)						
New Construction	BRN	537	2,416,750	9,667	23.95	15.9	18.705	9.74	10.93	79.225	308.847
	Others	1,517	7,228,000	28,912	41.180	41.1304	38.6604	37.1604	36.8804	229.622	
Rehabilitation	BRN	1022	4,480,000	17,920	31.67	27.3	34.416	17.98	15.4	126.766	140.475
	Others	92	492,250	1,969	1.61	2.09	5.269	2.77	1.97	13.709	
Extension	BRN	890	3,982,750	15,931	30.67	25.12	27.571	18.9	15.51	117.771	136.861
	Others	96	480,250	1,921	7.7	2.75	4.58	1.91	2.15	19.090	
O&M	BRN	2803	11,993,000	47,972	25.26	42.4	76.833	69	83.58	297.073	297.073
TOTAL					162.04	156.69	206.04	160.23	166.42	883.256	883.256
Capacity Building Cost Estimates					1	0.1	0.1	0.2	0.1	1.5	1.5
GRAND TOTAL					163.04	156.79	206.14	160.43	166.52	884.756	884.756

Table 4 : Number of Villages, Water Points and New Beneficiary Population

Intervention Area	Category	Number of villages to be covered					Number of water points to be constructed					Population to be covered				
		2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
New Construction	BRN	167	119	89	79	81	3,135	2080	1569	1400	1431	783,726	520,133	392,334	353,180	357,733
	Others	315	313	304	297	288	6,069	6,063	5,704	5,543	5,254	1,517,186	1,515,721	1,434,638	1,385,708	1,376,366
Rehabilitation	BRN	294	232	194	157	133	4,724	4,130	3,330	2715	2,322	1,102,720	1,032,492	837,714	678,680	581,581
	Others	14	18	27	21	17	243	315	412	418	297	60,757	78,754	102,955	104,391	74,238
Extension	BRN	233	183	161	146	127	4,341	3,547	2801	2,651	2226	1,085,339	886,837	708,658	662,731	560,260
	Others	41	14	11	15	15	952	385	215	267	301	238,090	96,360	53,638	66,783	75,349
O&M	BRN	2816	4624	6,235	7,603	8901	48,056	80,158	110,897	135,262	159,276	12,101,281	20,349,670	27,975,502	34,171,530	402,62,239

4.4 Component 3: Urban Water Supply and Sewerage

Project Implementation

In pursuit to meeting the planned WSDP II targets, Regional WSSAs, DAWASA, National Project, District and Small Town WSSAs will continue with implementation of planned activities, which some spilled over from WSDP I. For New projects priority will be given to benefit the needy (low coverage). Investment requirements differ from one WSSA to another due to geographical and demographic size. Requirements include rehabilitation, upgrading and extension of existing water supply systems including source development, treatment plants and storage facilities. The use of water kiosks in urban areas will continue as a transition means of improving water supply services coverage in low-income areas. This option will be used in Small Towns and transitional areas in regional and district towns.

Procurement and Contract management

Under WSDP II a better scrutinizing of technical design and feasibility studies is to be employed before starting implementation. Development of feasibility and design studies should take into account funding availability, as they are often outdated before actual implementation can start.

To avoid delays, reporting from MoW needs to be better prepared in order to receive no-objection. The routing slip and checklist on the handing in of invoices will be prepared used mandatory in all projects. Milestones should be included in all contracts to avoid delays in implementation and facilitate communication with contractors. More capacity development in contract management and supervision of consultants and implementation of works will be provided.

Selection criteria for choosing a contractor and measuring qualifications of consultants will be defined and adhered to during the planning phase.

On improving contract management the component will improve verification of BoQ and estimates by consultants. The use of "electronic" BoQ (locked Excel sheet), which prevent hidden changes of BoQ items and quantities (often only discovered after contract signing variations to be used.

Pre-conditions for project implementation:

- i) A utility should have a **current business plan** accepted by the regulator to outline utility operations and development and, a budget reflecting the outlined plan accordingly,
- ii) Utility should have a **valid license**, which provides a legal approval for service provision
- iii) Utility should have updated **Majls entries** to enable a proper monitoring of implementation progress.
- iv) All regional utilities need to have complete **network mapping**.
- v) All utilities need to include a **sanitation component** for the town. This should also include a MoU with the Local Government Authority, outlining the responsibilities of the different entities.
- vi) All regional utilities need to conduct an **Energy Audit** to identify their potential to safe energy utilization.
- vii) All utilities should consider existence of Boards to ensure proper system management.
- viii) **Incremental costs** for the support to smaller utilities by regional utilities should be included in the project costs.

Management of Non Revenue Water

The issue of NRW is to be taken care from projects preparation in all levels of interventions for improving water supply systems in urban areas. Increasing Non-revenue water in most urban areas endangers the sustainability of new projects. Thus, in order to allow the effective implementation of new projects all utilities should develop a water balance and a corresponding **NRW strategy** to indicate how they want to combat NRW within their service area.

Works contracts, for rehabilitation or expansion of water supply systems in towns will ensure that the older network can be safely connected to new pipelines and higher pressures and longer service hours to avoid increase in NRW. The Use of bulk and domestic meters will also be enhanced, as a means of implementing the new strategy and water balance control.

Management of Wastewater

Each urban water supply project will have a sanitation component which will include simple technology of waste water management and plan for provision of at a least a transport system (e.g. septic tank emptier) and treatment facilities (e.g. sludge digester) for sludge management if not yet in place. Towns with existing sewerage networks, expansion of systems will be implemented as per design done during phase One of the WSDP. The Ministry will develop strategic framework and guideline for sanitation/sewerage provision and management in the urban centers. Hygiene education and sanitation promotion are to be included as an integral part of the project.

Clustering

Regional Utilities will further be encouraged to play an increasing role in providing technical, managerial advice and support to the smaller utilities in their region, especially district and small town utilities, which struggle to implement, operate and manage new/existing projects, create the necessary revenue for sustainable operations and attract the needed qualified staff and retain them for a longer period. Emphasis is put on the following key interventions:

- i) Further promotion of clustering concept including incentives for bigger utilities to support smaller WSSAs;

- ii) Apart from fostering “natural clusters”, the regulator should give a report on utilities, which will need to be clustered due to missing boards, inadequate management and/or economies of scale;
- iii) A regular and temporary exchange of staff from regional to smaller utilities should be planned to improve capacities, and ensure sustainable skills and knowledge exchange and sharing; and
- iv) MoW will continue to facilitate phase II study of the clustering model for effective implementation of the Clustering concept.

4.4.1 Water Supply and Sanitation Improvements in Dar es Salaam

In pursuit to attain the objectives, KPIs and targets outlined under section 3.2.3 of this document; DAWASA will continue with implementation of special program of improving water supply and sanitation services in Dar es Salaam, Bagamoyo and Kibaha, including expanding its sewerage system. Amongst priority interventions will include rehabilitation and extension of the water distribution network after completion of the major projects such as the Kimbiji and Mpera deep boreholes; laying of transmission main from upper Ruvu and lower Ruvu to major reservoirs in various locations; and rehabilitation and extension of the sewerage system and interventions to reduce non-revenue water. **USD 455,766,000** constitutes the total cost estimate for implementation of planned priority interventions.

4.4.2 Regional (23) WSSAs Priority Interventions

Regional WSSAs will continue with implementation of improving water supply services through construction and supervision of ongoing water supply and sewerage projects in seven towns; construction of new water supply projects and sanitation facilities in four new regions headquarters; expansion of water supply and sewerage in eight regions; and rehabilitation and expansion of water supply and sewerage in four regions. Those interventions are prioritized so as to attain the objectives, KPIs and targets detailed under section 3.2.3 of this document. Planned investments are estimated to cost **USD 379,002,000**.

4.4.3 National Projects, District and Small Towns

National Projects, District and Small Towns will continue with implementation of interventions for improving water supply and sanitation services in their respective areas so as to attain the objectives and targets outlined under section 3.2.3, which will be periodically measured through respective KPIs. Amongst interventions will include extension of the Kahama/Shinyanga Water supply project to 12 Towns and villages along the major pipelines. Other interventions will include the following:

- i) Construction of WSS services in 39 Small Towns, including Katesh, Karatu, Ushiroombo, Kishapu, Sikonge, Urambo, Muheza, Pangani, Kilwa Masoko, Tarime, Mugumu, Bunda, Ngudu, Kahama, Tunduru, Namtumbo, Mbinga, Chunya, Tumba/Isongole, Kyela, Kasumulu, Mbalizi, Mlowo, Rujewa, Tukuyu, Tumduma, Vwawa, Makete, Ludewa, Makambako, Mafinga, Kilolo, Ilula, Loliondo/Wasso, Kasulu, Kilindoni, Mkuranga and Kisarawe;
- ii) Conduct detailed designed and start construction of water supply system in 24 small towns. This will include Korogwe, Maombo, Handeni, Songe, Kibondo, Lushoto, Pangani, Muheza, Kyaka, Manyoni, Kiomboi, Namanyere, Laela, Chala, Matai, Mpanda, Inyonga, Kasera, Biharamulo, Ngara, Chato, Kayanga, Muleba and Kakonko;
- iii) Conduct detailed designed and preparation of tender documents in 18 small towns. This will include Ruangwa, Liwale, Nanyumbu, Kibaya, Mbulu, Magugu, Galapo, Dareda, Bashnet, Mahenge, Ifakara, Dakawa/ Mvomero, Mikumi, Igunga, Nzega, Chamwino, Bahi and Kondoia;
- iv) Continue with construction works for Chalinze water supply project phase III;

- v) Rehabilitation and expansion of Wanging'ombe water supply project;
- vi) Extension of Kahama/Shinyanga water supply project to Isaka, Kagongwa, Tinde, Bariadi, Langabibili, Maswa, Mwanhuzi, Magu, Ngudu, Tabora, Igunga and Nzega Towns; its implementation will be in four project packages;
- vii) Rehabilitation and expansion of Makonde water supply project;
- viii) Rehabilitation and expansion of Handeni Trunk Main water supply project; and
- ix) Rehabilitation and expansion of Maswa water supply project.

The cost estimates for investments are **USD 451,015,000**.

4.4.4 Management Support

The component will continue to develop the capacity of utilities and MoW staff through provision of human resource capacity development, improving working environment, facilitating operation and maintenance activities, improving revenue collection through provision of billing soft ware devices, facilitation to improve water demand management and customer care and management skills. The following are earmarked interventions:

- i) Construction of 7 offices in regions towns, construction of one new office and staff houses for KASHWASA, rehabilitation of 10 offices in small towns and construction of 20 new offices in district headquarters, small town and national projects.
- ii) Procure 71 computer sets and 25 units for GIS and mapping equipment including domestic water meters 15,000, bulk meters, leak detector equipment, and 80 communications and networking equipment.
- iii) Provision operational equipment support such as vehicles, motorcycles, where by 50 vehicles for all utilities and 60 motorcycles for all utilities will be procured.
- iv) Provision of technical advisory services to assist the WSSAs in network modeling; Non Revenue Water Reduction; establishment of management information systems; Install customer databases and billing systems to WSSAs.
- v) Procurement of 10 cesspit emptiers (waste water collection trucks).

4.4.5 Sustainability of Urban Water Supply and Sanitation Services

Sustainability of Urban water supply services is being affected much by challenges like old dilapidated systems that contribute in water loss, inadequate budgets for operation and maintenance of infrastructure, and inadequate surveillance to curb water illegal connections. Amongst feasible interventions in this area include:

- i) Involvement of private operators for service delivery in urban water utilities. Before embarking on this option, a study on various models being implemented in some neighboring countries like Zambia and Uganda is proposed, followed by piloting;
- ii) Use of clustering mode of management for Small Towns for the purpose of reducing management cost. Clustering of utilities will be "natural" clusters especially in those areas where a strong cooperation exists between the utilities in a region to avoid resistance from the utilities.
- iii) Setting appropriate budgets for Operation and Maintenance costs is very important aspect for ensuring sustainability of services;
- iv) Protection of water sources is also very important in ensuring sustainable availability of water for the utility and its customers;
- v) Promotion of water use efficiency through universal metering, appropriate tariffs and awareness creation on efficient use of water; and

- vi) Instituting surveillance to curb illegal water connections and vandalism of water infrastructure, and effective prosecution of defaulters;

The summary of interventions and cost estimates for implementation of urban water supply interventions are summarized in table 4 below.

Table 5: Summary of Cost Estimates for Component 3

Sub Component	Intervention Area	Financial Requirements (in USD) '000'					TOTAL
		2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	
DAWASA	Management Support	1,261	3,391	2,826	1,696	1,130	10,304.34
	Priority Investments	56,340	168,520	114,601	68,760	47,545	455,766.00
Regional WSSAs	Management Support	1,925	2,902	2,419	1,451	967	9,664.00
	Priority Investments	35,077	129,847	122,539	54,923	36,616	379,002.00
NPs District and STs	Management Support	1,449	3,673	3,065	1,837	1,334	11,358.00
	Priority Investments	43,853	147,497	114,581	99,748	45,336	451,015.00
MoW	Management Support	199	298	249	149	99	994.00
TOTAL		140,104	456,128	360,280	228,564	131,027	1,318,103.34

4.5 Component 4: Sanitation and Hygiene

The WSDP II aims to reach additional 3.8 million households of the rural population who do not have access to improved sanitation by 2019. Promotional events targeting behavior change will continue across the country with more villages being reached. The strategy to achieving the above target will employ the following major activities;

- i) Advocacy and orientation of government and key stakeholders for sanitation and hygiene
- ii) Capacity building of implementing partners to play their roles for effective implementation and management using the national guidelines
- iii) Enforcement of laws, guidelines and standards on sanitation and hygiene
- iv) Institute performance based incentives in the delivery of Sanitation and Hygiene services Promotion of behavior change on sanitation and hygiene at household and institutions Promote private sector participation in provision of sanitation, hygiene, and drinking water treatment and safe storage services and products.

4.5.1 Urban Sanitation

As the quantity of safe water supply increases, the same is the wastewater generated. It then requires parallel efforts to address the issue of wastewater management especially in urban areas. Surveys indicate that, majority of the urban dwellers still use on-site sanitation with very few being connected to sewer. This scenario necessitates the perpetual consideration of the urban sanitation. Since the urban dwellers in Tanzania do not differ significantly with the rural dwellers in terms of the sanitation options, it then builds a case to scale up the NSC in the former as it applies in the later. Equally important is the need to adequately manage solid and liquid wastes and storm water in urban areas. Activities for urban sanitation include:

(a) Promotional events

Behavior change focusing the household is a target at this level. Emphasis will be on household investment on on-site sanitation through construction of improved and manageable sanitation options. In addition, hand washing with soap will be an equivalent indicator to be promoted in the urban areas. Key strategies will include Advocacy and orientation of government and key stakeholders for sanitation and hygiene

- i) Capacity building of implementing partners to play their roles for effective implementation and management using the national guidelines
- ii) Enforcement of laws, guidelines and standards on sanitation and hygiene
- iii) Institute performance based incentives in the delivery of Sanitation and Hygiene services
- iv) Promotion of behavior change on sanitation and hygiene at household and institutions
- v) Promote private sector participation in provision of sanitation, hygiene, and drinking water treatment and safe storage services and products.

(b) Management of solid wastes

Cities and towns in Tanzania have no well-established systems for management of solid wastes generated within their boundaries with reference to the technical functional elements. The need to establish the management system is paramount. The system entails the establishment of educational programmes to educate people, access to storage facilities by each household, recycling/re-use, and collection services, transportation, transfer stations and final disposal. The use of specifically designed equipment/facilities is encouraged. In the WSDP II, solid waste will be given surge to contribute to addressing the immense challenge, which is getting out of control of the available infrastructures. Effective management of solid waste not only will lead to control of leachate which adversely pollute ground and surface water but also contribute to effective functionality of drains and sewers. The WSDP II will therefore focus on promotional activities, preparation of guidelines and standards and enforcement of laws and by laws related to the management of solid waste particularly in small towns and urban areas.

(c) Management of Storm Water

Management of storm water is a grooming challenge especially in urban areas. Floods and big pools of water are common during rainfall season, which is mostly perpetuated by blocked drainage caused by accumulation of sand, piles of solid waste and other blockages. While construction of storm water drains will be managed in component III on Urban water supply and sanitation, component II will focus more on enforcement of law and promotional activities to ensure cleanliness of the drains is maintained.

4.5.2 WASH in Institutions and other Public places

(a) Sanitation in schools (Primary and Secondary);

School WASH remains a key constituent of the NSC based on the fact that it help groom the civilized future generation and improve the well being of the school community. Under phase II the school-WASH will expand to cover both primary and secondary schools. It is intended to rehabilitate WASH facilities in all LGAs in a span of five years. At least each LGA⁸ is expected to achieve five (5) schools in a year and 25 in the whole circle of five years. In this case, a total of 3,500 primary schools will benefit. With regard to secondary schools, it is intended to improve WASH in 700 schools with an average of 140 in each year. Further, the

⁸ The current number of established LGAs is 168

hygiene education to pupils will be emphasized particularly through the inclusion in curriculum and the formulation of SWASH clubs.

(b) Sanitation in Health Facilities

In the WSDP I sanitation and hygiene in Health Facilities was not dealt with but the status is arguably unpleasant. Efforts are needed to address the poor infrastructures in these facilities based on the fact that they serve delicate group of people (sick individuals) as well as the caregivers. Unlike school WASH, Sanitation in Health facilities is strongly linked to spread of nosocomial infections, which are prevalent in place where sanitation and hygiene are inadequate. It is expected to improve WASH in 1,000 Health Facilities across the country being 20 in each LGA in a span of five years.

(c) Sanitation in Highways

Sanitation in highways and transport hub in Tanzania is an eye sore and has not been equitably addressed over the history. The lack or inadequate provision of WASH facilities in these areas not only leads into massive environmental contamination but also downgrades dignity and above all is oppressive to women and elderly. The WSDP II will work to promote the provision of WASH facilities in bus stops located along the highways. As per the Public Health Regulations, it requires a provision of designated WASH facilities accessible to all for convenience. Similarly all the urban transport hubs will benefit from this intervention. Apart from hygiene education to passengers and travelers, other pertinent activities under this sub-component will include to mobilize the private sector and other non-governmental organization to provide the services through the Build, Own and Operate approach.

Although the WASH in transport hub will predominantly be provided by the private sector, the government through the WSDP II will construct 8 centers as demonstration for private sector to learn. The WASH facilities will be built at the following centers; Mikumi, Makambako, Wami-Sokoine, Manyoni, Kahama, Same, Laela and Nangulukuru. The placement of the centers is based on the estimated 3-hour travel from one bus stop with WASH facilities. Apart from providing sanitation and hygiene services, the centers will be used to collect solid waste generated by passengers so as to minimize massive pollution to the environment emanating from haphazard disposal of waste in highways.

Specific Undertakings for School WASH, Health Facilities and Sanitation in Highways are presented under section 3.2.4 of this document.

Coordination

In addition to a clear distribution of responsibilities, effective coordination and cooperation between the stakeholders is of pivotal importance for an efficient planning and implementation of the activities. The coordination areas will focus the following aspects;

- i) **Coordination with new stakeholders:** While there is MoU in place for the cooperation between MoHSW, MoW, MoEVT and PMO-RALG, further stakeholders at national level (Ministry of Transportation, Ministry of Works and SUMATRA) will be invited to Technical Working Group meetings wherever their responsibilities are concerned.
- ii) **Sub-national level cooperation:** The above (i) mentioned inter-sectoral cooperation needs to be replicated at sub-national level between the respective coordinating and implementing units.
- iii) **Private sector involvement:** The LGAs will be responsible for actively involving the private sector in the implementation.

The NSC Technical Committee under the signed MoU will assume the roles of TWG4 with some more new members joining the group from MoW, Ministry of Transport, Ministry of Works and SUMATRA. Table 6 illustrates the roles and responsibilities of the stakeholders.

Table 6: WSDP II Sanitation and Hygiene Implementation Framework and Institutional Arrangement

Level	Stakeholder	Responsibility
National	MOHSW	<ul style="list-style-type: none"> • Coordinate and guide the work of S&H stakeholders in the country • Lead a national sanitation campaign and school WASH program, which will include national level activities as well as implementation through LGAs. • Signatory of the WSDP Memorandum of Understanding • Provide overall leadership on sanitation and hygiene by chairing, convening and coordinating the National Sanitation & Hygiene Steering Committee • Provide leadership in development of National sanitation policy, guidelines, manuals, and standards • Coordinate the drafting of legislation and regulations Set standards for sanitation and hygiene as part of protecting public health • In collaboration with PMO-RALG, be responsible for follow up to ensure effective management of sanitation and hygiene funding in the Councils. • Coordinate the sanitation and hygiene activities done in the Local Government Authorities • Be responsible for the management of sanitation and hygiene funding in the Councils. • Comply with and meet its obligations in accordance with the instructions and guidelines issued in respect of the system including the Operational Manual, the Program Implementation Plan (PIP), the WSDP Implementation Manual and any amendments made thereto from time to time. • Respond in a timely manner to Council replenishment requisitions on submission of prescribed accountability reports pertaining sanitation and hygiene funds
	PMO RALG	<ul style="list-style-type: none"> • Coordinate and supervise implementation of development activities in LGAs (D by D, sanitation and hygiene MOU) • Compile quarterly performance reports for all the LGAs • Carry out an independent annual performance assessment for all the LGAs
	MoW	<ul style="list-style-type: none"> • Coordinate WSDP resources for sanitation and hygiene specifically for National Sanitation Campaign (NSC) and School WASH (SWASH) • Set standards for sewerage and water facilities/infrastructure/services • Coordinate monitoring, evaluation and assurance of water and wastewater facilities/infrastructure/services • Supervise, monitor, and report on the performance of water and sewerage utilities
	MoEVT	<ul style="list-style-type: none"> • Coordinate policy guidelines development for School WASH in collaboration with the MoHSW • Set standards formulation for school water, hygiene and sanitation • Coordinate implementation of school water, hygiene and sanitation (School WASH) • Supervise, monitor, and report on school WASH through the inspectorate and school census forms. • Support capacity building of LGA and school staff and teachers pre-service and in-service on WASH in the

Level	Stakeholder	Responsibility
		<ul style="list-style-type: none"> curriculum and management of WASH in schools. Coordinate development of materials for inclusion of WASH in the school curriculum
	Ministry of Transportation	<ul style="list-style-type: none"> In collaboration with MOHSW, provide guidance on the provision of the rest points along highways Construct WASH facilities in transport hubs and highways
	Ministry of Works (TANROADS)	<ul style="list-style-type: none"> Provision of technical & supervisory support to RS and LGAs Works staff to ensure sufficient number and quality of toilets are included in all BOQs for public buildings (schools, health facilities, etc.) Construct storm water drains
	Sumatra	<ul style="list-style-type: none"> Enforce Law on observance of sanitation in transport industry Undertake resources mobilisation and facilitate construction and routine maintenance of WASH facilities at strategic points along transport routes and stations (airports, bus stations, railway stations, etc.)
	UWASs	<ul style="list-style-type: none"> Rehabilitate/Construct the Wastewater Stabilization Ponds Construct sewer and effect households and Municipal connections Rehabilitate storm water drains (Roads which are not under TANROADS)
	Development Partners	<ul style="list-style-type: none"> Support the government meet its sanitation and hygiene goals as stated in NSGRP (MKUKUTA) Facilitate advocacy and high level Cross-sectoral dialogue (Water - Health - Education - PMO-RALG - MOF etc.) Mobilise resources
Regional	Regional Secretariat	<ul style="list-style-type: none"> Coordinate and supervise implementation of development activities in LGAs (D by D) Assist LGAs to mobilize/coordinate S&H partners/stakeholders in the districts Carry out monitoring and supportive supervision to councils Provide technical backstopping to councils
LGAs	CD/MD/TD/DED	<ul style="list-style-type: none"> Coordinate the implementation of development activities across all the departments according to guidelines provided.
	DMO	<ul style="list-style-type: none"> Coordinate the implementation of health programs in the district Allocate Health Basket/Council funds for Sanitation & Hygiene activities in the district e.g. WTD/SanWeek/Global Hand-washing day/World Environmental Day, construction/rehabilitation of WASH facilities at Health Facilities, Follow up and supervision matrix, etc
	DHO	<ul style="list-style-type: none"> Coordinate the implementation of sanitation and hygiene activities according to guidelines (MKUKUTA, NEHHSAS and D by D) Implement sanitation and hygiene activities according to the Water and Sanitation Act and Public Health Act, 2009
	DEO	<ul style="list-style-type: none"> Coordinate the implementation of school WASH in district
	DCDO	<ul style="list-style-type: none"> Support the implementation of development programs in the district by ensuring effective participation of communities

Level	Stakeholder	Responsibility
		<ul style="list-style-type: none"> • Ensure School WASH inspection is routinely undertaken as part of the Education Inspectorate system using the revised Inspectorate Checklist, reports are shared and discussed at CMT meetings, and actions are taken to rectify gaps. • Ensure that WECs undertake regular follow up and inspection of school WASH activities
Ward	WEO	<ul style="list-style-type: none"> • Coordinate S&H activities as part of ward development activities
Village	VEO	<ul style="list-style-type: none"> • Coordinate monitoring of sanitation and hygiene • Enforce bye-laws
	Village Health Committees	<ul style="list-style-type: none"> • Implement Sanitation and hygiene activities
	Masons	<ul style="list-style-type: none"> • Construct/rehabilitate sanitation facilities in the community
	VHW (CORPs)	<ul style="list-style-type: none"> • Participate in community development work within their communities (NSHC)
	Sub-Village Head	<ul style="list-style-type: none"> • Lead development activities
	School Health Teacher(s)	<ul style="list-style-type: none"> • Oversee school WASH • Establish school sanitation club • Organize events for promotion of WASH
	Parastatal organization/Private sector/NGOs/CBOs	<ul style="list-style-type: none"> • Supply goods and services on sanitation and hygiene • Operate sanitation and hygiene facilities (Cess Pit Emptiers, Public latrines, Solid waste collection etc)
Households	Household Members	<ul style="list-style-type: none"> • Construct/Upgrade sanitation facilities at household level

4.5.3 Sustainability of Sanitation and Hygiene Services

The biggest challenge surrounding the delivery of sanitation and hygiene services in the country is none other than lack of sustainability on the programmes/project raised in the communities. Previous efforts have proved failure primarily due to sustainability aspect. Lack of reliable financing mechanism, inappropriate technologies, shortage of staff, inadequate enforcement of laws and regulation and lack of community ownership are major setbacks in the sanitation and hygiene sub-sector. Thus, while developing the phase II of the WSDP and in order to ensure the results gained through this programme are sustained; efforts will be mounted to address the identified key bottlenecks on the sustainability aspects. The following will be done to enhance sustainability;

Financing of the sanitation and hygiene

In WSDP I, sanitation and hygiene activities depended on foreign funding sources with little contribution from council's own source. In phase II the government will work to ensure a clear budget line for sanitation and hygiene is established and funds are allocated particularly on school and Health facilities WASH as well as household sanitation. Similarly, development partner's contribution will help to boost government efforts. Further, the active participation and involvement of the private sector through the Public Private Partnership in the delivery of sanitation and hygiene services provide a solid background on the sustainability of sanitation in the country. Services like management of solid waste and liquid waste will be greatly managed by the private sector. Also the operation and maintenance on the public toilets, toilets in bus stops, transport hub etc will be taken care by the private sector.

Promotion of appropriate technologies

Low cost technologies, which emphasize the use of locally available materials, will be advocated in phase II. Use of simple yet effective technology on sanitation and hygiene particularly at household level will be emphasized. The aim is to ensure majority of the households access the technologies and also are able to meet the operational and maintenance cost of their facilities.

Human Resource

One of the critical factors contributing to poor sanitation and hygiene status in Tanzania is the inadequacy of environmental health workforce specifically environmental health officers; and sanitary engineers in both rural and urban areas. The shortage is more pronounced in rural areas. Available ward environmental health officers are unable to serve all villages, because most of the villages are dispersed far apart from one another and cannot be easily accessed due to poor infrastructure and lack of transport facilities. In addition, the number of ward environmental health officers available, is small compared to the number of wards. With approximately 18,000 villages; 3500 wards; 168 LGAs; and 25 Regions, the country has less than 2,500 environmental health officers (MoHSW, 2012). It is estimated that an additional 20,000 environmental health practitioners are required for the effective implementation of the NSC (MoHSW, 2013). During phase II the MoHSW in collaboration with PMO-RALG will continue to deploy Environmental Health staff to work in areas with critical shortage. Effective from October 2014, the certificate course for Environmental Health will commence for the purpose of generating the frontline cadre that will work directly at community level. Other efforts that will be undertaken to deal with the human resource gap includes:-

(a) Recruitment

The Phase II of the NSC will ensure equitable recruitment of health officers, sanitary engineers and other lower cadres in each local Government Authority. Recruited staff will be of such skills and knowledge stipulated in Government seculars. Staff will be posted to areas where there is critical shortage.

b) Institutionalization of the Community Health Workers

The Ministry of health and Social Welfare (MoHSW) plans to recruit the Community Health Workers (CHWs) who will provide a link between health facilities and community. The CHWs will be useful in dealing with community related health interventions including sanitation and hygiene. They will undergo a tailored short term training to capacitate them in different areas including monitoring of water safety, sanitation, hygiene, nutrition, vector control and vaccination. The WSDP II will work with the MoHSW to fast track the recruitment of the CHWs by facilitating their terms in the first three years and thereafter be absorbed by the Ministry. It is intended to recruit 5,000 CHWs for the purpose of addressing the human resource gap in villages, which implement the campaign under WSDP II. Although the number of villages in the country is estimated to be 18,000 the initial deployment of 5,000 CHWs will help to minimize the existing gap.

Enforcement of laws

Sustaining behaviour change is a function of many aspects including effective law enforcement. Sanitation and hygiene needs though law enforcement both for household sanitation as well as other places. It is envisaged to ensure each village has its own bye-law and enforcement is adequately exercised. Likewise, to sustain observance of sanitation and good hygienic practices in public areas, the existing laws (Public Health Act, 2009; Water

4.5.4 Monitoring and Evaluation

Monitoring of the performance of the National Sanitation Campaign in WSDP II will make use of the Joint Annual Sector Review (JAWSR) meetings, Water Sector Working Group (WSWG) and the Technical Working Group (TWGs) for regular monitoring. At regional level, the RWSTs will exercise the monitoring in their respective LGAs. Also reports (both physical and financial) will be prepared by key Ministries namely; Ministry of Health and Social Welfare (MoHSW), Ministry of Education and Vocational Training (MoEVT), Ministry of Infrastructure Development (MoID) and Prime Minister's Office, Regional Administration and Local Government (PMO-RALG).

At grass root level, extension workers and representatives from the community itself will carry out the monitoring. Regarding the programme evaluation, it will be carried out mid-way targeting the process and also at the end of the phase II where the impact will be gauged. Report format and framework will be developed and disseminated to all implementing agencies (IAs).

The recently inverted National Sanitation Management Information System (NSMIS) will be rolled out to all the LGAs to enhance the monitoring of the campaign. All the LGAs will be provided with a computer that will be used to store data and update the system on regular basis. The NSMIS is expected to provide a solution to the historical problem of lack of accurate routine data on sanitation and hygiene.

4.5.5 Enabling environment for the effective delivery of NSC II

The success of the NSC II is subjected to the existence of the enabling environment which will facilitate the smooth implementation of the same. Categorically, the following key issues are important to ensure effective delivery of quality sanitation and hygiene services;

- i) **Policy and guideline;** policy on sanitation and hygiene and clear guidelines which define roles and responsibilities on the delivery of S&H. Also, strategic advocacy need to be carried out to steer the participation of influential people in the sub-sector
- ii) **Effective Planning;** LGAs need to consider sector wide planning on sanitation and hygiene involving key departments and other actors within the council.
- iii) **Budgetary allocation;** establish a clear budget line for sanitation and hygiene within the government annual budgets.

Key assumptions

The targets outlined for phase II on sanitation and hygiene are subject to the consideration of the key assumptions hereunder;

- Households change their behavior as a result of sanitation and hygiene promotion.
- Households can afford to construct / upgrade their sanitation facilities
- Enabling environment for sustainability (financial resources, clear roles and responsibilities, monitoring and accountability, adequate water supply for sanitation and hygiene interventions)
- Funds flow on time as per approved budget
- Community is ready to contribute part of the cost on up grading school WASH infrastructures

Table 7: Cost Estimates for component 4: Sanitation and Hygiene

Intervention	Description	Cost (USD Million)					
		2014/15	2015/16	2016/17	2017/18	2018/19	Total
Activity	Households						
Advocacy and orientation of key government and non-government stakeholders for sanitation and hygiene		0.08	0.5	0.5	0.5	0.1	1.68
Engagement of households through CLTS and Sanitation Marketing	Unit cost to obtain an improved toilet facility set at USD 12.3	0	10.08	5.04	5.04	5.04	25.2
Competition (Result based incentive)		0	0.86	0.50	0.50	0.34	2.204
Capacity building to implementing agencies		0	4.00	4.00	4.00	0.40	12.4
Promotion of Household Water Treatment and safe Storage		0.05	0.50	0.50	0.60	0.40	2.05
Monitoring and Evaluation		0	2.00	2.50	1.50	2.00	8
Sub-total		0.13	17.94	13.04	12.14	8.28	51.53
Advocacy and orientation of key government and non-government stakeholders for sanitation and hygiene		0	0.2	0.2	0	0	0.4
Manage Sanitation and Hygiene competition		0	0.20	0.30	0.10	0.10	0.7
Promotional events targeting the periurban settings on sanitation and hygiene, and HWTS		0	1.80	1.00	0.60	0.10	3.5
Capacity building to implementing agencies		0	0.10	0.10	0.10	0.10	0.4
Construction of WASH facilities in 8 highway bus stops	Unit cost set at \$ 200,000	0	0.20	1.00	0.20	0.20	1.60

Intervention	Description	Cost (USD Million)					
		2014/15	2015/16	2016/17	2017/18	2018/19	Total
Strengthen system for solid waste management in the outskirts of Cities and Municipalities in the country.	Guidelines and promotional events	0	0.2	0.1	0.3	0.1	0.70
Construct/rehabilitate stormwater management systems in the periurban areas of Cities and Municipalities in the country.	Guidelines and promotional events	1	1	1	1	1	5
Sub-total		1.00	3.70	3.70	2.30	1.60	12.30
Rehabilitation of latrines in 3,500 Primary schools including menstrual hygiene management	Unit cost set at \$ 12,000 per facility (unit= 20 stances and a urinal)	1.98	7.00	14.50	7.88	6.00	37.36
Rehabilitation of 700 Secondary schools including menstrual hygiene management	Unit cost set at \$ 12,000 per facility (unit= 20 stances and a urinal)	0.1	2.00	3.00	2.00	1.30	8.40
Sub-total		2.08	9.00	17.50	9.88	7.30	45.76
Rehabilitation of WASH in 1,000 Health Facilities	Unit cost set at \$ 4,000 per facility (unit= a block with 2 stances and a urinal)	0	0.40	2.20	1.00	0.40	4.00
Construction of Healthcare waste management facilities in 600	Unit cost set at \$5,000 (unit= a single incinerator)	0	0.99	1.50	0.50	0	2.99
Sub-total		0	1.39	3.7	1.5	0.4	6.99
Recruitment and placement of Community Health Workers (CHWs)	5,000 CHWs each paid an allowance of \$150 per quarter	0.64	4.5	4.5	4	4	17.64
Research on Sanitation and Hygiene		0.2	0.30	0.40	0.40	0.50	1.80
Sub-total		0.84	7.58	12.3	7.4	5.3	33.42
Total		4.05	39.61	50.24	33.22	22.88	150.00

4.6 Component 5: Programme Delivery Support

To facilitate attainment of objectives and targets narrated under chapter three; the 3 sub components of Component 5 will implement the following priority interventions.

4.6.1 Fiduciary Management

Priority interventions under this sub-component are categorized under three interventions areas, which are Financing and Financial Management; Planning and Budgeting; and Procurement Management.

The summary intervention package under Financing and Financial Management include:

- i) Financial mobilization, which encompasses negotiations and managing the financial commitments; and
- ii) Financial controls that include strengthening the financial management and reporting on one hand and facilitating auditing functions including implementation of audit recommendations on the other.

The summary intervention package under Planning and Budgeting include:

- i) Preparation of sector MTEF, annual plan and budget for the sector.

The summary intervention package under Procurement Management include:

Strengthening the procurement management units with trainings for speeding up bid processing and strengthening contract management by resident TA services are amongst steps to bring procurement efficiency and strengthening coordination of procurement processes within MOW (PMU and User Departments) and between MOW and other Implementing Agencies including LGAs as part of program for addressing procurement challenges.

4.6.2 Programme Management, Coordination and Performance Monitoring

Priority interventions under this sub component are categorized under four interventions areas, which are Programme Coordination, Management Information System (MIS), Monitoring and Evaluation (M&E) and Social and Environmental Safeguards.

The summary intervention packages under Programme Coordination include:

- i) Adherence to MoU and Dialogue Calendar; and
- ii) Programme assessment through technical audits and mid term review.

The intervention packages under the Management Information System (MIS) include:

- i) MIS Enhancements to cover M&E outputs, and
- ii) Training on the software package.

The summary intervention package under Monitoring and Evaluation (M&E) include:

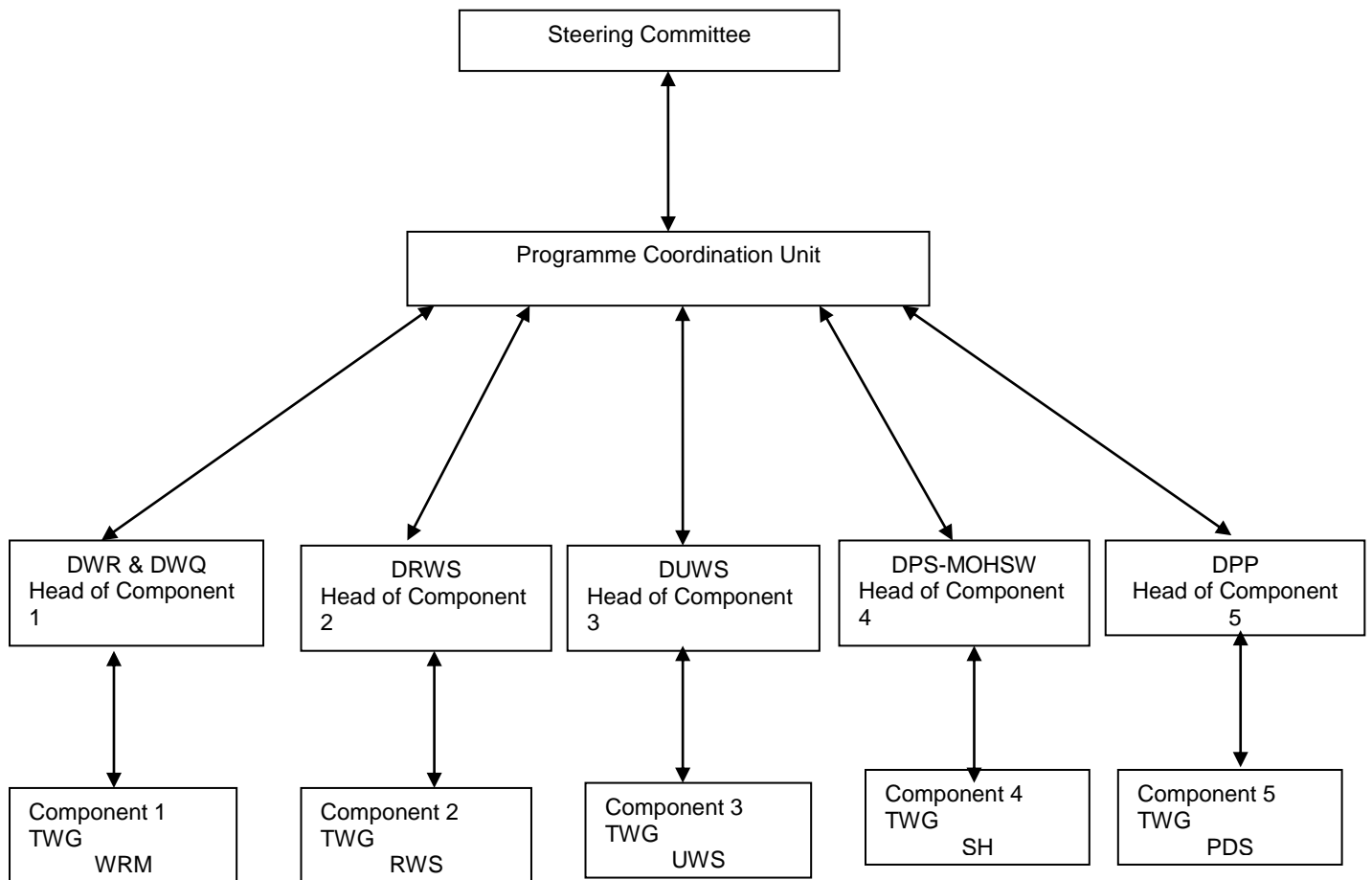
- i) Field monitoring visits,

- ii) Preparation of MTEF/budget performance reports,
- iii) Conducting service delivery surveys,
- iv) Annual sector PAF evaluations,
- v) PER study and end of phase programme evaluation.

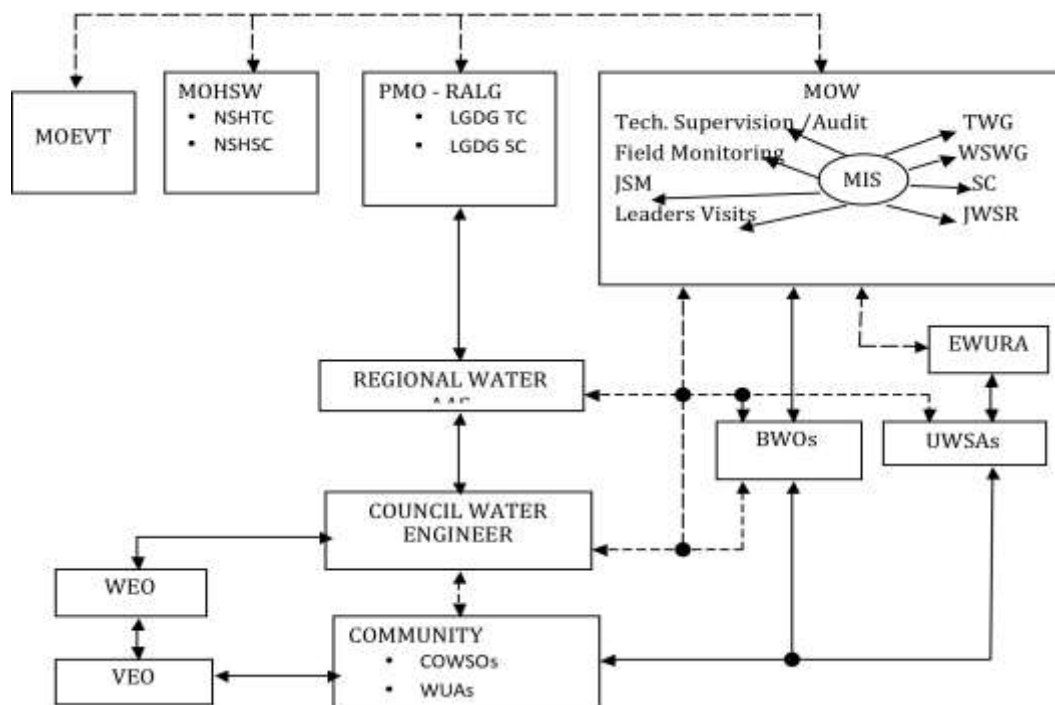
The summary of interventions under Social and Environmental Safeguards include:

- i) Technical Guidance and follow up to IAs for ensuring adherence to WSDP SES Guidelines, and
- ii) Training to ensure clarity of those guidelines and standards.

4.6.3 The WSDP II Coordination Framework



4.6.4 The Integrated WSDP II Monitoring Framework



Working Tools:

WSDP Logical framework
 WSDP Results Monitoring framework
 Sector and National PAF
 Sector PER
 Census and Survey
 WSDP and BRD periodical Reports
 Contracts/BOQs/Designs/Specifications/Checklists/
 Questionnaires

- Solid line indicate direct link both vertical and horizontal
- Dotted line indicate only horizontal relationship

4.6.5 Key Result Areas for WSDP II Monitoring Framework

- i) The sector MIS is the biggest informer to management and dialogue meetings and reports should be printed and referred prior to any field visit;
- ii) Periodical Field Monitoring Visits will be done quarterly, each quarter covering a specific zone amongst the four monitoring identified zones in Tanzania mainland;
- iii) Under BRN initiative; weekly, monthly, quarterly, semiannual and annual reporting arrangements will be emphasized;
- iv) Technical Supervision and Internal Technical Audits is very important activity and should be done as a separate function unlike the fallacies done during WSDP I. Departmental technical teams should be enabled to conduct at least three rounds of technical supervision and internal technical audit visits for each project:

- a) **The Initial Site Visit:** to validate the project site including related preparations for execution;
- b) **The Technical Supervision/Technical Internal Audit Visit:** normally in the middle of implementation to validate if progress adheres to technical specifications of project deliverables with the purpose of gauging if final output will have value for money;
- c) **The Project Closure Visit:** to validate final workmanships in relation to approved technical specifications, to validate project documentation if they are appropriate and validate value for money against approved technical specifications and test if potential outcomes will be realized.

4.6.6 Capacity Development

The summary of interventions under this sub-component pertains to Capacity Development within the component including capacity strengthening of Executive Agencies Communication and Publicity. They include provision of office accommodation, staff recruitment and training to enhance skills, and provision of working gear. The interventions will strive to attain the objectives, KPIs and targets as outlined under section 3.2.5 of this document.

Table 8: Summary of interventions and Resource Requirements for Programme Delivery Support Component

Sub-Component	Intervention Area	Financial Requirements (in, 000 USD)					TOTAL
		2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	
Fiduciary	Financing and Financial Management	2,120	2,120	2,720	2,120	2,720	11,800
	Planning and Budgeting	115	230	115	115	100	675
	Procurement Management	803	1,210	1,063	700	263	4,039
Programme Coordination and Performance Monitoring	Programme Coordination	1,100	1,280	805	538	483	4,206
	MIS	120	845	620	450	190	2,225
	M&E	480	303	373	290	300	1,706
	Social and Environmental Safeguards	147	900	316	363	38	1,764
Capacity Development	MoW	4,258	4,020	1,962	1062	120	11,422
	WDMI	10,392	20,450	16,500	9,700	0	57,042
	DDCA	2,950	2,630	2,250	720	0	8,550
	MCS	2,090	4,060	2,160	160	30	8,500
	Communication and Publicity	600	400	200	250	50	1,500
TOTAL		25,175	38,448	26,924	16,468	4,294	113,429

5 FINANCIAL RESOURCES REQUIREMENTS BY COMPONENTS AND ANALYSIS OF PRIORITIZATION

The financial resources requirements that have been presented in chapter 4 for all WSDP II components are based on the resources requirements that were submitted in excel sheets by implementing agencies during the two day WSDP II planning meetings held in Morogoro (11-12 meeting of all WRM Basins and 18-19 meeting of all LGAs, Regional WSSAs, District HQ, Small Towns and National Projects). The submissions were calculated by the Task force to validate and harmonize unit costs and arrive at the required cost estimates to finance implementation of activities that can contribute in meeting the desired targets by 2019.

5.1 Summary of financial resource requirements for all components

The summary of financial resource requirements for all components is provided in table 9 below; and its individual analysis of prioritization for each component is provided in figures 6,7,8,9 and 10 below.

Table 9: Summary of Financial Resources Requirements by all Components

Component	Sub Component	Financial Requirements (in, 000 USD)					TOTAL
		2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	
1. WRM	Water Resources Management	33,250	145,113	318,461	184,803	107,518	789,145
	Water Quality Management and Pollution Control	5,287	3,244	2,495	1,701	1,728	14,455
2. Rural Water Supply and Sanitation	Rural Water Supply Investments	150,299	126,428	107,790	94,210	84,295	563,022
	Capacity Strengthening incl. O&M	28,042	45,451	62,355	73,976	89,548	299,372
3. Urban Water Supply and Sanitation	Improvements of Water Supply and Sanitation in Dar es Salaam	56,340	168,520	114,601	68,760	47,545	455,766
	Improvements of Water Supply and Sanitation in 23 Regional Water Supply and Sanitation Authorities	35,077	129,847	122,539	54,923	36,616	379,002
	National Projects, District HQ and Small Towns (including sanitation)	43,853	147,497	144,581	99,748	45,336	481,015
	Capacity Strengthening	4,834	10,264	8,559	5,133	3,530	32,320
4. Sanitation and Hygiene	Rural Sanitation	3,050	35,910	46,540	30,920	21,280	137,700
	Urban Sanitation	1,000	3,700	3,700	2,300	1,600	12,300
5. Program Delivery Support	Fiduciary Management	3,038	3,560	3,898	2,935	3,063	16,494
	Program Coordination and Performance Monitoring	1,847	3,328	2,114	1,641	1,011	9,941
	Capacity Development	20,290	31,560	20,912	11,892	200	84,854
TOTAL		386,207	854,422	958,545	632,942	443,270	3,275,386

5.2 Percentage of Financial Requirements by Components

The percentage distribution of financial requirements by each component as part of total WSDP II financial requirement is shown in table 10 and figure 11, followed by its clarification.

Table 10: Percentage of Financial Requirements by Components

Component	Proposed WSDP II Allocation (in '000 USD)	Percentage of Total Requirement
WRM	803,601	25%
RWSS	862,394	26%
UWSS	1,348,103	41%
Sanitation and Hygiene	150,000	5%
Programme Delivery Support	111,289	3%
Total	3,275,386	100%

Note: The higher priority for the urban water supply and sanitation is due to increased focus for improvements of Water Supply and Sanitation Services in the District HQ and Small Town WSSAs including National Projects (considered as part of BRN initiative); and Dar es Salaam because of the increased requirement to expand water supply distribution networks to increase water connections to the households, which are follow up interventions after completion of the lower Ruvu and upper Ruvu projects. The priority is also due to huge investments for new regional centers of Njombe, Mpanda, Geita and Bariadi.

5.3 Financing Modalities and Sources of Financing

WSDP II will introduce enhancements in financing modalities although they are anticipated not to deviate much from the existing financing modalities and frameworks within the general ongoing programmes including BRN initiative. The existing financing sources that will continue during WSDP II include:

- i) WSSAs Tariffs, COWSOs revenue collection and community contributions;
- ii) Fees, charges and penalties especially for environment and pollution defaulters (mainly for Basins recurrent expenditure);
- iii) Government Taxes under TRA (sourced through GoT local source);
- iv) Loans and grants from Multilateral and Bilateral Partners as coordinated by MoF; and
- v) Financing from the Private Sector.

5.4 Follow up Activities

- i) Review of WSDP-PIM;
- ii) Review of WSDP MoU (including dialogue mechanism);
- iii) Review of Participation Agreements; and
- iv) Review of Performance Assessment Arrangements (such as annual PAF).

6 THE WSDP II RESULTS MONITORING FRAMEWORK

Project Development Objective (PDO):							
(a) Improving integrated water resources management by strengthening water sector institutions and (b) expanding access to water supply and sanitation services							
PDO Level Results Indicators	Core	Unit of Measurement	Baseline (June 2014)	Cumulative Target Values (June 2019)	Frequency	Data Source/ Methodology	Responsibility for Data Collection
Basin Water Offices fully operational and implementing an approved plan for the integrated basin water management		Number	0	9	Semi Annual	MoW report	MoW
People provided with access to “Improved Water Sources” under the Programme a. In urban areas b. In rural areas	X	Number	2,700,000 19,395,697	10,465,410 38,475,697	Semi Annual	MoW report	MoW
People with access to “Improved Sanitation” under the project (number) a. In urban areas b. In rural areas	X	Number	3,300,000 7,700,000	11,700,000 27,300,000	Semi Annual	MoW report	MoW and MoHSW
Intermediate Results and Indicators							
Intermediate Results Indicators	Core	Unit of Measurement	Baseline (June 2014)	Cumulative Target Values (June 2019)	Frequency	Data Source/ Methodology	Responsibility for Data Collection
Intermediate Result 1: Strengthening IWRM Institutions							
National Water Board functional		Number	1	1	Semi Annual	MoW report	MoW
All 9 BWO capturing essential IWRM information	X	Number	4	9	Semi Annual	MoW report	MoW

Number of approved Integrated River and Lake Basin Development and Management Plans		Number	0	9	Semi Annual	MoW report	MoW
Number of Water User Associations fully functional		Number	90	260	Semi Annual	MoW report	MoW
Catchment Committees fully functional		Number	0	18	Semi Annual	MoW report	MoW
Sub-Catchment Committees fully functional		Number	0	36	Semi Annual	MoW report	MoW
All 9 BWOs adopt national sustainable financing options for IWRM		Number	0	9	Semi Annual	MoW report	MoW
All 9 BWOs granting, monitoring, and enforcing water permits, and operationalize pollution control mechanism		Number	0	9	Semi Annual	MoW report	MoW
All 17 water laboratories are fully equipped and enforce water quality standards		Number	3	17	Semi Annual	MoW Report	MoW
Intermediate Result 2: Scaling-up of Rural WSS Services to meet MDGs							
Improved community water points constructed or rehabilitated under the Programme	X	Number	32,846	109,180	Semi Annual	MoW report	MoW
80% of program village water committees registered as legal entities		Percent	50	80	Semi Annual	MoW report	MoW
100% of program districts with fully-staffed RWSS teams implementing a fully participatory sector plan		Percent	80	100	Semi Annual	MoW report	MoW
Intermediate Result 3: Scaling up of Urban WSS Services to meet WSDP II Targets							
Piped household water connections that are resulting from the Programme interventions	X	Number	236,541	1,046,541	Semi Annual	MoW report	MoW
20 UWSAs registered as Category A		Number	13	20	Semi Annual	MoW report	MoW
Intermediate Result 4: Scaling up of Sanitation and Hygiene Services to meet WSDP II Targets							
Households with improved sanitation facilities resulting from interventions of the National Sanitation Campaign		Number	2,200,000	7,800,000	Semi Annual	MoW report	MoW
Number of sub-villages, which signed the declaration to improve household sanitation.		Number	9,120	15,000	Semi Annual	MoW and MoHSW report	MoW and MoHSW

Intermediate Result 5: Programme Delivery Support							
Steering Committee, and 5 Technical Working Groups operational (yes/no)		Yes/No	Yes	Yes	Semi Annual	MoW report	MoW
MoW enhances publicity of WSDP		Yes/No	Yes	Yes	Semi Annual	MoW report	MoW
% of RWSS funding transferred through LGDG system		Percent	90	100	Semi Annual	MoW report	MoW
MoW enhances the full operationalization of the WSDP–MIS		Yes/No	Yes	Yes	Semi Annual	MoW report	MoW
Information extracted from Epicor 9.05 to MIS (yes/no)		Yes/No	No	Yes	Semi Annual	MoW report	MoW
Report assessing the performance of water institutions and the achieved results developed (yes/no)		Yes/No	Yes	Yes	Semi Annual	MoW report	MoW
Every new water project complies with set environmental and social safeguards guidelines (yes/no)		Yes/No	No	Yes	Semi Annual	MoW report	MoW
WSDP M&E Tools (comprehensive M&E framework, Log-frame, M&E action plan, revised reporting templates and Updated MoW's website) in place and operational (yes/no).		Yes/No	No	Yes	Semi Annual	MoW report	MoW

ANNEXES

Annexes (WSDP II Costing sheets) are provided in a separate file.

¹ UN (2013). Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects.