FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ONE WASH NATIONAL PROGRAMME

A Multi-Sectoral SWAp

PHASE II Programme Document
November 2018

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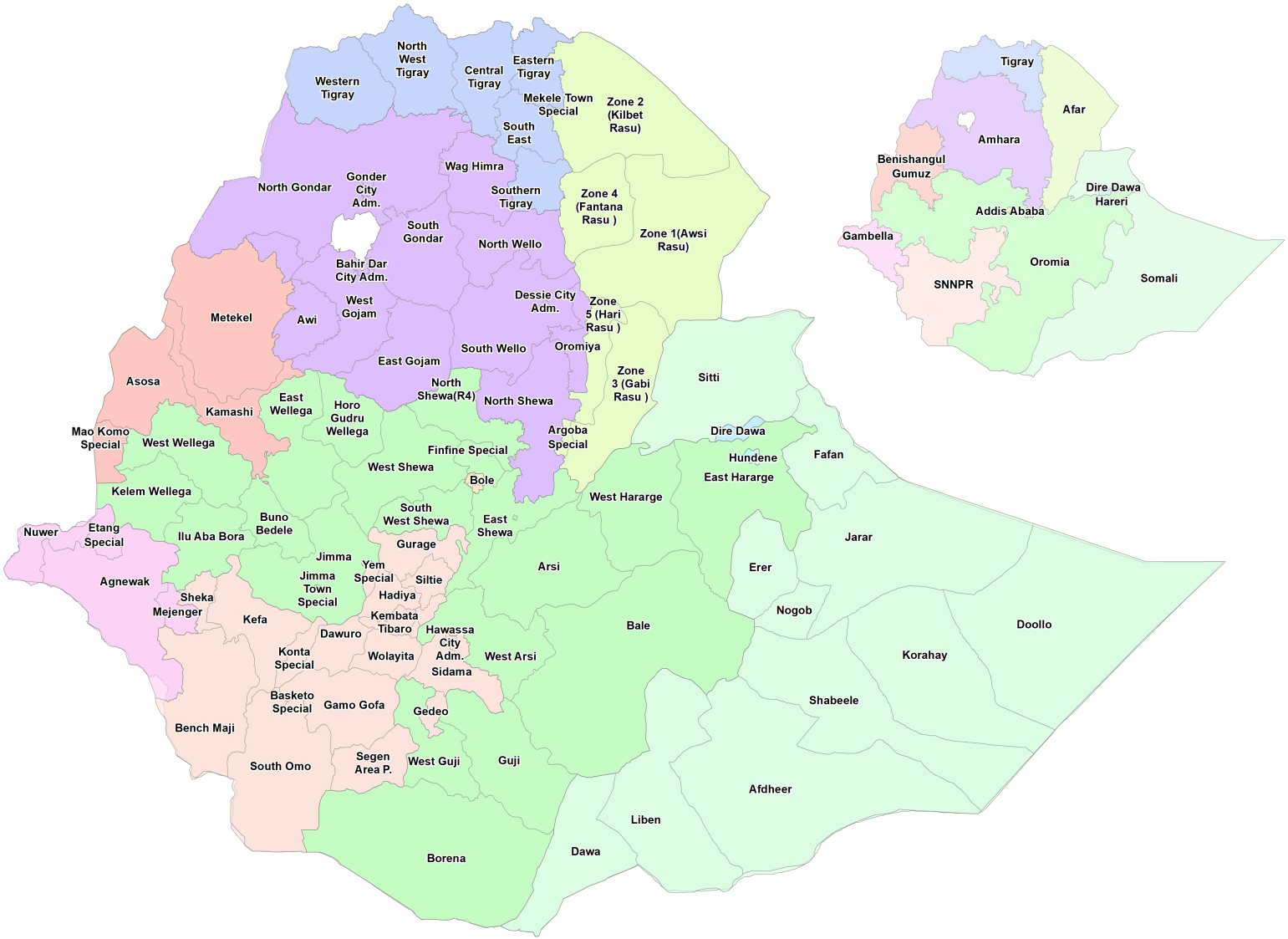


Map 1. Administrative Regions and Zones of Ethiopia

CONSULTANTS

Richard Wilson MSc

Chartered Water and Environmental Consultant

Email: richardwilsonwater@gmail.com, rwilson@wsup.com

Kebede Faris, BSc, MSEH, RS

Associate Professor, Wollo University

Senior WASH Specialist and Community Health Expert

Email: Farisa0013@gmail.com.

Telephone:+251 91 046 7803

Asrat Getaneh MSc

Water Supply and Environmental Consultant

Email.asratgg2014@gmail.com

Telephone+251-912440025

Ayenew Admasu, MA

Economics and Capacity Building consultant

ayenewalmaw@gmail.com

Telephone: +251-929-346129

DISCLAIMER

This update document is based on the original 2013 main document, the present context, available resources, technology needs and approaches reinforcing the previous concepts and taking it forward with more pragmatic strategy and action plans. Thus, the content of this updated OWNP Phase II document are not only the creation of the consultants but has been prepared in full agreement with the OWNP Task Force and the wider stakeholders. However, any misquotes misrepresentation or opinions and other issues are the responsibilities of the consultants and not necessarily of the employing agency.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

AAWSA	Addis Ababa Water and Sewerage Authority
AFD	Action for Development
AfDB	African Development Bank
AMREF	African Medical and Research Foundation
AWD	Acute Watery Diarrhoea
BADEA	Arab Development Bank
BC	Behaviour Change
BoFED	Bureau of Finance and Economic Development
BOQ	Bill of Quantities
BoWR	Bureau of Water Resources
CAP	Consolidated Annual WASH Plan
CCHSP	Community Centred Hygiene and Sanitation Programme
CFT	Community Facilitation Team
CLTSH	Community-Led Total Sanitation and Hygiene
CMP	Community Managed Project
CSA	Central Statistical Agency
CSO	Civil Society Organization
CWA	Consolidated WASH Account
CR	Climate Resilience
Climate Resilience	Climate Resilience
DAG	Development Assistance Group
DFID	Department for International Development (UK)
DPA	Drought Prone Areas
DRMFSS	Disaster Relief Management and Food Security Sector
EC	Ethiopian Calendar
EMIS	Education Management Information System
EPRU	Emergency Preparedness and Response Unit
EPRR	Emergency preparedness response and Recovery
ESA	Ethiopian Standards Authority
ESDP	Education Sector Development Programme
ETB	Ethiopian Birr
EU	European Union
EWTI	Ethiopian Water Technology Institute (formerly EWTEC)
EWTF	Emergency WASH Task Force
FLOWS	Forum for Learning and Sharing on Water Supply and Sanitation
FMR	Financial Monitoring Report

FRA	Fiduciary Risk Assessment
FY	Fiscal Year
GDP	Gross Domestic Product
GIS	Geographic Information System
GOE	Government of Ethiopia
GLASS	Water global annual assessment of sanitation and drinking water
GLoWS	Guided Learning on Water and Sanitation
GPS	Global Positioning System
GTP	Growth and Transformation Plan
Ha	Hectare
HCS	Hararghe Catholic Secretariat
HDA	Health Development Army
HEP	Health Extension Programme
HEW	Health Extension Worker
HH	Households
HMIS	Health Management Information System
HOAREC	Horn of Africa Regional Environmental Centre
HP	Hand pump
HSC	Health Science College
HSDP	Health Sector Development Plan
IA	Implementing Agency
ICB	International Competitive Bidding
ICT	Information and Communication Technology
IFMIS	Integrated Financial Management Information System
IPP	Indigenous Peoples Plan
IP	Implementing Party
IRC	International Reference Centre
IT	Information Technology
JICA	Japan International Cooperation Agency
JFA	Joint Financing Agreement
JMP	Joint Monitoring Programme of WHO and UNICEF
JTR	Joint Technical Review
KPI	Key Performance Indicator
KWT	Kebele WASH Team
Lcpd	Litres per capita per day
MHM	Menstrual Hygiene Management
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MIS	Management Information System
MFI	Microfinance Institution
MOE	Ministry of Education
MOFEC	Ministry of Finance and Economic Cooperation
MOH	Ministry of Health

MOWIE	Ministry of Water Irrigation and Energy
MOU	Memorandum of Understanding
MoUDC	Ministry of Urban Development and Construction
MoANR	Ministry of Agriculture and Natural Resources
MoLF	Ministry of Livestock and Fishery
MoEFCC	Ministry of Environment Forest and Climate Change
MoFPDA	Ministry of Federal and Pastoralist Development Affairs
MSF	Multi-Stakeholder Forum
MWA	Millennium Water Alliance
NBE	National Bank of Ethiopia
NCB	National Competitive Bidding
NGO	Non-government Organization
NWCO	National WASH Coordination Office
NWI	National WASH Inventory
NWTT	National WASH Technical Team
O&M	Operation and Maintenance
OCHA	Office for Coordination of Humanitarian Assistance
ODF	Open Defecation Free
OFAG	Office of Federal Auditor General
OWNP	One WASH National Programme
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PCDP	Pastoralist Community Development Project
PDA	Personal Digital Assistant/Tablets
PFM	Public Financial Management
PMU	Programme Management Unit
PoA	Power of Attorney
PTA	Parent Teacher Association
PV	Photovoltaic
QA	Quality Assurance
RiPPLE	Research-inspired Policy and Practice Learning in Ethiopia
RFP	Request for Proposals
RPF	Resettlement Policy Framework
RPS	Rural Pipe System
RWCO	Regional WASH Coordination Office
RWPMU	Regional WASH Programme Management Unit
Sc/KDC	Sub-City/Kebele development Committee
SAP	Strategic Action Plan
SLTSH	School-led Total Sanitation and Hygiene
SNNPR	Southern Nations and Nationalities People's Republic
SNV	Netherlands Development Organization
SP	Service Provider
SSAP	Self-Supply Accelerated Programme

SSWG	Self-Supply Working Group
SWAp	Sector wide Approach
TA	Technical Assistance
ToFED	Town Finance Office
TOR	Terms of Reference
TSG	Town Support Group
TVETC	Technical and Vocational Training College
TWB	Town Water Board
TWU	Town Water Utility
UAP	Universal Access Plan
UNESCO	United Nations Education, Science and Cultural Organization
UNICEF	United Nations Children's Fund
USD	United States Dollar
UWSSP	Urban Water Supply and Sanitation Project
WASH	Water, Sanitation and Hygiene
WASHCO	Water, Sanitation and Hygiene Committee
WASH MIS	Water, Sanitation and Hygiene Management Information System
WHO	World Health Organization
WIF	WASH Implementation Framework
WoFED	Woreda Finance and Economic Cooperation
WPMU	WASH Programme Management Unit
WRDF	Water Resources Development Fund
WSG	Woreda Support Group
WSP	Water and Sanitation Programme (World Bank)
WSSP	Water Supply and Sanitation Project
WWT	Woreda WASH Team

GLOSSARY

ADVOCACY – Activities undertaken to persuade and mobilize people/decision makers to take action.

BEHAVIOUR CHANGE – In hygiene and sanitation, behaviour change refers to practicing safe disposal of faeces through the construction and consistent use of improved latrines by all family members, hand washing with soap (or substitute) and water at critical times, and safe transport, treatment, storage and handling of household drinking water.

BOREHOLE DEPTHS – The term "shallow" in Ethiopia is used to refer to a borehole up to about 60m in depth; "medium" depth refers to 60-150m; "deep" boreholes are drilled up to about 450m or more.

CLIMATE RESILIENCE – The term "climate resilience" can be defined as the capacity to adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the systems, leaving it better prepared for future climate change impacts. In the particular case of Ethiopia, it refers to the capacity of WASH services to cope with climatic extremes such as droughts and floods, with special emphasis on securing the water sources and securing the management systems during shocks.

CLTSH – Community-Led Total Sanitation and Hygiene, Ethiopia's version of CLTS, is a triggering tool to mobilize communities to embark on construction of improved latrine, the use and promotion of hand washing practices with soap (or substitute) and water at critical times, and safe water handling and treatment at the household level, as well as the drive to achieve ODF status.

CMP – Community Managed Projects are WASH projects managed by trained and recognized WASHCOs with support from service providers such as MFIs.

COMMUNITY EMPOWERMENT – Community empowerment is bringing beneficiary communities be part of the whole process of planning, construction, operation and maintenance, and to forge sustaining action including maintaining ODF, universal hand washing practices, and tariff setting on the WASH services in their communities.

GENDER – The socially constructed definition of men and women, to be differentiated from sex, which is the biological characteristics of males and females and does not only refer to females. Gender is determined by tasks, functions and roles attributed to males and females in society and in public and private life.

HYGIENE – Practices associated with ensuring good health and cleanliness. This includes safe disposal of human excreta (ODF), hand washing with soap at critical times most notably after defecation or before contact with food and strict observation of the safe drinking water chain.

HAND WASHING – A hand washing facility is a water container with spigot for water delivery or pipe line installed near (in or outside the latrine) together with soap or ash for hand cleansing

IGNITION (also called triggering) – The process wherein an outside facilitator mobilizes communities to take action to change their hygiene and sanitation behaviour.

IMPROVED DRINKING WATER SUPPLY – Water supply systems such as wells or boreholes or protected springs, protected dug wells and rain water-collection, properly constructed, treated and piped into dwelling yard or plot, public tap, or standpipe.

IMPROVED SANITATION FACILITY – A sanitation system that is safe, clean and cleanable, sealed to discourage exposure to the flies, other animals and the environment as well as promote dignity and privacy.

JOINT TECHNICAL REVIEW – A semi-annual review process that brings together the government and major WASH Development Partners to review programme implementation including progress and challenges. These reviews provide an excellent opportunity for "big picture" learning and strategic problem solving.

MODEL HOUSEHOLD – A household that fulfils at least 11 of the 16 HEP packages that include access to and use of a latrine, preparation of wastewater seepage pits, hand washing, water storage and treatment facilities.

MULTI-STAKEHOLDER FORUM – An annual event that brings together stakeholders from the Government (including representatives from the four signatory ministries), Development Partners, civil society organizations, and the private sector to review progress in the WASH sector and to agree on key strategic undertakings to be jointly pursued during the year ahead. The MSF is designed to improve communication between stakeholders, as well as supporting the mutual objectives of coordination, harmonization and alignment among partners across the implementing sectors

OFFSITE SANITATION – A water-borne sanitation system linked to a sewer or septic tank/cesspool whereby the sludge deposit of human excreta is pumped or otherwise transferred to a treatment system at a different location.

ONSITE SANITATION – A sanitation system whereby excreta are contained at the same location as the toilet; either in a pit, chamber, vault or septic tank.

OPEN DEFECATION FREE (ODF) – an environment wherein no faeces is openly exposed to the air. It describes a state in which all community members practice the use of a latrines at all times and a situation where no open defecation is practiced at all. ODF is a term used in CLTSH to describe the attainment of 100 percent latrine coverage and use by all families in a village, including small children.

PERSONS WITH DISABILITIES – Those who have long-term physical, mental, intellectual or sensory impairment and face negative attitudes, environmental and technical barriers in society that limit and prevent their full and equal participation.

PROCUREMENT "CONTRACT" – WASH programme Consultancy, Goods and Works legally binding procurement arrangement entered into on behalf of the region, woreda and or zone. This can range from a very formal and structured contractual agreement document, to a hardcopy or electronic copy for service, a contract and purchase order, or a binding verbal commitment.

PRE-IGNITION/TRIGGERING – A process comprising preparations made to mobilize villagers. Pre-ignition activities include a strategic selection of kebeles and villages, meeting local gatekeepers and fixing appropriate date, time and place for community ignition.

RESETTLEMENT AREA – An area where people have been recently resettled as a result of actions by government agencies or private entities for agricultural, industrial or infrastructure development.

SANITATION ACTION PLAN SAP – A plan to promote or activate sanitation programme in rural and urban areas and in domestic and institutional settings. Elements include promoting hand washing and safe drinking water handling in the home. The urban aspects of the SAP address peri-urban areas, small towns and informal settlements where on-site solutions can be applied.

SOCIAL/ SANITATION MARKETING – An approach that focuses on improving formal and informal supply chains, products and services to expand the delivery of affordable basic sanitation, coupled with the application of commercial marketing techniques to stimulate demand to increase the number of households investing their own resources to build and maintain an improved sanitation facility.

SAFE WATER – Safe water is drinking water which is free from pathogenic organisms, toxic substances, an over dose of minerals and organic materials as well as with a pleasant taste, free of colour, turbidity and odour.

SAFE WATER CHAIN – Protecting water at the source is the first critical step in a multiple-barrier approach including application of household water transport, point of use treatment and safe storage of drinking water until consumption.

SAFE WATER MANAGEMENT – The protection of water at source, operation and management of systems and management of drinking water at home (including the practices of household water treatment, safe storage and use).

SELF SUPPLY – Improvement to water supplies developed largely or wholly through user investment by households or small groups of households. Self Supply involves households taking the lead in their own development and investing in the construction, upgrading and maintenance of their own water sources, lifting devices and storage facilities. A key characteristic of Self Supply is a ladder of incremental improvements with steps that are easily replicable and affordable to users, linked when necessary to microfinance and/or water from productive use.

SUB-CITY/KEBELE DEVELOPMENT COMMITTEE – The Sc/KDC is an institution that will be engaged in WASH activities in its respective sub-city or kebele. The composition is: representative of kebele administration, health extension worker, school community members, representatives of youth and women's associations.

TOTAL SANITATION – A situation where no open defecation is practiced and in which the cycle of faecal contamination through vectors including flies, fingers, animals, feet, wind, flood and rain runoff has been broken.

TOWN/CITY WASH STEERING COMMITTEE (T/CWSC) – The town/city cabinet serves as the WASH Steering Committee.

TOWN/CITY WATER BOARD (T/CWB) – The T/CWB is established as per regional proclamations and functions as the board of management for town/city water supply and sewerage (liquid waste management) services. In most instances, the utility manager is a member of the board and serves as board secretary.

TOWN/CITY WASH TECHNICAL TEAM (T/CWTT) – The T/CWTT is established by the town/city administration or town/city WASH Steering Committee and consists of mainly representatives from the town/city administration (municipality), the water board, the town's finance and economic development department, representatives from the WSSU, and health and education desk personnel. The chairperson is designated by the establishing authority.

WATER SUPPLY AND SEWERAGE UTILITIES (WSSU) – The WSSU is an existing institution that is responsible for the day-to-day operation and management of water supply and liquid waste management systems.

UNIMPROVED WATER SUPPLY – Use of unprotected dug well, unprotected spring, cart with small tank, or drum, tanker truck, surface water (river, dam, lake, pond, stream, canal, irrigation, and channel).

UNIMPROVED SANITATION FACILITY – A fixed point traditional latrine system made from local materials with an unsustainable feature which does not satisfy the criteria for an improved sanitation facility.

VERIFICATION – a process of endorsing that a given village/kebele/community is totally free of open defecation practices (ODF).

WASH STRATEGIC PLAN – The WASH Strategic Plan sets out woreda strategies, targets and schedules for achieving WASH coverage over a 5-year period.

WASH ANNUAL PLANNED BUDGET – The Annual WASH Plan sets out the specific activities, outputs and expenditures for the year ahead. It incorporates the planned WASH activities, investments and targets of all WASH implementers – including other government programmes, and the programmes of NGOs that are active in the sector. The Woreda WASH Budget includes funds coming to, or allocated by, the Woreda Administration for WASH activities.

WATER QUALITY MONITORING – Systematic verification of water quality standards through laboratory/or spot analysis of samples taken at critical points of the water supply system.

WATER QUALITY SURVEILLANCE – Watching and protecting drinking water from potential sources of contamination through sanitary surveys and water quality analysis of samples taken at different points.

1 EXECUTIVE SUMMARY

Since the ONEWASH National Programme (OWNP) is a continuous long-term government plan, this document reproduces some sections from the OWNP document 2013 that are still relevant, updated where needed, for a complete and independent document. However, the WASH environment in Ethiopia is rapidly changing and has many challenges.

In order to address those challenges and to meet the extremely useful feedback received through extensive stakeholder consultation, significant extra material, including detailed analysis of available data, has been added to make the document as comprehensive as possible.

The development objectives of the OWNP, which started to operationalize in 2013, is to contribute towards improving the health, well-being and economic activity of both rural and urban populations by increasing water supply and sanitation access and the adoption of good hygiene practices in an equitable and sustainable manner.

The OWNP was designed in two phases to complete consecutive national Growth and Transformation Plans, GTP I and II. Phase II has been designed using GTP II goals and strategic objectives with indicators for water, sanitation, hygiene and institution WASH. GTP II consist of 21 goals and four strategic objectives including: increasing safe water supply, upgrading the service level, and improving urban wastewater management systems; ensuring good governance in rural water supply by enhancing sustainability, effectiveness, efficiency; increasing climate change resilience of the services; and building the sub-sectors' capacity.

The OWNP has become complex, with more and more multi-sector interfaces, and will benefit from an overall 10 to 15-year strategy. A strategic approach is provided to reach OWNP objectives based on an in-depth analysis of internal factors and external influences, such as 1) the 2013 OWNP document, 2) WIF document, 3) GTP II goals and indicators, 4) OWNP Phase I review report, 5) SDG indicators and 6) challenges that are influencing integrated WASH approaches for sustainability.

The Ethiopian population is growing at an average rate of 2.6 per cent per year, implying that with this rate the population may exceed 130 million by 2030 (CSA, 2013) which would directly influence water and sanitation demand. The urban population is growing at a rate of 5 per cent, with doubling time just 15 years. New job opportunities in the services sector, construction, and industry are believed to hasten the rural-urban migration, contributing to the increase in the number of small towns from 534 in 1994 to about 973 in 2011[1], although this may still be an underestimate of current number of urban areas.

A MOWIE 2017 report indicates that the average national rural and urban water supply coverage is reported to have reached 68 per cent and 55 per cent respectively, benefiting 51.8 million rural and 10.6 million urban residents.

The GTP II targets for water supply are 85 per cent and 75 per cent for rural and urban areas, respectively. Following from this, the OWNP Phase II short to medium-term objectives (2 to 7 years) are to fulfil the GTP II targets (currently set for the period 2016–2020), namely:

- Provide safe and adequate water supply to rural communities with minimum service level of 25 l/c/d within a distance of 1 km from the water delivery point. Coverage to reach 85 per cent of the rural population of which 20 per cent is with Rural Pipe Systems.
- Towns/cities provided with water supply of 100 l/c/d for Category 1 town/cities; 80 l/c/d for Category 2 town cities; 60 l/c/day for Category 3; 50 l/c/d for Category 4; (all up to the premises) and 40 l/c/d for Category 5 towns within a distance of 250m with piped system; coverage 75 per cent of the urban population.
- Decrease rural water supply schemes non-functionality rate to 7 per cent.
- Decrease Non-Revenue Water (NRW) to 20 per cent for urban water supply utilities in Category 1 to 3 towns/cities.

GTP II did not include sanitation, hygiene and institutional targets, goals and strategic objectives. Instead, the development of Phase II OWNP targets, goals and objectives set in the NHEHS and School WASH Strategy are adopted. The sanitation and hygiene targets are indicated in the NHEHS as 82 per cent for sanitation, ODF, and hand washing.

Achieving GTP II targets means that an additional 20.4 million rural and 5.6 million urban population as well as 16,026 primary schools, 1,788 secondary schools, 1,054 health centres and 7,253 health posts will gain access to safe drinking water and sanitation services.

An improved enabling environment is critical to meeting the priorities for all sub-sectors (both for water and sanitation and both in rural and urban areas); high level guidance has been identified through bottleneck analysis involving a cross section of stakeholders in a workshop environment (October 2017):

- There is a strong interest and government commitment towards the establishing a regulatory body for the WASH sector. There is a keen interest in exploring the meanings of and possibilities for regulatory functions in the WASH sector; a momentum that should be further built on.
- All the sub-sectors would benefit from increased levels of financing, as well as strategies for identifying innovative financial instruments for the sector (i.e. blending finance, climate finance, etc.).
- Sub-sectors also need to improve their absorption capacity in order to accelerate the progress achieved in the previous years.
- The concept of service delivery, in particular for sanitation, but also for water, would benefit from a thorough exploration and definition in the Ethiopian context. This would facilitate the definition of roles and responsibilities in existing service delivery models, as well as identification of options for new service delivery models.
- Private sector actors are considered as key stakeholders to further advance water and sanitation service delivery. There is a need to incentivize their engagement through the development of sustainable business models, as well as to strengthen their capacity to engage in the water and sanitation sector. Coordination between government actors in public health, water supply and job creation is crucial.
- Awareness and prioritization of water and sanitation services would greatly benefit from a mindset change at all levels of society. This is particularly relevant for extending the treatment capacity of faecal sludge and urine, and thereby increasing the level of safely managed sanitation services.
- The Ethiopian WASH sector needs increased capacities across all areas. This relates not only to opportunities to take part in trainings, but more broadly to issues of human resources management, salaries, exchange visits and involvement of young professionals.
- City (or cluster) wide planning. For urban and water and sanitation services, moving towards planning that includes larger administrative units, such as the entire cities, woreda-wide plans, or clustered-kebeles, was identified as a possibility to make better use of economies of scale and achieve more sustainable progress.

To achieve the GTP targets in a short time frame will be dependent upon (among other things): much greater sector capacity; involvement of a much stronger NWCO and RWCO,[2] a more facilitated and streamlined fund distribution system to ensure the smooth flow of funds; fast-track procurement processes; contracting of consultants, suppliers and contractors at scale (large packages) and on an international procurement basis; timely availability of adequate financial resources; and appropriate systems in place to track implementation progress and fund utilization.

An indicative strategy action plans (SAP) for WASH is included to provide a road map for accomplishing specified GTP II goals including activities for each goal and anticipated results. The SAP is also designed using the anticipated results, core activities, indicators and time lines for water: The same SAP design is similarly applied for sanitation and hygiene and institutions.

The targets and overall existing situation demand a pragmatic programme to make available to all people in Ethiopia an adequate and safe water supply and to mobilize communities for sustainable and improved sanitation and hygiene services. In addition, inadequately served and drought prone pastoralist communities demand robust and climate resilient water and sanitation services.

A new aspect in comparison with the first phase of the OWNP is the need to mainstream climate resilience across all OWNP interventions, in particular the water

1 Background paper for water resource management policy review, Draft, 2017

supply infrastructures, which are the most vulnerable to climatic extremes. This second phase document incorporates the lessons learned from three consecutive years of severe drought in Ethiopia as a consequence of El Nino (2015/2016) and the Indian Ocean Dipole (IOD) (2016/2017) which triggered an unprecedented humanitarian response: This in turn has led to the concept and development of the OWNP sub-programme, WASH-DPA ("Development of Sustainable Water Supply Sanitation and Hygiene Programme in Drought Prone Areas of Ethiopia"), which is an ambitious US$5 billion programme that started in 2018 and is planned to be implemented over a period of seven years.

An indicative long-term plan is also included taking into consideration the ambition to achieve SDGs for basic and safely managed water supply for rural and urban areas. The required long-term activities will be continuation, establishment and formalization of the short-to-medium term actions in order to create a robust water and sanitation sector able to meet the needs of urban and rural WASH in Ethiopia. The continuity process may be described through "short-to-medium term" actions, leading into long term goals as listed in the Table 1.1 below.

SUBJECT		SHORT TO MEDIUM TERM ACTIONS	MOVING TOWARDS LONG TERM GOALS
1	Water resources	Accelerated hydrological and hydrogeological mapping. Development of water resource master plans under WRM multisector activities.	Full monitoring and control and sustainable exploitation of surface and groundwater. WASH fully incorporated in water resource master plans under WRM multisector activities
2	Urban master planning	Development of integrated city-wide water supply and wastewater master planning prior to feasibility study, design and construction of infrastructure	Complete development of master planning for all towns of the country
3	Technology innovation and mix	Technology shift to reduce failure rates, improve resilience in the face of changing climate, demographic shifts, environmental impact of rapid urban, industrial and agricultural development, arid area encroachment, refugee areas, competition for limited water resources, etc. Include "risk-informed planning" and tailor to meet the diverse needs within Ethiopia.	Fully sustainable and optimized water and sanitation technology mix resilient against climate change, demographic shifts, rapid urbanization, impact of industrial and agricultural development, arid area encroachment, and taking into account refugee areas, competition for limited water resources, highland areas, arid zones, etc.
4	Procurement and implementation	Streamlined procedures, contracting at scale involving international tendering and supply chains. Maximum use of national manufacturers, suppliers and contractors, while not precluding international suppliers and competition. Promotion of international/national collaboration, learning from procurement models such as eight towns work (UNICEF/DFID). Strategic bundling (i.e. lots within the same geographic areas) use of a mix of procurement methods including design-build, and emphasis on contract management to reduce lengthy implementation delays and contractor-consultant non-compliance.	Established and efficient procurement, supply chain and implementation procedures with maximum use of national manufacturers, suppliers and contractors, while not precluding international suppliers and competition. Full contract compliance and professional contract management carried out under guidelines.
5	Capacity development	Capacity development for improved delivery of WASH services at all levels including high level of services from water utilities, strengthening NWCO and RWCOs and forming Zonal WASH Coordination Offices. Develop efficient programme communication strategy and sharing of good/best practices.	Fully developed capacity in terms of public and private WASH skills, water abstraction licensing, safe water quality monitoring in all towns and villages supported by sufficient accredited laboratories throughout each region, monitored and enforced pollution control (both dispersed and point source).

2 And including proposed new or enhanced support at zonal level throughout the country

SUBJECT		SHORT TO MEDIUM TERM ACTIONS	MOVING TOWARDS LONG TERM GOALS
6	Clustering	Voluntary clustering for economy of scale, improved O&M and use of national /international KPIs for urban large and small towns, satellite villages and MVWS schemes; ahead of formal sector reform	Established national/regional utility regulation. Formal country wide clustering – it is anticipated that there could be around 100 publicly owned utilities with each including large and small towns, satellite villages and MVWS schemes and responsible for water supply, sanitation and solid waste
7	Advocacy	BCC for water security, sanitation awareness and hygiene; engagement at all levels (government, utilities, DPs, CSOs, private sector, communities) and learning from refugee areas water safety and sanitation procedures to inform overall rural and urban WASH practices. Introduction of sanitation micro-plans (currently being developed under UNICEF leadership but not yet published)	Fully established advocacy procedures for water security, sanitation and hygiene. Responsible engagement at all levels (government, utilities, DPs, CSOs, private sector). Full community engagement with safe rural water and hygienic sanitation practices.
8	Climate resilience mainstreamed	One of the main differences from Phase I of the OWNP is the mainstreaming of the concept of climate resilience across all components of the programme and with one specific component aimed at setting up the foundations for more climate resilient solutions.	During the second phase of the OWNP the sector will initiate the transition into climate resilient technologies and solutions. In the long term, all infrastructures and investments are expected to consider climate resilience.
9	WASH-DPA	The new WASH-DPA programme (Development of Sustainable Water Supply Sanitation and Hygiene Programme in Drought Prone Areas of Ethiopia) is a flagship programme of the Government of Ethiopia intended to build resilience in drought prone areas through investments in the WASH sector.	
10	Emergency preparedness in WASH	Considering the nexus between Emergency and Development, the OWNP Phase II will develop an Emergency Preparedness and Response Plan, with preparedness activities which will have to be integrated in the regular programming. An example of preparedness is the establishment of stronger hydro-meteorological systems to anticipate natural disasters and provide early warnings to populations at risk	
11	Sustainability feasibility studies	Sustainable development studies and designs; affordability and appropriate levels of water and sanitation services, environmental and health impact, urban sanitation, rural water and hygiene, arid areas.	Water supply systems based on resource studies, proven business models, economy of scale, service standards, community engagement, etc. Complete integration of urban sanitation and environmental protection, including SWM, industrial solid and liquid wastes
12	Urban planning	Enforcement of planning and shift towards watershed management and catchment protection. Incremental basic service delivery infrastructure that is in tandem with urban growth.	Full enforcement of urban, rural and industrial physical plans that include comprehensive watershed management and protection.

SUBJECT		SHORT TO MEDIUM TERM ACTIONS	MOVING TOWARDS LONG TERM GOALS
13	Technical assistance	TA (including post-construction) units at regional level with sub-offices distributed at approx. zonal level (to coincide or pre-empt clustered utilities) to support both urban and rural WASH development and operation, including on-the-job training	Fully functioning and sufficient TA units so as to ensure rapid WASH development, value for money, sustainable business models, etc.
14	Sector budgets	Ring-fenced sector CAPEX and OPEX budgets for WASH in schools and health facilities; water supply and sanitation services to/from property boundary increasingly becoming obligation of utility or WASHCO	All construction and operation of facilities within schools and health facilities (including retro-fit of existing buildings) fully covered by sector budgets. Water supply and sanitation services to/from property boundary being obligation of utility or WASHCO
16	Monitoring and evaluation	Updated regional WASH inventories of installed systems, planned systems and data storage and dissemination. MOWIE MIS established. Moving towards analyzed sector data that is effectively utilized to orient investments and track performance of service delivery (functionality) in real-time.	Regional WASH inventories, data storage and dissemination. Comprehensive and fully implemented WASH data base and updating systems.

Table 1 1 High level actions and goals, short to long term

In the process of designing the OWNP Phase II, average unit rates and population served for each technology type in use in each region have been calculated from available data. An interactive spread sheet tool has been developed to allow for any combination of technology type, regional population served and regional WASH budget.

The tool has been used to adjust regional proposals to reach GTP II targets and to allow for a shift towards more sustainable technology mix: the physical plan for both urban and rural areas is designed using the regional plans but with adjusted populations and technology mix and recalculating using adjusted unit rates.

The resulting cost for the short-to-medium term work is estimated at US$6.5 billion. A total of US$2.5 billion is allocated for the CR-WASH component of which around US$410 million is estimated for activities that contribute to mainstream climate resilience across the country and the programme – such as water resources mapping, planning and monitoring. Around US$2.1 billion is the estimated cost of a sub- component which aims at setting up the foundations for climate resilient investments in drought prone areas (both rural and urban areas), including activities such as water resources development as well as water distribution and O&M systems-.

The rural water supply includes 4,367 self-supply, 45,532 spot supply systems (varies from hand dug well to shallow well and borehole supply pumped with solar energy) and 2,987 piped water supply systems to create more resilient water source and multi-village water supply systems. It is proposed to focus on a total of 5,871 rural rehabilitation schemes which are planned to meet the target to reduce rural non-functionality rate to 7 per cent.

There are 973 urban WASH programme towns. The urban rehabilitation and expansion programme will focus on 693 towns of which particular emphasis will be given to 36 towns of Category 1 to 3. The aim of rehabilitation will be to reduce NRW from an average of 39 per cent to 20 per cent in each town (the GTP II plan) and carry out system expansions to meet unserved urban residents. There are 280 new urban water supply projects proposed, mainly focused on small towns in Categories 4 and 5. See details in Section 12 and in the Annexes 1 and 2.

The sector breakdown of funding required achieving the GTP II water supply, sanitation and hygiene targets is depicted for the five programme components in Figure 1.1 below and described in detail in Section 12.

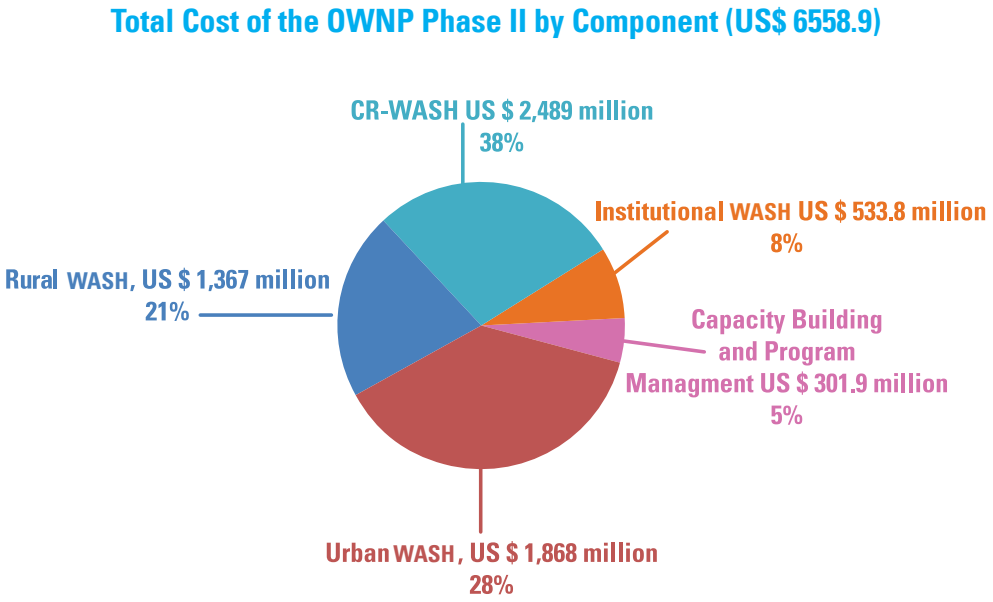


Figure 1.1: Budget distribution of the OWNP phase II by WASH component

It is anticipated that the OWNP Strategy (Section 7), the continuation of short-to-medium term recommendations (Section 8) and long-term recommendations (Annex 6) included in this document will form the basis for WASH Phase III (2021-2025) and Phase IV (2026-2030) formulation and will additionally achieve SDG targets by 2030. Annual expenditure to achieve SDGs (or equivalent Ethiopia standard) by 2030 is estimated at around US$3.4 billion per year.

ECONOMIC AND OTHER BENEFIT OF OWNP

Water is both an economic and social good. Access to clean water and sanitation at an affordable price is a basic human right. Managing water as an economic good is important to achieve efficient and equitable use, and to encourage conservation and protection of water resources.

Significant gains have been made in the provision of water and sanitation services. Globally, between 1990 and 2010, over 2 billion people have gained access to improved water sources and 1.8 billion people gained access to improved sanitation facilities, while 11 per cent of the global population is still using unimproved water sources, resulting in the death of 2.2 million children every year due to preventable causes.

As stated in several studies, the supply of improved water hygiene and sanitation facilities (WASH) aids not only in attaining health and values (dignity, equity, compassion solidarity and respect) but also contribute to economic and financial savings such as in reducing health care costs, protecting the environment and reducing time spent collecting and transporting water.

2 INTRODUCTION AND BACKGROUND

2.1 INTRODUCTION

This Programme Document has been prepared with the support of the Government of Ethiopia and is intended to serve as a guide to implementing the OWNP, hereafter referred to as the Programme. This document is not in itself a detailed implementation manual but provides strategy, plans and guidelines to achieve immediate GTP II targets and an outline strategy to achieve SDG targets in the medium-to-long term.

The Programme provides the framework for harmonizing Government and donor approaches to planning, procurement, implementation and financing and serves as the platform on which a closer partnership can be built between planners, implementers, development partners and others to achieve common goals.

2.2 THE GLOBAL CONTEXT

Although a significant change was recorded globally during the Millennium Development Goal (MDG) period, the effort was not fully successful, particularly with respect to sanitation. For this reason, the global programme for WASH services has been developed and extended to 2030 through the introduction of Sustainable Development Goals (SDGs), superseding the MDGs and involving 17 goals and 169 targets.

SDG 6 aims to "Ensure availability and sustainable management of water and sanitation for all" and includes three technical targets relating to:

a. Drinking water (Target 6.1); "by 2030, achieve universal and equitable access to safe and affordable drinking water for all"

b. Sanitation and hygiene (Target 6.2); "by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations"

c. Wastewater management (Target 6.3); "by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally"

The 2030 global agenda for water and sanitation services goes beyond the WASH sector to support the achievement of other SDG targets through WASH services (Table 2.1).

Goals	SDG targets
Reducing poverty and achieving universal access to basic services. Ending all forms of malnutrition	2.2
Ending preventable child deaths, combating neglected tropical diseases and waterborne diseases, and achieving universal health coverage	3.2, 3.3, 3.8, 3.9
Providing safe and inclusive learning environments	4a
Ending violence against women and girls and reducing gender inequality	5.2, 5.4
Ensuring adequate, safe and affordable housing for all	11.1
Reducing deaths caused by disasters[3]	11.5

Table 2 1: SDG Goals supported by WASH

During the MDG period, global monitoring focused on access to drinking water, sanitation and hygiene at the household level. While household access remains the primary concern, the SDG programme includes institutional (schools, health care facilities and workplaces). The SDG targets 6.1 and 6.2 referring to 'universal access' and 'for all' for boys and girls, men and women and persons with disabilities and other vulnerable groups and marginalized groups and further reinforces the importance of WASH in all settings, not only the household.

The Government of Ethiopia has a plan to join the lower middle-income countries by 2025, which has become an added driving force for the water supply and sanitation sub sector.

As stated in several studies, the supply of improved water, sanitation and hygiene facilities (WASH) not only facilitates health and values (dignity, equity, compassion, solidarity and respect) but also contributes in economic and financial savings such as in reducing absence from work, health care costs, protecting the environment and reducing time spent collecting and transporting water. A study by WHO[4] revealed that each US$1 invested in WASH would yield an economic return of between US$3 and US$34.

2.3 THE NATIONAL CONTEXT ON WASH

According to the National WASH Inventory (NWI)[5], in 2011 national access to water supply was a little over 50 per cent and to sanitation was a little over 60 per cent. By 2015, it was estimated that national access to water supply had increased to 67 per cent, meeting the MDG targets. However, the sanitation MDGs were not met; according to studies by EDHS in 2016, the improved sanitation access for Ethiopia is very low. Millions of Ethiopians still lack improved water and basic sanitation facilities, and very few people regularly wash their hands with soap and water at critical times.

Water supply, sanitation and hygiene should be addressed as integrated packages and the Government is committed to implementing a Sector Wide Approach (SWAp) through the ONEWASH National Programme, supported by a number of Development Partners and NGOs.

GoE has sets out its development goals in successive Growth and Transformation Plans (GTPs), which identify water and sanitation as priority areas for achieving sustainable growth and poverty reduction. In line with the second GTP (GTP II), which covers the period 2016-2020, GoE has prepared a Universal Access Plan (UAP), with the following targets:

Provide rural water supply access with GTP II minimum service level of 25 l/c/d within a distance of 1 km from the water delivery point for 85 per cent of the rural population of which 20 per cent are provided with RPS.

- Provide water supply access for 75 per cent of the urban population with GTP II minimum service level of 100 l/c/d for Category 1 towns/cities, 80 l/c/d for Category 2 towns/cities, 60 l/c/d for Category 3 towns, 50 l/c/d for Category 4 towns (all piped up to the premises) and 40 l/c/d for Category 5 towns within a distance of 250 meters with piped systems.
- Carry out studies and designs of urban wastewater management for 36 category 1, 2 and 3 towns/cities and build wastewater management systems for six towns/cities with populations of 200,000 or more.
- Decrease rural water supply schemes non-functionality rates to 7 per cent and decrease NRW to 20 per cent.

To facilitate achievement of the GTP and UAP targets, GoE has prepared a WASH Implementation Framework (WIF) to provide guidance for implementing the Programme and also defines the roles and responsibilities of major stakeholders in the WASH sector.

2.4 POLICY AND PROGRAMME INITIATIVES

The Ministry of Water, Irrigation and Electricity (MoWIE) has introduced policies, legislation and strategies such as National Water Resource Management Policy (1998), Water Sector Strategy (2000), Water Sector Development Programme (2002), Water and Sanitation Access Plan (UAP) (2005), Memorandum of Understanding signed by three sector ministers (MoU, 2006) and a revised MoU, signed by four sector ministers in November 2012. MoWIE has also prepared guidelines for gender mainstreaming in the water and energy sectors (2012).

3 United Nations General Assembly, 'Resolution adopted by the General Assembly on 25 September 2015: 70/1. Transforming our world: The 2030 Agenda for Sustainable Development', A/RES/70/1, 21 October 2015, <www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E>

4See <www.who.int/water_sanitation_health/monitoring/investments/glaas/en

Health Sector Development Programmes (HSDP I, II, III and IV) in line with the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), and now the Growth and Transformation Plan of 2011-2015 (GTP I) and 2015-2020 (GTP II) have been introduced to address the water, hygiene and sanitation problems of the country. One of the main innovations of the HSDP has been the Health Extension Programme (HEP) that aims to reach universal coverage of primary health care and improve the quality of health services in rural areas and partly in the urban areas.

2.5 DEMOGRAPHICS

The Ethiopian rural population is estimated at 75 million (in 2017) growing at an average rate of 1.8 per cent per year and urban population is estimated at 19 million (in 2017) growing at an estimated 5 per cent annually (see tables in Annex 1), According to CSA 2013, the total population may exceed 130 million by 2030. New job opportunities in the services sector, construction, and industry are believed to be hastening rural-urban migration. One effect of this is the increasing number of villages growing in size to the small towns category; from 534 small towns in 1994 to about 973 in 2011[6].

2.6 EVOLUTION OF THE ONEWASH NATIONAL PROGRAMME

The evolution of the ONEWASH Programme in Ethiopia has followed three phases as follows:

1. WASH activities prior to 2004

Prior to 2004 WASH, interventions were project-based, and there was limited integration between water supply, sanitation and hygiene and little enabling conditions to integrate these three sub sectors. Community and women's participation were low; private sector participation and government implementation capacity was also very low during this period.

2. From 2004 to present

Since 2004, WASH implementation has become programme-based and is in line with the decentralization process. The Government's financing for WASH activities has considerably increased during this period. However, implementing WASH activities in Ethiopia faces a number of challenges: For instance, activities are not fully harmonized, as some NGOs and other organizations are implementing WASH projects as a free service without community or user contributions and fulfilling individual donors' financial and procurement procedures are difficult and time consuming.

3. The ONEWASH National Programme

To address the challenges faced by the WASH sector, the Government initiated and supported the establishment of the ONEWASH National Programme, functional since 2013. The Water Implementation Framework[7] (WIF) provides the framework and guidelines for implementing the Programme, which is in turn based on the Growth and Transformation Plan (GTP).

During Phase II the Programme will follow GTP II plans and targets and will also address activities that were not fully addressed in Phase I. Some of the significant areas which need further strengthening are capacity building, bringing all NGOs working in WASH to be more aligned with the OWNP and enhancing joint participatory planning practices at all levels.

The cornerstone of the Programme is the Consolidated Annual WASH Plan (CAP), which includes a budget. Progress in achieving the plan goals are reported in quarterly and annual progress and utilization reports at federal, regional, city, zone, woreda and town levels. It is expected that donor funding will, to an increasing extent, be channelled through the Consolidated WASH Account (CWA) under Phase II.

5 The National WASH Inventory is described in more detail in Section 15.

2.7 OWNP PHASE II DEVELOPMENT PROCESS

The process to arrive at the OWNP Phase II recommendations may be represented by the following schematic, Figure 2.1. Note that this document represents Step 13.

The process has fully involved stakeholders as indicated in Steps 4, 5, 6 and 7 (as well as at different draft report stages). Stakeholders will be engaged again during Steps 14, 15, 16 and so on through the iterative cycle following the issuing of the final version of this document. This allows for future assessment (Steps 14 and 15) of the consequences of selected solutions, especially financial and capacity/institutional implications.

Steps 8, 9, 10, 11 and 12 have involved rigorous analysis of available data and development of an interactive spreadsheet tool (principally for rural water) that will be available for use by all regions, DPs, CSOs and other interested parties. Users will be able to adjust targets to meet available budgets and vary the technology mix to improve reliability and sustainability according to current "state-of-the-art" in each region or geographical zone.

One outcome of the stakeholder reviews (Steps 14 and 15) is likely to be that timescale targets are too ambitious and that the strategy will need some adjustments (Step 16). However, Section 9 of this document pre-empts this situation by identifying "short-to-medium term" activities that are required to meet GTP II outputs, irrespective of actual period of implementation.

Similarly, if timescales are stretched, then budgets identified in Section 12 of this document will remain valid except for: (1) escalation figures which will need adjustment if the implementation period is extended and (2) the technology mix which could be more ambitious towards reliability and sustainability if more time is available for development and implementation.

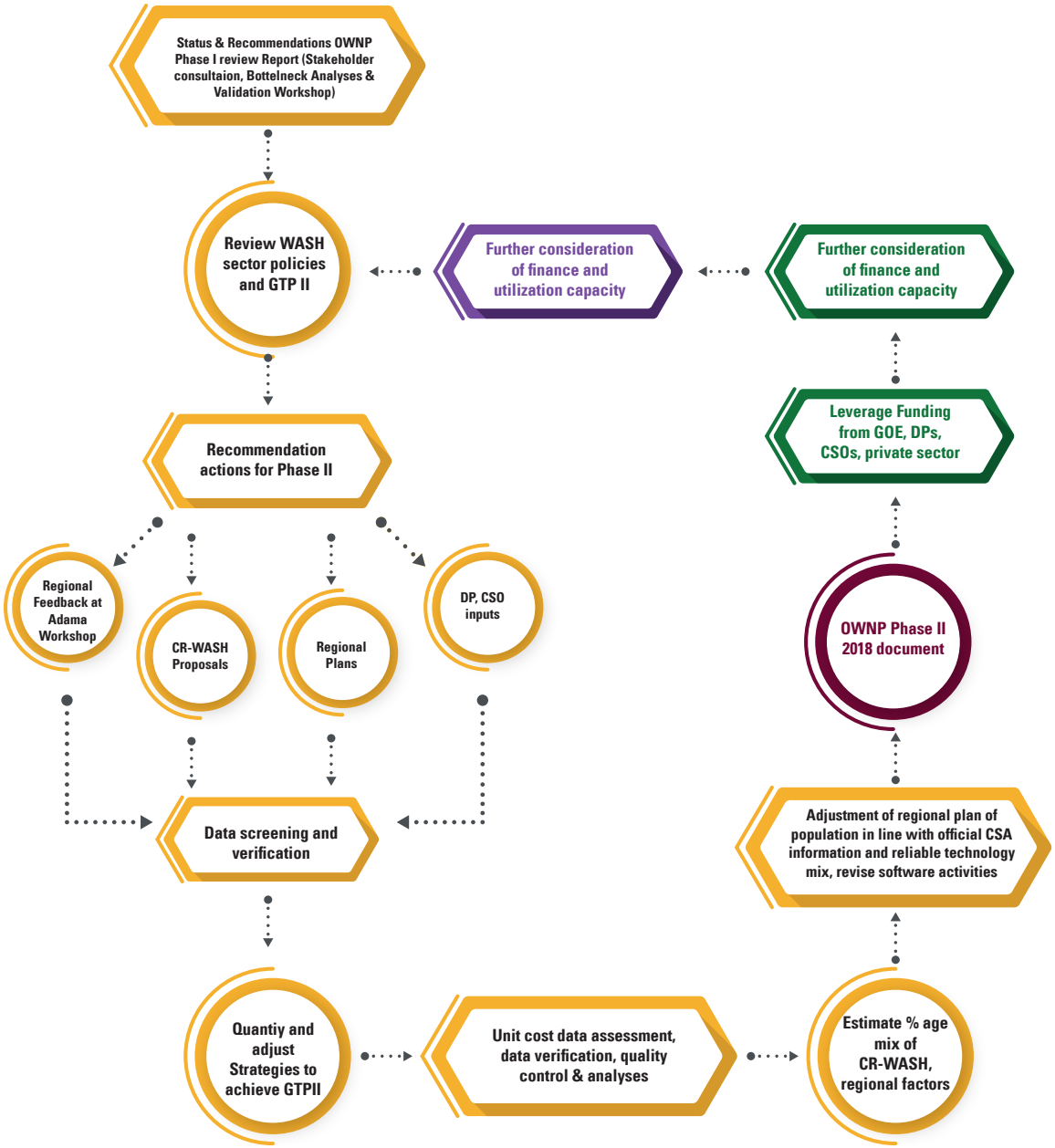


Figure 2 1: OWNP Phase II development process

6 Background paper for water resource management policy review, Draft, 2017

7 Establishing the organization; defining the roles and responsibilities of sectors and partners; creation of a consolidated WASH account; planning, budgeting, distribution of fund, procurement; and reporting mechanisms

3 PROGRAMME DESCRIPTION

3.1 INTRODUCTION

The Programme makes use of the First Phase Review Report of 2017, updated strategies, plan and guidelines since 2013 to establish a baseline for access to rural and urban water supply and sanitation and to plan short- and long-term developments to meet immediate GTP II targets and longer-term SDG goals.

3.2 PROGRAMME OBJECTIVES

The Programme's development objective is to improve the health and well-being of population in rural and urban areas by increasing sustainable and climate resilient water supply and sanitation access and the adoption of good hygiene practices. The long-term objective is, by 2030, to achieve universal, sustainable, climate resilient and equitable access to safe and affordable water for all, along with improved, low environmental impact, sanitation.

The intermediate objective of the Programme is to achieve increased and sustained coverage of safely managed water supply and sanitation in rural and urban areas. The short-term objective of the Programme is to achieve increased and sustained coverage of water supply and sanitation in rural and urban areas with basic water supply and sanitation service levels in Ethiopia in line with the GTP II targets (2015-2020).

3.3 GUIDING PRINCIPLES

The Programme is guided by the Memorandum of Understanding (MoU) and WASH Implementation Framework (WIF), signed by the Federal Ministries of Water, Irrigation and Electricity, Health, Education and Finance and Economic Cooperation. The following four guiding principles of the Programme as stated in these documents are:

1. Integration of water, health, education and finance
2. Alignment of partners' planning and management systems and procedures with those of the GoE
3. Harmonization of partners' approaches and activities
4. Partnership between implementing parties

3.4 PROGRAMME PILLARS

The Programme's activities are organized around three domains or pillars:

1. Enabling Environment and Good Governance form the foundation and prerequisite for the Programme's success. It includes legal instruments, policies, strategies and frameworks, institutional arrangements, programme methodology, implementation capacity, availability of products and tools, finance, cost effective implementation and M&E, formal agreements, the commitment and integrity of personnel at all levels and access to information. This pillar also includes compliance with agreed norms and standards, establishing WASHCOs as legal entities and contractual relations between implementing parties.

2. Maximizing availability and efficient use of human and financial resources to create demand for better WASH services: The emphasis is on efficient use of resources rather than only the availability of resources. During consultations with the regions and cities, human resources and capacity were mentioned more frequently than funding and other resources as constraints to effective implementation of WASH activities on the ground.

3. Capacity development for improved delivery of WASH services: Capacity gaps at all levels have been identified as one of the most pervasive threats to the successful implementation of the Programme. Therefore, capacity development of IPs at all levels will receive priority attention by the Programme and it will continue to support

the development of human resources, organizations and systems and logistics and equipment.

There has been some success with establishing the three pillars supporting efforts towards coverage of improved water, hygiene and sanitation services across Ethiopia, but efforts should be quadrupled in order to bridge the widening gap between current situation and targets. For instance, as indicated in Section 16, around US$6.5 billion will be required to achieve GTP II WASH targets while current absorption capacity is only around US$0.5 billion per year.

3.5 PHASING

In Phase II the Programme focuses on newly developed strategies, directives, and indicators in GTP II. The Programme also looks beyond GTP II to establish sector reform and meeting SDGs.

The components of OWNP Phase II include rural water supply, sanitation and hygiene (rural WASH), urban water supply, sanitation and hygiene promotion (urban WASH), institutional WASH, programme management and capacity building and Climate Resilient WASH.

There will be a greater emphasis on sustainable and resilient technologies. The type of technologies used for water supply especially in rural areas may have to be diversified and simplified with sustainability in mind. The focus only on wells/pumps and capping springs has limited the potentials of other technologies and the use of other water resources such as surface water and rainwater harvesting.

Consideration has been given to broadening the Programme's scope to include such related activities as watershed and water resources management, productive uses of water, environmental protection, climate resilience, WASH in emergency, etc. as agreed during the Phase I review with stakeholders.

Timescale to meet targets may be constrained by funding but equally by funding absorption capacity. Hence an interactive tool is presented which enables decision makers to balance activities with targets and available resources and to increase the level of sustainable technology (see Sub-section 8.2).

Availability of funds might also be a constrain to meet the targets of the second phase, for that reason, there are two options proposed: 1) extend the duration of the second phase of the ONWP beyond 2020, or 2) develop alternative planning scenarios and priorities based on availability of funds, implementation capacity and other internal or external challenges.

3.6 PRELIMINARY RISK ASSESSMENT

Major risks that may affect achievement of the Programme's development objective and results are summarized in the following table, along with measures for minimizing or mitigating the identified risks. Although a lot of improvement is being recorded, there are still a number of vital programme areas which need further improvement. These importantly include the need for continuous improvement of the quality of study, design, contract management and supervision, improvement in timely financial reporting and ensuring that cash balances and advances are sufficient for timely implementation.

Description of risk	Proposed Mitigation Measures	Rating
Targets may not be achieved due to time, availability of funding and capacity constraints, including those in the private sector	Programme interventions should target unserved areas, prioritize providing basic levels of service and strive to control unit and per capita costs. Enhanced and focused capacity building training to private and public sector staff so that more can be done with limited amount of resources and time.	S
Weak implementation capacity which is witnessed by the number of years a project is taking to complete	Link local contractors and consultants with experienced and efficient international contractors. TA (including post-construction) units at the regional level with sub-offices distributed at approx. zonal level (to coincide or pre-empt clustered utilities) to support both urban and rural WASH development and operation, including on-the-job training: Regional units will have specialist knowledge of renewable energy, sustainable resources, deep well drilling, ICB and local contract management, sustainability feasibility studies (including financial analysis), Build Capacity Build and Transfer (BCBT), Build Operate Transfer (BOT), etc.	S
Weak, unorganized and unsupported operation and maintenance system	Trained maintenance crews with stocks of spare parts. As above, TA (including post-construction) units at regional level with sub-offices distributed at approx. zonal level. Streamlined procurement and supply chain including preferential letters of credit for imports of essential international standard water supply equipment (pumps, etc.) not available through local manufacture, point-of-use filters, etc. Voluntary clustering of large and small towns and MVWS schemes and introduction of internationally recognized KPIs followed by formally clustered large utilities monitored by national regulator – so as to benefit from shared resources and skills and economy of scale – for both project implementation and long-term sustainable operations.	S
High turnover of key staff reduces implementation capacity and achievement of goals and plans, causing delays and continuity problems	Incentives through remuneration packages, career development structures, performance bonus, salary, per diem, conducive work environment, etc. Compatibility between public and private sectors to avoid public private "drift" under rapid sector development and competition for trained and experienced human resources. Special consideration for hardship areas for staff by adding allowances. Training additional personnel in relevant skills at TVETCs, HSCs and universities. In-service training to relevant staff in planning, procurement, implementation and monitoring, including data management. CPD (continuous professional development) for new and existing staff, monitored by professional institutes and associations. Systemized hand-over procedures from resigning staff to new staff before releasing a resigned staff to ensure continuity of established system or programme. (Increase staff resignation period to allow for this) As above, voluntary clustering of large and small towns and MVWS schemes and introduction of internationally recognized KPIs followed by formally clustered large utilities monitored by national regulator – so as to benefit from shared resources and skills and economy of scale - for both project implementation and long-term sustainable operations	S

Inadequate environmental regulation and enforcement (zero or poor wastewater management, industrial wastes, SWM, septic tanks and pit latrines, building in flood plains, etc.) Short- and long-term impact on water resources (quantity and quality), the adequacy and sustainability of water schemes, flooding, general environmental degradation, growing competition between water users, etc.	Promote stronger linkages with watershed management. "In-stream" recovery practices and water conservation interventions to protect sources and catchments. Sensitize users to the importance of maintaining protected buffer zones around water sources. Introduction of urban and rural master plans that include watershed management with multi-sector coordination. Enforcement of agreed urban plans. Licensing and monitoring of wastewater discharge consents.	M
Difficulty in tracking availability and utilization of GoE, DP and CSO funds may be a constraint to implementing the Joint Financing Agreement (JFA)	Prepare budget utilization quarterly financial reports showing budget availability, disbursements, expenditure and budget utilization and report to BoFED and MoFEC	S
Not using properly designed community mobilization methods either for their involvement in community action or behaviour change programme.	Community awareness creation through continuous engagement and using communication and IEC materials will enhance and secure community participation.	S
Lack of programme coordination and harmonization with like partners such as CSO.	Design and implement systematic methods and reach-out to multi-sector ministries with like objectives as well as CSOs working in WASH to work together for the same objectives. As above, translation and wide dissemination of key documents such as the WIF, MOU, NWI data and this Programme Document, newly developed strategies, manuals, technology options. Relevant staff will receive orientation workshops and training on OWNP targets, strategies and procedures. Closely monitor compliance with procedures and applicable standards	S
Degraded environment/catchment such as gully, land slide, no or limited vegetation, polluted environment affects the project in terms of reduced yield; floods will damage the water supply system and contaminate the source.	Project screening, planning considerations, design and construction management considerations; watershed management, catchment protection through IWRM suggest be implemented. Periodic and routine monitoring of the upstream water source, soil conservation, river and/or drainage and catchment area upstream of the proposed water source will be necessary to identify and manage any threat of future risk to the water supply infrastructure.	S
Urban areas face a whole different host of challenges in providing clean water and sanitation. The flooding of water supply source and infrastructure and, in addition to the influx of human waste, will challenge the development of wastewater management systems.	Development of sustainable water resource master plans under WRM multi-sector activities, accelerated hydrological and hydrogeological mapping including WASH-DPA and city-wide wastewater master planning at least in the medium term and on a large scale.	S

Key: S= Significant, M=Moderate

Table 3 1: Preliminary Programme Risk Assessment [8]

8 This assessment does not include potential fiduciary risks, which are the subject of a separate Fiduciary Risk Assessment being undertaken by a group of Development Partners.

3.7 READINESS CRITERIA

To ensure that there is an enabling environment that will promote effective and efficient implementation and support for the sustainability of constructed facilities; "readiness" criteria were proposed in Phase I for all levels. The readiness criteria are intended to be fulfilled before disbursement of funds for procurement of works and physical implementation takes place. Readiness criteria, which should ideally be in place in each planning cycle, are listed in the Table 3.2 below:

Federal level	Regional Level
■ Fiduciary risk assessments ■ Appraisals concluded with positive results ■ Budget availability for Phase II approved by MoFEC and partners ■ NWI data accessible to all relevant parties ■ M&E staff and procedures with agreed monitoring indicators in place	■ Capacity building unit is established and is functioning ■ Verification workshop held ■ Consolidated Annual WASH Plan and budget prepared ■ Budget for WASH activities approved, including Emergency WASH activities, in some regions when emergency response activated ■ Zonal WASH offices/command posts established where required in larger regions ■ M&E staff and procedures with agreed monitoring indicators in place ■ NWI data accessible to all relevant parties
Zonal Level	**Woreda Level**
■ Zonal WASH organization/command post established ■ Annual WASH budget confirmed with separate budget line for sanitation and hygiene ■ Consolidated Annual ONEWASH plan approved ■ M&E staff and procedures with agreed monitoring indicators in place ■ NWI data accessible to all relevant parties	■ Agreement on contributions of parties to the Programme, including a consolidated annual plan and budget signed between partners and woreda government ■ Woreda WASH plans prepared and approved by the woreda council ■ M&E staff and procedures with agreed monitoring indicators in place ■ NWI data accessible to all relevant parties

Towns/Cities Level	Community Level
■ Consolidated Annual WASH Plan prepared and approved ■ ONEWASH organizations established, staffed and operational ■ Separate budget line for sanitation and hygiene included in annual budget ■ M&E staff and procedures with agreed monitoring indicators in place ■ NWI baseline data available and accessible to all relevant parties ■ Existence of boards, utility or service provider, business plan, availability of tariff structure and secured water sources	■ WASHCO formally recognized and registered at kebele or woreda level with gender-balanced membership ■ WASHCO elects officers ■ ONEWASH annual plan approved by community and WASHCO members ■ WASHCO opens a bank account for community contributions for O&M ■ Contributions from users collected and deposited in the WASHCO's bank account
Kebele Level	
■ Consolidated WASH plan and budget approval by kebele chairman and council	

Table 3.2: Readiness Criteria

4 COMPONENT DESCRIPTION

The components of OWNP Phase II include Rural Water Supply, Sanitation and Hygiene (Rural WASH), Urban water Supply, Sanitation and Hygiene Promotion (Urban WASH), Institutional WASH, Programme Management and Capacity Building and Climate Resilient WASH.

4.1 RURAL WASH

4.1.1 Rural Water Supply

4.1.1.1 Introduction

An estimated 80 per cent of the population in Ethiopia lives in rural areas with a high dependence on mixed and pastoral farming, often under harsh and variable climate. Many small towns provide market and rural support functions, as well as labour pools for agricultural activities. According to MoWIE annual budget year performance report 2009 EFY, 51.8 million or 68 per cent rural population and 10.6 million or 55 per cent of urban population had access to improved water supplies. Water non-functionality has been reduced to 11 per cent and 61 per cent have some form of latrine facility.

Water source development should be based on the best available hydrological and hydrogeological information, interpreted by qualified professionals. The Programme's rural water supply activities include studies, construction, rehabilitation and expansion of point source or small pipe schemes and multi-village schemes. Alternative water supplies and energy sources should be studied at each project site to meet present and future water needs, fully taking into account the impact to/from other existing and proposed projects in the same surface and subsurface catchment zones.

The sustainability of the majority of rural water supply schemes has proved to be low, due to unaffordability, lack of post-construction support and reliance on management through part time WASHCO members. In part, this situation calls for training and equipping WASHCOs with the tools to do preventive maintenance. However, sustainable and resilient water supply services require, increasingly, higher technology than the common spot supply from wells and gravity springs. For this, higher level technical and permanently employed staff are needed to professionalize water management systems (i.e. rural water utilities).

The planning and implementation process for rural water supplies will vary according to implementation modality (region managed project, woreda managed project, community managed project, non-government organization, self-supply and the recently approved rural water utility model) but in all cases it will be expected to conform with Programme requirements and GoE policies regarding the Programme organization: preparing annual WASH plans and budgets, reporting requirements, use of common monitoring indicators, cost-sharing policies, and technical standards, including water quality standards. (see Table 5.1 below).

4.1.1.2 Implementation and Operational Modalities

Any new implementation and operational modality needs to integrate with, or allow for, existing woreda and WASHCO management and rural support structures. Point source rural water supplies will remain under formal or informal WASHCOs with little or no outside assistance, except encouragement of the private sector by implementing agencies. Zonal administration roles need to be acknowledged and considered in some regions.

Modality	Description	Responsibility	Funding Source
Regional Managed Programme	Regions will support appraising programme, conducting in depth study on ground water potentials, conducting capacity building to staff and private sectors, supervise and commission major projects, support strengthening monitoring, learning and knowledge exchange programme	Regional coordination office Multi-sectoral partners	Government, DP, CWA, CSO
Woreda/Zone Managed Programme	Project planning, implementation, monitoring and commissioning the project supported by the WWC, also contracting, procurement, inspection, quality and handover to the community.	Woreda/Zone WASH team Woreda/Zone WASH Consultants	Grant for capital expenditure
Community Managed Programme	Communities are responsible to invest and be part of the full project cycle, from planning, implementation (including procurement of most materials and labour) and O&M on low-cost technologies. The WASHCO is directly responsible for contracting, procurement, quality control and financial accountability to the community, the kebele and the woreda administration.	WASHCOs	Bilateral organizations Loans from MFI or banks
NGO Managed Programme	In short NGOs are donors, implementers and knowledge disseminators; they follow the National WASH principles and practices; follow procedures of government, partner organization, foster community initiative, develop community leadership and require community investment, administer external resources on behalf of the community (as in WMPs), make external resources available to the community directly or through MFIs to support construction and management.	NGOs in association with woreda level partners	Donors MFI
Self-Supply Modality	Essentially these are private wells which are financed by beneficiaries (individual or neighbourhood) and which are not adequately protected to supply clean and safe water to the households or neighbours. The problem is the site, water abstraction methods and lack of the necessary protection mechanisms such as raised apron, water tight casing etc.	Individual homes	Self
Rural Water Utility Model	New implementation modality introduced in 2017 which consists on professionalization of the management of rural water infrastructures by setting up a rural public utility. See 5.1.1.4 below		

Table 4 1: Modality description, responsibility and funding

4.1.1.3 Rural water technology and operations

The systems needed to supply water to poor rural communities may be complex and costly (for instance, MVWS with deep wells and diesel generators to drive pumps). Innovative ways to introduce sustainable business models and to tap renewable energy need to be developed.

- Rain Water: Theoretically, about 800 ml of water can be collected from 1 square meter of surface area if it rains only 1 mm per year. Considering the surface area (harvester area) of schools and the amount of average rain fall in Ethiopia it can be said that all schools in Ethiopia should not be short of water throughout the year.
- Sub-surface dam: Low land areas such as Afar, Somali and Borena have many large dry river beds that are carrying large amount of flood water from the highlands. These dry river beds can be converted into an underground reservoir provided that we construct a dam structure across a convenient location along the length of the dry river beds. The water stored, which is cooler and clean as a result of the natural filtration, can be exploited using pumps or gravity pipes. The water stored in such manner could also recharge the underground aquifer.
- Solar Pump: Solar pumps are also the latest technology being introduced in Ethiopia. With a minimum of 10 hours of sunshine in Ethiopia, a solar pump installed in at least shallow wells can very easily replace the hand pumps which are problematic for communities as they demand careful operation and periodic preventive or actual maintenance. Solar pumps could give un interrupted service or offset the deficit when no sunshine exists by storing water in an elevated storage tank

Management systems for WASHCOs to avoid time waiting for water collection should be introduced alongside increased pumping and distribution to increase per capita consumption. Improved transportation and container systems from tap to home will also benefit increased consumption and improve water safety.

Figure 4 1: Children may wait for long time to collect water

4.1.1.4 Rural public utility model

The National Water Policy (MWR, 1999) requires decentralized management of rural water supply schemes by the user community. Accordingly, household clusters using the same water point establish WASHCOs by electing members among the users. This makes communities fully responsible for the development process of rural water supply including planning, financial management, implementation and maintenance.

However, the technologies that are being used for providing water supply to rural communities are becoming more and more complex, with electro-mechanic equipment requiring proper operation and regular maintenance, and with increasingly complex multi-village schemes.

As a consequence of a comprehensive review of functionality and effectiveness of operation and maintenance of existing rural water schemes, in 2017, MoWIE approved 'public water utilities' as an additional service delivery model in line with GTP II adding to already existing models of self-supply, NGO managed, woreda managed and CMP outlined in Ethiopians National WASH Implementation Framework (WIF).

The main purpose of this new model is the professionalization of the management of rural water supply systems. That professionalization is considered as an important step forward to develop proficient rural water supply utility models instead of depending on voluntary-based WASHCOs to manage complex schemes. WASHCOs are frequently applying their limited understanding of management of schemes and capacity to voluntarily conduct the complex task though they are increasingly challenged by the growing requirements of infrastructures that necessitate higher level of skills, knowledge and full-time commitment than the WASHCOs currently provide.

Professionalization acknowledges community ownership and community participation though rural utilities need to expand business models to be financially sustainable and assure business continuity. The concept of professionalization is also included in the WASH-DPA.

Accordingly, the OWNP Phase II, anticipates that the new multi-village water supply systems will be managed by rural public utilities, while existing ones are expected to be upgraded or transferred to the same management model.

The recently developed Rural Public Utility Operation and Maintenance (O&M) Implementation Manual for Multi-Village Water Supply Schemes will be a useful instrument to implement this concept of professionalization of rural piped schemes. The Implementation Manual also provides systematic references to the already existing detailed Operational Manuals for utility organizational set up, categorization, tariff-setting and operations & maintenance developed for urban areas (and beyond) as well as the technical Rural Water Supply O&M Management Manual/Training Manual for Rural Piped Schemes which focuses on technical operation of piped schemes in rural areas.

As part of the enabling environment process, and within the OWNP Phase II, the sector is expected to move towards:

a. Establish an independent sector regulator including performance monitoring and benchmarking of service providers[9]

b. Formally recognize and support rural public utility management for complex large multi-village schemes

c. Establish post-construction capacity, capital maintenance, cross subsidy system.

d. Professionalize, standardize and shift from community management to community participation, but while other modes of implementation remain in place where appropriate and successful (CMP, self-supply, NGO, woreda).

e. Clarify roles and responsibilities for rural public utility service providers and accountability to existing sector institutions.

f. Delegate functions including separation of responsibilities for checks and balances.

g. Cluster the Rural MVS Scheme with the strong town water utility instead of establishing rural public utility management where appropriate.

4.1.1.5 Pastoralist Rural Water

Access to improved water supply and sanitation facilities in the pastoralist areas of Afar, Somali, Benishangul-Gumuz and Gambella and the pastoralist areas in Oromia and SNNPR are relatively low compared to other areas and the national average. Access levels for water and sanitation in pastoralist regions and woredas ranges from 39.5 per cent to 61 per cent, and from 6.5 per cent to 21 per cent respectively, while in the other parts of the country water and sanitation coverage ranges from 62 per cent to 95 per cent and 41 per cent to 76 per cent, respectively.

The most common sources of drinking water in pastoralist areas are rivers, lakes, unprotected wells, springs, hafirs, ponds, public and privately-owned taps. Due to the scarcity of water, poor sanitation and hygiene, some of the pastoralist regions has experienced Acute Watery Diarrhoea (AWD), Water Washed Diseases and other hygiene related diseases.

The major reasons cited for poor sanitation development by HEWs, school officials, woreda health personnel and community members are the lifestyle of the pastoralists which is mobile in search of animal fodder and water, shortage of resources, lack of commitment and awareness, weak inter-sectoral collaboration, uncoordinated and ineffective sanitation promotion efforts and lack of affordable construction materials for latrines.

Water supply schemes in lowland pastoralist areas should be constructed close to pasture lands and along migration routes as hydrological and hydrogeological conditions permit. Involving clan leaders like Aba Ella (the "Father of Water Wells" in

Borana) in siting and technology selection can enhance the impact and sustainability of water supplies in pastoral areas.

The socio-economic and environmental impact of reliable but widely spaced fixed point deep well sources on people and stock movements also needs to be addressed.

4.1.1.6 Point of use water treatment

The majority of properties in Ethiopia, both urban and rural, rely on in-property water storage of one sort or another (roof tanks, ground level tanks, open containers, in wide or narrow necked containers, etc.): Such water will be bacteriologically contaminated due to negative mains pressures, crowding around wells and stand-posts, open jerry cans, etc. and due to ineffectiveness of chemical disinfection under these conditions. This indicates the need at all service levels for "point-of-use water treatment systems" as complementary actions to ensure the safety of the water.[10]

It is clear that source chlorination in rural areas (and probably also small towns) is largely ineffectual and has possible negative benefits: applying large and infrequent doses of chlorine will create taste problems and will not protect the water source between dosing. Similar experiences have been reported in relation to chlorination in emergency WASH, particularly confusion over dosage levels, products and control. Also, according to the Ethiopian Sanitation and Hygiene Improvement Programme (ESHIP-2), "proper water treatment at point of use and handling of drinking water at home remain difficult in practice."

The internationally agreed SDGs and the WHO/UNICEF JMP "safely managed" interpretation may be onerous to a water stressed country such as Ethiopia: As such, the national and regional governments may want to consider some interim measures to address what are considered to be some critical water quality and cost issues: (a) AWD outbreaks and other water-related (including "water WASH") diseases in both urban and rural areas, (b) low income households will often resort to boiling water which puts an increased strain on both the environment (depending on fuel source) and on household budgets, (c) use of treatment chemicals should probably be regarded as suitable only for emergency situations, not for regular household use, (d) others will regularly buy plastic bottles of water for drinking, which is both expensive and creates significant problems at waste disposal sites (either because of the large volume involved or because of pollution from burning) and (e) high groundwater fluoride levels in the Rift Valley result in debilitating bone necrosis.

The bacteriological impact can be tackled in all households (whether low, medium or high income) through, for instance, use of simple table top water filters using diatomaceous earth "candle" filters with activated carbon core[11]. The more turbid the water source, then the more frequently the "candles" will need to be scrubbed clean. Use of such filters, along with good sanitation and hygiene practices can have significant financial, health and environmental positive impacts. Alternatively, bio filters or sand filters and common pre-prepared chlorine solutions and tablets found in the markets may be used.

High fluoride levels commonly affecting a number of Rift Valley areas can be reduced by use of activated bone char filters or synthetic substitutes – this is already practiced in Ethiopia[12]. There is a "Fluorosis Mitigation Office" in Ethiopia and a "Fluoride Mitigation Strategy" is being written, so this office needs to be consulted at an early stage of sustainability master planning.

9 The Ministry of Finance is emphasizing the need for an independent regulator … "particularly in urban settings but increasingly in rural settings as well … (which) should include complex rural water supply scheme management"

Target Language	Normative Interpretation
By 2030, achieve	
Universal	Implies all exposures and settings including households, schools, health facilities, workplaces, etc.
and equitable	implies progressive reduction and elimintation of inequalities between population sub-groups
access	Implies sufficient water to meet omestic needs is reliably available close to home
to safe	safe drinking water is free from pathogens and elevated levels of toxic chemicals at all times
and affordable	payment for services does not present a barrier to access or prevent people meeting other basic human needs
drinking water	water used drinking, cooking, food preparation and personal hygiene
for all	suitable for use by men, women, girls and bos of all ages incluing people living with disabilities
The global indicator selected by UN Member States for monitoring SDG target 6.1 is proportion of population using safleymanaged drinking water services. Safely managed drinking water creates a nw service norm and represents an aditional rung at the top of the JMP drinking water service ladder.	

Table 4 2: Safely managed drinking water

4.1.2 Rural Sanitation and Hygiene Promotion component

4.1.2.1 Introduction

Promotion of sanitation and hygiene in Ethiopia follows a Government-endorsed Community Led Total Sanitation and Hygiene (CLTSH) implementation guideline. However, the normal practice in rural communities is that HEW perform regular home visits which can be cited as a household-centred approach to mobilize communities for sanitation and hygiene behaviour change.

Facilitation and community mobilization using this tool is usually carried out by woreda-level trained professionals following the national implementation guideline. Community triggering should also be accompanied by persistent follow up arrangements to ensure that communities are truly acting on their action plan (designed on "triggering day"), as well as technical support when digging latrines or upgrading existing latrines. Constructing and using pit latrines in rural Ethiopia has become more common after the deployment of more than 38,000 HEWs in over 15,095 health posts at the kebele level (2 HEWs/kebele) and their house-to-house actions.

However, although the annual rate of reduction of open defecation in the country is recognized as the fastest globally, the majority of toilets built are considered unimproved. The improved sanitation status according to the WHO/UNICEF JMP updates in 2015 stands at 28 per cent and EDHS[13] reported in 2016 to be only 6 per cent (16 per cent urban and 4 per cent rural) and unimproved and shared sanitation together amount to 62 per cent leaving 32 per cent as open defectors.

The fourth National Health Sector transformation plan Programme target in the GTP II period is to reach to 82 per cent with improved sanitation facilities and increase ODF kebeles to 82 per cent, household water treatment and safe storage practices to 35 per cent, and health institutions with access to gender disaggregated improved latrine to 60 per cent – unlike HSDP-V (GTP I target), the National Hygiene and Sanitation Strategic Action Plan (NHSSAP) has indicated a much higher target.

10 USAID (PSI) have pointed out that point of use treatment may conflict with "safe-at-source" strategies, but may be pragmatic at short to medium term measure.

11 COWASH: Power saving filters like the TULIP Dutch product with high initial investment cost and nearly zero O&M cost, should be encouraged.

12 In Kenya Rift Valley, such units have been located on top of water kiosks and customers have the choice of raw groundwater for non-potable use and de-fluoridized (<1.5mg/l F) water for drinking and cooking.

Lack of sustainable and improved sanitation system in urban and rural areas is exposing the Ethiopian population to preventable disease burden affecting adults and children. Among the tropical diseases, Ethiopia has the highest burden of trachoma, ascariasis, hookworm, schistosomiasis and tricuriasis (Kebede D. et al, 2012)[14] . Helminthic and other infections exposing children to malnutrition are also well documented. Children infected with worms are 3.7 times more likely to be underweight and are typically anaemic and less physically fit.[15]

According to WSP (2015) study on economics of sanitation in Ethiopia, poor sanitation costs Ethiopia ETB 13.5 billion each year, equivalent to about ETB 170 per person per year or 2.1 per cent of the national GDP.

4.1.2.2 Improved and Sustainable Sanitation Development during Phase II

In order for the Programme to be effective, a pragmatic programme design which can strengthen the existing initiative must be used in communities throughout the country. The new initiative is to design a "community-centred approach" planning and action programme which would train and empower permanent residents in the community. The major actors must work together for one common end at the kebele level; these actors include: community members, community leaders, sector actors (HEW, WHDA, EHW, PHCU staff), political and administrative institutions (woreda and kebele leaders, woreda WASH team members, including health, education, water, women and youth and agriculture), development agents, teachers and students; etc.

There were sector actors who had advocated focusing on household-centred approach (Roland Schertenleib)[16]. Without undermining efforts on individual households, sustainable sanitation and hygiene programmes are ensured by mass action and mass responsibility which warrants empowering the whole community and enhancing community action, hence the community-centred approach is better than working only with individual households. An empowered, trained, and supported community will work together and practice the three key behaviours (see schematic below), Figure 4.3.

Figure 4 2: The Three Hygiene Behaviors

The community-centred approach is not disregarding CLTSH approach or the Health Extension programme. It is an approach that is complementing, supporting and enhancing other efforts and follows up on any initiative to change WASH behaviour and practices. The community-centred approach is bringing the passive onlookers and the beneficiaries themselves to the centre of the action and makes them more responsible to make their communities clean, healthy and dignified.

Lasting or sustained behaviour change in water safety, sanitation and hygiene requires a multi-sectoral approach, systematized advocacy such as multi-level advocacy and communication, strengthened household outreach, media support, increased availability and affordability of hygiene and sanitation products, and point of use water treatment technologies, etc.

With this arrangement and the enabling environment in place for the sanitation and hygiene programme in communities:

1. The unimproved and unsustainable latrine will be transformed so that the newly constructed latrines will follow the principles and construction methods of an improved latrine system and all family members will use the system and make their community free from OD.

2. All households with children wash their infants and children under five years of age.
3. All households consider child faeces as harmful as adult faeces and take proper action of disposing in latrines immediately after child defecates.

4.1.2.3 Pastoralist Sanitation and Hygiene

At present hundreds of settlements are being established in pastoralist areas. However, while seasonal movement is still practiced, women, the elderly and children remain behind in the village. This situation requires establishing schools and strengthening HEP in the settled village.

Hygiene, sanitation and water safety promotion in such pastoralist villages may have to follow a different methodology than the CLTSH approach, which depends on creating disgust and fear. The pastoralist tradition is very serious on privacy during defecation. Male and female open defecation areas are located in two different opposing directions within a community making it difficult for the household to dig a latrine near the house.

Hygiene, sanitation and water safety promotion should use simple and small doable actions first rather than jump into ideal sanitation and hygiene behaviours more applicable to fully settled communities. Small doable actions are practices that have less demand for resources such as, for example, practicing hand washing using ash, covering faeces with soil, separating animals from human habitation, conducting sanitation campaign every week to clean up the settlement and using simple pictorial communication methods such as adaptation of MIKIKIR card (used in Amhara region to help pastoralists adopt new behaviours and lifestyles incrementally).

The other practical approach to try is to construct a separate (male/female) shared latrine in settlement areas so that pastoralist households (old people, female and children) that are not going out with their animals will start using the latrines so that their lifestyle changes are enhanced.

4.1.2.4 Sanitation Marketing

The Programme will support the scaling-up of sanitation marketing as described in the National Sanitation Marketing Guideline of June 2013. It is important that sanitation marketing is conceptually and programmatically integrated and closely coordinated with related WASH activities, such as training artisans and establishing supply chains so that both water supply and sanitation services and products are promoted as an integrated package.

Training manuals and occupational standards (OS) for the private sector is being developed by TVET, MOH and the Federal Micro and Small Enterprise Development Agency (FEMSEDA) so that sanitation marketing will be one of the business areas included in the 800 or so existing OSs. A number of these are relevant to the different sections of the training manual which are now defined as 1) sanitation and hygiene, 2) latrine technology options, 3) business management and 4) marketing and promotion. Quality control and standards for sanitation are the responsibility of Ministry of Health. TVET is responsible for establishing micro and small enterprises in one of the five major sectors (construction, mining, quarrying service, trading and manufacturing) including training design and production of latrine components.

MFIs are also responsible for considering sanitation products for loans and to facilitate credit opportunity for SMEs (sanitation entrepreneurs), and TVETs are responsible for training and process accreditation of the entrepreneurs. In collaboration with partner organizations, a quarterly publication on new developments in sanitation marketing is being published by Ministry of Health and distributed to stakeholders.

To this end an on-site household latrine technology option planning, design and construction manual has been published and distributed for wider use. What needs to be established is sanitation marketing following the four "p" principles and supported by the Micro-Finance Institutions.

13 EDHS 2016, Status of sanitation conditions in Ethiopia.
14 Kebede D, Kadu M, Teshome G, et'al. 2012. The burden of neglected tropical diseases in Ethiopia, and opportunities for integrated control and elimination
15 IRC (2007), Technical paper series 48, International water and sanitation center, Delft, the Netherlands

4.1.2.5 Link Sanitation Marketing and Community-Centred sanitation programme

Essentially, a sanitation marketing initiative demands the availability of interested private sector actions who would take sanitation as a business and consumers. Private sector actors in turn will need an organized community which is striving to improve the sanitation condition and achieve sustainable change. A community-centred approach which has prominent, influential and trustworthy individuals as members will identify, motivate and register households that want to upgrade their sanitation and hygiene system and link them with the private sector actors.

Sanitation marketing is applicable in communities which have reached to an appreciable state of sanitation improvement because in a community there are open defecators, un-improved latrine users, shared latrine users and improved latrine users. Those households which are attempting to have a cleanable, permanent type of latrine with shelter and door for privacy are the ones who could be targeted for sanitation marketing. Community-centred approaches would support this improvement so that the private sector could survive.

4.1.2.6 Baby WASH

There is growing scientific evidence on the importance of having a healthy environment for child growth and well-being during the first 1,000 days of a baby's life. In 2017, the Ministry of Health approved the Baby WASH guideline: The document includes guidance on how to implement programmes with safe disposal of child faeces, providing protective environments through play mats and similar measures as well as the prevention of soil transmitted helminths. During the second phase of the ONWP, the BABYWASH activities are expected to scale up across the country.

4.1.2.7 Sanitation, Gender and the Disadvantaged:

The sustainability master planning should explore and evaluate low cost options for sanitation facilities located within private, public, communal, commercial, educational, health, government and other institutional buildings to cater to gender and vulnerability requirements.

- Such sanitation facilities should have child, gender and differently abled features, but importantly they should take into account the whole sanitation chain in terms of appropriate technology and cost recovery to ensure affordability for these customer categories.
- Women, youth and persons with disability should be involved in enterprises that will deal with sanitation services, partly since these are vulnerable groups often with poor sanitation services themselves.
- The principle of job creation should not conflict with the principles of efficiency and cost recovery; as such, enterprises should be required to agree to and sign delegated service management contracts (see Sub-section 10.5 for more details) to ensure equitable and sufficient financially and environmentally sustainable service delivery.
- The involvement of women, youth, and persons with disability in environmental protection activities should also be considered to fill the "gap" between household responsibility for in-house cleanliness and the regular municipal and utility service provisions; for instance, open dumping of rubbish.
- In compliance with the GTP II, women membership of WASHCOs shall be increased to 50 per cent or more and the training of women artisans, higher and medium professionals shall be increased to 25 per cent or more

4.1.2.8 Manuals, Guidelines and Information Materials

To date there are many resources that can be used to carry successful WASH programmes. In addition to the strategies, there are also guidelines developed by sector ministries and partners. Of particular relevance are the following documents issued by the Ministry of Health: Health Extension Programme Packages (2004), Health Extensions' Integrated Refresher Training Manual, Implementation Guideline for CLTSH Programming, January (2012); Sanitation marketing guideline (2013); Compendium of onsite household latrine technology options, planning, and construction manual (2017); CLTSH Facilitation Training Guide (Jan 2011), and CLTSH Verification and Certification Protocol (2012), Hygiene and Environmental Health Communication Guideline (2018), Menstrual Hygiene Management guideline (2018); National Monitoring and Reporting System for the implementation of CLTSH,

16 Swiss center for development cooperation in technology and management, June 2000

January (2012) and two important publications by WSP.[17]

4.2 URBAN WASH

4.2.1 Urban Water Supply

4.2.1.1 Introduction

Ethiopia is one of the least urbanized countries in Africa, with just 20 per cent of the population living in cities, though that is now growing rapidly at around 5 per cent per year, which is more than twice the growth rate for the country as a whole. See tables in Annex 1.

In 2008 EFY, it was estimated that 52.5 per cent of urban population had water supplies meeting new GTP II standards and 93 per cent have some form of latrine facility.[18] The big achievements made in Urban WASH service delivery over the past 20 years indicate that over 10 million people have access to more convenient piped systems in their home and compound and 8 million have gained access to improved toilet facilities.[19] Analysis for the Phase II programme indicates the unserved urban population to be 5.65 million (Table 12.3 in Section 12).

The Programme will be implemented with service levels for the following categories of towns (Table 4.2):

Category	Description
1	Towns/cities with a population more than 1 million to be provided with a service level of 100 l/c/day up to the premises
2	Towns/cities with a population in the range of 100,000 to one million to have a service level of 80 l/c/day up to the premises
3	Towns/cities with a population in the range of 50,000 -100,000 to have a service of 60 l/c/day up to the premises
4	Towns/cities with a population in the range of 20,000-50,000 to have a service of 50 l/c/day up to the premises supplied with piped networks, and including multi-village water supply system under professional utility management
5	Towns/cities with a population less than 20,000 to be provided with 40 l/c/day within a distance of 250m

Table 4 3: Categories of towns and service levels

4.2.1.2 Urban implementation modalities

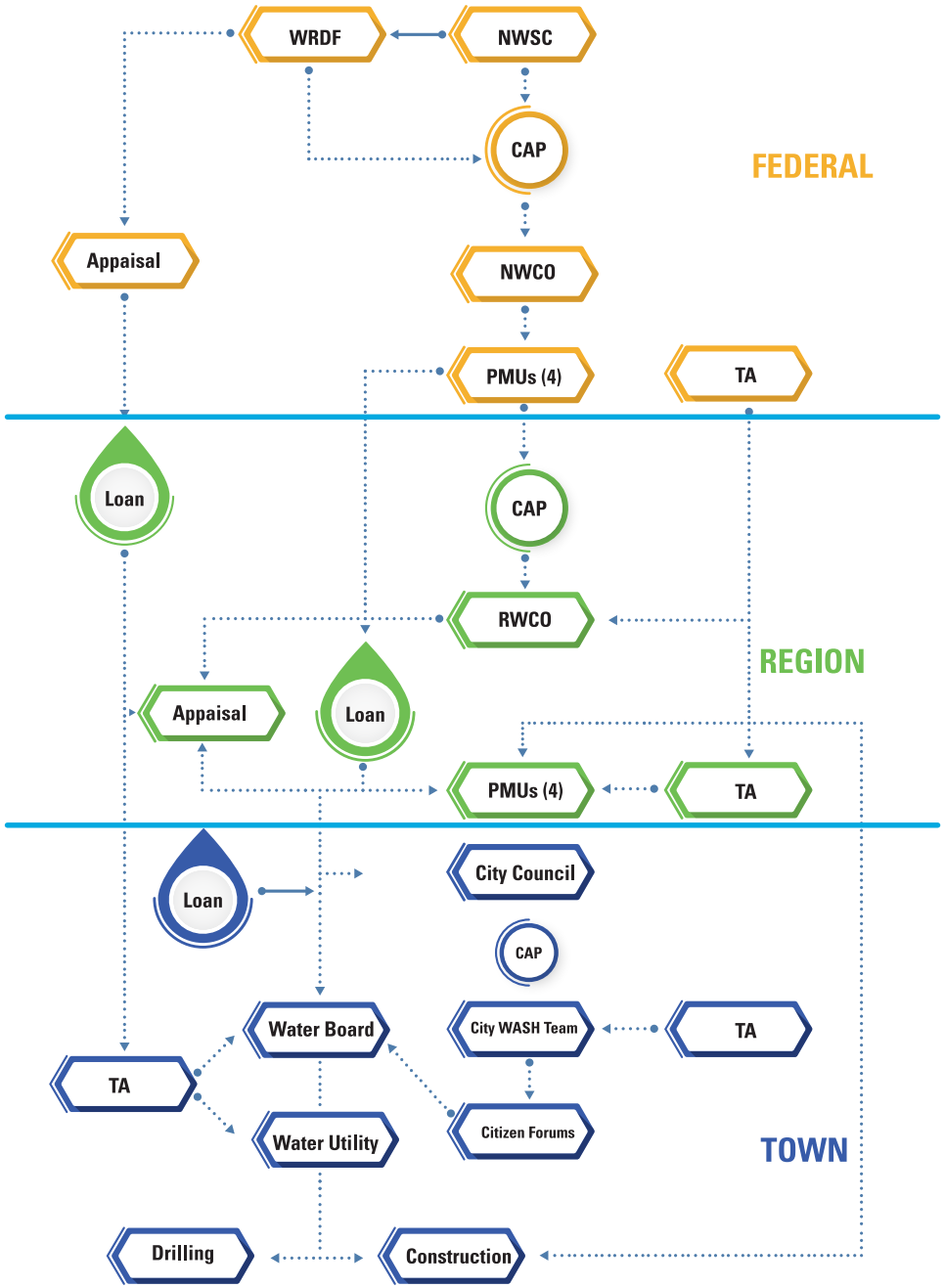
As indicated in the original OWNP document developed in 2013, the Urban WASH component is implemented through two modalities: The capacity building, planning and service improvement is implemented through grant financing while finance for water supply expansion is provided on a soft loan basis. Accordingly, the process and institutional arrangements differ. At town level there are two WASH structures and processes; one for water supply and one for urban sanitation and hygiene. Both are integrated in the Consolidated Annual WASH Plan (CAP) to be approved by the City Council or Town Board.

Figure 4.4 shows the organization and process for implementation of urban water supply (reproduced from OWNP document 2013):

17 Scaling Up Rural Sanitation and Hygiene in Four Regions in Ethiopia through Alignment with Health Extension Programme, Consensus with the Whole System and Total Engagement with Communities, October 2012, and; WSP Learning Note: Scaling Up Rural Sanitation. Learning by Doing: Working at Scale in Ethiopia, July 2011.

18 draft GTP II Report, MoWIE, 2009EFY

19 WB (2017), WASH (Poverty Diagnostic Report) IN: Development of sustainable water supply, sanitation and hygiene in drought prone areas, a Sub programme document, final version, 2017



Key: RWCO- Regional WASH Coordination Office

CAP- Consolidated Annual (WASH) Plan

Figure 4 3: Organization and Process for UrbanWater Supply

The figure above shows the organization and process for urban water supply. In the case of sanitation, the organization and process might be the same (integrated as part of the same service delivery model), but it is likely to be different and managed by a mix of both public and private operators (i.e. for desludging services) in line with the IUSHS&SAP.

4.2.1.3 Improving Efficiency in Construction and Operation of Water Supply Systems

Many urban water supply projects in Ethiopia encounter significant delays in planning and implementation due to lengthy identification and selection process, procurement procedures, poor performance of contractors, cost escalation and budget overruns, among other reasons. At the same time there are capacity gaps in large utilities which have challenges linked to lack of appropriate and qualified staff at town level.

To address these constraints, transaction times and costs can potentially be reduced or controlled by one or more of the following means (see also risk analysis, Sub-section 3.6):

1. Offering contracts in larger lots, for example for studies, borehole drilling, source development for more than one town with similar types of sources, civil works, electro-mechanical installations, wastewater treatment facilities, etc.
2. Turnkey contracts combining feasibility studies, detailed designs, business planning, construction supervision and post-construction support. Turnkey contracts combining civil works and electro-mechanical installation have already been awarded by the Water Resources Development Fund (WRDF). It is reported that the implementation period has been reduced from over two years to around one year.
3. Framework contracts with a consortium of firms/organizations to provide a suite of services to a group of towns over a longer time period also has the potential to significantly reduce transaction costs and time.
4. Service contracts between town utilities and private operators to operate completed water supply schemes can also be considered where town utilities have limited capacity to operate and maintain systems. In such arrangements, supervision/regulation of the operator is very important.

4.2.1.4 Project Management and Construction Supervision

Construction supervision has been poor resulting in some schemes having to be redone (with commensurate high cost increase) or involving high post-construction maintenance costs, low functionality and sub-standard service delivery. Supervision of water supply works in rural areas and small towns is carried out by the regional bureaus while in medium and large towns it is usually outsourced to the private sector. Supervision is not typically done through daily on-site inspections, but rather through periodic site visits.

The programme needs to scale up the existing turnkey project which has been in use in projects such as WRDF supported projects to BCBT which are being demonstrated by WASH plus projects supported by UNICEF. These methods have high benefit in engaging experienced operators, thus minimizing the interface risk between the design, construction, supervision and operation stages, bringing innovation, and supporting training of utility staff. It will also support the establishment and strengthening of O&M systems.

In general, to address the project management and supervision constraints, transaction times and costs can potentially be reduced or controlled by one or more of the following means:

1. Offering contracts in larger lots, for example for studies, borehole drilling, source development for more than one town with similar types of sources, civil works, electro-mechanical installations, wastewater treatment facilities, etc.
2. Turnkey contracts combining feasibility studies, detailed designs, business planning, construction supervision and post-construction support. Turnkey contracts combining civil works and electro-mechanical installation have already been awarded by the Water Resources Development Fund (WRDF). It is reported that the implementation period has been reduced from over two years to around one year.
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4. Service contracts between town utilities and private operators to operate completed water supply schemes can also be considered where town utilities have limited capacity to operate and maintain systems. In such arrangements, supervision/regulation of the operator is very important.

Inspections should assess the validity of design assumptions, identify variations between actual site conditions and designs and to adjust designs according to changed parameters as needed.

The Programme will promote measures to address existing shortcomings in construction supervision practices through supporting preparation of standardized

supervision/inspection reports and guidelines. The capacity for adequate supervision of construction projects needs strengthening; appropriate supervision skills are essential if projects are to be completed on time, within budget and meet quality standards.

Improved supervision should help to ensure that construction is carried out according to plans, design and specifications, and to certify that work is progressing according to schedule and that quality and costs are monitored. Supervisors must have adequate knowledge in water supply/civil designs and construction methods, materials, manpower requirements as well as time scheduling and costing.

At woreda, zonal and town levels, construction supervision and contract management will be strengthened through the provision of professional training to supervisors and the provision of manuals and guidelines for the supervision of medium and large water supply schemes. Training will be provided by qualified trainers from recognized training institutes and should also include the private sector, TSGs and WSGs and the supervision of drilling as well as civil works, electro-mechanical instillation, pipes, pumps and other materials, manpower requirements and cost control.

4.2.1.5 Sustainability

Significant steps are required to improve the sustainability and safety of urban water supply and MVWS systems (see also Risk Assessment Sub-section 3.6):

- Source catchment protection through strict control of activities, wherever possible, ideally through watershed management plans incorporated into urban planning: The quality of water in many schemes depends upon the protection of sources from animal interference, anthropogenic activities upstream of the sources, dispersed and point source domestic and industrial liquid and solid wastes, etc.
- Current water treatment practices, monitoring and control cannot be relied upon to guarantee safe water: In the short-to-medium term point-of-use water treatment needs to be promoted. (See also on water quality)
- Clustering of urban and rural piped systems for economies of scale, sharing resources and for the facilitation of future utilities' regulatory bodies. This may be on a voluntary basis in the short to medium term and on a formal basis in the medium to long term depending on the government strategy yet to be agreed on (the principle of clustering is described IUSHS&SAP and is widely used informally in Ethiopia for sharing limited resources).

Figure 4 4: Clustering potential in WASH

- Develop/update the business plans of individual or clustered utilities and develop use of performance agreements that incentivize plans to retain and motivate skilled and highly trained personnel.
- All urban systems should be electricity grid connected. Diesel generators should be installed, but only for back-up of critical system components, such as source pumping to elevated tanks. For small towns, alternative cheaper energy sources should be considered to supplement grid supply, so as to improve affordability, learning from national and regional research into alternative renewable energy technologies.
- Tariffs set at "ability to pay" levels following project socio-economic, financial and technical analyses, and not set through regional or woreda directives. Tariffs may also be influenced by willingness to pay so that the formation and involvement of Water User Groups in tariff setting is also necessary. Where tariffs do not match the costs of the desired service level, then the service levels have to be decreased (but not below 30 l/c/d) and/or subsidies have to be found.
- Water available when needed, that is, 16-hour supply for house connections, water points should be open based on demand with short waiting time (street rotas can be introduced if necessary)
- ESIA (environmental and social impact assessment) carried out at project feasibility stage so as to understand what impact the project may have in 5 or 15 years time and to mitigate negative impacts (see also Social and Environmental Safeguards, Sub-section 5.2).
- It is essential that urban water supplies are matched by faecal sludge management (FSM) services, solid waste management and surface water drainage. Without these components the health impact of new or improved water supplies may in fact be negative. Hence urban water funding should be conditional on sanitation to mitigate health and environmental impact (learning for instance from the experience in the eight towns under ONEWASH plus).
- Reduce wastage by consumers in the home, at water points, during transport, etc. Less wastage will reduce standing water.
- Quick response to mechanical breakdown and quick response to leaks (so as to reduce NRW and overall costs).
- Good design and specification are also essential to reduce NRW and to improve water quality.[20] Use of continuously welded PE100 pipes, particularly for tertiary mains, will significantly reduce both losses and the chance of contamination being drawn in as pressures drop below surrounding external water pressure
- Where pipes are push-fit jointed (DI, AC, PVC) and/or corroded (GI), then they need to be kept full and under positive internal pressure at all times in order to avoid entry of contaminated water. This means that where the source plus storage cannot match peak demand, then zonal rationing will need to be applied so as to keep primary and secondary pipes full.
- Delegation of the operation of parts of the urban systems to ring-fenced community or private operators under clear contractual obligations (and with adequate infrastructure) has been shown elsewhere to reduce NRW (physical and commercial losses) very significantly, thus increasing water availability and pressure and lessening contamination (as well as improving financial and social sustainability).
- Install a computerized information system for asset and data management and bill collection systems, appropriate to the size of the utility, taking advantage of sharing (first bullet above).
- Consumers are willing to pay for a good service, which will depend upon many of the points above. "Willingness to pay," unlike "ability to pay," cannot be determined from data as a particular figure; however, experience from elsewhere is that low-income customers are willing to pay a higher percentage of household income for water than middle- and high-income customers. This willingness is partly due to the significant improvement from previous reliance on poor quality water provided through vendors at high cost or long distances to collect water and time and risk involved for young family members.

4.2.2 Urban Sanitation and Hygiene component

4.2.2.1 Introduction

Urban sanitation has been re-emphasized many times since the start of the OWNP as being a key development objective (GTP II, IUSHS&SAP, WB WS&S new project proposal (PAD), etc.). Urban sanitation problem sources are from sewerage, septic tanks/cesspits, pit latrines, domestic solid wastes, industrial and institutional and

commercial liquid and solid wastes[21].

The urban population of Ethiopia is growing at slightly more than 5 per cent per year, which is more than twice the growth rate of 2.5 for the country as a whole. (Haddis et al., 2013).[22] Ethiopia's urban population has doubled and is predicted to triple from 15.2 million in 2012 to 42 million by 2037 indicating for more efforts needed for the urban WASH programme. See also estimates made as part of this Phase II programme, Annex 1.

It is estimated that by 2020, the volume of wastewater generated from Addis Ababa alone, much of which enters the Awash and Akaki Rivers, will exceed 200,000 m3/day or 73 million m3/year, of which an estimated 10 per cent is industrial wastewater[23]. At present there are no national standards for industrial and domestic wastewater. Developing such guidelines and associated directives and regulation as a collaborative effort between the Environmental Protection Authority (EPA) and MoWIE is an urgent priority.

The Integrated Urban Sanitation and Hygiene Strategy and Action Plan (IUSHS&SAP) has been introduced to address the increasingly critical urban sanitation situation. Similarly, the Hygiene and Environmental Health Strategy (HEHS) is a high impact intervention that addresses WASH as one of the most important causes of morbidity and mortality.

4.2.2.2 Responsibility and mandates

The responsibility lies with many stakeholders in Government, community, and private stakeholders who are outside the direct influence or control of the four key ministries which are current signatories to the WIF.[24] It is therefore necessary to establish holistic coordination mechanism with the relevant stakeholders.

Inclusion of sanitation should be ensured at the local level: With some exceptions, all urban WASH projects proposed for funding should include sanitation as a pre-condition for finance. In addition, "sustainability master plans and feasibility studies" (Sub-section 8.7) should clearly demonstrate how the operational and financing costs of the chosen levels of technology can and will be funded: through direct charges/tariffs, cross subsidies to sanitation from water sales, municipal rates, central government grants, etc.

4.2.2.3 Technology options

Considering the IUSHS and the current GTP II targets for urban sanitation, the most common sanitation technology in urban areas of Ethiopia is expected to be septic tanks with proper Faecal Sludge Management (FSM) systems in place.

It is common for septic "holding" tanks in urban areas to (illegally) be made leaky, even where soil soak away capacity is limited or where there is insufficient land for safe liquid effluent treatment. This is understood to be an effort to avoid the high cost and/or unavailability of vacuum trucks. Planning for new schemes should involve ground vulnerability maps to determine which areas are suitable for septic tank and soak away and which areas should stay as dry toilets (VIP latrines) until off-site sewerage (or alternative DEWATS) is available.

When considering GTP II targets for sewerage (six cities where at least 100 l/c/d would be required to flush sewers to off-site treatment) then this would increase urban water investment very much more. Comparative analyses of the available wastewater treatment technologies carried out locally and internationally reveal that centralized systems like the conventional activated sludge system and equivalent technologies could be relevant for 80,000-100,000 people provided there is enough space, that sufficient water can be guaranteed for full flush toilets and that there is a possibility of reuse of the treated effluent in a cost-effective manner.

In order to have adequate water available to flush long sewers, the current urban water supply service levels of around 30 l/p/d need to be increased to all-year-round (including drought years) with reliable supplies of at least 100 l/p/d and 150 per cent of industrial and commercial demand (to allow for NRW loss). There may be economy of scale advantages to link adjacent cities and towns in terms of infrastructure development and reuse of treated effluent.[25]

However, the IUSHS&SAP recommends decentralized wastewater treatment and this appears to be the direction taken under the new WB[26] Ethiopia Second WS&S project PAD March 2017 proposals – except for Addis Ababa where sewerage will be expanded. DEWATS allow for minimal pour flush using wastewater so can be used with current urban water supply availability (less than 30 l/c/d [27]).

For a full description or urban sanitation implementation and O&M, refer to the IUSHS&SAP.

20 Water Safety Plans Guidelines issued in 2015 appear to miss some basic engineering and management principles that could improve water safety

4.3 INSTITUTIONAL WASH COMPONENT

4.3.1 Introduction

Institutional WASH covers schools, health facilities, public offices, prisons, etc. It falls within both rural and urban as depicted in the schematic, Figure 4.6 below:

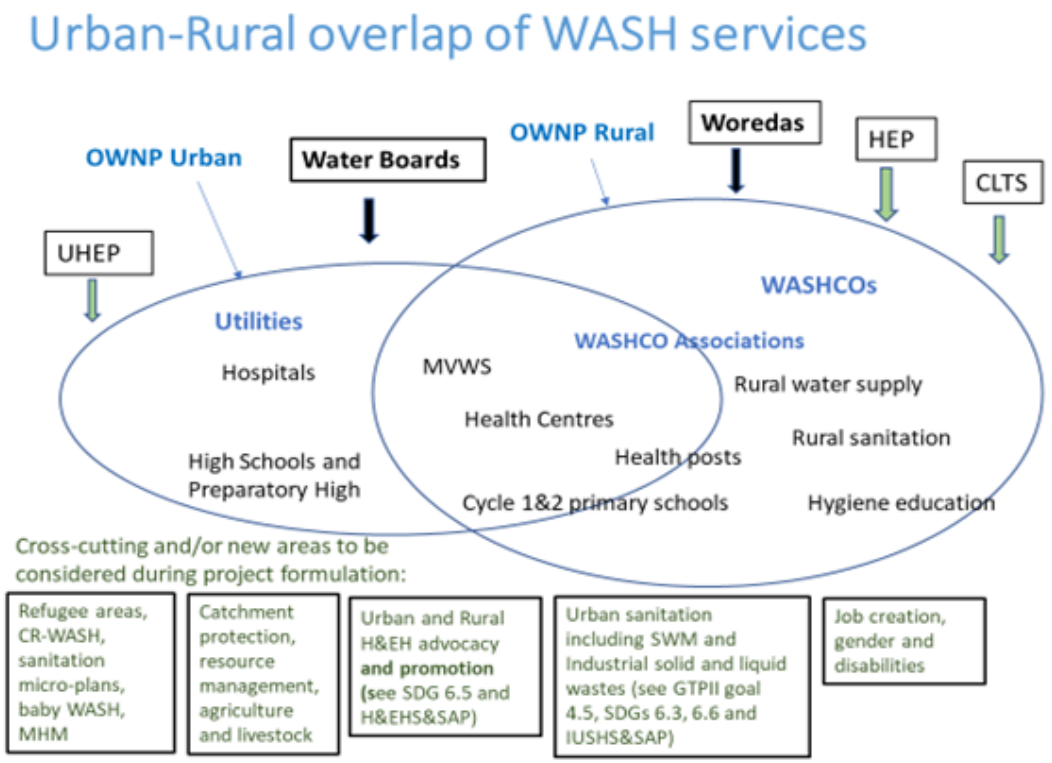


Figure 4 5: Urban/rural overlap

21 SDG6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

22 Haddis, A., Getahun, T., Mengistie, E., Jemal, A., Smets, I. and Van der Bruggen, B. (2013) 'Challenges to surface water quality in mid-sized African cities: conclusions from Awetu Kito Rivers in Jimma, south west Ethiopia', Water and Environment Journal, vol. 28, no

23 Urban sanitation and wastewater treatment in Addis Ababa, Ethiopia, D. Van Rooijen and G. Taddesse, Addis Ababa, 2009.

24 GTPII Goal 4.5: Strengthen WaSH integration to meet the objectives of OWNP and establish coordination with MoUDC and its affiliates at all levels in urban WaSH intervention

4.3.2 School WASH

WHO defines a healthy school as one that constantly strengthens its capacity as a healthy setting for living, learning, and working.[28] A healthy school environment is one that protects students and staff against immediate injury or disease and promotes prevention activities and attitudes against known risk factors that might lead to future diseases or disability.[29]

In Ethiopia, schools often have inadequate water and sanitation facilities; in 2015:

- 11 per cent of primary schools had appropriate water facilities and 3.2 per cent had all WASH facilities
- 24 per cent of secondary schools had appropriate water facilities and 10 per cent had all WASH facilities

The provision of safe water and sanitation facilities combined with hygiene education contributes to improving school enrolment and attendance and can potentially lower the drop-out rate, especially of girls. Educating girls is the single most effective tool for raising economic productivity, girls who are denied education are not only more vulnerable to poverty, hunger, violence, abuse and exploitation, but they are also more likely to die in childbirth and are at greater risk of diseases.

The School WASH Strategy and Guidelines aid efforts to address institutional WASH problems.

To address the problem of inadequate water supply and sanitation in schools, MoE has developed the following working documents:

- Developing a School WASH Strategy and Action Plan
- Developing guidelines for water and sanitation needs of school children
- Develop gender and age sensitive curriculum on sanitation and hygiene
- Establish standards for construction of school latrines and hand washing facilities
- Upgrade life skills of school children and teachers on sanitation and hygiene education
- Establish health/environmental/school WASH clubs and promote children as agents of change

4.3.2.1 Minimum Packages for School WASH

The Minimum WASH Packages for schools is depicted in the following Table 4.3 and should be provided entirely by health sector budgets (both CAPEX and OPEX). In general, the role of health and education under the OWNP will then be primarily one of promotion of WASH practices and advocacy for provision of Minimum WASH Packages in all schools.

25 Addis Ababa, Kaliti and Akaki towns that share the same catchment area could be good examples where the treated effluent of the Addis Ababa centralized wastewater treatment could be used for irrigation around Kaliti and Akaki. Furthermore, buildings and institutions located upstream of the treatment plant especially in Kaliti could also be connected to the system.

26 As stated by WB, the huge budget needed for urban sanitation is not allocated in the Consolidated WASH Account

Parameters	Standard
Minimum package	Full package of WASH services (latrine, hand washing, MHM facilities, urinals, drinking water fountains/taps)
Placement	■ Latrine for male and female students must be separated and placed in opposite directions ■ Latrine to student ratio should be one latrine stance for 50 girls and one for 75 boys
Facility features	■ Latrines should provide adequate and separate access (male/female) to persons with disabilities both in accessing the latrine (ramp) and support mechanisms (hand rail) for sitting or standing ■ Each latrine block should have hand washing facility with soap or ash as a cleaning agent ■ Separate room for Menstrual Hygiene Management (washing, changing, and waste disposal) ■ Adequate and safe water supply should be available in schools. There should be a drinking fountain or tap; at least one tap for 100 students
Latrine stance ratios	■ one stance/cubicle per 50 girls and one toilet for female staff in rural schools ■ one stance/cubicle and one urinal per 75 boys and one toilet for male staff in rural schools ■ In urban schools the number of seat to student ratio should be one stance for every 25 girls and one toilet for female staff and one stance plus one urinal for every 50 boys and one toilet for male staff ■ At least one toilet cubicle each should be accessible for staff, boys and girls with disabilities; this includes level or ramped access, wide door and sufficient space inside for a wheelchair user or helper to manoeuvre, and the provision of support structures such as a handrail and toilet seat.[30]

Table 4 4: Minimum WASH packages for schools

Source: WHO adapted for Ethiopian conditions

Other Requirments

School WASH forums at regional and woreda level should be formed in order to reduce the lack of awareness on OWNP from federal to lower level, and for knowledge exchange, experience sharing and learning.

- Having the facilities is not enough but the operation and management aspects of WASH facilities especially in cleaning the sanitation, hygiene and water facilities must be strengthened.
- One "new" initiative recommended to schools is the use of vacuum truck to pump out sludge from the school latrine so that the life of latrines could be extended for many years and save space and construction materials and budget. However, the anal cleaning materials used may cause difficulties in pumping for which students must be advice to use decomposable materials rather than stone, corn cobs which are common materials in rural areas. Construction of safe and cleanable latrine with secured doors and solid walls for privacy costs a lot of money. Instead of abandoning such latrines and dig a new one each time it is filled, pumping out the sludge and renewing the pit is cost effective.

4.3.2.2 Manuals, Guidelines and Information Materials

The design and construction manual for water supply and sanitary facilities in primary schools[31] and the production of a package of multi-media materials designed to promote sanitation and hygiene in schools has been produced by the Ministry of Education.

Currently, health and education WASH capital works and operational costs are poorly funded through regular sector budgets (since WASH is not ring-fenced) and are (inadequately) "temporarily" financed through the CWA. As stated above, this system should be changed within the short term (to 2020) to ensure that that all in-premises institutional WASH facilities are built and operated through regular ministry budgets (whatever the source of funds; GOE, loans, grants, CSO, private, etc.) OWNP (including CWA) funding should be confined to services to the boundary of institutional premises (including prisons, churches, government offices, education and health).

MoE is understood to be currently drafting an institutional framework for school WASH for effective and efficient implementation of the OWNP. Integral to this

27 COWASH: With the current consumption of 30l/c/d, implementing GTP II will be a challenge

30 Federal MoE, (October 2017), National School Water, Sanitation and Hygiene Implementation Guideline

strategy should be central (ministry) budget ring-fenced funding for all "in-premises" capital, operational and maintenance/replacement WASH costs. It has been proposed to leverage additional finance for Institutional WASH interventions by integrating with the Health Care Financing Initiative (CASH) and mobilizing resources from communities and private investors.

The school WASH programme demands more attention because the facilities and proper practices are considered to be a major life skill learning to children. Children practicing good hygiene behaviour in schools may also transfer the behaviour to the family members. It is therefore a way of changing the generation for good.

4.3.3 WASH in Health Facilities

Lack of improved drinking water, sanitation and hygiene facilities in health centres, health posts, clinics and public hospitals are of particular concern. Absence or inadequate hand washing before and after patient contact or after using the toilet leads to preventable infections in the health care environment[32].

In Ethiopia there are 15,095 health posts, 2,660 health centres, 122 public hospitals and 4,000 private for-profit and not-for-profit clinics. The water, hygiene and sanitation situation in the health facilities is poor. It is estimated that as many as 80 per cent of the health facilities are without adequate water and sanitation facilities and 97 per cent are without hand washing facilities. The Programme will support construction or rehabilitation of water supply facilities and latrines at health centres and health posts. MoH, through regional/city bureaus and woreda and town health offices, will be responsible for WASH construction activities in health facilities. Implementation may be through WMP or CMP.

Health Institution	Minimum Packages		
	Water	Sanitation	Hygiene
Hospital and Health Centre	Running water in ■ inpatient room, ■ outpatient examination room, ■ Shower facility for delivery room	■ Toilet access for inpatients ■ Toilet facility with hand washing for outpatient considering persons with disabilities and full-term pregnant women	■ Hand washing facility chemicals with soap or other disinfectant in all rooms
Health Posts	■ Running water in delivery room and examination room	■ Male/female separated VIP or improved latrine considering persons with disabilities and full-term pregnant women	■ Hand washing facility with soap in the compound ■ Hand washing facility with soap in delivery and examination room and OPD.

Table 4 5: Minimum WASH service requirement in health care facilities

28 WHO. Healthy Nutrition: An Essential Element of a Health-promoting School, Information Series on School Health. WHO, 1998.

29 American Academy of Paediatrics. Committee on School Health, School Health Policy and Practice, Fifth Edition, 1993.

31 Design and Construction Manual for Water Supply and Sanitary Facilities in Primary Schools, MoE, MoWIE, UNICEF, 2012.

4.4 CLIMATE RESILIENT WASH COMPONENT

The UN Office for Disaster Risk Reduction (UNISDR) defines resilience as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management." Considering that Ethiopia is one of the countries with the highest vulnerability to droughts globally and considering the severe impact of El Nino and the IOD droughts to WASH services in recent years, the WASH sector must incorporate the concept of climate resilience more strongly.

In the particular case of the OWNP, the concept of climate resilience has two key approaches and three sub-components. The two approaches include:

1. Securing the water sources

The majority of the Ethiopian population relies on groundwater sources for water supply, and due to the hydro-geological complexity of the country, the reliability of those sources throughout the year and during droughts is not always guaranteed. According to the WASH Cluster, in Somali region during the dry season in 2017, 95 per cent of water points were dry, the majority of them shallow wells and rainwater harvesting systems (birkats and hafir dams). The lessons learned of three consecutive failed rains during the 2015-2017 period emphasize the need to identify more climate resilient technologies and approaches in areas affected by recurrent droughts.

Securing the water sources means having a proper analysis on the resilience of the water sources in the specific areas of intervention. For instance, if in the same kebele shallow wells were affected by previous droughts; other alternative water sources (i.e. deeper aquifers) should be explored. The Climate Change Water Safety Plans (CC-WSP) developed by WHO could be a good instrument to evaluate the safety of those sources. ODI has also developed a tool: "climate and environmental risk screening for rural water supply in Ethiopia," which could be used by implementing partners to identify the resilience of specific water sources in the highlands.

The capital investment of building resilient water sources is higher than that of low-resilient ones. However, financial analysis done by UNICEF shows that -when considering other costs (i.e. humanitarian costs when infrastructures are not functional), the investments in climate resilient infrastructures are up to 35 times cheaper than the non-resilient ones.

The economic analysis of climate resilient technology shift shows that the additional CAPEX cost of building climate-resilient rural technologies, for instance, may be less than 20 per cent additional to that of conventional non-climate resilient technologies. The extra cost of changing the technology mix and making WASH infrastructures more climate resilient is estimated at around US$400 million, which is only 6 per cent of the total budget of the programme; in addition, there are around US$411 million required for activities that contribute to mainstream climate resilience, such as groundwater mapping. However, as mentioned earlier, from this additional cost may be deducted the longer-term savings of building climate resilient systems as well as the lower maintenance costs of some higher technology systems.

2. Improving the sustainability of the infrastructures by improving the management systems and the supply chains

According to the 2010 EFY Annual Report of the OWNP, the current functionality rates may be as low as 10 per cent in some rural areas. During droughts, the percentage of non-functional water infrastructures can increase significantly, due to overuse of the infrastructures (i.e. over-pumping) or due to other factors (i.e. poor preventive maintenance). For that reason, the climate resilient approach has to take into consideration not only the water sources, but also the management of the infrastructures, with special emphasis on functionality and the use of rural water utility model for higher-tech solutions.

Although the whole OWNP overall objectives is to enhance the well-being and productivity of the Ethiopian people through the provision of adequate, reliable and clean water supply and sanitation services, there are areas where an accelerated WASH programme with sustainable and "high tech" solutions becomes an urgent economic, humanitarian (as well as political) imperative. Such areas have increasingly high climate variability, located predominantly in arid or semi-arid parts

32 Rehfuess EQ. Bruce N.Bartram JK (2009). More health for your buck: health sector functions to secure environmental health. Bulletin of the World Health Organization, 87: 880-882(http:/www.wh.in/bulleting/volumes/87/11/08-059865/en/index.html, accessed 12 January 2012).

of Afar, Somali, Oromia and some areas in SNNPR. Currently, reliable, safe and climate resilient water access is not well developed in these areas, resulting in the need for regular and high cost emergency response.

Looking at the population increase, climate variability and risks associated with the cyclical drought problem in Ethiopia, the drought prone areas of Ethiopia require a multi-faceted sub-programme under the CR WASH component of the ONEWASH National Programme to provide sustainable WASH services to the dominantly pastoral and agro-pastoral communities, including livestock watering. This involves ground water and surface water development and construction of multi-village schemes for clusters of communities employing cutting edge technologies and developing systems for monitoring, post-construction support, capacity building and enhancement of the participation of the private sectors.

Deep well drilling to tap reliable and good-quality water reserves and long distribution pipelines are envisaged. Increasingly, abundant solar energy in these areas will be harnessed to improve operational financial sustainability.

The climate resilient initiatives will be integrated with water conservation and catchment management to ensure sustainability along with proposed post-construction support units and capacity building using regional universities and TVETCs.[33]

The three sub-components of the Climate Resilient WASH programme include:

Sub-component 1. Water resources mapping, planning and monitoring

This sub-component includes activities that contribute to mainstream the concept of climate resilience across the programme and provides critical investments to make the programme implementation possible. Some of those activities include:

- Data analysis and dissemination. Including a combination of remote sensing, on-site surveys and community information to identify where are the resilient sources and how to identify them successfully.
- Analysis of drought/flood prone areas and definition of responses and mitigation measures (i.e. through Climate Resilient Water Safety Plans, CR-WSP)
- Source protection and sustainability of water sources, through catchment protection/management initiatives and protection of water points/sources.
- Feasibility studies and scientific analysis that contribute to have informed decisions.

Sub-component 2. Climate resilient solutions

This sub-component includes activities that contribute to pilot climate resilient solutions and to intensify investments in drought prone areas. The activities under this sub-component include:

- Finance mobilization
- Investment preparation of bankable project documents, including detail design documents
- Water resources development, including solutions such as deep groundwater exploration, springs, medium-size dam construction
- Construction of multi-village water storage and conveyance systems, with particular focus on drought prone areas
- Monitoring and evaluation
- Establishment of O&M structures for sustainability, including cost recovery and professionalizing the management of infrastructures through the introduction of new management models (i.e. Water Utility Model).
- Technical assistance to woredas implementing climate resilient solutions
- Revision of institutional roles and responsibilities and support from higher levels to the introduction of those CR investments

Modernization of the hydro-meteorological systems, in particular for groundwater monitoring and early warning systems in flood-prone areas

Solarization of rural water supply systems (currently powered by fuel-based generators)

Sub-component 3. Emergency preparedness, early response and recovery

This sub-component includes activities that contribute to reduce the impact of emergencies through preparedness, and also considers the anticipated contributions

of humanitarian response to the overall objectives of the OWNP.

In this regard, the budget of the sub-component only considers the preparation of emergency preparedness and response plans for the sector and sub-sector.

The emergency response activities have a zero budget, since it is not possible to anticipate the humanitarian needs and response, part of which is expected to contribute to the outcomes of the ONWP (and vice versa). For instance, the rehabilitation of a water point in a drought prone area affected by a drought contributes to the OWNP outcomes, even if that activity is implemented under a humanitarian programme. At the same time the investments made under the CR-WASH component are expected to have a positive impact in the reduction of humanitarian needs.

4.5 ENABLING ENVIRONMENT, PROGRAMME MANAGEMENT AND CAPACITY BUILDING

This component includes support to improve skills and capacity of the Programme's organizations and implementing parties at all levels to plan, manage and monitor Programme activities through training, post-construction management support, equipment, tools, and support to monitoring and reporting. The Programme will support a minimum staffing and resource package necessary to effectively implement it at all levels to be determined by a capacity assessment at federal, regional/city and town/woreda level.

Capacity development efforts need to be targeted to achieve more effective and WASH programme implementation and sustainable operations through enhanced institutional and management capacity. This component includes support to improve skills and capacity of WASH organizations and implementing parties at federal, regional/city, woreda/town and kebele and community levels to plan, manage and monitor Programme activities as well as strengthening M&E capacity at all levels and support to qualitative research and studies.

Capacity building resources should also be accessible to the private sector, but at a fee. Insistence on certified engineers, sociologists, financial analysts, quantity surveyors, environmentalists, etc. to be key positions in consultant scoping and feasibility studies and detail designs will (a) improve WASH implementation and (b) provide income to the education establishments to ensure they retain highly qualified staff as well as hardware and software resources.

A cascaded training approach should be used for rural water supply and sanitation. For urban water supply and sanitation, it will also be relevant to use a cascaded training approach for promotion of good hygiene practices and improved on-site sanitation. A cascaded training approach is less relevant for urban water and sewerage utilities, whose capacity needs, should be addressed through formal courses and on-the-job training by relevant training institutions, NGOs and others.

The other area of immediate focused TA, including on-the-job capacity building, is expected to be at the level of Regional WASH Coordination Office and Regional WASH sector bureaus which will be expected to support the master planning and funding bids within their region.

Capacities of TVETCs and HSCs will be enhanced as one programme of capacity building aimed to support training of trainers, curriculum development and purchasing training equipment for workshops and laboratories. Teaching institutions such as the Ethiopian Water Technology Institute (EWTI) and universities will be involved to train WASH professionals. The creation of training centres, similar to the existing ones in the power and telecommunication sectors or the one constructed by AAWSA, could contribute to professionalizing the sector, in particular in the management of water utilities.

WASH guidelines, manuals and other relevant training materials need to be reviewed, adapted and updated, and any new ones shall be prepared as required. Operation and maintenance manuals are required for different types and components of urban water supply schemes and equipment. Manuals should be translated to Amharic and other major regional languages as appropriate for the intended user group.

Research and development on WASH should also be supported in sector wide identified priorities; and promoting innovation and knowledge management in the WASH sector through learning and sharing events and other appropriate measures. More research should be done to demonstrate the real costs and the impact of capacity development (for details see section 9).

33 FDRE (2017) Development of sustainable water supply, sanitation and hygiene programme in draught prone areas of Ethiopia, sub-programme document, unpublished

5 CROSS CUTTING ISSUES

5.1 WATER QUALITY

A water quality monitoring programme has been developed through the National Drinking Water Quality Monitoring and Surveillance Strategy introduced by Ministry of Health in 2011. However, there have not been adequate action plans supporting the strategy so as to provide a system of sampling frequencies, analysis and reporting protocol. Near and past researches have indicated that water is contaminated along the way from source to point of consumption. Water quality monitoring is not only useful to ascertain whether water is fit for drinking or not, but also to locate the source of contamination which could be from the catchment area or leaking pipes.

- The two main sectors responsible under the strategy for drinking water quality, MoH and MoWIE and their regional bureaus, have operated primarily within their own sectoral priorities and mandates. After the signing of the OWNP MoU and WIF in 2012, the roles of the two sectors were further clarified and the importance of coordination affirmed.
- MoWIE will test water quality of proposed surface water and groundwater sources before construction and commissioning of the schemes and will be responsible for identifying and implementing mitigation measures in areas with naturally occurring water chemistry issues such as high fluoride, iron, arsenic and salinity.
- The Ministry of Health is responsible for periodic monitoring of water quality after water supply schemes are commissioned through their regional bureaus and woreda offices. Ministry of Health checks especially for bacteriological contamination using its regional laboratories and portable test kits. Currently, UNICEF, World Health Organization (WHO) and the government are distributing kits to regional health bureaus.
- It has been intended that urban water utilities level 1-3 should establish a laboratory and carry out water quality monitoring on daily bases, while utilities level 4-5 and rural water supply schemes are also expected to be checked on regular bases. However, the number of water testing laboratories in each region is still very limited and need to be urgently increased in number based on logistical access. Under water sector reform, large and small utilities and MVWS management are expected to cluster and share accredited laboratory facilities and expertise.

5.1.1 Implementation

- Protection of water sources and improved management of source catchments are likely to bring benefits both now and in the future to water availability and water quality. To ensure safe drinking water, a holistic risk assessment and risk management approach is emphasized as well as the importance of considering the entire drinking water system, from catchment to consumer.
- For rural water supply, potential water quality issues need to be addressed, such as threats to the water quality of protected springs from increased rainfall and flooding. Bunds/drains need to be built to divert flow away from springs using robust construction standards and materials and awareness needs to be raised about the risks from water quality deterioration during and after flooding. During well construction proper grouting and the construction of a riser and apron is required to protect the well head from run-off contamination, etc.
- There is an urgent need for basic water quality monitoring to be strengthened everywhere, but particularly in urban water supplies and in acute hot spots[34] . The capacity of regional laboratories should be strengthened in manpower, equipment and consumables, but just as important is to have more laboratories in all large towns and cities to ensure better access and to improve reliability and standardization through inter-laboratory benchmarking. Skilled manpower for water treatment and quality control and, where appropriate, wastewater quality control should be available at all town and woredas. Training and operational manuals are required for water supply laboratory facilities and for water treatment control and monitoring.

- There is a need for technical and logistical support to strengthen existing public health laboratories and increase the number of laboratories in each region; partly for better coverage and partly for logistical reasons in handling bacteriological samples, etc. Remaining gaps can be bridged through the use of portable water testing kits, especially for rural areas.
- The establishment of a water surveillance programme using kits is being promoted by the Government and through support from UNICEF and other partners, including training and guidelines on systems of work, water quality surveillance and reporting. (see Sub-section 4.4.3 Standards and Guidelines).
- The applicable standard for drinking water quality in Ethiopia is the Ethiopian Drinking Water Quality Standard: ES2601:2001 (second edition), which includes reference values for bacteriological, chemical and physical water quality parameters.

5.2 SOCIAL AND ENVIRONMENTAL SAFEGUARDS

Environmental safeguards include environmental assessment, natural habitats, cultural property, etc. Social safeguards include aspects such as involuntary resettlements. The Social and Environmental Safeguard Section/Unit within the MoWIE are facilitating effective enforcement, capacity building and monitoring of adherence to the social and environmental policies and guidelines. There is also a need to have a unit responsible for environmental and social safeguards in regions and woredas.

According to the World Bank guidelines, high risk sub projects are those that require a site-specific environmental assessment (EA) or a detailed environmental and social management plan (ESMP), as they may present potential adverse environmental and social risks. In many countries rigorous Environmental and Social Impact Assessments (ESIA) are carried out for all major WASH projects as a mandatory part of feasibility and/or detail design stages, while less rigorous approaches may be used for smaller urban and rural schemes.

Specifically, ESIA will be important for the "WASH-DPA Programme" (Resilient and Sustainable WASH Programme in Drought Prone Areas of Ethiopia). With respect to interventions in drought prone areas, there may be significant impact of reliable but widely spaced fixed point deep well sources on people and stock movements, including socio-economic and environmental impact, etc.: Hence ESIA and risk assessments need to be part and parcel of CR-WASH sustainability master planning and feasibility as well as for climate resilience assessments of all WASH projects.

First steps in environmental and social safeguard assessment include the following important areas:

- It is very important to have discussions with beneficiary communities to inform the public about the upcoming project and also to get pertinent information, ideas and concerns. In targeting stakeholders, it is best to first identify the stakeholders, set date, time and place and inform them about the project and get information about their views and opinions.
- Focus groups selected from the community are another way of conducting in depth discussions to get dissenting or consenting decisions
- Public meetings are another method and an opportunity to get more people together and discus all sub-projects in their communities

5.3 ENHANCING EQUITY IN WASH PROGRAMME OUTCOMES

Equity and inclusion are part of a human rights-based approach to programming that extends beyond focusing on the specific needs of marginalized groups. It is about empowering people who are marginalized and improving wider systems of governance, changing the power dynamics between those without access and the duty bearers. Inclusive WASH aims to bring about sustainable and long-term structural and systemic change in policies, procedures and laws, as well as changes in attitudes and behaviours to ensure WASH results are achieved by all.

The WASH programme considers equity-focused situation analysis with the objective of guaranteeing WASH outcomes and other results to benefit vulnerable or marginalized groups, thereby reducing disparities. Therefore, the OWNP will emphasize inclusive and focused programming to enhance equity and reduce disparities in access to WASH outcomes. The most critical bottlenecks/barriers that prevent inclusive WASH from adequate WASH interventions, services and practices will be analysed at the beginning of the second phase, and the programme will be implemented to adequately address these constraints on equity or inclusiveness.

34 Hot spots include areas where the risk of contamination of drinking water and related disease transmission are high.

The second phase of the OWNP focuses on reducing inequality, sustaining access to services at scale, promoting resilient development and strengthening accountability at all levels. The Programme recognizes that people are different and need different support and resources to ensure their rights are realized in the provision of WASH facilities and services, including participation by all. The programme recognizes that different users are involved throughout the programme cycle and should not be discriminated against and their varying needs be addressed.

It provides a flexible service to accommodate as many users as possible, ensuring facilities are accessible and easy for all to use. Technology adaptations will be monitored to ensure they continue to provide an inclusive service, are of high quality, and are accessible and used by all. It mainstreams a rights-based approach to support people to engage in wider processes and ensure their rights are recognized.

The Programme seeks to reduce regional and social disparities in access to safe drinking water and improved sanitation requiring the identification and targeting of areas with low access to safe water or improved sanitation, using disaggregated indicators to track gender equity in roles and benefits, and identifying acute water and sanitation "hot spots."

Success in creating equity targets requires close coordination between the Programme and various humanitarian organizations providing emergency WASH interventions. As indicated above, to this end, it is proposed that the nexus between emergency and development interventions is strengthening and development interventions (such as the WASH-DPA) to halt the vicious circle of vulnerability by addressing the root causes of emergencies.

For WASH interventions in hot spots, regional and woreda readiness criteria will still apply. However, at the community level, eligibility requirements will not require that the WASHCO be established as a legal entity or that an annual consolidated WASH plan be approved before receiving assistance. However, the WASHCO will still have to formally convene, elect members be trained, and prepare bylaws.

Standards of WASH services in urban poor settlements, citizens' participation in monitoring the standards of WASH service and weak local governance are issues affecting urban communities across the country. Awareness of the low level of equity to urban WASH needs to be improved through advocacy at all levels.

Achieving access to WASH for the poorest and most marginalized groups such as people living in informal settlements needs; (1) improved information on community WASH facility services in slums (particularly for people with disabilities, children and the elderly), (2) designing and testing technologies that address the needs of poor and marginalized people and (3) prioritization of the poorest people in WASH programmes.

5.3.1 Gender

The programme considers gender responsive programming based on existing global and local Gender Action Plan (GAP) that reflects an integrated approach to preventing and avoiding gender-based violence when using safe WASH services, and exercising practices that empower women (i.e. through women participation in WASHCOs and decision-making forums). The programme is conscious of designing and promoting appropriate technology to meet different needs of the WASH beneficiaries including provision of Menstrual Hygiene Management (MHM) for menstruating women and girls, with special focus on the WASH in schools activities.

Women already occupy important managerial roles in the health and education sectors, but less so in the water and finance sectors. A WASH gender audit undertaken by the Women's Affairs Directorate, MoWIE, provides useful knowledge and guidance as well as a baseline for assessing change during the Programme.

The Programme's support to EWTI will include promoting and supporting the reintroduction of the gender training modules prepared by MoWIE. Other gender-related aspects of the Programme include, but are not limited to, planned support to women and youth-led supply chains, construction of latrines and MHM facilities at schools for adolescent girl students and full-term pregnant women in health facilities and the use of gender disaggregated indicators to monitor Programme results.

Currently there are at least 34 per cent of people, mostly in rural areas, who have no latrine of any kind. Sanitation development has multiple challenges including poverty, weak support, poor awareness and knowledge, lack of appropriate technology options and exclusion factors (affecting different categories of people, such as the poor, chronically ill (HIV-AIDS), pregnant women, elderly, persons with disabilities, those in hard to reach areas etc.) It is therefore important that the approach for a universal access must be based on the principles of equity addressing three important barriers[35]: 1) attitudinal barriers (isolation, prejudice, stigma, etc.), 2) environmental barriers (physical accessibility to infrastructure, toilet or squat hole design) and 3) institutional barriers (policies).

WASH programmes should be conscious of designing and promoting appropriate technology to meet different needs of the WASH beneficiaries including provision of Menstrual Hygiene Management (MHM) and disability access, child friendly

taps, urinals, conveniently located hand washing facilities and adequate light and ventilation in latrines.

5.3.2 Refugees and Internal Displacement

Ethiopia is host to the second largest population of refugees in Africa, with close to one million refugees in 2018. Given the complex nature of the situations in the neighbouring countries, the refugee situation in Ethiopia is protracted in nature with refugee populations and their hosting populations competing for limited resources. Under the Comprehensive Refugee Response Framework endorsed by the Government of Ethiopia through the prime minister, the government made nine pledges that have direct implications on the WASH sector in Ethiopia as part of the plan for integration of refugee populations that includes enhanced provision of basic and social services.

The WASH sector can prioritize equitable basic and social service provision to both populations by addressing long lasting and resilient solutions for both refugees and hosting populations, planning for equity of distribution of services to prevent conflict over water resources, and engaging the private sector to ensure quality and efficiency in WASH service provision.

In the past, droughts, flooding and inter-ethnic violence have triggered the displacement of people within the country. Climate resilient programming and planning will enable regional governments to allocate resources as part of recovery initiatives where recurrent natural disasters are anticipated due to prevailing environmental conditions. Universal access will require consideration of these humanitarian needs and recovery planning and budgeting.

The recent social challenges facing several of Ethiopia's neighbouring countries have resulted in close to a million refugees that are camped primarily in the northern, western, and eastern parts of the country. Deteriorating health surveillance conditions in some of these refugee and asylum producing countries presents a risk of transmission of cross-border communicable diseases in addition to resource depletion through sharing. The Administration for Refugee and Returnee Affairs is responsible for planning for water and sanitation for refugee populations. The administration does not typically have WASH technical staff in all of the areas of operation.

Modalities for integrated service provision for water supply and the full chain of liquid and solid waste management through utilities are being initiated to increase the technical capacity of utilities servicing refugee populations through involvement of regional, water, and town water offices. By planning demand of host community utilities to include refugee demand, resources required for costly water trucking activities can be more efficiently used for more resilient and durable schemes where refugees cannot return to their countries of origin for a protracted period of time.

5.3.3 Disability

Access to WASH services for people living with disabilities was highlighted as one of the priorities in the sector during the Multi Stakeholders Forum (MSF-8) that took place in 2017 and was emphasized in 2018 at the MSF-9. According to a World Bank and WHO report, there are an estimated 15 million children, adults and elderly persons with disabilities in Ethiopia, representing 17.6 per cent of the population. Recognising that universal access cannot be reach if the special needs of those groups are not met, the sector has to adjust the technical designs to make them disability inclusive.

The OWNP has to be more sensitive to address the needs of people with physical impairments (i.e. ramps, accessible toilets, etc.), in particular in institutions such as schools and health care facilities where those barriers might prevent vulnerable groups from having access to basic services such as education and health. Persons with disabilities should be consulted and should also participate in the planning and implementation of WASH facilities.

5.3.4 Other vulnerable groups

The WASH programme is based on gap analyses to address bottlenecks to reaching marginalized and disadvantaged communities. The programme further sets explicit targets for reaching excluded groups and develops a Theory of Change (ToC) through results formulation.

Monitoring outcomes during programme implementation and reporting results considers all equity dimensions, including, among others, gender, ethnicity, economic situation, social and cultural status, health status, institutional capability, geography of residence, vulnerability to climate related risks, mode of living (pastoralists, agrarian or displaced) and others.

National, regional and local averages in WASH result achievements need not mask gaps in achieving WASH results, services and practices within different elements of the society across different levels of interventions and area coverage. The objective of reducing equity gaps will be tracked based on the fact that people must have equal opportunities and equal access to WASH services within communities and institutions.

6 PROGRAMME ORGANIZATION AND PARTNERSHIPS

6.1 OWNP SIGNATORIES

The WIF has been agreed between four ministries (MoWIE, MoH, MoE and MoFEC) whose roles and responsibilities are further defined in a Memorandum of Understanding (MoU) signed in November 2012, to support an integrated and resilient ONEWASH National Programme that addresses the needs of rural, urban and pastoralist communities, schools and health posts in a more integrated manner and reduces the administrative fragmentation of WASH service delivery.

The specific roles and responsibilities of the four ministries in implementing the Programme are described in the MOU where they have committed themselves to:

- Assign an appropriate representative to the National WASH Technical Team (NWTT)
- Establish a WASH Programme Management Unit (WPMU) and designate a WASH focal person to liaise between the WPMU and the National WASH Coordination Office (NWCO)
- Prepare and submit to the NWCO and to NWTT an annual WASH Plan of Actions
- Conduct joint review and monitoring of programmes

6.2 SPECIFIC ROLES OF GOVERNMENT AND PARTNER ORGANIZATIONS

Organizations	Level	Summarized Roles and Responsibilities
Ministry of Water Irrigation and Electricity	Federal level	Water and sanitation policy and strategy, coordination and monitoring
	Regional level	Design and contracting of piped water supply schemes; Oversee woreda implementation of schemes such as hand-dug wells or spring catchments.
Ministry of Health	Federal level	Preparation of Health Sector Development Plan, HSDP V, to achieve the health GTP II 2020.
	Regional level	Decentralized plan, implemented by regional health bureaus and woreda health offices and primary health care units, aims to scale up delivery of primary health care services at district (woreda) level and through the health extension programme organized at the kebele level.
Ministry of Education	Federal	Design School WASH strategy, action plan and implementation guideline to enhance clean and safe water supply, sanitation services and hygiene practices.
	Regional level	Establish a school latrine cleaning culture, and hand washing and menstrual hygiene management in all schools; enhance maintenance of system.
Ministry of Finance and EC	Federal level	Financial management of the Programme and allocating and channeling resources and monitoring fund utilization (Ref. WIF for details).

Organizations	Level	Summarized Roles and Responsibilities
Development Partners	Federal level	These international and bilateral organizations have for many years been important supporters and partners to the government efforts in WASH improvement, helped to establish the Consolidated WASH Account (CWA) and are expected to increase contributions as well as to be part of review processes and capacity building
National ONEWASH Coordination Office	Federal level	Oversee the CWA. Coordinate the identification and mapping of CSOs working in WASH at all levels and collect information on the programme scope, location, type of interventions. Resources available for implementing WASH activities. Multi-sector coordination with stakeholders outside the MOU signatories to work together to support sustainable and resilient WASH services to all people in Ethiopia. These includes Ministry of Urban Development and Construction (MoUDC), Ministry of Agriculture and Natural Resources (MoANR), Ministry of Livestock and Fishery (MoLSF), Ministry of Environment, Forest and Climate Change MoEFC), Ministry of Federal and Pastoralist Development Affairs (MoFPDA) and National Disaster Risk Leadership Commission (NDRLC) etc. Coordinate M&E, organize periodic programme reviews (JTR and MSF), make available aid memoir and other field reports, stimulate learning and knowledge management, compile biannual, annual reports and disseminate
Civil Society Organizations (CSO)	At all levels	Deliver water and sanitation projects, establishing management structures, in hygiene promotion, piloting new approaches, reaching remote areas and groups, supporting and undertaking studies, evaluation and learning and knowledge sharing and participating in sector reviews and evaluations (semi-annual JTR, annual WSF and annual MSF).
Private Sectors	At all levels	Implementing most construction of water supply schemes and improved sanitation in urban and rural areas, provides consulting services for studies, designs and construction supervision, lead the establishment of supply chain for WASH products and supplies such as spare parts, maintenace repair services, in supporting self supply activities and in social/sanitation marketing. Corporate Social Responsibity (CSR) activities have the potential for companies (often those that use water) to contribute to monitoring, safe water use and environmental protection in their locality.
Banks and Microfinance	Federal and Local level	Play a very significant role in Ethiopia's grant based WASH development, usually through federal level soft loans, follow principles of the WRDF, provide loans to utilities, providing financial services to communities, particularly for CMP, self-supply activities and sanitation marketing through WASHCOs for the purpose of procurement, construction, rehabilitaton, replacement, insurance, and credit to SMEs for providing WASH services and supplies
Communities	Local level	WASH Committees (WASHCOs) and in some cases associations of WASHCOs play a role in planning, managment, operation and maintenance of water points follow strategies and procedures developed by NGOs for capacity building , promoting sanitation and hygiene practices among households in communities (HEWS, WHDA), organize the Community Centred Hygiene and Sanitation Programme (CCHSP) approach through organizing and providing focused training to permanent, respected and trusted community residents which include teachers, religious leaders, elders/clan leaders etc. for a rapid and sustained changes in WASH behaviours. (see Section Annex 5 for details)

Table 6-1: Specific Roles of Government and Partner Organizations

6.3 PROGRAMME ORGANIZATION

As described in the OWNP document 2013, the highest governing body in the Programme is the National WASH Steering Committee (NWSC) whose members include ministers and state ministers from the ministries of Water, Irrigation and Energy, Health, Education and Finance and Economic Development. The NWSC is chaired by the minister of water, irrigation and electricity.

The technical arm of the NWSC is the National WASH Technical Team (NWTT) consisting of directors from the four WASH ministries. A similar structure is prescribed at regional level. The lowest level of WASH governance is the woreda (district). At the woreda level, WASH activities are implemented by the Woreda WASH Team (WWT) led by the woreda administrator. Its members are from the four WASH sector offices (Water, Health, Education, and Finance, with additional members from the Women Affairs and Agriculture offices). Development partners are presently represented by the Development Assistance Group – Water Technical Working Group.

The National WASH Coordination Office (NWCO) is responsible for coordinating, planning and oversight of Programme implementation at federal level and at regional level (through RWCOs) and to stimulate and attract partners to join the OWNP in the planning, implementation and reporting processes. The NWCO reports to the NWSC supported by the NWTT. Implementation of the Programme in the sector ministries is the responsibility of WASH Programme Management Units (PMUs) in the ministries of Water and Energy, Health, Education and Finance and Economic Development, respectively.

At regional, zonal and city levels, planning and implementation of the Programme is intended to be coordinated by Regional WASH Coordination Offices, which report to a Regional WASH Steering Committees and to the National Coordination Office supported by a regional WASH Technical Team. Implementation is intended to be managed by WASH PMUs in the bureaus of water resources, health, education and finance and economic cooperation. Currently, RWCOs are tasked with management of the CWA activities but duties are expected to expand to cover all OWNP activities, that is, oversight and reporting of all GOE, DP and CSO financed projects, including education and health sector budgets.

The same process is replicated at the zonal, woreda, kebele, and community level by the WASHCOs. Figure 6.1 below shows the institutional arrangements and functions for implementing the Programme through the CWA.

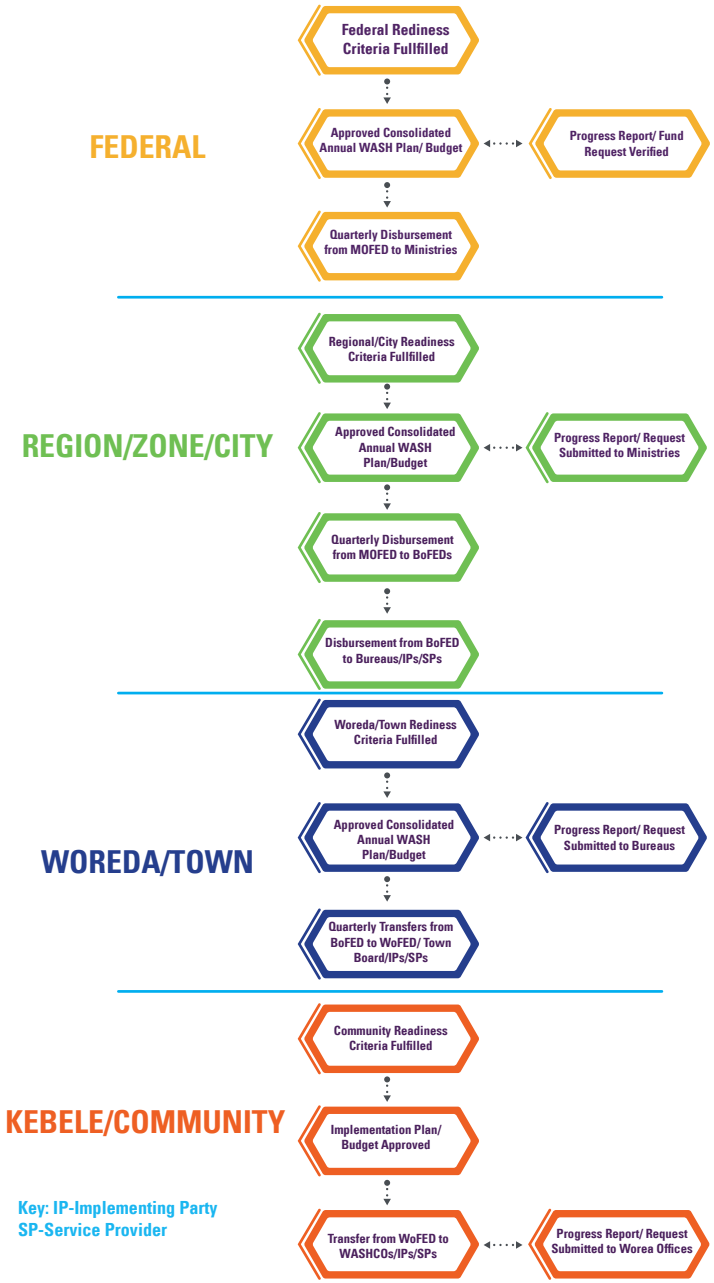


Figure 6.1: Programme Implementation Process

6.4 PARTNERSHIP ARRANGEMENTS

During Phase II, increasing effort will be made to encourage Programme implementation as a joint effort between Government, Development Partners, CSOs, training institutions, the private sector, community members and other stakeholders through contributions to the Consolidated WASH Account (CWA) at the federal level. However, partners, including bilateral aid organizations and CSOs, are expected to continue to support the Programme through other funding arrangements, as well as through the provision of technical assistance, supplies, etc.

The important partners for OWNP are not only financial contributors but also those who can support in ways other than financial. As described in the OWNP document 2013, the WASH Implementation Framework (WIF), the Programme has three types of partnership arrangements:

1. Partners – organizations contributing to the Consolidated WASH Account (CWA) at the federal level. In this category are international, bilateral and finance organizations who have together with the Government established the consolidated WASH account.

2. Associated Partners – organizations funding construction of water supply and sanitation facilities, technical assistance, supplies and other support to OWNP, but not using the CWA. These include some IFIs but predominantly CSOs which plan and budget WASH services in direct collaboration at the federal, regional and woreda levels. There is a need to map these partners and fully document their activities, outputs and contributions as a clear part of the OWNP.

3. Collaborating Partners – organizations providing other types of assistance to OWNP, i.e. training, studies, manuals, communication products, participation in the Multi-Stakeholder Forum, etc. These categories could be the international, bilateral and financial organization who are also supporting OWNP in hiring consultants to augment staff shortage and provide expert service, support organizing forums, workshops, training and preparing and printing manuals and guidelines.

There is currently poor understanding that OWNP encompasses the whole WASH sector activities, not just the contribution from the CWA. A two-pronged advocacy approach is required; (1) general awareness regarding the OWNP and (2) attracting new partners to the CWA.

This may involve, for instance:

- Introducing the programme scope through mass media
- Inviting would-be partners to forums, meeting and workshops to make them part of the discussion and let them see how aligned their programme is with the WASH programme and see whether they can benefit by joining the CWA
- Sending out quarterly, biannual or annual activity and financial reports to wider audiences including media, financing organizations, teaching and research organizations, etc.

There is clear evidence that the OWNP will soon need to be expanded to include inter-relationship with stakeholders outside of the original four OWNP signatory ministries:

Ministry of Urban Development and Construction (MoUDC) which can be engaged or partner in utility operations, sanitation services, reuse of treated sanitation solid and liquid wastes, protection of water resources (point source and dispersed pollution, industrial liquid and solid wastes, domestic solid wastes), strict control of urban plans (including watershed protection zones), etc.

- Ministry of Agriculture and Natural Resources (MoANR) which oversees major water users and also promotes the afforestation programme with direct relationship with water conservation and water resource management.
- Ministry of Environment, Forest and Climate Change (MoEFC) which is interested, mandated and focused on water pollution control through its existing regulatory procedures (and in future through an Environmental Protection Agency (EPA)), and involving overlaps with MoUDC activities listed above – protection of water resources (point source and dispersed pollution, industrial liquid and solid wastes, domestic solid wastes), strict control of urban plans (including watershed protection zones), etc.
- Private sector, which could include those working in water drilling, water and wastewater construction, FSM businesses, and other contractors related to water and sanitation aspects. In addition, activities by private companies (particularly major water users and/or those involved in solid and liquid waste accumulation) may make a significant positive contribution through (1) advocating "win-win" compliance with environment regulation (both carrot – raising company profile

to shareholders and host town/woreda/region – and stick approaches – EPA enforcement) and (2) Corporate Social Responsibility (CSR) activities, such as under the UN Water Stewardship Programme.

- Educational institutions which could support in capacity building, design, research and learning programme in WASH, hence enhancing knowledge that can be shared with WASH signatories and would-be partners.

For the WASH-DPA project, it may be necessary to design a coordination mechanism to work together with the broader non-MOU signatory stakeholders which include new and relevant ministries.

However, working with new partners demands horizontal engagement, coordination and collaborative action which can be solidified by designing some kind of agreement. It can be an MOU or a coordination agreement on general or specific programmes. Establishing a well-structured forum with well-designed objectives is also another way of enhancing good working relationships.

Some initiatives proposed include:

- Establishment of signed MoUs with partners, associated partners and collaborating partners to materialize the partnership
- Establishment of reporting and mutual accountability mechanisms for partners, associated partners and collaborating partners, to ensure that their contributions to the sector are well reflected in the annual work plans and in the annual reports
- Establishment of regular meetings under the Water Sector Working Group and its sub-groups, to orient strategies and to intensify coordination mechanism.

6.5 MINIMUM STAFFING PACKAGE

In order to effectively implement the OWNP Phase II, Table 6 below indicates the minimum staffing package proposed at various levels. Focal persons are not full-time staff but will perform their Programme-related tasks alongside other duties.

Level	Level
Federal Level	**Regions**
National WASH Coordinator (1)	Regional WASH Coordinator
Study design and construction team	M&E focal person (1)
Procurement and contract administration	Procurement and contract management focal person (1)
CD and private sector support team	Financial management/accounting focal person (1)
Resource mobilization team	WASH focal person (1 for each of the four bureaus)
M&E Reporting and documentation team	Community management expert (1)
WASH Coordinator (1)	Water supply engineer (1)
PMU coordinator (one for each of the four ministries)	Environmental Health/S&H Specialist (1)
M&E staff (1 M&E specialist and 1 data entry clerk)	Capacity Building expert (1)
Procurement and contract management (2 staff so that they can divide the regions into two)	PMU (one for each of the four ministries
Financial management/accounting (4 staff)	Gender Specialist (1)
Community management expert (2 staff)	Disability Specialist (1)
Water supply engineer (2 staff)	Climate resilience in WASH specialist (2)
Environmental Health/S&H expert (2 staff)	Knowledge Management Specialist
Capacity building experts (2), Gender Specialist (1), Disability Specialist (1), Climate resilience in WASH specialist (2), Knowledge Management Specialist, Social and safeguard specialist	Social and safeguard specialist

Level	Level
Zones WASH Coordinator (1) M&E focal person (1) Procurement and contract management focal person (1) Financial management/accounting focal person (1) Community management focal person (1) Environmental Health/Sanitation and Hygiene expert (1) Knowledge management expert Social and safeguard expert	**Towns with greater than 50,000 population** WASH focal person (1) M&E focal person (1) Procurement and contract management focal person (1) Financial management/accounting focal person (1) Woreda WASH Consultant team Customer relations focal person (1) Water supply engineer (1) Environmental Health/S&H Specialist (1) Knowledge management Social and safeguard expert
Woredas Water quality expert (1) Hydro geologist (1) Environmental health workers (2) Social workers (2) Community facilitation team (2) Gender specialist (1) Social and safeguard expert (1)	

Table 6.2: HR Requirement

7 ONE WASH NATIONAL PROGRAMME PHASE II STRATEGY

7.1 INTRODUCTION

The government WASH programme evolved from a single water programme to a water and sanitation programme and now to a water, sanitation and hygiene sector-wide approach (SWAp). The ONEWASH National Programme has the potential to scale up WASH intervention in the whole of Ethiopia through fast-tracking activities in water, sanitation and hygiene, in a multi-sector environment, to a point where all people have sustainable, safe, and affordable access to water and sanitation services.

A strategy action plan for WASH is required to provide a roadmap for accomplishing the specified goals and to provide clear communication to stakeholders such as financiers, partners and staff engaged in the change process. Strategic planning is based on identified gaps or challenges, how to deal with them, and plans where we want to be.

The strategy "vision" is to see that all people in rural, urban and institutions are supplied with sustainable, climate resilient, safe and clean water and sanitation services. As for Phase I, its "mission" is to mobilize adequate resources through engaging multiple partners and donors and use the human and financial resources efficiently for a lasting change in water and sanitation programmes in Ethiopia.

Addressing the shortfalls in adequate and safe water, proper human waste disposal and liquid waste management are the focus areas for the OWNP strategy. The GTP II goal is to provide clean and safe water to at least 85 per cent of the rural population and 75 per cent of the urban population and at least 82 per cent with improved sanitation.

7.2 CURRENT STATUS OF WASH IN ETHIOPIA

In 2015 Ethiopia met its MDG for water supply. This significant achievement was largely driven by the very rapid increase in safe water access in rural areas where an estimated 57 million people got access to piped and protected water sources between 1994 and 2015. In urban areas an additional 10 million people benefited from gaining access to piped water on their premises.

According to WHO/UNICEF JMP, the MDG for sanitation was not met but good progress was made in reducing open defecation in rural areas – over 40 million people built basic latrines (all types) – while in urban areas good progress was made with 8 million people moving up the sanitation ladder from basic to improved toilet facilities.

The WB study estimated that, currently, there are roughly about 40 million people without adequate and safe water supply; about 72 million people without adequate safe and improved sanitation systems and 93 million people who are not practicing safe hygiene. Such a stark evidence drives the need to design a more pragmatic, simple and practical strategy for a rapid change and development of WASH under the OWNP Phase II and beyond.

As can be seen from the tables presented in Sub-section 12.6, it is planned to serve 85 per cent of the total rural population; this means that around 20.4 million more rural people will need to be served to achieve GTP II targets. Similarly, it is planned to serve 75 per cent of the total urban population; this means that around 5.7 million more urban people will need to be reached to achieve GTP II targets. The total 2020 unserved population of 42 million (totals in Table 12.2 and 12.3), estimated in this report through analysis of available data and government official reports, agrees quite well with the 40 million WB study figure.

The water now being delivered to people in both urban centres and rural communities may still be of low quality and unreliable supply. Consumers often resort to private vendor water supply with unregulated tariffs that burden consumers, especially the poor. Compounding the problem is the rapid urbanization and emergence of peri-urban unplanned settlements that are out of reach to the existing urban water and sanitation services.

In rural areas, inefficient water resource management and inadequate infrastructure, combined with poor sanitation and hygiene coverage, has a high health and economic

impact. Moreover, there is continuous slippage from ODF back to OD in sanitation in rural areas and to some extent in water supply owing to depletion of groundwater tables, low resilience technology and often poor maintenance.

7.3 STRATEGY FORMULATION

The OWNP has become more complex, with more and more multi-sector interfaces, and will benefit from an overall 10 to 15 year WASH strategy that would enable the environment, new initiatives, multi-sector approaches and proposed implementation modalities.

7.4 ORGANIZATIONAL DIRECTION

Vision – to see that all people in rural, urban and institutions are supplied with sustainable, climate resilient, safe and clean water and sanitation services.

Mission – to mobilize adequate resources through engaging multiple partners and donors with interest and use the human and financial resources efficiently for a lasting change in water and sanitation programmes in Ethiopia.

Goals – to reach 85 per cent of the rural population and 75 per cent of the urban population with clean and safe water and 82 per cent with improved sanitation. Lack of clean and safe water in quantity and quality, proper human waste disposal, and liquid wastes management at point of generation are some of the focus areas for the OWNP strategy. (see Table 7.1)

In order to meet the Government's ambitious programme, the following are the key points to be considered during planning and implementation for both urban and rural water supplies and sanitation:

- Develop a capacity building strategy and implementation plan including a comprehensive technical support system to improve the functionality of schemes.
- Develop and implement cost effective alternative scheme management (ownership) models
- Develop and implement professionalized management and leverage sector capabilities

7.5 GTP II AND SUSTAINABLE DEVELOPMENT GOALS (SDG)

OWNP keeps both GTP II and SDG goals in focus as the programme seeks to ensure a sustainable WASH service to all people in Ethiopia. Phase II, however, is more focused in achieving GTP II goals. The strategic overview of SDG for rural and urban water supply is depicted in the following tables.

Linkage with the SDG	Goal	Result	Indicators	2020 Target
Goal 3 6.1 9.1	Improve safe water supply	Increase safe water supply coverage	Increase rural water supply access coverage as per GTP II standard service level with improved water supply schemes in percentage	85
Goal 3 6.1 9.1	Ensure sustain-ability and reliability of safe water supply	Increase safe water supply coverage	Increase rural water supply access coverage as per GTP II standard service level with rural piped systems in percentage	20
			To align GTP-II with SDG proportion of population using safely managed drinking water supply in percentage	12
		Reduce rural water supply non-function-ality	National average of non-function-al rural water supply coverage in per cent	7
Goal 3 6.1 9.1	Ensure water quality and water safety of water supply	Strengthen rural water supply water quality and water safety monitoring system	Woredas having water quality and water safety monitoring system in percentage	100 per cent
Goal 3 6.1 9.1	Increase Rural Wa-ter Supply Access	Increase the number of water supply beneficiaries	Number of rural people planned to be provided water supply access as per GTP II standard service level	20,410,759

Table 7 1: Strategic Overview for Rural Water Supply

Linkage with the SDG	Goal	Result	Indicators	2020 Target
Goal 3 6.1 9.1	Improve safe water supply	Increase safe water supply coverage	Increase urban water supply access coverage as per GTP II standard service level with piped systems in per cent	75
Goal 3 6.1 9.1	Ensure sustainability and reliability of safe water supply	Improve continuity of urban water supply	National average of continual urban water supply in hours/day among towns of Category 1 to 3	16
		Reduce unaccounted for water (UfW) for urban water supply	National average of UfW of urban water supplies in per cent among Category 1 to 3 towns	20
Goal 3 6.1 9.1	Ensure water quality and water safety of water supply	Strengthen urban water supply water quality and water safety monitoring system	Urban water supply utilities coverage among Category 1 to 3 towns having water quality and water safety monitoring system in percentage	100
Goal 3 6.1 9.1	Increase urban water supply access	Increase the number of water supply beneficiaries	Number of urban people planned to be provided water supply access as per GTP II standard service Level	5,648,901

Table 7 2: Strategic Overview for Urban Water Supply

7.6 PURPOSE OF FORMULATING OWNP PHASE II STRATEGY

The purpose is to provide a strategic approach to accomplish OWNP objectives based on an in-depth analysis of internal factors and external influences such as the 1) 2013 OWNP document 2) WIF document 3) GTP II document and indicators 4) OWNP Phase I review report 5) SDG indicators and challenges that are influencing integrated WASH approaches for sustainability.

A strategic action plan for WASH is designed to provide a roadmap for accomplishing specified goals and provides clear communication to stakeholders such as financiers, partners and staff engaged in the change process. Strategic planning is based on identified challenges, dealing with them, and plan where we want to be.

The principle driver for the WASH sector under Phase II of the OWNP is the GTP II. The strategy is guided by the directives, objectives, goals and target of GTP II. (Table 7.3).

7.7 RATIONALE

The complexity of the OWNP, with more and more multi-sector interfaces, will benefit from a 10 to 15 year strategy, which will aim to:

- Initially meet the Government of Ethiopia Growth and Transformation Plan, GTP II
- Meet SDG targets or alternative targets more appropriate to Ethiopia's capacity and Government objectives
- Create an enabling environment whereby these ambitions can be met for water supply, sanitation and hygiene (WASH)
- Incorporate new initiatives: utility regulation, clustering, WASH-DPA, refugee areas, delegated management, very deep wells, renewable energy, micro-sanitation plans, etc.
- Increasingly adopt a multi-sector approach to take account of the whole WASH sector and its stakeholders
- Accelerate Implementation by national, regional, zonal, woreda and urban authorities in collaboration with DPs, CSOs and private enterprise

It is also observed that in order to meet the government's ambitious programme, the OWNP Phase II will require immediate significant key actions and goals which need to be considered during planning and implementation for urban and rural water supplies and sanitation. The actions/goals need to be fully established and formalized under long-term OWNP activities (to 2030 and towards SDG targets) in order to create a robust water and sanitation sector able to meet the needs of urban and rural WASH in Ethiopia.

The approach is summarized in Table 7.1 , articulated further in terms of GTP II target in Sub-section 7.6 and actions are detailed in Section 8 (short to medium term recommendations). It is noted that:

MoWIE is now shifting its focus from construction of new schemes to ensuring the sustainability of existing schemes and the proportion of rehabilitation to new build appears to be increasing with time.

Behaviour (or awareness) change is needed as much at policy and management levels as it is at community and household levels, particularly for urban sanitation. Similarly, awareness of business planning and accountability across all sectors is low and needs to be improved and promoted.

There is an urgent need to review water tariff strategy, since tariffs in many cases are currently set at town or woreda levels that are well below the ability to pay. There will, however, be cases, particularly for piped water supply systems involving deep boreholes with associated high-power costs, where operational subsidies will be required to ensure minimum levels of service are maintained (at least 25 l/c/d).

In the longer-term, tariffs are set and endorsed by the water board and endorsed by water authority. It will be the role of a future utility regulator to approve tariffs based on technical performance and financial analysis, free from political interference (as is normal for utility regulators worldwide).

National guidelines and manuals are required to prescribe design standard and technology selection appropriate to levels of service, to be updated from time to time based on such things as sharing of good practices, research and development, progress on groundwater exploration mapping, water safety, solar power, CR-WASH, urban sanitation, pastoral sanitation, etc.

Currently there is a move to legalize WASHCOs and strengthened the capacity of the committee to properly manage the scheme and to introduce a rural utility approach and "professionalization." WASHCOs will remain in place for point source schemes. However, longer term, rural pipe supply systems could be absorbed into large (approximately zonal sized) publicly owned utilities for both urban and rural to ensure economies of scale for reasons that include regulation, fast-tracked procurement and implementation, operation, inventories, asset management, quality control, monitoring and evaluation, investment leverage, etc.

There is a need to reduce the time for revising and finalizing designs and bidding documents since, on average, the actual time between the hiring of implementation consultants and the start of bidding has been more than two years. These delays have been due to many factors including, most importantly: (i) the review, revision, and approval of changes in project scope, especially major reductions in scope necessitated by large cost escalations due to inflation, (ii) lengthy review and approval of final designs and bid documents and (iii) long drawn out bidding processes.

- Although transparency in bidding for both consultants and contractors is essential and should not be compromised, the regional bureaus should take immediate steps to (a) reduce time for review and approvals and (b) ensure a pipeline of well prepared "bankable" projects able to both attract funding and also ensure timely delivery of services.
- At the federal level (MoFEC), (1) the rules should be changed to allow autonomy of regions to deal directly with funders, but in collaboration with regional BOFEDs and (2) delays in financial reimbursement to the regions at the beginning of each EFY should be eliminated.
- The Government needs to provide swift additional funding for the programme to embed more realistic price and physical contingencies based on past project records and performance. Alternatively, as it has proposed from the regions, the plan budget for imported equipment should be reserved in euros or U.S. dollars to manage budget scarceness due to inflation.
- It is also extremely important for the Government (MoFEC) to give tax breaks and quick letter of credit approvals for import of critical WASH plant and equipment, where these are not manufactured in Ethiopia to the required specifications. Such equipment includes water drilling machines, pumps, generators, vacuum trucks, laboratory equipment, etc.
- DBO (Design, Build and Operation) contracts should be considered by the regional bureaus as a possible means to deliver projects in line with time, cost and quality.

- The majority of water projects in Ethiopia are based on groundwater so that the current programme of hydrogeology mapping needs to be accelerated and expanded to all parts of the country but prioritizing areas where high borehole failure rates are occurring. Where groundwater sources are known to be limited, then (1) artificial aquifer recharge needs to be considered in collaboration with partners responsible for catchment management and (2) alternative surface water sources need to be thoroughly investigated.
- There is a need for relevant knowledge and understanding of modern utility management practices and to promote a culture change in terms of service delivery. This needs to be addressed through water and sanitation sector reform.

7.8 DETAILED OWNP PHASE II STRATEGY

To accomplish OWNP objectives, an in-depth analysis of internal factors and external influences is required, such as the 1) 2013 OWNP document, 2) WIF document, 3) GTP II document and indicators, 4) OWNP Phase I review report, and 5) SDG indicators and challenges that are influencing integrated WASH approaches for sustainability.

A high-level overview of the OWNP strategy has been presented in Sub-section 7.7. In detail, the Phase II of the OWNP has been developed (and as fully detailed in Section 12, OWNP Phase II Completion Programme Plans and Costs) for water supply and sanitation based on GTP II strategic objectives, goals, performance indicators, core activities and results as shown in Tables 7.3 and 7.4 below.

PHASE II WATER SUPPLY OBJECTIVES, GOALS, PERFORMANCE INDICATORS, CORE ACTIVITIES AND RESULTS

Strategic Objectives	Goals	Performance Indicators	Core Activities	Results
1. Increase safe water supply, upgrading the service level and improve urban wastewater management system	By 2020 provide safe and adequate water supply to rural communities with minimum service level of 25 l/c/d within a distance of 1 km from the water delivery point. Coverage to reach 85 per cent of the rural population of which 20 per cent is with RPS.	Percent of households in rural communities served with clean, safe and adequate water supply access at a rate of 25 l/c/d within 1 km with on spot supply and RPS.	Regions map woredas by service levels and prioritize woredas to provide improved and safe water supply. Woredas involve and mobilize communities to participate in planning, construction and management. Organize governance mechanism (WASHCOs) with at least 50 per cent women members. Train WASHCOs on O&M, water handling, book keeping and reporting.	Rural communities in woredas are provided with conventional, adequate and safe water with well-established governance system ensuring sustainability.
	By 2020 provide safe and adequate water service to urban communities	Percent of towns/cities provided with 100 l/c/d for Category 1 town/cities; 80 l/c/d for Category 2 town cities; 60 l/c/day for Category 3; 50 l/c/d for Category 4; up to the premises and 40 l/c/d for Category 5 towns/cities within a distance of 250 m with a piped system; Coverage of 75 per cent of the urban population.	Regions map and categorize towns and provide adequate and safe water. Towns establish utilities and utility management mechanism. Towns or town water board set tariffs for water usage. Towns/water boards establish O&M programmes, tools and spare parts. Towns/water board conduct continuous capacity building on O&M, water treatment, preventive maintenance, record keeping, water safety plan to sector staff.	Towns/cities are provided with safe and adequate water as per their category.
	By 2020, carry out study and design for urban wastewater management system.	Percentage of the 36 Category 1, 2, 3 towns and cities that build WWM infrastructure for six towns/cities with a population of 200,000 and more.	Towns/water boards/city administrations identify and document background information on the problem. Set budget and time line to conduct feasibility studies on WWM programme. Organize/hire professionals to design appropriate WWM system for the selected town/city.	Urban wastewater management system is designed.

Strategic Objectives	Goals	Performance Indicators	Core Activities	Results
2. Ensure good governance in rural water supply enhancing sustainability, effectiveness, efficiency and climate change resilience of the services	By 2020, decrease RWS non-functionality rate of water supply system in urban and rural communities.	Decrease NFR from the present 11.2 per cent-to the target of 7 per cent	Regions together with woredas map non-functional water systems by category. Identify common problems. Design mechanism/budget and organize manpower and rehabilitate non-functional water systems. Woredas with support from regions and NGOs set a maintenance crew with tools and spare parts and communication system to maintain pumps and reduce downtime and non-functionality rates.	Number of non-functional water systems are decreased to 7 per cent
	By 2020 empower women in WASHCOs management including in decision making	Percentage of WASHCOs that increase membership to 50 per cent and more.	Woredas involve communities including women in the planning process. Discuss with communities on roles and responsibilities in WS management. Establish WASHCOs with women participation of at least 50 per cent. Train WASHCOs on book keeping, O&M, setting tariffs etc.	WASHCOs are established with 50 per cent women members.
	By 2020, strengthen RWS community management through legalization of WASHCOs and rural water utilities.	Percentage of RWS that legalize WASHCOs and rural water utilities by region.	Regions register the WASHCOs. Regions advocate on the importance of legalizing WASHCOs so that they function legally following government rules. Regions continue on capacity building to WASHCOs to strengthen their water management roles.	100 per cent of WASHCOs and rural water utilities in all regions are legalized.
	By 2020, establish supply chain for low cost WS technologies and spare parts.	Number of private sector actors involved in water supply by category established in each region/woredas.	Contact with Micro and Small Enterprise Agency and discuss private sector actors needed for water supply. Discuss with TVET to develop curriculum for private sector training. Establish systems, linkage mechanisms connecting private sector actors to funding agencies.	Regions have motivated private sector actors and established supply chain for water supply.
	By 2020, establish WS extension supporting system at the kebele level to enhance implementation of household and communal level self-supply water and improve O&M of RWS	Number of woredas in each region that establish support mechanisms for self-supply.	Kebeles discuss the advantage of self-supply and the support they can get from woredas. Woredas organize kebeles and communities to undertake enhancing self-supply water supply system. Woredas with support from regions prepare O&M manuals. Establish water safety mechanisms from the source to use with community using self-supply and other on spot water systems.	100 per cent of woredas will have water supply extension support systems at kebele level.
	By 2020, ensure rural water supply safety through water quality monitoring and water safety planning and implementation.	Number of woredas in each region that established water quality monitoring programmes in urban and rural areas	Train selected water surveillance officers from among the staff. Purchase portable water analysis kits with adequate supply of reagents. Prepare a protocol on frequency of testing, recording and reporting. Have in stock water disinfecting chemicals.	100 per cent of woredas establish mechanisms for rural water supply quality monitoring.
	By 2020, establish ground water monitoring and catchment protection systems around water supply sources to be implemented by rural WASHCOs.	Number of WASHCOs that has establish catchment protection and monitoring mechanism in woredas in each region	Conduct surveys on all water systems and identify areas of concern Plan and design protection mechanisms such as protecting from flood, animals, open defecation etc …	100 per cent of woredas establish groundwater monitoring and catchment protection mechanisms.

Strategic Objectives	Goals	Performance Indicators	Core Activities	Results
3. Ensure good governance in UWS enhancing sustainability, effectiveness, efficiency and climate change resilience of the service.	By 2020, decrease Non-Revenue Water for urban communities.	Number of towns that decrease NRW from the 39 per cent to 20 per cent by 2020 for UWS utilities for Categories 1-3.	Establish a water policing mechanism to identify NRW hot spot areas.	Non-functional water for urban areas decreased to 7 per cent.
	By 2020, improve water service hours in urban areas.	Number of towns that have Improved UWS continuity to 16 hrs per day excluding WS delivery through public taps for UWS utilities for Categories 1 to 3.	Assess possibilities of raising service hours. Enhance capacity to meet the plan.	Water supply service continuity increased to 16 hours per day
	By 2020 enable cost recovery mechanism for urban water supply systems.	Number Category 1, 2 and 3 towns recovering their investment cost at least by 80 per cent, Category 4 by 60 per cent, Category 5 by 30 per cent, and O&M cost by 100 per cent for all towns.	Prepare an advocacy statement to enable the establishment of cost recovery mechanisms. Discuss the issue with water boards and beneficiaries. Involve communities/beneficiaries before setting tariffs.	100 per cent of urban towns/cities utilities have established water tariffs.
	By 2020, ensure urban water safety through water quality monitoring system and water safety planning and implementation for UWS utilities of Categories 1 to 3 towns.	Number of regions that established water quality monitoring and reporting programme in woredas.	Train selected water surveillance officers from among the staff. Purchase portable water analysis kits with adequate supply of reagents. Prepare a protocol on frequency of testing, recording and reporting. Have in stock water disinfecting chemicals.	100 per cent of urban utilities have established water quality monitoring systems and prepared and implemented a water safety plan.
	By 2020, establish ground water monitoring and catchment protection systems around WS sources to be implemented by urban WS utilities.	Number of town water utilities that establish urban water catchment protection mechanisms.	Establish ground water monitoring unit with the necessary tools. Conduct surveys on all water systems and identify areas of concern. Plan and design monitoring and protection mechanisms such as protecting from flood, animals, open defecation etc.	100 per cent of urban utilities have established groundwater level monitoring and catchment protection systems.

Strategic Objectives	Goals	Performance Indicators	Core Activities	Results
4. Build the sub-sectors capacity	By 2020, conduct capacity building for higher and middle level WASH professionals, artisans and caretakers.	Percentage achievement in training and engaging the subsector 4,374 higher and 13,000 medium level WASH professionals and 510,000 artisans and caretakers and ensure that involvement of women in this regard is 25 per cent.	Design training manuals for higher, medium level WASH professionals and artisans. Prepare the necessary supporting training materials. Use qualified trainers for greater effectiveness.	Capacity building is conducted for higher, middle level WASH professionals and artisans.
	By 2020 establish independent water and wastewater service regulatory agency to ensure high service quality.	Number of regions that have established a regulatory agency for water supply and wastewater services.	Design policy or identify existing policy to establish regulatory agencies. Advocate that higher political leaders agree and endorse the establishment of the agency as per regulations.	Water and wastewater management regulatory agency is established.
	By 2020 enable Category 1,2, 3, and 4 water supply utilities to have a section responsible for wastewater management.	Number of wastewater management structures in all 1, 2, 3,4 Category water utilities.	Establish a unit for wastewater management. Establish an integrated and coordinated mechanism with other institutions.	A wastewater management unit is established within Category 1, 2, 3, 4 utilities.
	By 2020, increase the involvement of the private sector in the WS activities particularly in O&M of urban water supply utilities.	Number of new private sector actors in water utilities who are engaged in water supply and O&M.	Map existing private sector actors who would get involved in the business of O&M. Attract private sectors to the business of O&M. Design a capacity building programme for private sector actors.	100 per cent of urban utilities have engaged with the private sector for their O&M.
	By 2020, strengthen WASH integration to meet the objectives of OWNP and establish coordination with the Ministry of Urban Development and Construction Affairs at all levels in all urban WASH interventions.	Number of integration and coordination initiatives taken by OWNP with ministries like the Ministry of Urban Development.	Advocate the health, development and economic impact of WASH with the relevant ministries. Discuss ways and means to integrate the programme and for coordinated action for WASH in urban areas. Establish standing committees of professionals overseeing the design of the intervention programme. Establish forums for wider learning and sharing.	OWNP has integrated its national WASH plan with the relevant ministries.
	By 2020, implement national ICT-based M&E and MIS systems for the sub-sector that captures, collects, analyses and reports the data of the sub-sector staff and service beneficiaries disaggregated by sex and age.	Number of regions that established a functional ICT-based M&E and MIS system.	Learn and share experiences of the regions and NGOs and bilateral organizations who have started ICT-based monitoring in Ethiopia. Speed up the ICT-based national programme and record real time information in the MIS. Establish mechanism for reviewing and learning.	WASH M&E and MIS system established

Strategic Objectives	Goals	Performance Indicators	Core Activities		Results
5. Produce national design code of standards for water supply infrastructure (hydraulic design, structural design, geotechnical design etc.) and guidelines and standard procedures for design. Produce national construction and supervision manual for water supply, sanitation and surface and sub-surface water supply infrastructure. Produce national appropriate technology selection criteria for water supply and sanitation systems.		By 2020, develop water supply and wastewater management code of standards, guidelines and standard procedures for design, supervision and contract management	1.Number of codes of standards, design manuals and guidelines produced for water supply infrastructure. 2.Ditto, but for sanitation. 3.Number of design and guideline manuals for water supply treatment and wastewater treatment and disposal systems. 4. Number of design and guideline manuals for groundwater investigation and construction. 5. Number of standard procedures and guideline manuals for appropriate technology selection criteria for water supply and sanitation system produced. 6.Number of water supply and wastewater management system, construction and supervision manuals and guidelines produced.	1. Produce design code of standards for water supply infrastructure (hydraulic design, structural design, geotechnical design etc.). 2. Produce sanitation design code of standards (wastewater treatment plant design, sewerage pipeline network design, etc.) 3. Produce water supply pipeline network, surface water supply treatment, wastewater treatment and disposal system design manuals and guidelines. 4. Produce groundwater investigation, well siting and construction manual and guidelines. 5. Produce standard procedure and guidelines for water supply and sanitation appropriate technology selection criteria and indicators. 6.Produce water supply and wastewater treatment and disposal system construction and supervision manuals and guidelines.	National water supply infrastructure design code of standards produced. National sanitation design code of standards produced. National water supply and sanitation design and guideline manual produced. Groundwater design and construction manual produced. Appropriate water supply and sanitation technology selection criteria and indicators developed. Water supply and wastewater management system construction and guideline manual produced.

Table 7.3: Phase II Water Supply Objectives, Goals, Performance Indicators, Core Activities and Results

PHASE II SANITATION AND HYGIENE STRATEGY (RURAL/URBAN/INSTITUTIONAL) OBJECTIVES, GOALS, PERFORMANCE INDICATORS, CORE ACTIVITIES AND RESULTS

[1]Strategic Objectives	Goals	Performance Indicators	Activities	Result
1. Establish community-centred approach to enhance sustainable sanitation and hygiene services and behaviours for kebeles in all regions	By 2020, introduce community-centred approach to sector staff at all levels particularly at the woreda level (primary health care unit staff, kebele WASH team, kebele leaders, HEWs, HDAs, limat budins, WASHCOS and agricultural extension agents in all kebeles in the country)	Number of advocacy initiatives undertaken to establish common ground with sector staff and other stakeholders.	Prepare advocacy package to suit the level of local residents, sector staff and officials. Include in the advocacy meetings stakeholders such as local NGOs, religious leaders and schools. Conduct a number of meetings to form common ground on the need to involve communities for behaviour change programmes.	Common ground with sectors and stakeholders and community members established.
2. Improve access and equitable improved sanitation and hand washing practices.	By 2020, increase the availability and consistent use of improved latrines from the present 28 per cent to 82 per cent In rural areas.	Percentage of improved sanitation coverage in each region by woreda.	Identify respected, trusted and prominent residents, teachers and women affairs of a community together with HEW, WHDA. Create awareness on the problem of poor sanitation and hygiene to health and development. Train them on how to successfully carry out and sustain changes and how to make their community ODF. Demonstrate simple improved sanitation construction and hand washing devices using job aides/pictures. Select community chairperson preferably women or religious leaders and a secretary (preferably HEW) for the committee. Design an action plan on the way forward.	Improved sanitation system with hand washing increasing in all regions.

[1]Strategic Objectives	Goals	Performance Indicators	Activities	Result
	By 2020 increase proportion of ODF communities in kebeles from 18 to 82 per cent	Percentage of kebeles in each region who have achieved ODF.	Design a follow up mechanism and a support programme to the committee established in communities in all kebeles. Design and implement appropriate hygiene and sanitation promotion options (tools) for areas where it is not feasible to use CLTSH tool. Implement post-primary ODF strategy to sustain ODF status and support households moving up the sanitation and hygiene ladder.	ODF kebeles are increasing in number in all woredas in Ethiopia.
	By 2020 increase hand washing with soap and water from the present 17 per cent to 82 per cent.	Percentage of households in kebeles who have achieved hand washing with soap in each region.	Design a follow up mechanism and a support programme to the committee established in communities in all kebeles. Identify context specific and work on the elimination of barriers for hand washing at the most critical times	Hand washing with soap has increased in all kebeles/woredas in Ethiopia.
	By 2020 establish supply chain for sanitation components and low cost WS technologies and spare parts.	Number of private sector companies established and started supply chain activities for WASH products	Conduct sanitation products demand assessment and identify drivers and barriers for improved sanitation. Map existing private sector actors or individuals with local skills on masonry works, carpenters, etc. interested in engaging in the sanitation product market and service provision. Advocate for the business and attract private sector actors to take up the business of O&M. Design a capacity building programme for the private sector actors.	Supply chains for sanitation established in all woredas in Ethiopia.
3. Improve Institutional WASH Services.	By 2020, 100 per cent of schools will have hand washing promotional materials in their schools.	Percentage of schools in each region with hand washing facilities with adequate provision of running water and soap.	Design simple interactive hygiene messages and distribute to all schools in the woredas. Advise schools to use all walls, latrine shades, trees to be talking walls and trees with appropriate behaviour change messages (Use soap to wash your hands after toilet etc.) Prepare print materials such as posters to communicate WASH.	Hand washing promotional materials are made available and displayed in all schools in Ethiopia.

[1]Strategic Objectives	Goals	Performance Indicators	Activities	Result
	By 2020 improve to access to full package WASH facilities from the present 3.2 per cent to at least 40 per cent of schools including MHM.	Percentage of schools in each region that have been provided with complete package of WASH services in schools.	Create awareness about adolescent growth and development, menstruation and eliminate taboos surrounding menstruation among boys and girls and their parents and extended families. Establish gender clubs and advocacy groups in all schools and promote menstrual hygiene management. Mobilize parents to provide safe sanitary pads to their daughters. Provide training to school girls on production of reusable sanitary pads including on how to tack, washing, drying and reusing the pads. Advocate to funding agencies and government about the importance of providing full package WASH for schools rather than only one or two interventions. Arrange the construction of a functional MHM facility in schools even using local materials.	Institutions, donors and Government support full package WASH service to schools. Adolescent girls school absenteeism associated with menstruation reduced/eliminated. Taboos and stigmatizing attitudes associated with menstruation reduced/eliminated. Girls' access to safe sanitary pads increased.
	By 2020, provide improved and gender segregated sanitation facilities with hand washing from the present 36 per cent to 75 per cent of primary schools and 100 per cent of high schools including MHM.	Percentage of schools in each region with adequate and gender segregated and improved sanitation systems	Organize parent and teachers' associations to support the construction of separate latrines for boys, girls, teachers. Organize fundraising festivals or school days to raise money to support latrine construction. Plan to use revenues usually from coffee, crop, grass, and wood sales to support latrine construction.	Gender separated improved sanitation and MHM facilities are increasing in all schools.

[1]Strategic Objectives	Goals	Performance Indicators	Activities	Result
	By 2020, 100 per cent of health facilities have gender disaggregated full packages of WASH facilities, including MHM facilities.	Percent of health facilities with full package of WASH services.	Advocate for the need to provide full WASH package to health facilities. Adolescent school girls' school absenteeism associated with menstruation reduced/eliminated. Taboos and stigmatizing attitudes associated with menstruation reduced/eliminated. Girls' access to safe sanitary pads increased.	Institutions, donors and government support full package WASH service to schools.
4. Water safety and water quality control.	By 2020, increase proportion of households using correct and consistent water treatment and safe storage from 10 to 35 per cent.	Percentage of households practicing point-of-use (POU) water treatment.	Conduct simple assessment and identify drivers and barriers associated with point-of-use water treatment technology options in the community (demand side). Discuss the need of enhancing point-of-use treatment with the community-centred committee. Discuss with water safety supply chains (wuha agar, wuha telel) to make water disinfectant for the locality. Arrange with local drug store to also have wuha agar etc. for sale to communities.	Point-of-use treatment of water is practiced in households in Ethiopia.
5. Improve outreach communication for behaviour change using communication support materials.	By 2020 prepare and provide pictorial job aides, operational manuals, implementation guidelines for use by Health Extension Workers to support facilitation of behaviour change in communities.	Percent of kebeles provided with set of job aides including latrine construction, hand washing, water safety measures, personal and environmental hygiene materials	Explore WASH communication materials availability in the sector ministries. Evaluate the content and determine whether to use it or not. Design new or additional communication products. Kebele-level HEW will need pictorial job aides which are available in the Ministry of Health.	Outreach behaviour change programme is enhanced using job aides in kebeles in Ethiopia.

Table 7.4: Phase II Sanitation and Hygiene Strategy (Rural/Urban/Institutional) [36] *Objectives, Goals, Performance Indicators, Core Activities and Results*

Note: The targets in Tables 7.3, 7.4 and 12.1 are GTP II targets set by the government.

36 Note: the sanitation and hygiene strategic objectives and target is adopted from the NHEHS and SAP, 2017

7.9 ENABLING ENVIRONMENT

The strategy will be facilitated with different approaches and inputs (see graphics below) and implemented by national, regional, zonal, woreda and urban authorities in collaboration with DPs, CSOs and private enterprise

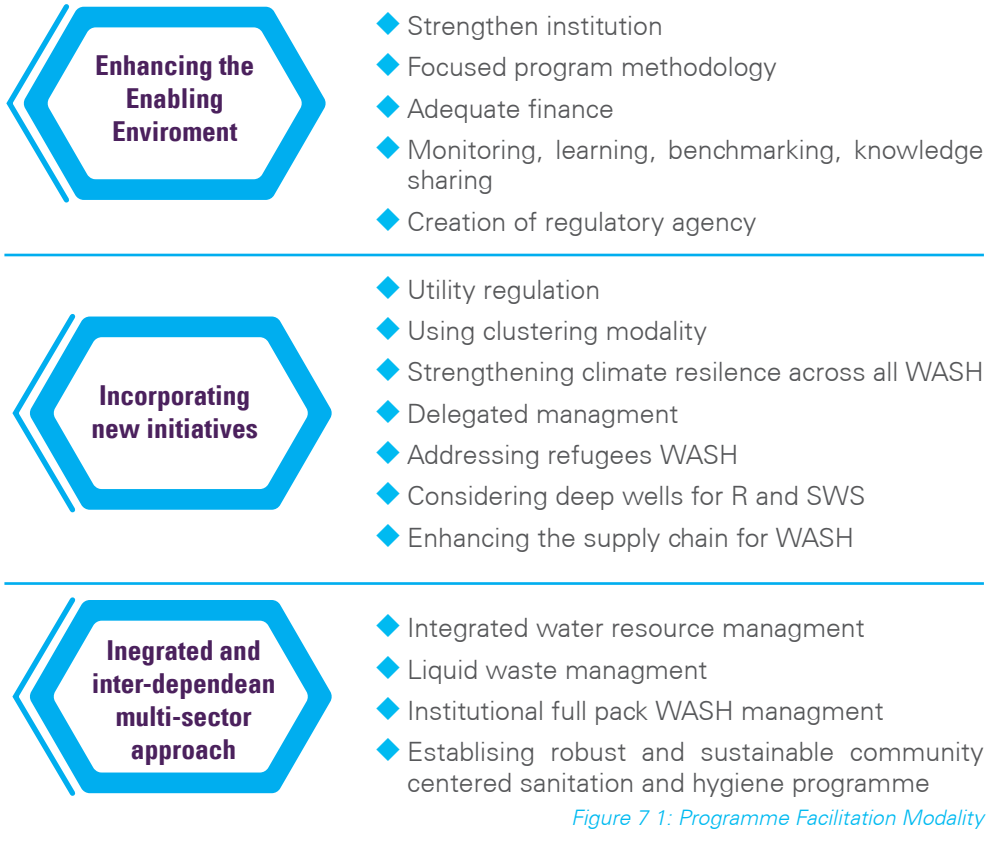


Figure 7 1: Programme Facilitation Modality

New initiatives have been developed since conception of the OWNP and as developed through the OWNP review process involving as many as possible national, regional, development partners and other stakeholders. Existing and new approaches are described in Section 8 (short-to-medium term) and Annex 7 (long term) below to cover the period from 2018 to 2030 (10 to 15 years' horizon).

Priorities for all sub-sectors (both for water and sanitation, both in rural and urban areas) have been identified through bottleneck analysis involving a cross section of stakeholders in a workshop environment (October 2017):

- There is a strong interest and Government commitment towards establishing a regulatory body for the WASH sector. There is a keen interest in exploring the meanings of and possibilities for regulatory functions in the WASH sector; a momentum that should be further built on.
- All the sub-sectors would benefit from increased levels of financing, as well as strategies for identifying innovative financial instruments for the sector (i.e. blending finance, climate finance, etc.).
- Sub-sectors also need to improve their absorption capacity in order to accelerate the progress achieved in the previous years.
- The concept of service delivery, in particular for sanitation, but also for water, would benefit from a thorough exploration and definition in the Ethiopian context. This would facilitate the definition of roles and responsibilities in existing service delivery models, as well as identification of options for new service delivery models.
- Private sector actors are considered key stakeholders to further advance water and sanitation service delivery. There is a need to incentivize their engagement through the development of sustainable business models, as well as to strengthen their capacity to engage in the water and sanitation sector. Coordination between Government actors in public health, water supply and job creation is crucial.
- Awareness and prioritization of water and sanitation services would greatly benefit from a mindset change at all levels of society. This is particularly relevant for extending the treatment capacity of faecal sludge and urine, and thereby increasing the level of safely managed sanitation services. The technical solutions for this are also dependent on the amount of water resources available.

Compilation of existing research and evidence will be useful for awareness raising for both the general public, decision makers and implementing actors.

- The Ethiopian WASH sector needs increased capacities across all areas. This relates not only to opportunities to take part in trainings, but more broadly to issues of human resources management, salaries, exchange visits and involvement of young professionals.
- City (or clustered) wide planning: for urban and water and sanitation services, moving towards planning that includes larger administrative units, such as the entire cities, woreda-wide plans, or clustered-kebeles, was identified as a possibility to make better use of economies of scale and achieve more sustainable progress.

Despite three full days of workshop, there was a limit to the topics that could be analysed. In the concluding session, gender aspects of WASH, anti-corruption in the WASH sector and WASH in schools and institutions, were mentioned as important topics that had been omitted from the analysis.

For the revision of Ethiopia's ONEWASH National Programme, the recommendations from the workshop were:

1. To provide the means and opportunities for the prioritized activities that address the bottlenecks identified for each sub-sector analysed
2. To put special emphasis on the bottlenecks that were prioritized across all sub-sectors and ensure proper coordination, so that synergy effects are identified and harnessed
3. To consider further analysis of topics which were not in focus during this workshop (WASH in schools and institutions; gender aspects of WASH; WASH and anti-corruption).

In order to translate the designed strategy into action, tackle bottlenecks identified and to lay a stable foundation for the Ethiopia WASH sector, then a strong 'enabling environment' will be needed.

Figure 7.2 below illustrates the complex enabling environment required at the multi-sector level to ensure WASH service delivery to all citizens of Ethiopia in as short a time as possible. To achieve the GTP II targets by 2020 will require radical and innovative approaches driven partly by the new WASH-DPA Programme, partly by the existing OWNP principles and pillars and partly by creating a new enabling environment which may be depicted by the schematic. This indicates which "enablers" fall directly under the OWNP and which may be regarded as "multi-sector."

To create a strong enabling environment, there is a need to make all service areas resilient, not just against climate change but also to face the challenges of refugee and internally displaced migrations, as well as variations in population projections based on reliable resource data and sustainable control of abstractions. For new urban and MVWS schemes, 15 year population projections have been used along with a shift to more reliable (and more sophisticated) technologies backed by catchment management; in other words, sound engineering and environmental practice which automatically introduces a degree of resilience.

The new WASH-DPA project (Development of Sustainable Water Supply Sanitation and Hygiene Project in Drought Prone Areas of Ethiopia) is intended to build resilience in drought prone areas such as to reduce the need for emergency trucking etc. "Emergency" WASH would then be reserved for unpredictable occurrences (extreme drought, flash floods, rapid population shifts, etc.) beyond the capacity of (a) and (b) to cope.

Most importantly, OWNP overall objectives cannot be achieved without:

- knowing what has been done, what is being done and what is planned (knowledge management)
- having the capacity to do it (sector reform)
- sustainable water resources (hydrogeology and data base)
- sustainable systems (planning design and operations)
- championing change (promotion and advocacy)
- regulatory controls (planning and operations)
- funder confidence

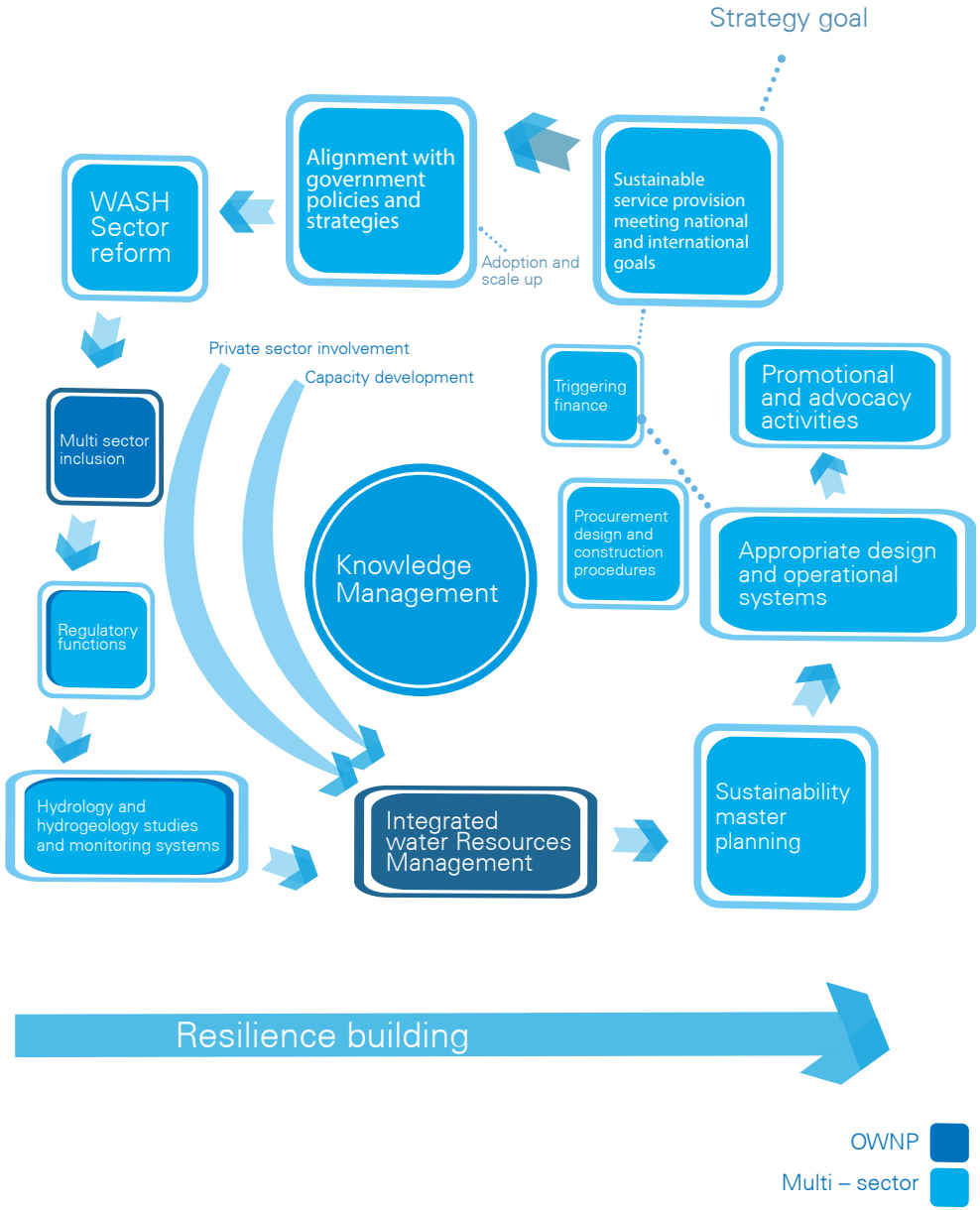


Figure 7 2: WASH Enabling Environment Concept

8 SHORT TO MEDIUM TERM RECOMMENDATIONS

Ethiopia has started on a unique integrated approach to formulation, coordination and delivery of WASH. Much has been achieved towards MDG and GTP I targets as described in the separate OWNP Phase I review report. Following from this, the OWNP Phase II short-to-medium term objectives are to fulfil the GTP II targets.

As introduced in the strategy Sub-section 7.8, the OWNP Phase II will require significant immediate attention to the following key areas:

1. Making water resources climate resilient
2. Innovative WASH technologies and making the technology mix climate resilient
3. Develop urban master planning for integrated water supply and sanitation
4. Improving procurement and implementation capacities
5. Capacity development
6. Getting economies of scale in the WASH sector: clustering of services
7. Community mobilization and advocacy
8. Emergency preparedness, response and early recovery
9. Sustainability master planning and feasibility studies
10. Technical assistance and academia support
11. Private sector involvement
12. Resource mobilization
13. Multi-sectoral cooperation
14. Monitoring and knowledge management

These are detailed fully in the following sections: 8, 9, 10, 11, and 12 and annexes 3, 6 and 7, etc.

8.1 MAKING WATER RESOURCES CLIMATE RESILIENT

8.1.1 Introduction

The majority of water projects in Ethiopia are based on groundwater so that the current programme of hydrogeology mapping needs to be accelerated and expanded to all parts of the country, but prioritizing areas where high borehole failure rates are occurring.

8.1.2 Water resource development

Water source development should be based on best available hydrological and hydrogeological information, interpreted by qualified professionals. Establishing reliable sustainable yields to balance demand requires good hydrogeological skills, the necessary equipment and funds and step by step approach. Alternative water supply and energy sources should be studied at each project site to meet present and future water needs, fully taking into account the impact to/from other existing and proposed projects in the same surface and sub-surface catchment zones.

Long term monitoring stations (purpose-built piezometer tubes, capped wells and pumped wells with flow meters) will be required to monitor levels, quality and discharge to check on long term resource depletion or improvement. Trials may be undertaken on artificial recharge to improve sustainability of relatively shallow aquifers not topped by aquicludes.

8.1.3 Integrated Water Resources Management (IWRM)

In all cases, conservation of water to reduce groundwater abstractions (and also surface water use) through integrated WRM (including agricultural and forestry practices) are not part of the current phase of the OWNP but must be considered in sustainability master planning and feasibility studies. Enhanced groundwater

recharge through agricultural/forestry husbandry and engineering works to reduce runoff and increase recharge will also be beneficial, as will reduction in water wastage and NRW. This will need enhanced harmonization and collaboration between the many stakeholders inside and outside of the OWNP signatories. The government is currently finalizing the formulation of the National Integrated Water Resources Management Programme (NIWRMP), which will be complementary to the ONWP Phase II.

8.1.4 Supply chains

Supply chains need to be improved to better anticipate procurement needs and to create stocks of the most common spare parts for drilling equipment to avoid delays. This will likely involve easing of import restrictions (approvals of letter of credit) and applying tax breaks: Import taxes at the Government level do not benefit WASH implementation where funding will come from a multitude of sources.

8.1.5 Water abstraction licensing and pollution control

Above all, water abstraction licensing and pollution control needs to be coordinated and based on best available hydrological and hydrogeological (quantity and quality) data:

- The current practice of issuing abstraction licences independently by water bureaus and environment departments results in unsustainable abstractions and needs to be urgently addressed and replaced by a coordinated approach.
- Unchecked pollution from industrial and domestic sources (both point source and dispersed) may result in irreparable damage to aquifers and loss of water sources near to demand centres.

8.2 INNOVATIVE WASH TECHNOLOGIES AND MAKING THE TECHNOLOGY MIX CLIMATE RESILIENT

8.2.1 Introduction

There is an urgent need for a technology shift to reduce failure rates, improve resilience in the face of changing climate, demographic shifts, and the environmental impact of rapid urban, industrial and agricultural development, arid area encroachment, refugee areas, competition for limited water resources, and R&D in decentralized waste water treatment systems.

8.2.2 Renewable energy

Rural populations in Ethiopia are still not reached by the national grid. Although hydropower, wind farms, and solar arrays are, to a greater or lesser extent already major contributors to the national grid, probably only solar energy offers the potential for localized remote systems. Rural Afar and Somali area has extremely high solar irradiation and very limited grid access in remote areas. Biogas has potential at intensive livestock centres.

Photovoltaic energy (PV) can provide a solution for large as well as small systems. Photovoltaic is estimated to be the most economical for small power system. PV systems are currently considered when the hydraulic power is from 200 to 1500 m-m3/day and a power rating of 0.5kW or less: In this case the PV system has been found to be viable.[37]

While the upfront investment on solar based water supply schemes is higher than for generator driven systems, the financial costs on a life cycle basis are often more favourable due to the much lower running costs, related to the free supply of energy, improved reliability of photovoltaic and less moving parts to be maintained. There is also experience in Ethiopia that solar pumping systems are more reliable that conventional hand pump systems, although walking distances will be increased due to more centralized installation.

8.2.3 Water Safety

The majority of properties in Ethiopia, both urban and rural, rely on in-property water storage of one sort or another (roof tanks, ground level tanks, open containers, etc.): Such water will be bacteriologically contaminated due to negative mains pressures, crowding around wells, open jerry cans, poor water handling etc. and due to ineffectiveness of chemical disinfection under these conditions. This indicates the need at all service levels for "point-of-use water treatment systems" as complementary actions to ensure safety of water[38].

In general principle, there will be a need to establish a Climate Resilient Water Safety Plan (CR-WSP) by instituting a water surveillance programme to prevent pollution of sources, such as fencing the catchment area in rural areas. Another safety measure is to establish and or strengthen water quality monitoring programme in the regions and woredas (but see limitations on laboratories described in Sub-section 5.1). Procuring the necessary field kits and reagents to be distributed to each woreda, designing monitoring manual and reporting protocol is essential.

Source chlorination may not be either feasible or protective in the rural context, especially if it is a well or spring water, because disinfection is only to the volume of water available at the time of chlorination. If chlorination is done in reservoirs the water will always be clean until new water is added. In both cases it is advisable to popularize "point-of-use treatment" which may include boiling, filtration in addition to chlorination. Introducing other treatment options for chemical removal, softening hard water, treating high fluoride water with bone char or clay can also be introduced in communities. See also sub-section 4.1.6.

Shifting from open water sources (i.e. open hand dug wells) to protected sources could also have a significant impact in the quality of water available, and therefore the technology mix should consider water safety.

8.2.4 Decentralized wastewater treatment

Decentralized wastewater treatment systems (DEWATS) need to be mainstreamed under OWNP as currently the only viable alternative in dense urban environments (Category 1 cities) and where water supply to flush off-site sewerage is insufficient or unaffordable. It needs to be taken seriously due to dire environmental and health impact of poor sanitation in large towns and cities. However, DEWATS have many hurdles in terms of ownership, operations, environmental impact, safety, safe reuse, etc.

Service delivery using centralized off-site sewerage involves three key issues that have been found in many such schemes throughout Africa:

- Having adequate water available to flush long sewers: Water supply systems are required that will increase current unreliable supplies of around 30 l/p/d to all-year-round (including drought years) reliable supply of at least 100 l/p/d and 150 per cent of industrial and commercial demand (to allow for NRW loss)
- Using formative research tools to persuade customers to connect: This is often a roadblock to sewerage introduction, particularly in low income communities
- Introduction of full cost recovery for both O&M and loan repayments: Without very significant guaranteed operational subsidies, full cost recovery principle will likely limit sustainability of centralized sewerage

There is an urgent need to develop and use a range of DEWATS technical options on a large scale in Ethiopia, due to medium rise housing policy, satellite housing and industrial and commercial centres, and countrywide shortage of water for full flush toilets, high cost and/or lack of available land, lack of sewerage and treatment work infrastructure and other factors. This means that increasingly sophisticated financially and environmentally sustainable systems will need to be developed and rolled out on a large scale for the very dense urban environments that are increasingly appearing in Ethiopia.

On balance, it is likely that sustainability master planning will indicate the need for DEWATS at least in the medium term and on a large scale. Centralized sewerage is likely to be constrained to city centres and high income and commercial areas. The IUSHSAP has a target to construct 200 DEWATS within the first five years and 1,000 DEWATS within 10 years, as a pragmatic approach to address environmental issues in a risk averse way.

However, the full business case for DEWATS has not yet been established, particularly related to the sophisticated supply chains and O&M systems that will need to be established and maintained in a financially and environmentally sustainable way; the full business case around DEWATS therefore needs to be researched and trials carried out so as to inform master planning and inter-relationship agreements and contracts that need to be drawn up between owners, operators and the users of recycled liquids and solids.

8.2.5 Low cost urban Faecal Sludge Management

This subject is multi-sectoral since it involves labour, women's rights, solid waste management, economic impact of poor sanitation, etc. It has been noted that neither the 2013 OWNP document nor GTP II pays enough attention to hygiene and sanitation in urban areas.

There are a number of on-site and off-site sanitation options for human waste management system in urban areas. The most practical and affordable on-site system for slum areas in Ethiopia is to construct an improved pit latrine or a VIP latrine, which can have very good features of cleanliness, less smell and long-lasting service. However, public and shared latrines demand good operation and management practices.

Providing equitable, gender sensitive public latrines that would satisfy needs of women children and persons with disabilities with hand washing facilities, shower facilities and cloth washing slabs to residents in urban areas is an essential public service. These can be based on viable business models when combined with other services (shop, water sales, and mobile phone top up, rest area). They also offer a platform to promote safe water, good sanitation and hygienic practices.

Having in place full time attendant, trained with simple maintenance and providing tools for maintenance will sustain the service and boost efficiency.

FSM business models require costing, financial modelling, delegated service management contracts, appropriate pit latrine, septic tank and cesspit emptying technologies, primary transport, tariff setting and collection, customer liaison, etc. Primary services are considered to include mostly low tech activities from customer to transfer station gate. Secondary services are considered to include management of transfer stations, primary and secondary treatment processes, secondary transport, quality control of final products for re-use, liaison with users of final products, community relations with people living near to process units, marketing and sales.

- Of immediate concern is the development of appropriate technology for emptying pit latrines (in some towns over 80 per cent of inhabitants use pit latrines) that are inaccessible to conventional vacuum equipment or where the financial analysis indicates that use of vacuum trucks is financially unsustainable.[39]
- FSM transfer stations may involve primary treatment of faecal wastes through anaerobic treatment or through other technology developed under DEWATS research. Final treatment of faecal sludge is best done on engineered drying beds, preferably covered and preferably close to transfer stations within built up areas so as to save on secondary transport.

Formative research should be used to determine the best route to overcoming blocks to appropriate FSM technology, where such blocks may be both at professional levels within utilities as well as at local worker levels. Viability investigations can be enhanced by formative research approaches including demonstration of practices and understanding of benefits. The emphasis needs to be on appropriate planning of business options for interested community-based organizations and private entrepreneurs and companies.

8.3 IMPROVING PROCUREMENT AND IMPLEMENTATION CAPACITIES

8.3.1 Introduction

To meet the onerous targets under GTP II in terms of capital works will require an immediate shift towards contracting at scale involving international tendering and supply chains. This will include promotion of international/national collaboration, learning from procurement models such as the urban ONEWASH plus (UNICEF/DFID). The ambition should be to maximize use of national manufacturers, suppliers and contractors but not so as to hold up procurement and implementation through preferential tendering that might impede international suppliers and competition.

Government will have to streamline its procedures: supply chains need to be improved that better anticipate procurement needs and to create stocks of most common spare parts, for instance. This will likely involve easing of import restrictions (approvals of letter of credit) and applying tax breaks: Import taxes held at the Government level do not benefit WASH implementation where funding will come from a multitude of sources.

The Programme will make use of the Government procurement system and procedures and established procedures for contract management. Ministries, regional bureaus and woreda offices will use standard bidding and contract

37 MOH and MoWIE (2012) Design and construction Manual for WASH facilities in Health Institutions

38 USAID (PSI) have pointed out that point of use treatment may conflict with "safe-at-source" strategies but may be pragmatic at short to medium (to long?) term measure.

documents that comply with Government rules and regulations[40] for procurement of works, goods and services.

From experience, procurement on a piece by piece modality has caused delays in accomplishing planned activities. This modality will have to change to bulk purchasing of important items, such as electromechanical equipment and pumps, and then stored the federal level to be issued on request for projects and continually replenished. This will require Government commitment to avail foreign exchange money on demand and the establishment of a central procurement facility with adequate and qualified personnel.

Packaged contracting has already been tried within the WASH sector in Ethiopia with variable results – depending on the capacity of the client or procuring agency to put together attractive packages for the private sector and then to effectively manage the contract throughout its implementation. The packaging of the different contracts into one has a number of advantages. The first is to have a joint plan of the project, including all aspects of the project execution, drilling, construction, supply order and installation of electromechanical parts, as well as capacity building, so a high level of project organization is achieved. With a better integration of planning, the different elements of the project should be delivered in a more timely way.

The outcome in the course of OWNP programme review and updating process reinforces the immediate need to quickly increase the focus and investment in procurement contracting and contract risk management capabilities at all WASH stakeholder level from the federal to the woreda level. Delay in transfer and reimbursement of available funding and the lack of procurement contracts management process capabilities, such as poor procurement and contracting, has been related to overly bureaucratic or inadequate procedures and poor system design. These are, to a greater or lesser extent, holding up programmes and achievement of targets.

See also Section 9 on Capacity Building section.

8.3.2 Procurement Methods

The Programme will follow the Procurement Proclamation issued by the Federal Government (January 12, 2005) and the subsequent Procurement Directives released by MoFEC. At regional level the procurement code is enacted by regional governments and the procurement directive adapted to each region based on a model prepared by the Federal Government.

According to the Government's policy to decentralize and devolve responsibility, WASH procurement is carried out, as far as possible, at the level where the goods are utilized and the services delivered to build capacity for local procurement.

The procurement plan is an essential component of annual WASH plans. Training and technical assistance will be available to assist regions, towns, woredas and community planners. Procurement plans are consolidated by WWTs and regional and federal WASH Coordination Offices. Procurement at all WASH cost centres will be reported quarterly.

Procurement requires quality assurance (QA). QA for goods can be undertaken in collaboration with the Ethiopian Standards Authority (ESA). The Ethiopian Water Technology Institute (EWTI) can also contribute to the development of standards, BOQs and specifications for works, goods and services.

The Programme will recognize the following procurement methods:

Method	Procurement by/through
Government of Ethiopia	GoE and CWA
Region managed projects	GoE and CWA
Woreda managed projects	GoE and CWA
Community managed projects	WASHCOs
NGO projects	NGOs
World Bank	GoE and CWA
Other partners	Respective partners
Self- Supply	Households and groups

Table 8.1: OWNP Procurement Methods

The methods to be followed for the procurement of works, goods and services will be specified in the annual procurement plans at federal, regional/city, woreda/town and community levels.

Packaging of services, works and goods is advantageous in terms of cost and time saving, in the same way procurement of works and goods can be combined in a turnkey contract as is being done by the WRDF in some urban water supply schemes. Where funds are available, longer-term framework contracts for services

and works can be considered, as can combining procurement of pumps and spare parts in one tender.

Where the CMP approach is used, service providers at the woreda level can be procured for services or construction work at the community level with technical support from the kebele and woreda levels as required.

Woredas and towns may also decide to delegate larger procurements to regional bureaus and regional governments, respectively.

Procurement guidelines have been prepared by the Ethiopian Government, the World Bank and African Development Bank, and attempts have been made to coordinate and align these guidelines, which are commonly used for procurement and contact administration in the WASH sector. Ministry, region, city and woreda procurement staff are familiar with the content of these guidelines, however capacity limitations in the application and use of these procedures has often been a major cause of delays in implementation of projects in the WASH sector. Furthermore, the approving committee at the federal level is another bottleneck. The committee now formed may not have the time to commit to decide and the necessary consultation with local companies on the products and systems.

8.3.3 Steps to improve procurement processes:

1. Carry out an unbiased and comprehensive assessment of the current procurement contracts management processes and related capabilities (e.g. strengthening federal level procurement staff, at the region and woreda level, review of procurement process, local contractor and consultant capacity etc.), and then evaluate gaps between the current state and an agreed-upon desired level of capability and performance.

2. Identify immediate short-term actions to address urgent control improvement needs and put the necessary resources behind those short-term actions.

3. Make clear overall strategic and operational objectives and performance expectations for the Government procurement contracts management process at all level of programme implementation approach, CWA, NGOs, CMP etc. Without such a vision and objectives, it is unlikely that the desired level of performance, control and capability will be achieved.

4. Design, develop and implement strategies, detailed procurement plans and integrated action plans to achieve the desired levels of performance and process maturity, including actions that address contracts management capability and cover the immediate, middle and longer term horizons (typically current to three years GTP II period).

5. Higher decision-maker management support for the execution of the short-term as well as mid to longer term improvement plans through facilitation of tax breaks for import of critical WASH plant and equipment, where these are not manufactured in Ethiopia to the required specifications. Such equipment includes water drilling machines, pumps, generators, vacuum trucks, laboratory equipment, etc.

6. Make appropriate mid-to-longer term investments in procurement contracts management process capabilities.

8.3.4 Programme Procurement Requirements

The Programme will require the following types of procurement:

Services

Service providers, including artisans, at the woreda level providing the following services:

- Planning and design of water supply schemes
- Siting and surveying
- Post-construction support to communities
- Community mobilization and training of WASHCOs
- Training water supply caretakers and mechanics
- Financial services
- Consultants or firms at the regional or national level to:
- Build capacity of woreda WASH teams, prepare annual, strategic and procurement plans
- Conducting hydrogeological investigations including borehole siting and drilling supervision
- Carry out study and design for water supply schemes

- Conduct studies for rehabilitation and expansion of water supply schemes
- Supervise construction, rehabilitation and expansion of water supply schemes

Works

1. Service providers constructing:

- New hand dug wells and installation of pumps
- New spring capping
- Rehabilitation of existing point sources
- Construction/rehabilitation of institutional sanitation facilities
- Drilling contractors at the regional or national level for:
- Drilling shallow boreholes and installation of hand pumps
- Drilling deep boreholes, pump installation and construction of distribution system

2. Contractors at the regional level or artisans at the woreda level for:

- Rural piped gravity schemes from spring sources
- Rural piped schemes from spring sources with motorized pumping
- Rehabilitation and expansion of water supply schemes
- Construction/rehabilitation of institutional and public sanitation facilities
- Rural piped schemes supplied from deep boreholes (excluding drilling)

Goods

- Service providers, including artisans, at the woreda level supplying: Hand pumps and spare parts, construction materials, sanitation materials
- Region-based suppliers supplying: Tools for HDW contractors, office supplies, hand pumps and spare parts, submersible pumps with accessories and spare parts, generators with accessories, pipes and fittings, sanitation materials, desludging equipment, sewerage works (only in Addis Ababa)
- Procurement of design and construction supervision works by service providers licensed at the woreda level will be done at the woreda level by the woreda finance office in collaboration with the water, health and education offices as required. Design and supervision of up to four to five water supply schemes or construction of latrines in a group of institutions in one kebele can be packaged and offered as one contract in order to take advantage of economies of scale.

8.3.5 Programme Interventions

The Programme will support the provision of qualified needs-based training to relevant staff on public procurement and contact management as a practical training using actual cases.

Due to its critical importance for the timely completion of Programme activities, procurement and contract management will be the subject of periodic reviews by independent evaluators. Follow-up compliance with recommendations from these reviews will be important for ensuring Programme effectiveness.

As small contractors are expected to bid for contracts up to a threshold of US$100,000, the Programme will support the training of small contractors at the regional and city level in collaboration with contractors' associations to improve their ability to successfully bid for these contracts. Contractors and consultants are also expected to perform ethically in accordance with a mutually agreed code of conduct.

39 This is clearly an area for R&D where labour orientated systems need to be considered and demonstrated as part of financially sustainable and equitable service delivery to all, not just to middle and high-income customers. See "A guide to strengthening the enabling environment for faecal sludge management, Experience from Bangladesh, Kenya and Zambia, WSUP, Nov 2017"

8.4 GETTING ECONOMIES OF SCALE IN THE WASH SECTOR: CLUSTERING OF SERVICES

In establishing clustering of services in the WASH sector, the following points are relevant to consider.

- Voluntary clustering for economy of scale, improved O&M and use of international KPIs for urban large and small towns, satellite villages and MWVS schemes; ahead of formal sector reform
- Development of performance agreements, internationally recognized KPIs and inclusion of refugee areas WASH under clustered utility operations

The question has been asked[41] as to whether it is "realistic to monitor and regulate the existing large number of schemes … 280,000 at present, with an additional 50,000 per year anticipated." To this remark may added that there are over 1,000 urban areas, around 800 woredas, and large number of villages and pastoral communities, in nine autonomous regions and two city administrations divided into some 70 zones.

In order to monitor and regulate WASH operations (and implementation) in Ethiopia, it has become clear that the water sector will need to undergo some reorganization. GTP II approaches this through (a) establishment of independent water supply and wastewater service regulatory agency (Goal 4.2), (b) ensure good governance in rural water supply (Objective 2), and (c) increase the involvement of private sector (Goal 4.4). Such changes will need to allow for increased catchment protection (Goal 3.5) and be able to conserve water through reduction in NRW (Goal 3.1).

The primary WASH Sector Reform principles that may be applicable in the Ethiopia situation and identified so far include, but are not limited to, the list in Table 8.2 below. Some sort of new Implementation and Operational Modality is envisaged that will be guided by this list and (a) address the bottlenecks identified under Phase I review, (b) take on board GTP and SDG goals and (c) allow as far as possible for new strategies, guidelines and directives as they are adopted/issued.

40 FDRE, User's Guide for Simple Requests for Quotations and Local Purchase Order. January 2006, and; FDRE, Procurement services and contract administration – Amharic version. Addis Ababa, July 2002 EC.
41 Dr Geremew

No	Table 2: WASH Sector Reform Principles	Allowed by	Ethiopia experience
1	Regional regulators (reporting to a federal oversight body)	GTP II Goal 4.2	South-south dialogue started
2	Economy of scale through clustering of large, medium and small towns and MVWS	Driven by directives on financial autonomy	Informal sharing is being done
3	Inclusion of networked villages under above two items	Increasing complexity and lack of capacity at WASHCOs	See for example Siraro Water Supply Service Enterprise, also 8 towns of the ONEWASH Plus (UNICEF/DFID)
4	Sustainability Master Planning and Feasibility Studies	Fully articulated in the IUSHS&SAP	Closest to this might be the eight towns under One WASH Plus
5	Resilient systems, better able to cope with emergencies and climate change	Current need due to increasingly regular occurrences	High cost of WASH Cluster Emergency activities and lack of funding
6	Two-way (oversight and reporting) mechanism through KPIs (key performance indicators)	The fundamentals of service provision	World Bank is understood to be supporting large utilities and Coffey are developing more general KPIs and around 18 supplementary indicators that will be applicable across rural as well as urban areas
7	Contractual obligations at all levels (for instance; concession/ performance/service management contract for a publicly owned ring-fenced utility operating water and sanitation services in a large city, delegated SMC, kiosk operators' agreement, SMEs, etc.	Another fundamental of sustainable service delivery	Perhaps limited examples in Ethiopia, but written and verbal contracts do exist as, for example; kiosk operators' agreement, women's group operating agreement for a public toilet, community group (WASHCO) agreements to operate a village water system, etc.
8	Delegation of services and support functions to community organisations and private enterprise	GTP II Goal 4.4	Already being done as part of job creation
9	Clarity on asset ownership, as well as ownership of mandated public and private operators and delegated operators and contractors	Ownership, particularly for community-based projects may be confused and lead to disagreements as the schemes grow and need to be formalized	Believed to be a common problem in Ethiopia as well as elsewhere in Africa
10	Competition for funding based on bankable projects, while maintaining:	Need to have an increasing inventory of successful and sustainable projects that can catalyse major investment	This is the basis for WRDF
11	Equitable distribution of funding monitored by regional bureaus, but not at the expense of undermining competition	Perhaps a cornerstone of Ethiopian ethos	Procedures for equitable distribution within regions and between regions are in place
12	Competition between utilities as professionalization incentive	This is starting through sharing of good practice and trialling KPIs at utility association levels	There are many examples through all sectors (obviously sports) where competition improves performance and the pursuit of excellence

Table 8.2 WASH Sector reform concepts

Water and sanitation sector reform is an essential component of creating an enabling environment for both urban WASH and for MVWS systems. However, this will necessarily involve an extended change process (beyond 2020) although, as described, there are actions that can be continued or initiated in the short term, such as clustering and delegated management.

Economy of scale means that unit costs for WASH infrastructure and operations will increase significantly as the town size decreases; the benefits to be gained from clustering may be demonstrated through financial analysis of various cluster options.

8.5 SOCIAL MOBILIZATION AND ADVOCACY

8.5.1 Overview

- Social mobilization for water security, sanitation and hygiene; but also sanitation awareness and responsible engagement at all levels (government, utilities, DPs, CSOs, private sector).
- Community engagement with safe rural water and hygienic sanitation practice and learning from refugee areas water safety and sanitation procedures to inform overall rural and urban WASH practices.
- Introduction of sanitation micro-plans.
- Popularizing OWNP is one aspect of advocacy need. It is only with a systematic outreach mechanism that SWAp can be attractive to donors, bilateral partners and the government itself as results speak louder than mere talk.
- The other advocacy needed to mobilize all concerned including beneficiaries for a sustainable change is designing a communication system based on facts. For example, the fact that improved sanitation and hygiene which stands at only 28 per cent; the low quality of water supply; lack of resilient water source and technology; the non-functionality rates of water systems, etc. can be used to advocate for more support or action. In addition, for effective advocacy the sector must document sector learning and knowledge capacity for two purposes:1) stakeholders and donors wants to know what is happening in OWNP and 2) learning motivates more learning, enhance knowledge and innovation, help managers focus on gaps and needs.
- The facts warrant that continuous advocacy and awareness creation has to be major OWNP efforts not only to communities who are affected but also to political leaders and managers.

8.5.2 Behaviour Change Communication (BCC)

Behaviour Change Communication (BCC) can only be effective if it is built on facts as indicated in the advocacy package. Conducting formative research will also indicate social norms, behaviour barriers, motivators and also existing approximate behaviours that people practice.

In Phase II, communication for behaviour change and practice should not continue as "business as usual." Communities have to be organized, a behaviour change communication should be designed based on social norms, approximate cultural practices etc, information and communication efforts must be systematized and involve all means and ways to communicate for a sustainable change. This will involve: Multi-level advocacy, strengthened household outreach, enhancing community-based approaches for change, enhancing media support, increased availability and affordability of hygiene and sanitation products through private commercial and NGO sector initiatives, school hygiene and sanitation, demonstration latrines and hand washing stations.

8.5.3 Community Led Total Sanitation and Hygiene (CLTSH)

Furthermore, it is understood that the current CLTSH approach (ODF and latrine construction) might have to be adjusted to specific population groups such as pastoralist communities, and specific technologies of latrines have to be promoted for those cases (for instance, collection and burial of faeces in arable land or as part of preparation for conservation tree planting).

8.5.4 Sanitation marketing

There is an ongoing effort to increase access and utilization of improved sanitation facilities, to reduce OD and to improve safe handling of water through health extension programmes and engagement with the private sector.

42 Currently being finalized by FMoH with support from UNICEF

Cognizant to the limitations of basic unimproved latrines, the FMOH continues to encourage demand creation using CLTSH/SLTS tools, to developed sanitation marketing strategy to promote access to improved sanitation technology options and services; and SBCC strategy to sustain demand for improved sanitation and hygiene services. As per the sanitation marketing strategy, the focus will be on the creation of private entrepreneurs with interest in making sanitation a business opportunity. Secondly, it requires efforts to link the private sector with individual households in the community interested in upgrading their sanitation system.

8.5.5 Promotion of Service Delivery

In parallel with top-down advocacy and promotion of "self-help" activities and creating a demand for services (the bottom-up approach), it is vital that the municipalities and utilities themselves utilize the outcomes from sustainability master planning, principally the formative research aspects, to overcome any obstacles to the adoption of services by customers (domestic, commercial, institutional) and to actively promote and "sell" their "products" (sanitation and water supply services).

The methods to be used to sell the services could be similar to methods used by commercial service providers, such as mobile phone network providers. Exactly how this is done shall be laid out in a Communication Plan with its associated creative tools and promotional materials. The motivation for municipalities and utilities, as well as their delegated operators and suppliers, to promote and sell their services will come partly from conditions included in proposed Service Management Contracts (SMC) and Delegated Service Management Contracts (DSMC). In the Ethiopian context, it is also expected that municipal and utility heads will respond positively to top-down advocacy.

8.5.6 Institutional WASH role in advocacy

School and health care WASH facilities should be exemplary, certainly ensuring adequate water and soap and in terms of maintenance and cleanliness (if not yet in terms of standards of construction or user/unit ratios), since this will be the main means by which GoE can demonstrate the importance of sanitation and hygiene to the public, complementary to the HEP and UHEP.

Hygiene and sanitation education should continue to be included as a major part of the school curriculum, but it will fall on "deaf ears" if there are only poor facilities provided to school students and health centre patients. Wherever possible, WASH facilities should be inclusive of needs of users living with physical disabilities, special needs of school girls and female teachers (MHM) – see "Minimum WASH Packages" described in 4.5.3.

8.6 EMERGENCY PREPAREDNESS, EARLY RESPONSE AND RECOVERY

Ethiopia is vulnerable to extreme weather phenomena such as droughts and floods. In 2015/2016 the El Nino drought was the most severe in decades, affecting over 10 million people. In 2017, the IOD (Indian Ocean Dipole) also caused a severe drought in several parts of the country, affecting a similar number of people. Due to climate change, the recurrence of extreme weather events – such as droughts – will be more frequent and more severe.

The nexus between emergency and development activities is the main objective of the New Way of Working (NWOW), which involves humanitarian and development actors, governments, non-governmental organizations (NGOs) and private sector actors. The New Way of Working can be described, in short, as working over multiple years, based on the comparative advantage of a diverse range of actors, on the following core commitments:

- Political Leadership to Prevent and End Conflicts
- Uphold the Norms that Safeguard Humanity
- Leave No One Behind
- Change People's Lives: From Delivering Aid to Ending Need
- Invest in Humanity

In that sense, development actors and development programmes such as the OWNP, have to consider elements of emergency preparedness, early response and recovery in their programming.

During the OWNP Phase II, the WASH sector is expected to develop an Emergency Preparedness and Response Plan, with preparedness activities which will have to be integrated in the regular programming. One of those examples of preparedness is the establishment of stronger hydro-meteorological systems to anticipate floods and provide early warnings to populations at risk.

Pure humanitarian response is excluded from the OWNP Phase II, however, it is more a more common that emergency activities contribute to development goals (i.e. rehabilitation of infrastructures) and development investments contribute to alleviate emergencies (i.e. by investing in areas affected by chronic shortage of water). The OWNP Phase II will try to intensify the synergies between the emergency and development investments.

At the same time, the post-emergency recovery activities are often to be included as part of development interventions. Therefore, the WASH sector will have to more effectively support the recovery efforts after large-scale emergencies.

8.7 SUSTAINABILITY MASTER PLANNING AND FEASIBILITY STUDIES

8.7.1 Introduction

This sub-section gives guidance on the general principles related to master planning and feasibility studies; it does not specifically state who is responsible for each component related to master planning. However, it is generally expected that the master planning should be carried out by individual or groups of municipalities and utilities with assistance from the regional water bureau. These organizations will use their own resources and will further engage support from national and international technical assistance, universities and technical Colleges.

Minimum package plans need to be developed for applicant individual and grouped/clustered municipalities and utilities based on readiness criteria (Sub-section 3.7). Master planning and feasibility studies are required to prepare such minimum packages that are financially and environmentally sustainable and that can demonstrate a business case or bankable project worthy of investment.

The minimum package has so far been conceived as applying to individual towns, with smaller towns generally being allocated lower levels of service than larger ones in the planning process. However, this has the risk of leaving smaller towns at the bottom of the ladder for some considerable time, with serious impact on the most vulnerable, including children.

A different approach should be taken that encourages small and large towns to group and eventually formally cluster (see Sub-section 8.4) to share services under a reformed management structures (for instance, WASH under a utility serving several towns and SWM services under a delegated operator). Under these circumstances, equitable service delivery can be assured across towns of different sizes. Equally important, environmental protection measures can be applied throughout the service delivery areas that include both small and large towns.

Such clustering is essential in order to meet the GTP II Goal 4.2 to establish a national water utility regulator for urban areas and MVWS schemes, since it will be impossible to regulate the currently over 1,000 small, medium and large urban conurbations.

Because of economy of scale, institutional review and other factors, the sustainability master planning should be able to identify a Minimum WASH Package (MWP) that could be broadly defined as: "The least cost option that provides equitable financially and environmentally sustainable water and sanitation service delivery for both small and large towns."

Various elements that make up comprehensive master plans capable of yielding up bankable WMP projects include: socio-economic analysis, cross-cutting factors, economies of scale, sharing and delegated management, formative research, financial analysis, tariff structures and phasing, technical assistance, business models and city wide urban planning.

Not included in this list, but an essential part of more detailed feasibility and design studies that may follow master planning, are environmental and social impact assessments (ESIAs) that may be required before a project starts. However, it is important to be aware at master planning stage of any potential issues that might arise at ESIA stage:

For instance, FSM primary and secondary treatment systems including DEWATS (decentralized wastewater treatment systems) need to ensure that groundwater sources are not affected, that sludge and liquid wastes are treated sufficiently for safe re-use, and that communities, as well as politicians and technical managers, are sufficiently sensitized to the low impact of well-designed and operated systems located close to dwellings: Such sensitization (or advocacy) may take many months and may require visits to successful demonstration sites.

8.7.2 Socio-economic analysis

The basis for any water, faecal sanitation and solid waste master plan is knowledge about the customers to be served by municipal and utility operators, both to understand their needs and aspirations and also to determine what is affordable. This includes socio-economic status of the various groups of customers, their spatial distribution and population trends. Such trends include in- and out-migration, natural growth, densification, planned or assumed expansion of service areas, etc.

8.7.3 Cross-cutting factors

Sustainability master planning should take full account of all cross-cutting factors which include:

Resilience to natural and manmade disasters, migration, refugees, emergencies, climate change, etc.

This should involve increasing design factors, such as those related to surface raw water storage, groundwater reserves and treated water storage

- This should involve establishing and supporting the supply chain for in-house water filtration units to allow for contaminated mains water during water rationing and for residents using alternative contaminated surface and shallow groundwater sources

Design of sanitation systems should be based on lowest predicted per capita water availability during drought or due to water being required by disasters in the locality; at least 50 l/p/d is required at household level for full flush systems connected to centralized sewage treatment systems[43] so that in nearly all cases sanitation will be on site systems (pit latrines, septic tanks and DEAWWATs).

For a full appraisal and recommendations on resilience, see other section on drought areas, climate, etc.; Sub-sections 4.6, 8.1, 8.6 etc.

Discretionary tariffs:

- In areas where financially sustainable water and sanitation tariffs will be introduced, discretionary tariffs should be considered
- This may perhaps best be implemented by delegated operators who are aware of hardship cases and can register these households as eligible for subsidized charges
- If larger scale private or community based delegated water, sanitation and SWM service providers, serving populations of say 10,000 or more households, are planned under institutional changes (and where these have been demonstrated to be financially and environmentally sustainable through master planning and feasibility studies) then such operators should also be close enough to the communities to evaluate and manage discretionary tariffs

Equitable service delivery:

- It is obviously not possible for all urban customers to receive the same level of water and sanitation services since the variations in standards of in-house facilities, and what each customer can afford, between low and high-income residents may be vastly different. However, the concept of equitable service delivery should be included within any specific service level category
- For instance, all water kiosks shall be open for the same length of time each day and have sufficient pressure to meet consumer demand. Also, customers with a household meter at the perimeter of a water supply zone should have equal water availability to customers at lower elevations and closer to water sources
- Appropriate FSM services shall be available to all customers in a given service area at the same unit charge: For instance, in predominantly pit latrine areas low cost technology with manual operation of equipment and donkey cart haulage to transfer stations should perhaps be considered in order to bring service levels in line with customer affordability levels

8.7.4 Economies of scale, sharing and delegation

Consideration of informal sharing (short term) and formal clustering shall be a core institutional component of all master plans. This will also be a likely prerequisite for introduction of utility regulators (GTP II). This will need the full voluntary cooperation of all participating towns and the greater possibility of bankable MWP[44] projects to attract grant money and, importantly, that have the potential to lead to healthy financial operations able eventually to attract loan money.

Delegation of ring-fenced sections of service delivery and specialist activities to private and community-based organizations under strict delegated service management contracts (DSMCs) shall be fully integrated in the master planning proposals.

8.7.5 Formative Research

Urban water and sanitation is principally about service delivery: An enabling environment is needed to ensure delivery of sustainable services but also to ensure that customers use and pay for the services once provided. However, there are likely to be road blocks at both these levels which could result, for instance, in slow implementation of management and operational systems on the one hand and slow uptake of services by customers on the other hand. The result may be wasted investment or low return on the investments (in terms of consumer benefit).

What is known as Formative Research is required to identify, at an early stage in master planning, blocks to the implementation of financially and environmentally sustainable services and blocks to customer demand for an uptake of those services.

The methodologies used in Formative Research to bring about behaviour change (that is, including high level change within municipalities and service providers as much as consumer change) include tools and communication plans that should be formulated as part of sustainability master planning, detailed feasibility study and design stages.

Essentially, Formative Research builds on socio-economic analysis and appropriate and affordable technology, taking into account cross-cutting factors and ideally linked in an iterative or feed-back loop with financial analysis to arrive at an Information, Education and Communication (IEC) strategy. The communication plans within the IEC roll out may typically be formulated to address four, or more, time stages; pre-construction, during construction, post-construction and long-term repetition of behaviour change messages.

8.7.6 Financial analysis

Financial analysis, which should be carried out as the key part of master planning and feasibility studies, should demonstrate that a project is "bankable" in terms of financial sustainability, such that it will attract funding from donors and lending agencies. The analysis may, as above, involve an iterative process involving technical development, economies of scale, formative research and tariff structures and phasing:

- For instance, a particular sanitation technology or service delivery level may be desired, and the corresponding capital and operating costs will be entered into a financial model. However, the result of running the model may show that the tariff levels needed to cover the costs (O&M and loan repayment, if any, and depreciation/ replacement cost), in the absence of long-term reliable cross-subsidy or outside subsidy, will be beyond the customer ability to pay, as determined from socio-economic study.
- The iterative process therefore might involve re-visiting technologies that are simpler and/or more labour intensive and/or it might involve revisiting formative research and tariff structures in order to explore whether the higher income customers could pay more in order to subsidize services to lower income customers. Alternatively, funding agencies might be approached to negotiate softer loan terms.
- In addition, the actual figures on income and expenditure in many situations may not be accurately known: In these cases, it is essential to run sensitivity analyses on the financial model to minimize project risk.

Consideration of economies of scale suggests that sharing, more formal clustering and delegated management may be beneficial, since they should lead to more cost-effective service delivery and easier regulation and monitoring. This will in turn increase customer willingness to pay and to use the service,[45] thus improving the overall financial sustainability of service delivery and increasing investor confidence, whether on a grant or loan basis.

However, such proposals need to be clearly optimized through financial analysis: For instance, including a more distant town in a cluster where roads and communication channels are poor might in fact increase, not decrease, overall costs.

8.7.7 Tariff structures and phasing

As discussed above under financial analysis, business planning involves balancing the books whereby the levels of service provided and the degree of technical sophistication are matched by income generated from sales. In practice, even after introduction of all possible efficiency measures, full cost recovery for sanitation services may be difficult to achieve, particularly if capital costs are included: Therefore, the IUSHSAP proposes the inclusion of subsidies and cross-subsidies as part of the business planning and for inclusion in the financial modelling.

Master planning should aim for full cost recovery for water supply including capital and depreciation costs as well as generation of a surplus to subsidize sanitation.

Further, sanitation subsidies from municipal rates, electricity tariffs, etc. should be discussed and agreed at municipal and regional levels. Where possible and acceptable to the local and national economy, a surplus might be generated from industrial and commercial tariffs to subsidize downstream sanitation services.

Of course, willingness to pay will likely only be achieved following construction or rehabilitation of systems to ensure adequate water sources, storage and distribution and implementation of IEC packages and advocacy measures.

In respect to sanitation, the master planning should allow for sustainable charges for vacuum trucks within business models that maximize upstream labour intensive systems and economies of scale. For instance, labour intensive operation of small mechanical and manual desludging pumps and donkey cart transport of sealed containers to local transfer/primary treatment stations will allow the limited number of expensive-to-run vacuum trucks to concentrate on continuous full tank runs from transfer stations to drying beds in a well-managed highly efficient operation.

It is necessary for the master planning to particularly consider commercial and industrial tariffs related to water supply, solid waste management (SWM), hazardous waste management (HWM) and liquid waste management (LWM). Tariffs, charges and penalties shall be strictly on a polluter pays principle aimed at full operational and capital cost recovery as well as to create a surplus to fund a local task force (under a mayor's office for instance) or to help fund the EPA in the Ministry of Environment, Forestry and Climate Change (MoEFC).

8.7.8 Technical assistance

It is expected that TA will be needed to assist with sustainability master planning and feasibility studies and to support funding bids. The TA should be focused at the individual and grouped/clustered municipality and utility level in order to concentrate on getting coherent master plans together that will generate bankable MWP projects capable of attracting funding. The TA involvement at this level will include on-the-job capacity building and it is necessary that counterpart staff are assigned to work with any TA consultants and that their individual progress is monitored, assessed and reported.

The other area for immediate focused TA, including on-the-job capacity building, is expected to be at the level of the regional water bureau which will be expected to support the master planning and funding bids within their region.

It is also expected that extended term TA involvement will be required for research and development and to bring about institutional changes.

TA will be engaged and managed according to the following modalities, which differ from the usual project-based approach where TA is recruited and managed by a single client or project unit:

1. By or through collaborating ministries and bureaus
2. Directly by an associated or collaborating partner organization, which can be a bilateral or multilateral aid agency, service provider, CSO, etc.
3. By contributors to the OWNP CWA

The pursuit of highly ambitious targets, the relative size and complexity of the OWNP, introduction of new roles and responsibilities at all levels, the existence of capacity gaps in implementation partners at all levels, the need for a robust regulatory and monitoring framework and the promotion of new contracting modalities, technologies and construction methods, make the provision of relevant and timely TA, as well as other training and capacity building measures, an important element in effective implementation, especially during the remaining OWNP Phase II period but also beyond this period. TA is further expanded in Sub section 8.9.

8.7.9 Business models

Achieving financial and environmental sustainability in the Ethiopian context requires that water services and sanitation services (for faecal solids and liquids, commercial and industrial liquid and solid wastes, medical wastes and domestic solid wastes) are treated as much as a business as selling mobile telephones, for instance.

Even though a sanitation business may rely on subsidies (for instance, from municipal rates) and cross-subsidies (for instance, from surplus water revenue, either at town level or from a national Sanitation Levy Fund[46]), the financial analyses carried out for sustainability master planning still need to show where the money will come from to pay all O&M costs and all capital charges.

Demonstration projects need to be established and to be of sufficient scale to accurately model economics as much as technology. The demonstration models need to be monitored over an extended period and to include all information on customers, income and expenditure, health and safety, labour issues, environmental compliance, etc.

8.7.10 City wide urban planning

- Enforcement of planning and shift towards watershed management and catchment protection.
- This is a multi-sector activity outside of the OWNP but essential to create an enabling environment for sustainable WASH – in terms of water resource development and environmental and health protection, particularly for the urban poor, peri-urban and satellite village, local downstream or within pollution discharge zones.

Multi-sector integration

It is clear that there needs to be a stronger coordination and integration amongst the various sectors in order to create a common mechanism to enforce laws and acts related to urban development and provision of WASH services. As the areas of urban water, sanitation and hygiene involve different sectors, there is a likelihood of overlap in the course of regulatory enforcement. Avoiding duplication and overlaps will not only ensure better use of public resources but will help to minimize the burden on regulated subjects and maximize effectiveness.

The enforcement and application of such provisions not only improves the immediate environment but also human health and well-being, thereby enhancing growth and development.

Planning control

Water and sanitation systems that meet customer needs have to be based on an enforced physical plan.[47]

Although planning management structures may be in place (for instance, mayor-headed committee, a construction unit issuing permits to build, legal powers through the Land Management Department, kebele groups monitoring development) risks may be high due to weak coordination, limited finance and vested interests. As a result, urban development may be informal and not where it is meant to be, making provision of sustainable services impossible or extremely difficult.

Physical planning that takes into account provision of services and environmental protection should be strictly enforced. Where development has taken place in contravention of planning and environmental regulations, such development may be demolished or changed in such a way as to ensure compliance.

Environmental Compliance

Measurement and verification to ensure that standards are strictly followed at sites during construction, as provided by the rules and regulations, are key elements towards safeguarding health and safety, protecting the environment, etc. All actors shall develop and apply mechanisms that help achieve the best possible outcomes.

In this case, combining broad compliance promotion with well-targeted controls and the application of deterrent sanctions for various violations will ensure attainment of optimal results. Transparency and compliance shall be promoted through the use of appropriate instruments such as guidance, toolkits and checklists.

Regulatory enforcement and inspections should be evidence-based and measurement-based (deciding what to inspect grounded on data and evidence) and results shall be evaluated regularly. Although monitoring of environmental compliance with regard to sanitation facilities by the Ministry of Forestry and Environment is at an infant stage, it is expected that its scope and effectiveness will be enhanced: As an example, the ministry is expanding its laboratories and other facilities to undertake their tasks.

8.8 MONITORING AND KNOWLEDGE MANAGEMENT

8.8.1 Strengthen Monitoring and Knowledge Management for WASH

- Updated regional WASH inventories of installed systems, planned systems and management types.
- RWCOs strengthened to handle data storage and dissemination.
- Education and Health MIS improved.
- Increasing use of data for M&E use, asset management and investment planning. Development of crowd source[48] report card system.
- Establishment of a fully functional Monitoring Information System (MIS) for the WASH sector

43 However, to date, average per capita urban consumptions above 30 l/p/d are rarely reached, even under normal climatic conditions and even in large developed cities

The programme should have a strong monitoring and evaluation framework, which includes high-level review meetings, external reviews, and independent sustainability checks, among other measures. This plays a key role in ensuring effective project implementation by identifying bottlenecks in a timely manner and defining adequate measures to address challenges that will impact the progress and sustainability of the project.

A comprehensive WASH sector monitoring framework supported by an information system should be established. MIS enhancements to cover output reporting requirements should be given emphasis in Phase II to ensure comprehensive real-time OWNP Phase II progress reporting.

There is limited conceptual understanding on monitoring and evaluation at the management level and weak capacity to support town water boards to effectively participate in monitoring water supply schemes; the benefits of project evaluation during implementation are either not appreciated or the OWNP-CWA reporting formats are seen as being too cumbersome.

It is understood that under NWI 2, 11 KPIs for water and 1 KPI for wastewater are being considered along with 26 supplementary KPIs. It is very important for regional, national and international benchmarking and regulatory use that these include the 10 internationally accepted KPIs for utility performance[49].

In order to have WASH sector monitoring framework supported by an information system, tailored training for proper data and information inputs for enhanced MIS system users (national and regional levels) should be prioritized.

Computer hardware and software, as well as training, should be provided to strengthen management information at the region and woreda level sector offices. This should include financial management and accounting, and commercial systems for town WSSE at least for Category 1-3 towns and for all voluntarily clustered urban/rural utilities.

The MoE has put in place governance mechanisms through which performances of the school WASH strategy can be tracked and monitored as integral part of the Educational Management Information System (EMIS). Performance indicators need to be expanded for School WASH so as to improve the value of the EMIS.

WASH sectors at national level should provide special support to emerging regions so as to be able to perform their planned activities and monitor their performances in human, technical and financial management aspects to the delivery of services.

8.8.2 Knowledge Management

The fundamental core of the OWNP is knowledge management, particularly in terms of (a) what is already installed, (b) what is being built, (c) who is operating, (d) who has ownership, (e) what is functional, (f) what is the performance, (g) what are the gaps.

The OWNP Phase I Review Report comments upon the current status of the National WASH Inventory and current M&E systems.

Knowledge management is also documenting facts and figures after conducting researches on outcomes or impacts of WASH services. The research process can be applied research avoiding high level design and interpretation but should be conducted all the same if we want to measure whether we are meeting our objectives.

There is significant peer-reviewed academic research published both within and outside Ethiopia related to and impacting on rural and urban WASH; for instance, pollution of rivers and lakes through industrial, commercial, domestic solid and liquid wastes; transmission of water borne and faecal-oral disease transmission levels, etc.

8.8.3 National WASH Inventory

The National WASH Inventory (NWI 1) was based on a combination of WASH related data from 12 million households and scheme inventories of communal water supplies and WASH facilities at health institutions and schools for rural and urban areas.[50]

It is suggested that a new, or complimentary, way to achieve M&E and NWI may be through regular collection from, and tighter control of, data from woreda, towns, institutions, developers and operators, possibly by strengthening of the NWCO/RWCO hierarchy and their agents.

44 Minimum WASH Package (MWP) has been suggested under the IUSHSAP to be: The least cost option that provides equitable financially and environmentally sustainable sanitation and water service delivery for both small and large towns

8.8.4 Monitoring Information System (MIS) for the WASH sector

MoWIE lacks a fully functional MIS (Monitoring Information System) similar to the EMIS or the HMIS. The MIS for the OWNP should be in place by 2020. In the meantime, there is a 4Ws matrix (who, what, where, when) developed by the WASH Cluster.

The database currently includes information at woreda level and is updated by more than 50 implementing partners on a monthly basis. From January 2018, the 4Ws matrix is starting to collect information on development activities, but that is only temporary until the MIS is in place.

Real time data collection is possible when WASH sector actors (who) at the lower end of service are trained and made responsible to collect WASH data (what) from communities (where) at the end of every week (when) and submit to the next level. This task can be handled best by WASHCOS at the community level together with health extension workers.

8.9 TECHNICAL ASSISTANCE AND ACADEMIA SUPPORT

8.9.1 Technical Assistance

The Programme is pursuing ambitious targets while at the same time seeking to fill gaps in capacity at a number of levels. This, coupled with the relative size and complexity of the Programme, the many new roles and responsibilities it entails at all levels, vthe absence of a robust regulatory and monitoring framework and the promotion of new organizational framework contracting modalities and technologies, will mean that provision of relevant and timely technical assistance (TA) will be essential. Such TA will be drawn from international resources to compliment that which is locally available.

The technical assistance relevant for Phase II will include:

1. Support to establish a robust capacity building programme to contextually design, deliver, evaluate, learn and document results.
2. Facilitate support in hydrogeological mapping/ground water mapping.
3. Support in establishing mobile technology for real time monitoring and data collection mechanisms in regions and woredas.
4. Introduce new technologies in water and sanitation, such as wind and solar and other energy sources, and facilitate demonstrations on the ground wherever possible.
5. Support regions and woredas to conduct simple applied research on WASH with a view to support enhancement of sustainable and equitable services.

TA will be provided at federal, regional, city, zonal, woreda and town levels. Planning, coordination, management and quality assurance of TA will be the responsibility of GoE through its contacting entity.

The modalities for the TA will include

i. by GoE through WPMUs in participating ministries and bureaus at federal, regional or city levels using funds from the Programme budget; or

ii. Directly by a partner, this can be a bilateral or multilateral aid agency, CSO or other organization.

In both modalities, TA will be provided according to a consolidated annual WASH plan and budget, including a procurement plan approved by the NWCO. Any technical assistance will be short term and output must include hands-on training for local actors.

8.9.2 Competition for funding

There will inevitably be a shortage of funding and sponsors (GoE, DPs, CSOs, private) will want to invest where there is the best return in terms of customer level and reliability of service and minimization of environmental impact. This can be achieved through some competition for funding within each region based on well prepared master plans and feasibility studies. In order to make the competition fair since large cities, for instance, will have greater professional capacity than small towns, TA will be needed to assist with planning and studies to support funding bids.

45 Terminology used elsewhere, for instance JICA, discusses moving from a "vicious cycle" (poor service > low willingness to pay > no income to improve service > poor service) to a "virtuous cycle" (improved service level > willingness to pay > increased income > increased investment in services > improved service levels)

The TA shall be focused at individual and clustered municipality utility level in order to concentrate on getting coherent master plans and feasibility studies together that will generate bankable MWP projects capable of attracting funding. The TA involvement at this level will include on-the-job capacity building. The relevant staff should be assigned to work with any TA consultants and that their individual progress be monitored, assessed and reported.

8.9.3 Planning, procurement, financial management and monitoring

It is expected that technical assistance (TA) will be urgently needed to support funding bids. The TA will be focused at the individual and clustered municipality utility level in order to concentrate on getting coherent master plans together capable of attracting funding. The TA involvement at this level will include on-the-job capacity building and it is necessary that counterpart staff are assigned and that their individual progress is monitored, assessed and reported.

Training and support in integrated and harmonized WASH planning and budgeting will be provided at woreda, zonal and regional levels as well as at federal level.

Capacity building is needed in procurement and financial management, particularly at water utility, woreda and regional levels. Training in fiduciary management will contribute significantly in improving financial management of WASH sectors.

So as to improve slow procurement processes, periodical contract execution monitoring by NWCO/RWCO/PMU, tailored trainings on contract management, supervision of consultants and implementation of works and strengthening the coordination of procurement processes of WASH sector offices should be done.

Selection criteria for choosing a contractor and measuring qualifications of consultants should be defined and adhered to during the planning phase. Procurement units should be strengthened with trainings for speeding up bid processing and strengthening contract management by technical assistance services to bring procurement efficiency. Priority will be given to capacity building in monitoring progress and impact and use of monitoring data for planning.

8.9.4 Enhancing the integration of WASH Training Centres of Excellence

OWNP will benefit more if it widens its resources base through establishing strong links with academia including institutions of higher learning. This link would be used for overall capacity building including training of technical and operational staff, innovative technical development, research, production of guidelines, advocacy, sharing good practice, professionalization, etc.

The Ethiopian Water Technology Institute (EWTI), being a research and a training institute, prepares and conducts short term practical training on courses designed to fill identified skill gaps of manpower working at different levels in water development and related activities. It also conducts long term trainings as per the national Technical and Vocational Education and Training (TVET).

EWTI will also support research and development on WASH sector wide identified priorities; and promoting innovation and knowledge management in the WASH sector through learning and sharing events and other appropriate measures.

46 Zambia applies a SLF of 2% on all water sales to help fund sanitation services while Uganda has proposed a 5% SLF

47 Planning has to be based on knowledge of population increase, spatial development, expected service levels for high/low income areas, industry, commerce, institutional, etc. It should also align with Integrated Watershed Management Plans, ref. Water and Land Resource Centre in Addis Ababa University

48 COWASH terminology

49 See for example, East and Southern Africa Region Water Utility Regulators Association

50 Summary of a seminar 8.4.13 by Katherine Welle on NWI, "lessons learned and maximizing value" which in turn refers to data from Butterworth et al 2013 and Debela 2013

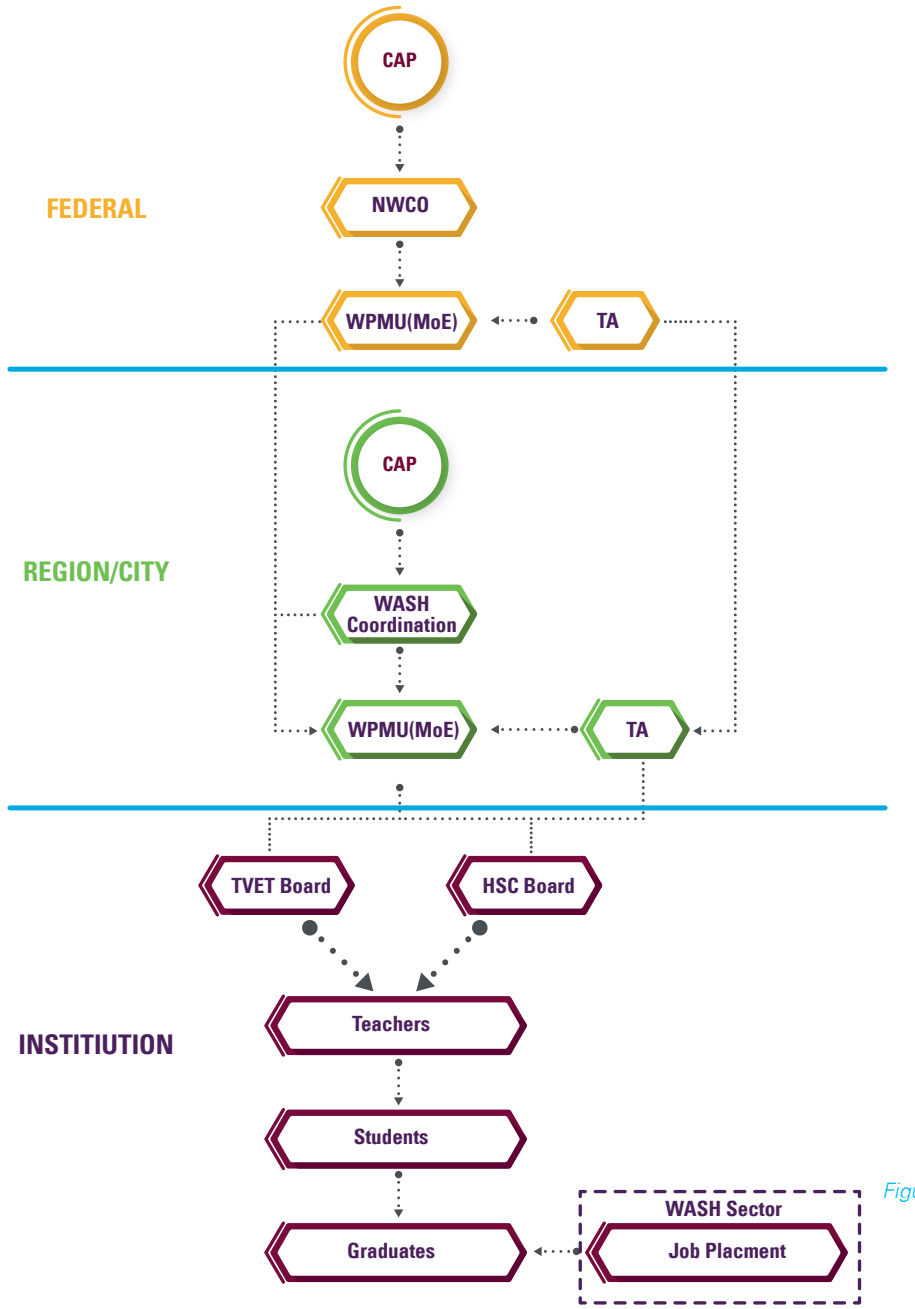


Figure 8 1: Organizational Diagram for Support to TVETCs and HSCs

Key: CAP - Consolidated Annual (WASH) Plan

WPMU- WASH Programme Management Unit

In WASH capacity assessments of 16 TVETCs and HSCs conducted through SNV and Water Aid, the following capacity gaps are identified:

- Limited and/or non-existence of essential physical and training resources, including equipment and tools, reference books, logistics and support facilities
- Not adequately consulting relevant WASH stakeholders when planning training
- Deficiencies in assessing and responding to their environments and developing appropriate training strategies and programs
- Skill gaps among instructors in conducting practical training, with only a few teachers having completed teaching methodology courses
- Limited knowledge of WASH policies and strategies

To further institutionalize and professionalize the training of much-needed skilled technicians for the WASH sector, the Programme will seek to replicate and scale up the support to TVETCs and HSCs provided through UNICEF, SNV, Water Aid and other organizations. This assistance will include support to curriculum development and lesson planning, teacher training and basic training equipment and tools for workshops and laboratories.

The graduate level study on WASH (offering Master of Science in WASH) which is established at Wollo University is one area where collaborative actions will be a good capacity building resource in the future. Other universities and institutes that are training engineers and feature subjects like environmental health, environmental engineering, water engineering, are also good resources that can be used in many types of technical assistance, research, design and consultancy services.

8.9.5 Water treatment and public health laboratories

Regional bureaus shall explore how links with universities both in Addis Ababa and in the regions can be strengthened in order to tap into existing and proposed testing and laboratory capabilities. Currently MoWIE uses two laboratories in Addis Ababa and Oromia region, but could well benefit further from other regional testing capabilities.

8.9.6 Cascading OWNP document and action plans for results

The OWNP document Phase II is a useful instrument that gives enough background information and a strategy to start the Programme and push it forward. However, the document which was designed at the centre with little or no involvement of the actors in the regions and woredas demands to be cascaded down to these sectors so that they own it and use it.

It is also important to introduce the document to a wider group of partners such as international, bilateral, NGOs and private sector actors (Banks, MFIs, etc.) to sell the idea of the document for possible support. The process which will be organized at the federal level will be useful to discuss the action plans with the funding gaps.

The methods envisaged for cascading the document is through organizing workshops for federal level partners and to regional actors.

8.9.6.1 Cascading process

The process will follow the following steps:

Preplanning

- Design the objectives for the two categories of audiences and anticipated results of the workshop
- Carefully make a list of workshop participants by levels (federal, region, woreda)
- Decide number of days of the workshop based on the objectives and estimate cost of running the workshop.
- Estimate cost of running the workshop (venue rent, daily allowance for participants, transport etc) and secure budget.
- Assign or recruit facilitators for the workshop.
- Carefully plan date of the workshops and notify participants for each level well in advance and conduct persistent follow up.
- Prepare handouts, working papers, visual aids, flipcharts and other stationaries.

Documentation

Facilitators should prepare or arrange discussion topics by chapter so that it would be easier to document participant views and recommendations

- Participants should prepare proceeding for each level.

Feedback meeting with steering Committee Members

- OWNP coordinator synthesizes the result of the cascade process with summaries of comments, feedback, challenges mentioned, barriers for efficient and effective performance and participants recommendations
- Steering committee gives direction on the way forward, strategizes on leveraging funds, establishes monitoring and evaluation, periodic reviewing and follow up mechanisms

9 CAPACITY DEVELOPMENT FOR IMPROVED DELIVERY OF WASH SERVICES AT ALL LEVELS

9.1 INTRODUCTION

One element necessary to reduce delays in implementation and to shorten procurement is to strengthen the capacity and skills of Programme Management Units (PMUs) through intensive, sustained technical assistance (TA), and to prepare more realistic implementation schedules. Improved skills and retained staff with the necessary skills and resources to manage consultants and contractors are key to reducing project start-up time, and ensuring implementation is on time and on budget

Capacity development efforts need to be targeted to achieve more effective WASH programme implementation and sustainable operations through enhanced institutional and management capacity. This component includes support to improve skills and capacity of WASH organizations and implementing parties at federal, regional/city, woreda/town and kebele and community levels to plan, manage and monitor Programme activities as well as strengthening M&E capacity at all levels and support to qualitative research and studies.

Capacity building resources should also be accessible to the private sector, but at a fee. Insistence on certified engineers, sociologists, financial analysts, quantity surveyors, environmentalists, etc. to be key positions in consultant scoping and feasibility studies and detail designs will (a) improve WASH implementation and (b) provide income to the education establishments to ensure they retain highly qualified staff as well as hardware and software resources.

Assessment of OWNP implementation to date at regional and woreda levels indicates lack of capacity, system development, community involvement, planning based on adequate data and needs assessment, monitoring, learning and knowledge management, operational and management capability, logistics support, timely financial release, delayed external procurement processes, available fund absorption capacity, etc. It is therefore necessary to assess the available human resources pool in each region and where favourable train the individual to lead the programme or in the absence of such resources employ new staff and establish regional human resource development units.

As per the WASHBAT workshop held on June 6-8, 2017 the following points are found to be the main bottlenecks of capacity building issues.

1. No systems for rewarding individuals/households that use sustainable technologies for rural sanitation
2. No incentives for the private sector (such as tax exemption or loans)
3. No full package capacity development plan (including training, monitoring, coaching, software, hardware) based on needs assessment
4. Weak stakeholders' coordination mechanism
5. Inadequate budget and weak utilization
6. Lack of a system to enable users and stakeholders to validate plans
7. Lack of attention at regional level for scaling up best practices and new technologies
8. Lack of clear roles and lines of accountability between different stakeholders within the sector and across relevant sectors
9. Absence of clearly defined procedures and channels for user participation in the planning process
10. Lack of strategy and guidelines for implementation to be customized to different schemes and service provision
11. Lack of policy and strategy to engage the private sector in management and provision of service
12. Absence of consumers rights enforcement mechanism.

9.2 ABSORPTION CAPACITY

The experience so far on fund absorption capacity of sectors at all level is not encouraging for more funds to flow. The fund utilization rate so far witnessed is about US$500 million per year. The present estimate of over $6 billion to meet GTP II targets (currently set 2018–2020) will need an absorption capacity strategy. The key to enhance absorption capcity is through:

1. Improving procurement process and when necessary stockpiling the necessary electrical materials, tools and construction materials.
2. Improving design and supervison capacity, mapping and confirmation of water sources as early as possible, strengthening contract administration and appraisal teams etc.
3. Timely planning of activities with specified time, budget and appropriate trained or qualified staff with logistics to carry out activities effectively.
4. Periodic monitoring, evaluation and follow up on activities, efficient use of funds, for timely identification of bottlenecks, challenges and other issues.
5. Continuous capacity building of staff, motivation of staff, establishing a system of competition and reward.

9.3 APPROACH TO CAPACITY BUILDING

Capacity building is necessary to improve the ability of WASH sector professionals and service providers to better plan and manage water supply and sanitation. The composition of the capacity building package will be determined on a case-by-case basis considering the specific capacity building requirements for each woreda or town. Capacity building interventions, especially training of WASH staff at lower levels on planning, procurement and financial management, plays a major role in ensuring effective project implementation based on a capacity development need assessment. There is a need to design a human resource strategy covering both urban, rural and pastoralist areas.

Human resources (HR) capacity building should be provided on a continuous basis and include intensive initial training as well as refresher training, coaching and follow up. A new capacity development unit shall be established at all levels in OWNP structure to implement these activities. The units could facilitate procedures for new staff orientation, refresher training programmes, regional workshops, etc. The unit could also support the Regional WASH Coordinator in the development of training materials based on latest developments, new approaches, new learning from the field and use the training programme to stimulate actions, innovations, and create momentum to go forward.

A cascaded training approach should be used for rural water supply and sanitation. For urban water supply and sanitation, it will also be relevant to use a cascaded training approach for promotion of good hygiene practices and improved on-site sanitation. A cascaded training approach is less relevant for urban water and sewerage utilities, whose capacity needs should be addressed through formal courses and on-the-job training by relevant training institutions, NGOs and others.

The other area of immediate focused TA, including on-the-job capacity building, is expected to be at the level of Regional WASH Coordination Office and Regional WASH sector bureaus which will be expected to support the master planning and funding bids within their region.

9.4 GUIDELINES AND MANUALS

Curriculum and delivery of training courses to elevate the professional capacity of city officials and SMMEs in a range of priority aspects shall be established. The OWNP issued in February 2016 a series of "OpenWASH" training manuals, including Urban Water Supply, Urban Sanitation, Solid Waste Management, Working with People and guidelines on use of the manuals and these will be particularly useful for the cascaded training.

WASH guidelines, manuals and other relevant training materials need to be reviewed, adapted and updated, and any new ones shall be prepared as required. Operation and maintenance manuals are required for different types and components of urban water supply schemes and equipment. Manuals should be translated to Amharic and other major regional languages as appropriate for the intended user group.

9.5 SYSTEMS AND INSTITUTIONS

9.5.1 Introduction

Assistance is required to introduce procedures for handing over responsibilities, manuals, guidelines and data when WASH staff leave their positions.

HR capacity building should focus on the supply side (training institutions) as well as creating demand from potential beneficiaries. Focus should be on institutionalizing and professionalizing training capacity by supporting EWTI, TVETCs, HSCs, universities and other training institutions to provide quality and demand-responsive long-term courses as well as tailor-made short-term courses. Universities and training institutes have a major role to play in training water professionals and in organizational and institutional capacity development.

Research and development on WASH should also be supported in sector wide identified priorities and should promote innovation and knowledge management in the WASH sector through learning and sharing events. More research should be done to demonstrate the real costs and the impact of capacity development.

Coordination and partnership with EWTI, TVETCs, HSCs and universities should be enhanced as well as knowledge sharing should also be promoted on the challenges of the WASH sector in an effort to bridge the gaps and achieve the GTP II target.

Particular attention should be given to ensuring effective capacity building at the community level using approaches and procedures established by the WSSP, CMP or NGO assisted projects. By doing so, we can strengthen decentralized capacities and provide complementary support and monitoring. The capacity building unit which will be established under NWCO/RWCO office will address sector-wide capacity building requirements in an integrated manner and to thereby enable the training centres to increasingly become a centres of excellence with state-of-the-art skills, knowledge and competence.

9.5.2 Strengthening NWCO and RWCOs

The NWCO and RWCOs (and ZWCOs when formed) should be given greater powers and technical capacity, either in-house or through its contracted agents, to address the weak regional level coordination between the four WASH sectors, the lack of integrated WASH plans, the limited efforts to coordinate WASH interventions implemented by civil society organizations, the lack of awareness and understanding at regional levels about the OWNP concepts, and the principles and the differences between the broader OWNP and CWA.It has been proposed that the NWCO should be strengthened in manpower and logistics so as to coordinate the planning process of CWA, WASH-DPA and overall national WASH programmes and produce a ONEWASH Programme report and improve the quality of data collection and reporting in the regions.

In order to have better control and knowledge of projects the following two boxes suggest reform of how all existing and new projects could be registered and monitored.

Oblige all Funders and Developers[51] to jointly:

a) Notify the Regional WASH Coordination Office all WASH development projects.

b) Submit proposals to the Regional/Zonal WASH bureaus through the RWCO for scrutiny and certification to ensure that each project complies with the requirements of OWNP Phase II, as herein detailed.

c) Ensure that six-month Project Construction Progress Reports are issued to the RWCO, which will be in addition to, or as substitute for, other funder and developer reporting requirements.

d) Notify RWCO of the official project handover date, the name, address and contact details for the immediate asset owners, the main operator and the all delegated operators and suppliers. (This may apply to both urban and MVWS schemes. For point source village schemes then the information will possibly be just the name of the WASHCO and a contact person and registration details, if applicable.)

51 Note that CSOs currently operating in a particular region are requested to submit projects to regional level for registration and approval, but the mechanisms and capacity to ensure that this happens may not be effective.

Oblige asset owner or its agents to sign a contract or performance agreement with operators and oblige operators to sign delegation contracts with delegated operators and suppliers where:

a) All such contracts and delegated service management contracts shall include requirements for operational performance reports (including functionality, service coverage, equitability, financial sustainability, environmental sustainability and other parameters as listed).

b) Contracts or performance agreements for utilities should include standard internationally recognized KPIs (For point source village schemes then the information will likely be confined to the WASHCO registration details).

c) These contracts shall include the minimum requirements sufficient for the RWCO purposes to maintain a Regional WASH Inventory and Regional WASH Monitoring and Evaluation data base.

For the RWCO part, it would be necessary for the RWCO to:

a) Have the capacity to (either directly, through its agents and contractors and/or through working agreements with sister Regional WASH Bureau):

b) Receive notifications of all WASH development projects and respond within X working days to indicate whether the project is likely to receive approval or whether further project development is required.

c) Scrutinize each WASH development project and issue a Certificate of Compliance with OWNP guidelines within Y working days from initial response to the notification.

d) Receive six-month Project Construction Progress Reports, information on asset owners, operators, delegated operators and suppliers and operational performance reports and update both the Regional WASH Inventory and the Regional WASH Monitoring and Evaluation data base.

e) Every six months, upload information gathered under item (d) to national WASH Monitoring and Evaluation data bases and the National WASH Inventory for it to be assessed and audited by the NWCO (either directly, through its agents and contractors and/or through working agreements with sister national organizations), acting on behalf of the signatories to the OWNP WIF and MoU.

Assumptions:

a) The capacity of RWCOs, the NWCO, their agents and contractors and/or relevant sister regional and national organizations will be enhanced through on- and off-job training and TA, and inclusion of fair staff remuneration packages.

b) The National WASH Inventory is disaggregated to regions as Regional WASH Inventories.

c) The National WASH Monitoring and Evaluation data base is disaggregated to regions as Regional WASH Monitoring and Evaluation data bases.

d) Where a regional regulator becomes established, then some of these RWCOs (and/or Regional WASH Bureaus) functions will be expected to pass to the regulator.

Table 9 1: Strengthening NWCO and RWCOs

9.5.3 Organize Zone WASH Coordination Offices

Since zones are located nearer to the woredas than the regions and by virtue that they in most cases have either a regional status or are departments for the respective bureaus in the region, it would be worth utilizing their capacity, human power and time for OWNP. It is therefore imperative that ZWCOs, ZPMUs, monitoring and capacity building units be established at that level. This will also synergize with the concept for clustered utilities based on approximate zonal size areas (see Subsection 8.4).

9.5.4 Water Utilities

Urban and proposed MVWS utilities will need continuous training and technical assistance to improve utility management, administration, and operations to reach full cost recovery status. This capacity will be enhanced by proposed clustering and formation of large (perhaps zonal) utilities with oversight from national or regional utility regulators.

As technologies and associated business models are developed, trialled and included in master planning and become established within service delivery systems, then lessons can be learned from both successes and failures. These need to be shared within and between regions so as to stimulate improvements in practice and also to avoid any duplication of effort or the repetition of less successful ways of working.

For examples of good practice (GP) to be shared, it is essential that the chosen examples are appropriately analysed and understood.

9.6 DEVELOP EFFICIENT PROGRAMME COMMUNICATION STRATEGY

The NWCO should develop Programme Communication Strategy to create sustainable buy-in by the wide range of stakeholders and partners towards the achievement of the OWNP objectives. It should also ensure appropriate publicity and dissemination of policies, programmes, strategies, water legislation, guidelines, technical standards, regulations, orders, etc.

So far, the OWNP vision, mission and guiding principles are not well known to people at all levels. Beneficiaries should be aware of the Programme and support it, but equally high-level government officials should also know about the Programme, the effort being made, the financial implication put forward and the outcome. It is imperative that communication at scale to popularize the programme and harnessing more donors be one of the focus areas in OWNP Phase II.

To expand public awareness, knowledge of and commitment to the Programme, it should move beyond its institutional framework and appeal to the public as potential beneficiaries. This can be achieved through support to a multi-level multimedia communication strategy that will include:

- Formative research, customer journeys, communication plans, a ONEWASH logo, mascot and slogan, etc.
- Topical spots aired on regional radio stations
- Short programmes with health and hygiene messages on ETV and educational broadcasting
- Posters, billboards, banners, pamphlets, stickers and flyers commemorating special events
- WASH educational kits for use in schools
- Use of goodwill ambassador(s) and national celebrities to create awareness and spread relevant messages
- Profiling the Programme at World Water Day, Earth Day, through photo and art contests and other events in collaboration with the WASH Media Forum.

9.7 OPERATION AND MANAGEMENT (O&M)

Capacity building at the service provision level should include system development, financial analysis, procurement of facilities, operations, training of staff and development of leadership programmes, etc. Training shall be extended to both in-house staff and workers and also to SMMEs. Medium and short-term training aimed at generating technical and professional staff and leadership will be organized with different educational institutions. Training shall be cascaded to TVETCs/HSCs (Technical and Vocational Education Training Colleges/ Health Science Colleges) and to artisans.

High priority should be given to capacity building in O&M for both rural and urban water supply and sanitation. This should initially focus on addressing the significant number of rural piped water schemes which appear to have been constructed without sufficient community and woreda involvement and ownership and which now have serious O&M problems.

Appropriate and sustainable solutions should be identified so communities have access to affordable spare parts and maintenance services within a reasonable distance, preferably by the private sector. We should also establish post-construction support units for schemes that cross multiple villages in remote arid and semi-arid areas.

We shall also build the capacity of utilities through provision of human resources, improving working environment, facilitating operation and maintenance activities, improving revenue collection through provision of billing software devices, improving water demand management and customer care and management skills. Pilot clustering of water utilities shall be started for small towns to create a larger customer base, improve revenue collection, share experiences in management and technical operations and reduce operating costs.

Management of community water supply systems through private water operators shall be started to improve functionality of water supply systems. Such a model, however, requires significant investment in capacity building of the private water operators and establishment of adequate mechanisms for monitoring the performance of the private operators. The water supply systems constructed or upgraded can be handed over to private water operators (PWOs) for operation and maintenance under public-private-partnership arrangements.

The private water operators will be trained and provided operation and maintenance tool kits. This will enhance capacity of the PWOs to manage the systems, collect revenue and undertake timely repairs, and greatly contribute to high functionality and increase sustainability. Training of private water operators and water user committees will contribute to effective management of water supply systems.

9.8 INVOLVING THE PRIVATE SECTOR IN WASH

It is difficult for communities and artisans to access pump spare parts within a reasonable distance and at an affordable price. MoWIE made an assessment of supply chains in 2010[52] and this study showed that supply chains for hand pumps and spare parts, largely driven by market forces, were still in their infancy in Ethiopia. The study recommended that procurement of hand pumps and spare parts be combined and private suppliers be motivated to open and operate sub-regional outlets.

To promote economies of scale, sanitation and hand pump supply chains can be combined and piloted using trained women and youth entrepreneurs that, if successful, could be considered for scaling up. To make supply chains more commercially viable, products relating to a healthy household environment like household water treatment and safe storage could also be combined with hand pump spare parts and sanitary products.

The relationships between microfinance institutions and the water and sanitation sector needs to be developed in order to jointly build sustainable access to affordable credit. There is the potential for the poor to better meet their water and sanitation needs through affordable micro-finance loans. However, the business case would have to be developed through case studies and trials to establish affordability for customers and profit for entrepreneurs and suppliers. At the same time, supply chain assessment can be done by directly involving the various actor and stakeholders of the WASH sector.

Information, training and business opportunities should be offered to the private sector to strengthen its involvement in and contribution to the WASH sector. Initial priority should be increasing capacity in drilling, hydrogeology, design and construction of piped water schemes, contract management and construction supervision, environmental and social impact assessments and quality standards for construction.

Corporate Social Responsibility (CSR) activities have the potential for companies (often those that use water) to contribute to monitoring, safe water use and environmental protection in their locality. Many companies are signed up to the UN Water Stewardship programme which supports private sector involvement in WASH.[53]

9.9 STRENGTHEN COMMUNITY INVOLVEMENT/ PARTICIPATION AND EMPOWERMENT

Community participation is essential in project planning, in operation oversight roles for both urban and rural water supply, sanitation and hygiene awareness, as well as promotion of services and willingness to pay. Communities, particularly low-income communities, should ideally have a sense of "symbolic ownership" (but not physical ownership of assets) and must have a role to play from inception to completion of projects and later in operation and management.

In the urban and MVWS setting, community involvement with service delivery may be an oversight role (Water User Groups, etc.) or as delegated operators of ring-fenced supply areas (single kiosk, street, low income area, etc.).

In the single village low tech system, it is anticipated that the WASHCO management system will prevail. It has been stated[54] that community participation in project planning and construction will facilitate the "user community engagement in the post-implementation management of the WASH systems" and then (limited) external support will be required until "the community has developed a capacity to do these activities itself" and that "it is obvious that a rural community cannot take care of the overall management without the support of the local governments, private actors and NGOs. These external supporters should establish an enabling environment for post-implementation management activities."

9.10 SHARING OF GOOD/BEST PRACTICE

As technologies and associated business models are developed, trialled and included in master planning and become established in service delivery systems, lessons need to be learned from both successes and failures and these need to be shared within and between regions to stimulate improvements in practice and also to avoid any duplication of effort or the repetition of less successful ways of working.

52 Region Specific Supply Chains for Hand pumps and Spare Parts in Ethiopia, MoWIE, May 2010.

A recommended stepwise methodology on sharing of good practice is presented in the IUSHSAP as an outline for further development by the national WASH Steering Committee and regional fora including Regional WASH Coordination Offices and Regional WASH sector bureaus.

For examples of good practice (GP) to be shared, it is essential that the chosen examples are appropriately analysed and understood. For others to be able to replicate these examples, they will need to appreciate fully what was achieved, how it was achieved, what the critical factors were that led to success, what were the drivers for success, etc. It should be noted however that the approach is proposed as an efficient method for sharing "one to many" i.e. of sharing and disseminating a single example to a wide group of interested parties. Where "one to one" sharing is required alternative approaches may be more efficient and more effective.

The task of achieving total WASH services in general and sanitation in particular requires active research and injection of innovative ideas to cope with emerging issues. This requires close collaboration between municipalities, utilities, as well as Regional WASH Coordination Offices and Regional WASH sector bureaus, with universities and research institutes in the country. These proposed meetings on sharing of good practice offer fora for this collaboration to flourish.

9.11 POST-CONSTRUCTION SUPPORT UNIT ESTABLISHMENT AND STRENGTHENING

Many rural community-managed water supply programmes in the countries have been characterized by poor performance. In response, OWNP has proposed professionalization of the rural water infrastructures through rural water utilities, and post-construction support (PCS) for Rural WASHCO and Category 4 and 5 small populated towns.

it is unrealistic to expect that particularly rural communities can be left to their own devices after a water project is completed, and that for small towns and rural water supply systems to be successful, communities need some post-construction technical assistance.

Without access to a reliable supply of spare parts and to sufficient technical expertise to repair problems, it stands to reason that all hand pump and other motorized system, borehole pump will fail over time. The unresolved question is what form the PCS should take, what types of PCS are most effective, and what staff composition is needed. Two broad strategies for providing PCS have emerged.

The first, "demand-driven" approach is to ensure that spare parts and technical services are available, but then leave it largely up to communities themselves to seek out such services and to pay for them when needed. The second is a more "supply-driven" approach to provide unsolicited repairs, technical assistance, training, and trouble-shooting to communities based on M&E by the woreda O&M team with both government actors and private institution involved in support activities.

This approach would involve establishing 20 post-construction units, each consisting of an engineer, hydrogeologist, a hygiene expert, and a community mobilizer seconded to the region bureau staffs. These members would not do the hand pump repairs themselves, however, instead they would help the woreda or zone obtain the support and training they need to run and repair the system and help resolve any management and water use conflicts that arise. The unit would also help update business plan for MVS and small town water utilities, and plan new capital projects. In addition, zone or woredas need to be strengthened with maintenance tools, spare parts etc.

Water supply and sanitation O&M teams, including sanitation marketing, need to be established using TVET technicians and fresh graduate engineers, living in the woreda and/or village. These are private individuals trained during the project implementation process to do routine maintenance or repair work on boreholes and other water and sanitation schemes at the request of WASHCO and rural water utilities (RWU).

The teams are frequently called upon to obtain the spare parts needed by the WASCHCO/RWU and then to install these parts. The WASHCOs/RWUs pay for these services from revenue collected from village households or money obtained in some other way. The post-construction unit established at the region/zone/woreda level may help the WASHCO and weak utilities link up with private institution and local O&M teams when major repairs are needed.

53 https://ceowatermandate.org/

54 Comparison of community managed projects and conventional approaches in rural water supply (2016)

10 FUNDING AND FINANCIAL MANAGEMENT

10.1 INTRODUCTION

The Programme will follow the GoE's financial management rules and policies. MoFEC will be responsible for the overall financial management of the Programme and will carry out financial management in accordance with sound financial management procedures including internal control mechanisms in line with the GoE's financial management policies and guidelines.

10.2 SOURCES OF FUNDING

Programme funding comes from the following sources:

10.2.1 Government of Ethiopia

The Government of Ethiopia's contributions come from the federal, regional, town and woreda level. Government financial support for WASH is, for the most part, by way of the block grant that is channelled from the federal to the regional governments for both recurrent and investment costs.

While the block grant amount will be allocated to WASH at the regional level as a regional contribution, federal government contributions come as special purpose grants like the MDG fund, Food Security Programme, etc. that will come to regions and then become part of the fund allocated to WASH at the regional level.

Institutional (schools, health facilities, government offices, prisons, etc.) WASH should be increasing financed from ring-fenced sector budgets and less from CWA and CSO sources.

The city administrations have also put a substantial amount of contributions as direct grant to utilities or as co-finance to donor financing.

10.2.2 External Financing Agencies

Donor contributions made specifically for the Programme constitute the core budget (including the consolidated WASH Account). Donors that will contribute to the Programme but not through CWA will be considered in the consolidated annual plan resource mapping.

10.2.3 Non-Government Organizations (Civil Society Organizations)

NGOs are investors in, and implementers of, the WASH programme. Their funds, however, do not flow through government channels and are therefore "off-budget." However, NGO-planned expenditures on WASH are also included in consolidated annual plan resource mapping.

10.2.4 Private Sector

There is a need to promote cooperative bank/MFI financing for solid and liquid waste projects through a group loan guaranteed by the municipality of towns. A dedicated scheme for solid and liquid waste management shall be introduced and lessons learned from existing schemes to support replication in regions and scale up.

Sanitation marketing shall be promoted through campaigns and through improved access to finance (such as MFIs) for youth groups to set up enterprises. SMMEs may be supported through low interest loans.

10.2.5 Communities

All communities undertaking WASH projects make a cash/in-kind contribution to construction/installation costs. These contributions are also "off-budget" but are recorded and reported and included in the resource mapping that initiates annual WASH budgeting in the woredas. Community contributions to the Programme include contributions from rural communities and urban residents.

Community contributions, although set in some regions at 30 per cent or more, is assumed to be 10 per cent for both urban and rural communities. Rural communities will contribute 5 per cent in cash and 5 per cent in kind (labour, materials, etc.). The fact that rural water services are aiming at MVS and rural pipe system may need to set up a tariff system than can only depend upon 10 per cent contribution.

For larger utilities, a higher proportion of co-financing will be attempted, while for smaller towns the maximum contribution may be limited to 10 per cent considering their current financial situation. However, the programme encourages utilities in urban and rural areas to attain higher cost recovery ratios during Phase II.

10.2.6 Water Utility Earnings

Urban residents' contribution is through water service charges. Consequently, the water utilities contribute to the OWNP from their own earnings in the WASH fund. It will be accounted at the town level for grant programmes, while for loan financed projects it will be included in to CWA at the federal level through transfers as co-financing.

Primary drivers to funding may be:

1. Adoption of this OWNP document 2018
2. Reliable data bases and reporting
3. Groundwater and surface water resource mapping
4. Regulatory enactment and enforcement (urban planning, pollution control, abstraction licensing, etc.),
5. Plans based on sustainable master plans,
6. Large package contracts for study and design, supply and implementation involving international bidding and facilitated letters of credit, etc.
7. Water and sanitation sector reform – utility regulation (urban and MVWS), clustering of operational economy of scale utility, performance contract and KPIs, delegation, PPP, etc.
8. country economic state, GDP (internal funding) geopolitics (external funding)

Also:

- Strengthening performance-based programme funding; creating awareness and encouraging Government at all levels to allocate additional funds to WASH activities
- Fund allocation to priority activities and financial disbursements for implementation of activities in accordance with approved financial plans and disbursement schedules improving incentives for the private sector to provide WASH services
- Appealing to committed donors to provide additional funding
- Appealing to interested but uncommitted donors to contribute to the Programme
- Introducing cost-effective designs; water supply, drilling and borehole construction methods; low-cost technologies, cost saving measures by using renewable energy sources, etc.
- Increased emphasis on self-supply, and in urban areas on reducing demand through water efficiency audits, water conservation, reuse and other demand-management measures.
- Minimizing non-revenue water and improving revenue collection

10.2.7 Sanitation Levy Fund

Operational costs of sanitation will likely exceed direct revenue for some time and it is expected that subsidies will be required for "downstream" services. This may be achieved through a sanitation levy fund (SLF) or more localized forms of cross-subsidy. The SLF concept is to add a small percentage to all water bills (for instance 2 per cent existing in Lusaka and 5 per cent proposed in Kampala) with this revenue being exclusively used to support the FSM/LWM sanitation chain from on-site latrine to final disposal.

10.2.8 Micro-finance

There is a need to promote cooperative bank/MFI financing for solid and liquid waste projects through a group loan guaranteed by the municipality of towns. One example is the Oromia Credit and Saving Share Company (OCSSCO) who provides

loans to cooperatives formed by youth and women groups.

A dedicated scheme for solid and liquid waste management should be introduced and lessons learnt from existing schemes to support replication in regions and scale up. See also Annex 9.1 under the IUSHSAP for details of available micro-finance schemes.

Banks and Micro Finance Institutions (MFIs)

Considering the significant resources needed for the OWNP Phase II, there is a need to mobilize domestic resources through commercial banks and Micro Finance Institutions (MFI). Many WASH investments are bankable and eligible for commercial loans.

There are over 35 MFIs and 18 commercial banks in Ethiopia. These MFIs and banks including WASH loans in their loan portfolio will help government and WASH charities free up their limited funds and focus their efforts on more targeted ways to help the poorest.

This private sector can do more than simple construction and waste management. The resources in the private sector is greater than the funds mobilized by public, bilateral donors and NGOs.

The recommendations to further develop the potential use of micro-finance for the WASH sector include:

- Make national banks and development banks include WASH lending as one of the priority lending schemes, as was done for agriculture, Income generating and energy credit schemes;
- Include banks and MFIs to this document as part of the major sources of funding in clear terminologies by showing the role of MFIs and banks as was done for other sources for financing.
- Convince the commercial banks and development banks to allocate dedicated capital for MFIs to take loans from these banks and lend for household water and sanitation self-financing, as these MFIs are within the communities.
- Put forward mechanisms to recognize household WASH facilities implemented through self-financing (accessing MFI) and incorporate in sector reports.

10.2.9 Subsidies and cross subsidies

Currently, the water sector does not raise enough funding through tariffs to meet operation and maintenance costs. Once the water sector has been strengthened there would then be scope to cross-subsidize costs for the sanitation sector.

Tariffs for water supply should be reviewed by using the Ministry of Water guidelines. Tariff increases should be proposed to match inflation to ensure affordability, following master planning and associated financial analysis. Tariffs need to be consistent and with more clarity on charging for domestic, commercial, industrial, government and water points.

Collection of revenue should be facilitated by improved billing and collection systems in utilities. There is also the potential to combine water and garbage collection bills through a tiered tariff, as demonstrated in Dire Dawa city (see also in IUSHSAP Annex 10.2) and this could be extended to cover FSM services.

Direct subsidies to the downstream end of the sanitation chain rather than the upstream end should be applied in order to make services delivery cost effective; such considerations will be included in master planning/ business planning.

10.2.10 Private advertisers

The private sector could also be a financing source, e.g. for business advertisement on water kiosks, street dust bins, etc.[55]

10.3 PRINCIPLES

The guiding principles for Programme financing are:

1. The cost recovery strategies promulgated in the water resource management policy.
2. Different financing sources for urban water, urban WASH, rural WASH and CR-WASH.
3. Institutional WASH ring-fenced and channelled through sector budgets; consideration of existing financing practices.
4. Consideration of the available financial resources; consideration of the CSO (NGO) contribution in WASH, especially in rural areas.

5. Considerations of all bilateral, regional and international organizations contribution for WASH;
6. Urban residents through utility funding should contribute at least the same share of costs as rural communities.
7. Federal and regional government contributions are assumed to increase during the Phase II planning period.
8. City administration contributions are computed by assessing current matching fund allocations for water supply and wastewater projects.
9. It is also assumed that these contributions will increase donor contributions, as estimated by assessing individual donor commitments.
10. WASH contributions from NGOs are assumed to continue at the present level.
11. Investment funding from water utilities are assumed as user contributions.
12. The Water Resource Development Fund will be accessed by towns and cities in Phase II better than what was contributed in Phase I.

10.4 FUNDING CONTRIBUTIONS

Based on the current information available at the time of writing this document, the estimated funding sources for the ONWP phase II are as shown in Figure 10.1 below (million USD):

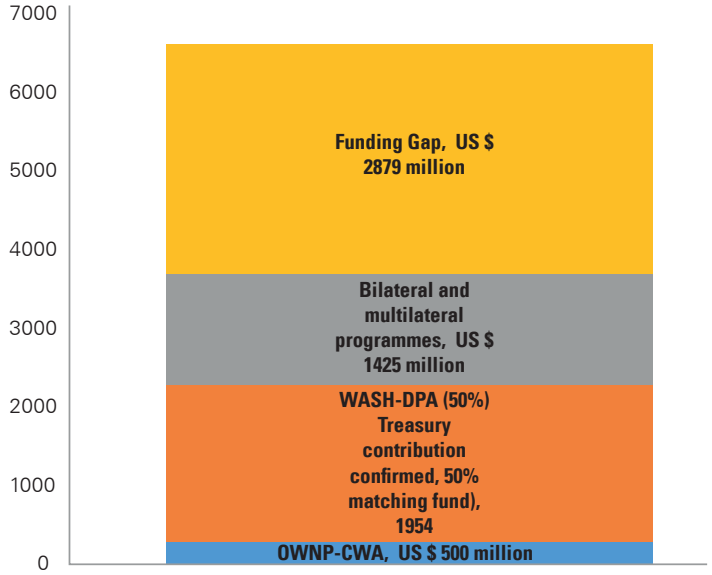


Figure 10.1: The estimated funding sources for the ONWP phase II

The funding gap identified is US$2.879 million, excluding the matching fund of the WASH-DPA, which is not yet secured. For that reason it is a priority to further explore current and alternative funding sources in order to reduce the funding gaps.

55 Currently there are significant number of street dust bins in Addis Ababa and other cities sponsored by business organizations with their business advertisement on them.

10.5 FINANCIAL MANAGEMENT – ROLES AND RESPONSIBILITY

Federal Level

MoFEC is responsible for the financial management of GoE and CWA funds. During Phase I, activities such as opening foreign currency accounts for Development Partners and the request and receiving funds process, opening of a birr account and transferring development partners' fund into CWA, and transferring funds on the basis of approved plans, budgets and reports became well established.

What should be followed and strengthened hereafter are:

- Ensure that adequate internal controls are in place and adhered to.
- Report on use of WASH funds to the Government, Development Partners and other stakeholders.
- Ensure timely replenishment of the Consolidated WASH Account and fund disbursement to implementing agencies (WPMUs and BoFEDs) and NWCO through MoWIE.
- Sectoral ministries are responsible for reporting to MoFEC on all Programme financial matters.

Regional Level

BoFED is responsible for management of GoE and CWA funds at the regional level, including opening special accounts, maintaining the budget of the regional sector bureaus and disbursement, transferring funds on the basis of approved plans and budgets to special accounts. What should be followed and strengthened hereafter are:

- Monitors performance and receives reports from WoFED;
- Provides technical support to ensure that proper accounting systems established are being maintained in each implementing agency;
- Provides internal auditing;
- Issues detailed guidelines to all implementing agencies in the management and administration of OWNP funds;
- Maintains regular communication with the implementing agencies;
- Ensures timely replenishment of the regional WASH account and fund disbursement to the implementing agencies (RWCO, RWPMUs, WoFED and towns).
- Prepares and submits financial reports to MoFEC and regional government.

Woreda Level

WoFED is responsible for managing GoE and CWA funds at the woreda level, including opening special accounts to receive WASH funds from BoFED. What should be followed and strengthened hereafter are:

- Ensuring that proper accounting systems and competent accounting staff are established and maintained;
- As a member of WWT assists the WWT in the planning and budgeting process;
- Facilitating timely fund replenishment;
- Providing the WWT with regular financial reports;
- Collecting and aggregating required financial data and information and submiting reports to the Woreda Administrative Council (Cabinet) and BoFED each quarter;
- Disbursing payments to WASHCOs based on authorization of the WWT.

Town Level

(a) Loan Component

Water utilities are directly responsible for administering the loan component transferred for water supply expansion. The system of opening accounts and transferring contribution to WRDF is established in some towns but needs to be accessible to all towns and cities where all who are able to access loans should follow the following procedures.

- Open a special account to receive loan from WRDF;
- Transfer their own contribution amount to WRDF as per agreed schedule;
- Ensure that proper accounting systems and competent accounting staff are established and maintained;

- Provide the WRDF with regular financial reports;
- Collect and aggregate the required financial data and information and submit reports to the WRDF each quarter.

(b) Grant Component

The grant component is transferred from BoFED to the ToFEC office. The ToFEC office disaggregates the WASH fund for the water supply and the sanitation component based on the approved budget. The grant for water supply improvement is transferred to the water utility. Other WASH components are managed by Town Finance and Economic Development Office.

If small town utilities lack the capacity to implement the WASH fund, they can delegate the regional/zonal water office in writing. They will request BoFED to transfer the grant amount to the regional/zonal water sector institution to implement their activities. The regional/zonal institutions should execute the plan according to their agreement and or facilitate the private sector to take part in the implementation of the approved town plan.

10.6 MITIGATION MEASURES FOR BUDGET AVAILABILITY AND UTILIZATION RISKS

The following measures can reduce the risk of interruptions and shortfalls in budget allocation:

- Introduce a mechanism in the Joint Financing Agreement with a specific section stating that all parties should ensure the timely availability of committed funds.
- Design project financing so that the sequence of works to be financed by the GOE comes first to force GoE WASH structures to use the committed budget.
- Use all available forums to create awareness on the importance of GoE's budget allocation.
- Introduce biannual forums to review availability of funds and ensure that corrective actions are taken.
- Design mechanisms that ensure SPG (special purpose grants) dedicated to WASH are actually spent on WASH activities.
- Matching funds from water utilities, cities and regions should be on-budget and captured in budget proclamations.
- National WASH Steering Committee should take steps to ensure that national authorities allocate the committed budget.
- In cases where part of the committed GOE budget cannot be made available for justifiable reasons, bring donor funding forward with the agreement that, in the next fiscal year, the GoE will increase its budget allocation.
- Move away from non-sustainable systems that demand perpetual budget allocation to water systems and pumping technologies that can serve communities for many years. (Shallow wells and hand pump technology have been tested for many years and its failure rate demands new wells and pumps every year.)

10.7 FUND FLOW AND CHANNELLING OF FUNDS

a) Fund Flow under the ONWP-CWA

The preferred and primary fund flow will be Channel 1b through CWA.

Channelling of Development Partners' funds will be as follows:

- Development Partners will confirm their precise contributions within the bilateral agreements between MoFEC and the individual donors.
- Development Partners will inform MoFEC of their annual contribution not later than November for the next fiscal year based on the annual work plan agreed in October.
- Donor contributions will be channelled to special foreign currency accounts at the National Bank of Ethiopia (NBE) for each financing partners.
- Development Partners' contributions are transferred from a Foreign Special Account into the Consolidated WASH Account (CWA) administered by MoFEC and
- Flow only through Channel 1b to the governmental WASH implementing agencies at federal level, through BOFED to regional implementing agencies and to WoFED.

Channelling of funds will be aligned to the Government's financial management system. Government contributions from the federal level are channelled to BOFED either as SPG or block grants. In both cases the regions decide the amount of money to be used for WASH. The budgeted amount at the regional level will either be transferred from BoFED to regional implementing agencies or to WoFED.

At the woreda level, the WoFED manages the WASH fund. The WoFED will open a special account for WASH funds. In woredas where CMP projects are implemented, the WoFED will also open another account dedicated for CMP or can outsource the channelling of the fund to a service provider (Cooperative Bank, MFI). In either case, the responsibility for managing Programme funds will be the WoFED. See Figure 10-0-1 below for flow of funds.

b) Channelling of WASH Funds outside of CWA

b1) Channelling of WASH funds through BoFED

Some donor investments that are not channelled through CWA are made at the regional level through BoFED. Fund channelling at the regional level will be captured by BoFED as WASH funds and shall also be included in the quarterly financial reporting in a separate report from CWA.

b2) Channelling of WASH funds through implementing agencies

Some donors channel WASH funds through the implementing agencies like sector ministries and bureaus.

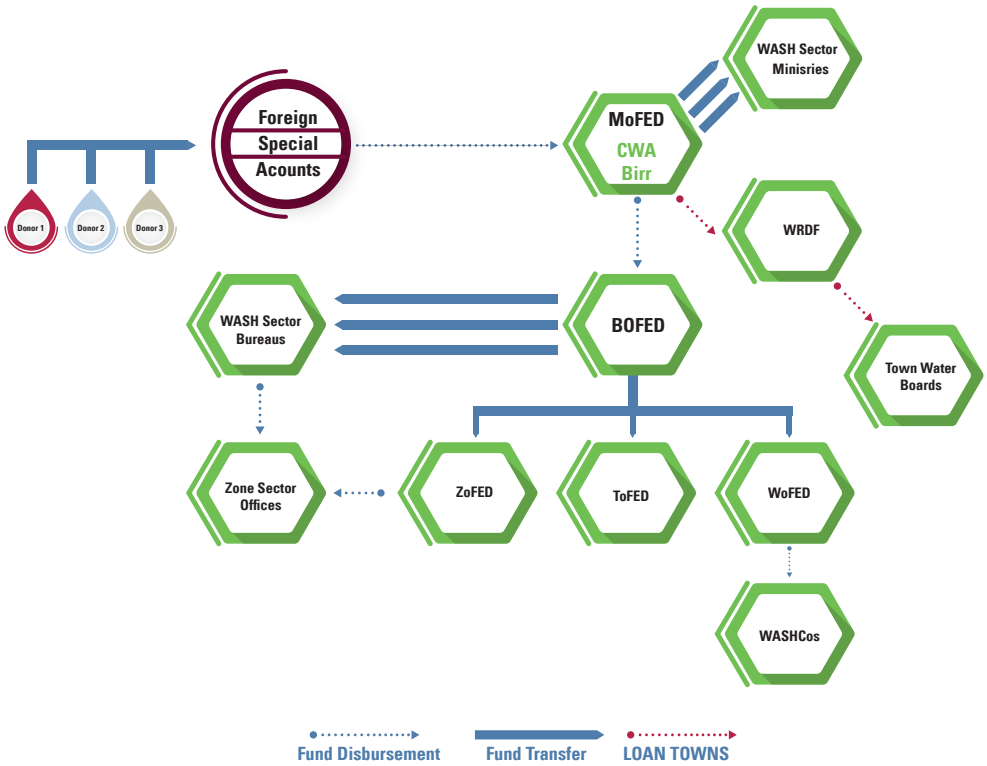


Figure 10.2: Programme Fund Flows in the OWNP-CWA/Government/bilateral and other sources

However, they should be reflected in the WASH resource mapping, plans and reports and included in the Composite WASH Budget. The NWCO shall design a budget tracking system and collect annual disbursements of the WASH funds and report to MoFEC.

b3) NGO WASH funding

NGO funds do not flow through government channels and are not part of Programme funding. These funds may be used at the community level with some contribution from woreda, regional and national levels. NGO investments are captured in regional and woreda resource mapping and included in the consolidated WASH budget. The WASH allocation and their outputs/results are included in WASH reports. Information on NGO plans, budgets and expenditure on WASH activities should be reported to the NWCO through regional WASH coordinators and by the Water and Sanitation Forum.

c) Channelling of CWA Funds

c1) Fund Channelling through MoFEC-BoFED- WoFED-ToFED

Step 1: From Development Partners to the Consolidated WASH Account

Step 2: From the Consolidated WASH Account to Federal and Regional Implementing Agencies (IAs)

On instructions from MoFEC, the National Bank of Ethiopia transfers funds:

- Federally – into accounts opened for the three sectoral ministries (WPMUs) and MoFEC for federal-level expenditures and for the NWCO into accounts opened at the MoWIE and to WRDF for the loan component.
- Regionally – to BoFEDs for onward transfer into accounts opened for:
  - the RWCO into accounts opened at regional water bureaus (for joint Programme support)
  - the three sectoral Bureaus and BoFED (for WPMU-specific expenditures)

a. Fund Transfer from WRDF to Town as Loans

WRDF receives transfers from MoFEC for the loan component: Transfers payments to special accounts of town water boards and matching funds from utilities, city administration and regions will be transferred to special account in the WRDF.

Transfers from BoFED to Regional IA and Zones/Woreda Finance Offices

Regional /Zonal Sector Offices - BoFED disburses funds to: a) Regional Sector Bureaus for WASH expenditure and b) Zonal Finance Offices for WASH expenditure.

Regional Water Bureau can delegate WASH activities to be effected by a stronger Zonal Sector Offices. The budget will be disbursed from regional water bureaus.

- Town/Woredas - BoFEDs also open accounts for, and disburses funds to WoFEDs for WWT expenditures Participating towns (for town water supply and sewerage projects and other WASH activities)
- CMP funds through WoFED The BoFED will transfer WASH funds directly to the WoFED's account. In this case, the WoFED will open a special account dedicated for community WASH investment managed by the woreda finance office. The WoFED disburses WASH funds to communities after approval by WWT from the special account.

C2) CMP Fund Transfers through Service Providers

WoFEDs, in agreement with the WASHCO, can decide to channel funds through a service provider. If a service provider is used, the WoFED, in agreement with the community, will enter into an agreement with the service provider, subject to the prior approval of the BoFED to ensure compliance with GoE's public financial management rules.

Disbursements to the service provider will be subject to prior approval from the WWT and the WoFED. The service provider will submit monthly disbursement and utilization reports to the WoFED. Original copies of relevant financial records will be maintained by the WoFED, which will report quarterly to the BoFED on the utilization of WASH funds, including funds for CMP projects, with a copy to the WASHCO. Detailed arrangements will be agreed during detailed planning with the community based on CMP financial guidelines.

10.8 FUND ALLOCATION

WASH funds are allocated to implementing agencies as follows:

Federal level

The Annual (National) WASH Plan and Budget specifies the amount of WASH funds to be budgeted at the national level for:

- Expenditure by the NWCO and by each of the four national WPMUs
- Expenditure on trans-sector national WASH activities
- Loan component to be transferred to Water Resources Development Fund

It also specifies the total amount to be allocated to the regions. Allocation among regions is prescribed by the government's block grant formula and annual WASH plans. Expenditures on trans-sectoral national WASH activities are those expenditures which are allocated for WASH integration and coordination and those that are expended for activities like JTR, MSF and other multi-sectoral and monitoring activities.

Regional level

Annual Regional WASH Plans and Budgets specify the amount of WASH funds to be budgeted at the regional level for:

- Expenditure by RWCOs and by each of the four regional WPMUs
- Expenditure on trans-sector regional WASH activities

Regional level trans-sectoral expenditures facilitate WASH activities like coordination, monitoring and joint intervention activities.

It also specifies the total amount to be allocated to the woredas and towns/cities. Recommendations for allocation among woredas and town/cities are made by the Regional WASH Steering Committee:

- On the basis of need/priority established in approved town/woreda Annual WASH Plans
- Within the framework of the Regional Strategic WASH Plan

In allocating the regional WASH funds to the woredas, the RWSC shall try to follow the policy of 30 per cent for hygiene and sanitation and 70 per cent for water, but the actual annual budget at the woreda level will be defined based on needs identified during the annual planning process.

Woreda

The WWT's Annual WASH Plan and Budget specify the amount of funds to be budgeted at the woreda level for:

- Expenditure on inter-sectoral WASH activities
  - The total amount to be allocated for WASH services investment disaggregated for water, sanitation and hygiene
  - The community water supply investment divided into CMP and WMP components

Towns

The City Council's Annual WASH Plan and Budget specifies the amount of funds to be budgeted for:

- Inter-sectoral WASH activities
- The total amount to be allocated for water supply investment

10.9 BUDGETING

Budget Preparation

Budgeting takes place based on forms and procedures designed by MoFEC. Sector offices, from federal ministries to woreda offices, will be responsible for requesting the WASH budget. It is based on a comprehensive resource mapping of all resources available to WASH at the given level, i.e. federal, regional, zonal or woreda/town. The basis for annual WASH budgets is approved annual plans, prepared at each level according to a common planning format provided by the NWCO.

WASH budget preparation will follow the Government budget preparation schedule. The budget approval process for the WASH budget will also follow existing Government regulations. While the Development Partners' component is budgeted at the federal level, the Government contribution will be budgeted at respective institutional levels of the Government.

Budgeting at Federal Level

The budgeting process begins with the announcement of MoFEC of the ceiling for the WASH budget. Based on the ceiling and the approved annual WASH plan, the federal ministries of water and energy, education and health will identify the budget requirement for federal management and federal-implemented WASH activities based on the agreed "Consolidated Annual WASH Plan." The four sector ministries submit their annual WASH budget to MoFEC. The NWSC through NWCO will coordinate the budget preparation process of the four sector ministries. The NWCO budget will be allocated through the MoWIE.

Regional Level

The NWSC through the NWCO will inform regions the WASH targets for the fiscal year. MoFEC will provide the regions with indicative CWA budget ceilings. RWCO will prepare the regional annual WASH plan based on the regional targets, woreda and town WASH plans and regional sector bureaus plans. This will be the basis for the budgeting process. They will consolidate the regional plan based on aggregated woreda and town plans including regional WASH activities. The regional sector bureaus then will prepare their annual budget request and submit it to the BoFED, which will review the budget request based on available resources from CWA and block grants and propose annual budget for the sector bureaus. It will then be approved by regional council. The RWCO budget will be allocated through the Regional Water Resource Bureau.

Woreda Level

The WWT will prepare annual the WASH plan which will eventually be approved by the woreda council. The basis for the annual WASH plans is the woreda WASH targets from the region. The woreda sector offices will prepare their WASH annual budget based on the budget ceilings provided by the WoFED. The sector office budgets will be submitted to the WoFED. The WWT will coordinate the budget preparation process. The woreda WASH budget will be approved by woreda council.

Town Level

In towns, there are two major WASH structures; water utilities and the WASH technical team. Their activities are coordinated by the city council. The budgeting process follows the same pattern. The town water board (responsible for the water utility) will prepare the annual capital budget for water supply improvement and it will be submitted to the town finance and economic development office. The health and education office will also submit their annual budget to the town finance and economic development office, which will prepare the aggregate WASH budget and submit it to the city council for approval.

10.10 CONSOLIDATED WASH ACCOUNT AT THE FEDERAL LEVEL

The disbursement procedure for the Consolidated WASH Account will be as follows:

As stated in the POM, donors' disbursement will be made based on i) the submission of IFRs on a quarterly basis; and ii) the condition for disbursement is the amount utilized in the next two quarter plans as per the approved annual plan, and available funds from last transfer.

The Development Partners' initial deposits into the Programme's Foreign Currency Special Accounts with National Bank of Ethiopia constituted their advances to the Programme.

Contributions will be converted into birr and transferred to the Consolidated WASH Account managed by MoFEC.

MoFEC disburses funds, as advances for the first six months of the Programme, into WASH accounts established for implementing agencies at the federal and regional levels.

A second payment will be made in December, following submission by MoFEC in October of an Interim Financial Report setting out details of eligible expenditures in the first quarter, the balances in the relevant accounts (including unspent funds carried forward from the previous year), and the work-plan and cash-flow forecast for the second and third quarters. The condition for disbursement is utilization of at least 50 per cent of the first transfer.

MoFEC continues, on the same basis, to make biannual replenishment requests to the Development Partners six weeks in advance of scheduled expenditures.

Upon receipt of replenishment from the Development Partners, MoFEC immediately transfers funds to the implementing agencies.

MoFEC's requests are supported by Interim Financial Reports for the previous quarter.

Fund requests should always include financial reporting. The process of reporting is illustrated in the figure below.

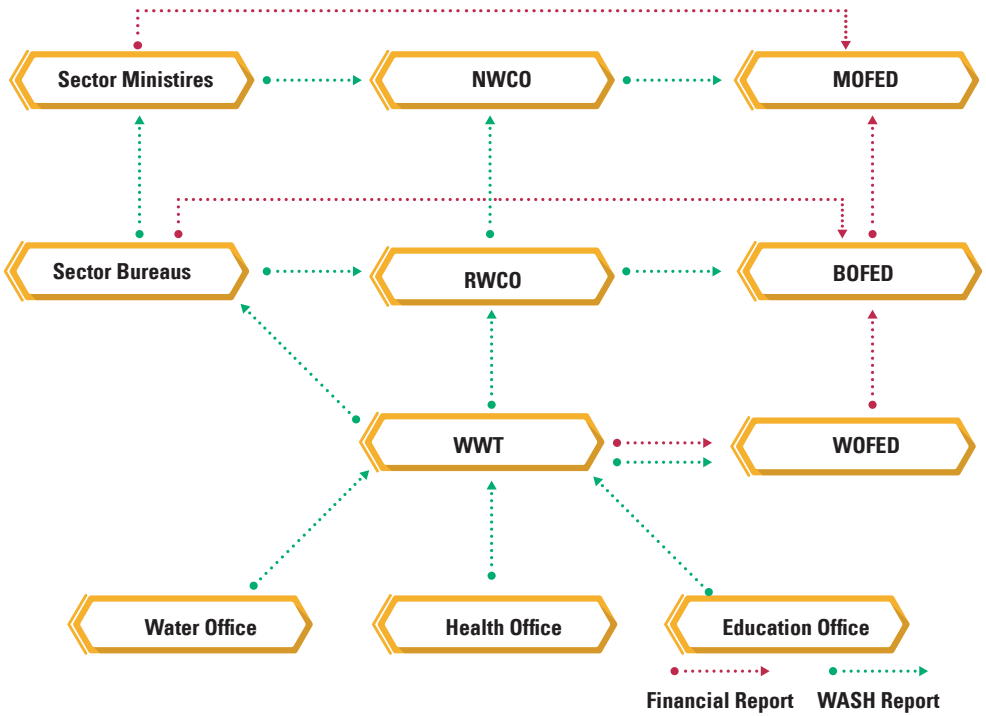


Figure 10.3: Financial reporting

Implementing Agencies' Accounts

MoFEC's and the BoFEDs' disbursement of funds to the governmental implementing agencies follows the same pattern. Initially, each implementing agency receives a first quarter and second quarter advance based on its approved Annual Work Plan and Budget. At the end of the first quarter, the agency prepare a report on expenditures together with, and a request for, replenishment to cover the amount budgeted for the third quarter less the amount of unexpended funds from the first quarter. This "roll over" system means that implementing agencies always have in hand their budget for the upcoming quarter.

Requests/reports are vetted and approved at a higher level in each instance and consolidated into the Quarterly Report and Request for Replenishment presented by MoFEC to the Development Partners.

Disbursements of Loans to Towns

Disbursement of loans to water utilities will not follow the quarterly period. The cash transfers from WRDF to utilities will be dependent on a procurement plan. However, utilities are required to submit quarterly financial reports for WRDF to review cash flow situation and plan for next disbursement. Detailed disbursement schedules will be agreed between the WRDF and the utility.

Payments to WASHCOs

Payment to WASHCOs will follow a similar process regardless of the fund channelling (WoFED/Service Provider like cooperative bank or MFI). After signing the funding agreement, the WWT chairperson writes a letter to the WoFED in order to notify the signatories of the WASHCO and to release the first instalment to WASHCO. The WASH accountant opens sub ledgers for all participating WASHCOs in the cash account.

The first instalment shall be made available to WASHCOs within three weeks from the date of signing the funding agreement. All payments to WASHCOs will be approved by the WWT.

The second instalment of payments will be made when 80 per cent of the first instalment has been spent and evidence for the transaction is submitted to the CMP supervisor.

The receipts and transaction evidences shall be submitted by WASHCOs to the CMP supervisor and he will work with the WASHCOs to clean up all receipts and documents. Then the CMP supervisor will submit the documents to the WASH accountant.

If the WASH accountant does not approve the documents, then he will give it back to the CMP supervisor for his follow up and correction.

10.11 BANK ACCOUNTS AT THE ONWP-CWA

Bank Accounts

Programme bank accounts, the process flow and the purpose of the accounts, are described below:

- MoFEC opens foreign currency special accounts at the National Bank of Ethiopia (NBE) for each financing partner. In addition, it opens birr accounts into which funds from the donors' special accounts will be converted and deposited. The birr accounts serve as a consolidated fund for all donors. MoFEC will be responsible for the day-to-day management of the special accounts and the pooled birr account.
- A bank account will be operated by two official signatories in the name of OWNP at each implementing ministry and WRDF.
- MoFEC, at the federal level, will transfer funds to the federal implementing ministries including WRDF and the BoFED bank accounts.
- The regional BoFED will open bank accounts for each of the bureaus and sectoral offices to be operated by joint signatures of BoFED officials.
- BoFED will also open an account and disburse the funds to the towns, and the woreda finance office bank account, based on approved WASH plan.
- Each woreda will open a bank account, which will be operated by joint signatures of WoFED officials.
- Woredas choosing to implement CMP modality will open a community water investment account to be operated by joint signatories of woreda officials.
- Each town will open a bank account, operated by joint signatories of the town.
- Each town water utility will open a special bank account, which will be operated by joint signatories of the utility.

Accounts to be opened at regional and woreda levels are solely dedicated for WASH funding and operations.

10.12 . FINANCIAL REPORTING

The objectives of financial reporting by the public finance management entities (from the federal to the woreda level) are to provide information about the programme that is useful to participants for accountability purposes and for decision-making purposes.

Financial reports will be prepared and submitted quarterly. Financial reports will be prepared by WoFED, BoFED and MoFEC respectively. WoFED reports to BoFED and BoFED reports to MoFEC. MoFEC compiles and reports to Development Partners.

The financial reporting at each level shall facilitate the utilization of the budget to the sources of the funds. For this purpose, financial plans will be prepared at each level indicating the source of finances. The financing plan then will be the basis for financial reporting and budget control.

The financial reports will be in line with the financial management system of the GoE and will be complemented by source and use of funds.

The quarterly financial reporting will include the following: trial balance, revenue report, expense report, receivable report, payable report, monthly bank reconciliation statements.

Additional statements to satisfy the ONEWASH Programme are financial reporting requirements:

Statement of Special Accounts

This is a statement showing summary of the movements of each of the financers' special US$ bank accounts.

10.13 . FIXED ASSETS

All assets purchased for the Programme shall be expensed upon purchase. This is important because, the programme is run using pooled funds that will need a report of all expenditures and when they are incurred.

Fixed assets register would be maintained as per the FGE manual with all the necessary details to know about the location and user of the assets.

An identification number should be given to each of fixed assets, as per the government policy, with indicators showing the assets belong to the ONEWASH Programme.

10.14 . PRESERVATION OF FINANCIAL DOCUMENTS

According to Financial Documents Preservation Guideline No 5/1999 of MoFEC, financial documents shall be preserved for 10 years from the date they were created or up to two years after the audit by the auditor general is completed, whichever comes last. For further details, please refer to the guideline.

Documents refer to all the ledger cards, registers and supporting documents. Programme documents shall be kept separately and shall be filed in a way that makes referring to the documents very easy. The filing system should enable auditors and anyone who is authorized to review Programme documents to easily and systematically trace the required documents and information.

10.15 . INTERNAL CONTROLS

To satisfy the effectiveness and efficiency of the Programme's financial management system to the Government and Development Partners, it is essential to develop or strengthen adequate internal control systems at each and every level. Internal control should be used to support the Programme in achieving its objectives by managing its risks, while complying with the rules, regulations, and policies of the Programme. The Programme should therefore make internal control part of programme management and integrate both in its overall governance system.

The Programme should determine the various roles and responsibilities of different units and personnel with respect to internal control.

The Programme should particularly introduce control mechanisms including requirement for approvals, authorizations, verifications, reconciliations and segregation of duties. Programme management should foster an organizational culture that motivates members of the programme to act in line with risk management strategy and policies on internal control set by the Government of Ethiopia to achieve the Programme's objectives.

The management and key personnel of the Programme should be sufficiently competent to fulfil the internal control responsibilities associated with their roles.

Controls should always be designed, implemented and applied in a response to specific risks like procurement and disbursement. Internal control principles of the Programme should be fully understood and correctly applied by all relevant parties.

Safeguards at WASHCO level

The community signs a funding agreement which specifies the obligations of the community.

- For the payment to be released from the bank/MFI, two signatories from WWT must authorize it based on recommendations of the CMP supervisor on the progress of the work.
- The artisan and the WASHCO shall prepare and sign jointly progress reports for payment release to be effected and their report shall be verified by woreda water office staff
- The WASHCO shall submit expenditure documents for 80 per cent of advance or previous payment for another request to be effected.

10.16 . AUDITING

According to the Ethiopian Constitution, the Office of Federal Auditor General (OFAG) is responsible for carrying out the audit of all the financial transactions of the federal government and subsidies to the regions. The whole programme finance will be audited by OFAG or competent auditing firm assigned by the OFAG.

Internal audits will be carried out in line with the internal audit guidelines of the GoE. The results of internal audits will be made available to external auditors. The implementing agencies are responsible for follow up of audit recommendations.

An external audit will be carried out at the end of the fiscal year. MOFEC and Development Partners will agree on the TOR and schedule of the audit. MoFEC will facilitate the audit and ensure that the report is provided to the Development Partners. The audit will be conducted by an independent certified auditor. The audit report will include an audit of all programme bank accounts and will specifically identify and audit the pooled fund eligible expenditures.

In addition to periodic joint spot checks on high risk areas, Development Partners may request a performance related audit to be carried out by an external auditor. The partners will provide adequate resources for such a purpose. The selection of the auditors and timing for such audit will be done in close collaboration between MoFEC and the Development Partners. The Development Partners and GoE will jointly agree on the TOR. Based on the outcome of such audit, the Development Partners may convey to GOE any corrective measures they consider necessary to be undertaken.

An independent evaluation of the performance of the Programme, which will include an assessment of the adequacy of accounting and internal control systems to monitor expenditures and other financial transactions and ensure safe custody of project-financed assets, will be carried out based on the advice of the MoFEC at periodic intervals. The evaluation reports will be submitted to the Government of Ethiopia and to the partners for review and comments.

Audit reports must include a summary of the main audit procedures used for planning the audit, evaluating the internal control structure, checking of the figures included in the financial statements and other reports subject to audit, and the evaluation of the compliance with terms of the applicable agreements, laws and regulations.

Annual external financial audits will be planned and coordinated by the Programme Steering Committee and managed by the NWCO. The auditor will present their report and management letter to the steering committee, who will be responsible for taking follow-up actions.

10.17 . TAXATION

The National WASH Steering Committee should identify WASH investment areas where tax and custom privileges to the programme can bring reduction of costs and can enhance effectiveness of the Programme. The priority WASH investment areas for tax and custom privileges should be submitted for the approval of the Government of Ethiopia as soon as possible in order to gain the advantages for the programme.

10.18 . PER DIEMS

Effective programme implementation can only be assured if implementing agencies can regularly conduct supervision of works, monitoring of community activities and periodic consultation at all level. In order to achieve these motivated and competent staff at all level should be maintained. One main reason for lack of motivation is the occurrence of different per diem rates within the same programme. Therefore, the National WASH Steering Committee should establish uniform per diem rates across the programme and get approval from appropriate authorities.

11 PROGRAMME MONITORING AND REVIEW

11.1 INTRODUCTION

Due to the size and scope of the Programme and its new elements, procedures and organizational arrangements, it is essential to establish during Phase II a monitoring programme to evaluate the planning, learning, implementation and evaluation process through:

1. Monthly and quarterly progress and financial reports from kebeles, woredas/towns,[56] regions/cities and zones using WASH MIS
2. Status/issues reports by the NWCO and WASH Coordinators to quarterly meetings of the ONEWASH Steering Committees at federal and regional levels
3. Semi-annual Joint Technical Reviews (JTR) and follow-up actions track the level of implementation of the undertakings agreed in the MSF
4. Annual Multi-Stakeholder Forums (MSF) and follow-up actions at national and regional level
5. Infrastructure Audits/Sustainability Checks and follow-up actions
6. Joint supervision visits to Programme sites
7. TA and hardware support to strengthen Programme monitoring and reporting systems at all levels
8. Service delivery surveys, assessments, research and evaluation for advocacy
9. Learning exchanges by preparing an annual calendar of events

Given the huge amount of monitoring, learning and knowledge sharing requirements, it is mandatory to strengthen the MIS system in the MOWIE from the present team-level organization to a directorate-level, like the MoH. Raising the profile of the M&E organization will also enhance data quality, system development at all levels (kebele to federal level) and strengthen delivery of planned activities.

11.2 KEY PERFORMANCE INDICATORS

The Programme's main instruments for monitoring, verification and impact assessment consist of a results framework and key performance indicators. The Programme's Results Framework contains outputs, outcomes, indicators and impacts for each Programme component and for the Programme as a whole. The Programme's results framework is presented in Annex 4.

Key performance indicators (KPIs) will have the following characteristics:

- Related to important policies, issues and objectives
- Clearly defined and easily measurable and consistently applied
- Few, manageable for regular reporting and provide required information for decision making
- Allow performance to be assessed regularly and tracked over time to inform key decisions

The key performance indicators (KPIs) to be used in the Programme are included in Tables A 4.1 (Annex 4).

11.3 REVIEWS AND REPORTING PROCESS

11.3.1 Review

Reviewing the Programme's progress at all operational levels periodically is part of the monitoring process. For this reason, there should be a quarterly, semi-annual and annual review programme for WASH at woreda, regional and federal level

56 Numerical Monthly reports from kebeles, woredas and towns may be done by mobile phone or if mobile system is established from the server.

respectively to help the Programme be aware of the development levels of the action plans, the challenges and to document important learning. The outcome of these reviews will be discussion points for the progress meetings and will be part of the sharing of information and exchange of data with stakeholders at all levels.

11.3.2 Progress Meetings and Reporting

Programme progress meetings will be held as follows:

- The KWT will hold quarterly and annual Programme progress meetings with WASH stakeholders.
- The WWT will conduct quarterly and annual Programme progress meetings with woreda WASH stakeholders including kebele representatives.
- The RWCO will conduct semi-annual and annual Programme progress meetings with regional WASH stakeholders including zonal and woreda representatives.

The NWCO will conduct annual Programme progress meetings with national WASH stakeholders, including regional representatives.

The diagram below shows the flow of reporting in the Programme as well as existing information flows between sector ministries, bureaus and offices. Arrows indicate direction. (Fig. 11.1)

The Programme will ensure that these indicators are understood and used by relevant parties and are contained in the consolidated WASH progress reports to be generated at all levels.

11.3.3 Reporting from kebele to federal level

Programme progress reports will include both physical and financial status. Monthly and quarterly Programme reports will show physical progress against planned activities and/or outputs, while the annual report will show achievements in meeting annual targets, i.e. output and outcomes

- The KWT submits monthly, 57 quarterly and annual WASH progress reports to the WWT
- Woreda (WWT) submits monthly,58 quarterly and annual WASH progress reports to the zone/region
- Zonal WASH teams submit quarterly and annual WASH progress report to the RWCO
- Implementation partners (CSO) submit monthly, quarterly and annual consolidated reports to RWCO
- Region (RWCO) submits monthly, quarterly and annual WASH progress reports to the NWCO
- Development Partners submit quarterly and consolidated annual reports to the NWCO
- The NWCO submits monthly, quarterly and annual WASH progress reports to the NWTT and through it to the NWSC. The DAG will receive copies of these reports from the NWCO.

57 Monthly reports from kebeles may be done by telephone.
58 Monthly reports from woredas may be done by telephone.

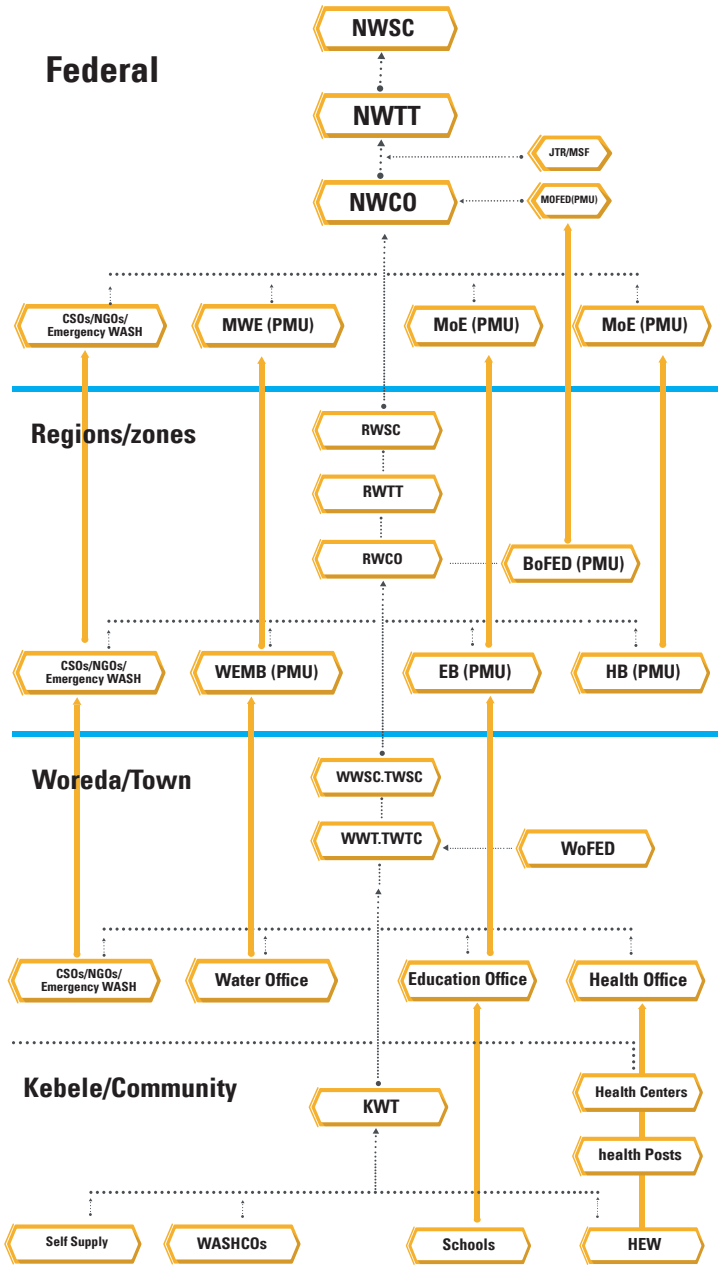


Figure 11.1: Reporting Routes from Kebele to Federal levels

Key

- Program information Flow
- Previous Information Flow

NWSC	National WASH Steering Committee
NWTT	National WASH Technical Team
NWCO	National WASH Coordination Office
RWSC	National WASH Steering Committee
RWCO	Regional WASH Coordination Office
WWSX/TWSC	Woreda WASH Steering Committee/ Town WASH Steering Com.
WWT/TWTC	WOREDA wash Team/Town WASH Technical Com.
KWT	Kebele WASH Team

11.3.4 Reporting at federal level

The NWCO and Technical Teams at the national and regional/city levels in collaboration with independent agents will carry out Programme monitoring and reviews as follows:

- The NWCO will receive and compile progress and budget utilization reports from the regions, bilateral organizations, CSOs and cities for presentation to the NWSC and provide feedback to the regions and cities on issues requiring attention from the federal level.
- The NWCO, and in regions, towns and woredas, will ensure that sufficient staff are in place, training M&E staff in monitoring procedures and responsibilities, data management, reporting and related subjects. Training will be followed up by on-the-job coaching and mentoring.
- Technical Teams at national and regional/city levels will be responsible for following up on implementation of the recommendations of the JTR and MSF and submitting a quarterly status report to the NWCO commencing within three months of each JTR/MSF.

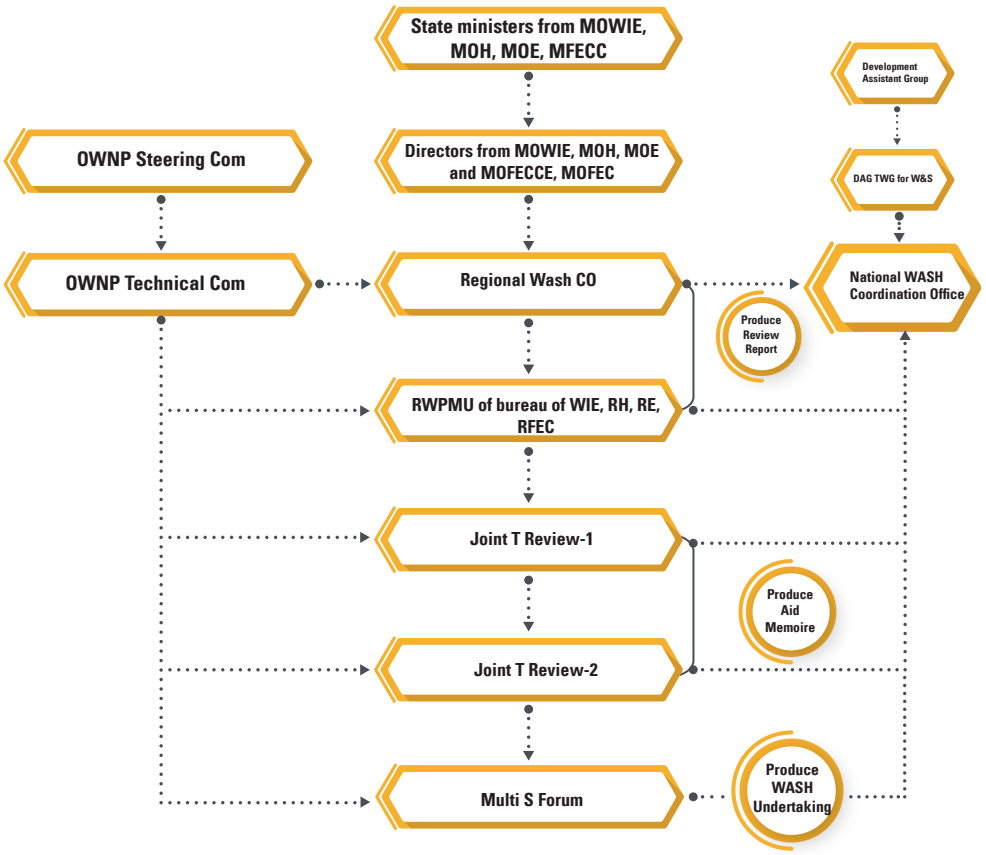


Figure 11.2: Reporting at federal level

11.4 MOBILE TECHNOLOGY FOR TRANSMISSION OF DATA AND INFORMATION

The National WASH Inventory (NWI) represents a large and important step forward in the understanding of the water supply and sanitation situation in Ethiopia. The NWI is a standard, national survey of WASH coverage in Ethiopia. The NWI 1 was a major undertaking of the MOWIE.

NWI 2 is expected to be finalized during Phase II of OWNP. It will be using the experience gained in conducting WASH inventories in 2010–2011 (2013–2014 EFY) using mobile phones to transmit and collect information.

The NWI 2 will involve, as has been done for NWI 1, all community water schemes in rural areas and all urban water supply systems in the regions and each water point will be identified according to its coordinates and Information collected, including the number of users in woredas and kebeles in the country. Information on WASH in schools and health institutions will be also collected. NWI 2 results are expected to be officially released by MoWIE, which is currently the chair for OWNP Steering Committee to WASH stakeholders during the Phase II period.

The continued rapid expansion of mobile technology in rural and remote areas of Ethiopia creates unique opportunities for applications that support transmission of near real time information. This development opens up the possibility for community-level monitoring using cell phones.

To harness this potential, the Programme will support:

1. A ONEWASH website with access to current WASH plans, budgets, progress reports, WASH inventory data, information on upcoming events and relevant documents and maps.
2. Training in use of GPS devices and PDAs/tablets for generating and storing WASH data
3. Expanded internet connectivity for woredas
4. IT service and troubleshooting contracts
5. Training in use of MS Excel for data entry and reporting
6. Dedicated links to MIS and databases in MoWIE, MoH, MoE and MoFEC

These services will be provided by a firm procured through NCB and monitored and supervised by the NWCO. Experience from implementing the NWI in Somali Region using mobile phones and software for data entry and transmission will be very useful in this regard.

Data collected will be stored at a central location with possibilities of access by all WASH actors and researchers. The data henceforth will be updated at least quarterly as fresh data is compiled as reported from the source

12 OWNP PHASE II COMPLETION PROGRAMME PLANS AND COSTS AND BUDGET

12.1 PROGRAMME PLANNING PROCESS

The Programme planning process for Phase II is in many ways similar to the process used for Phase I. The term "planning process" is used again since a definitive "plan" cannot be made without further iterative steps. The Programme planning process is based on the flow diagram Figure 2.1 in Sub-section 2.7.

Planning assumptions for Phase II are described and listed in Annex 1 and include population projections, beneficiaries, unit rates per technology type and per region: Unit costs are calculated using averages from regions, estimates from international organizations and CSOs determining the unserved population in each region, and consider regional variations, accessibility, capacity, and other relevant parameters.

12.2 SPREAD SHEET TOOL

An interactive spread sheet tool has been developed to allow any combination of technology type, populations served and regional WASH budget. This spread sheet tool will be further refined and made available to all stakeholders (national and regional governments. DPs, CSOs, private sectors).

The tool has been used to adjust regional proposals to reach GTP II targets and to allow for a shift towards a more sustainable technology mix. The resulting cost for the short to medium term work is estimated at US$6.5 billion.

12.3 CONSTRAINTS

Constraints include:

Meet GTP II targets by 2020, that is, within less than 3 years

- Incorporate the additional costs of mainstreaming climate resilience into the OWNP
- Limited WASH capacity for implementation (planning, design, procurement, implementation)
- Low operational capability leading to high level of system failures
- Limited awareness, at all levels, of sanitation and hygiene impacts and needs, impacting health, quality of life and economic activity

In November 2017, regional sector offices (water, health and education) were invited to make three-year plans to meet GTP II targets. These plans have been tabulated and compared with both the original OWNP document 2013 and available data from CWA, DP and CSO sources.

12.4 PRICE ESCALATION

The unit cost for investment planning has considered the price escalation of the dollar, cost changes for labour, material and equipment. Based on this fact, 3 per cent price escalation has been added from the constant price annually (from 2018–2020). From the total Programme budget, the estimated cost/budget for imported items (electromechanical equipment, pipes &fittings, etc.) is about 30-40 per cent and estimated cost/budget for the local component is 60-70 per cent.

12.5 RURAL AND URBAN WATER SUPPLY ACCESS

According to the GTP II targets, water supply access is expected to reach to 83 per cent of the population. In order to determine water and sanitation access in Phase II, the first step taken was to project the rural and urban population from the base year 2017 to 2020. Therefore, the total population to be considered for water supply in rural Ethiopia is 79,473,756 and in urban areas 21,871,006 (see details in Annex 1).

No.	Region/City	Base Year	Phase II		
		2017	2018	2019	2020
1	Tigray				
	Rural	66.6	69	77	85
	Urban	56.6	59	68	75
	Total	64.8	68	76	83
	Gambella				
	Rural	73.6	75	80	85
	Urban	40.3	46	61	75
	Total	64.2	67	75	83
3	B. Gumuz				
	Rural	60	63	75	85
	Urban	50	54	65	75
	Total	55.2	59	72	83
4	Dire Dawa				
	Rural	81	81	83	85
	Urban	55	58	67	75
	Total	61.1	64	74	83
5	Harari				
	Rural	65	68	77	85
	Urban	66	67	71	75
	Total	65.5	68	76	83
6	Somali				
	Rural	66.7	69	77	85
	Urban	64.5	66	71	75
	Total	65.3	68	76	83
7	Amhara				
	Rural	76.1	77	81	85
	Urban	69.1	70	73	75
	Total	75	76	80	83
8	Afar				
	Rural	44.6	50	69	85
	Urban	48.2	52	64	75
	Total	46	52	68	83
9	SNNPR				
	Rural	50.7	56	71	85
	Urban	50.3	54	65	75
	Total	52.5	57	71	83
10	Oromia				
	Rural	60.7	64	75	85
	Urban	51.2	55	65	75
	Total	59.3	63	74	83
11	Addis Ababa				
	Urban	92	95	102	109
	Total	92	95	102	109
12	National				
	Rural	68.5	71	78	85
	Urban	54.7	58	67	75
	Total	65.7	73	77	83

Table 12.1 Rural and Urban Water Supply Access by Region and Year (%):

NOTE: The access coverage is projected based on history of GTP I and the two years (2016 and 2017) GTP II growth rate trend which is found to be 3-4 per cent.

12.6 WATER SUPPLY BENEFICIARIES

Populations still to be served to meet GTP II rural and urban population figures are indicated in the Tables 12.2 and 12.3. For instance, the rural population to be served in Tigray will be 3,934,359 (column 5) x 85 per cent less 2,560,563 (column 6) = 783,642.

The 2017 baseline figures come from the draft GTP II Report MoWIE 2009 EFY and geometric population projection increases are then used. (Refer to working spread sheets to be issued separately).

Accordingly, a total of 20,410,739 million people in rural areas and 5,648,901 million people in urban areas are expected to benefit from Programme water supply interventions. Note that the "population to be served by 2020" is calculated as 85 per cent (rural) or 75 per cent (urban) of "Projected population by the year 2020" minus "served population."

Region		Baseline Population for Phase II in year 2017	Water supply Coverage in year 2017	Unserved Projection by the 2020				GTP2 target urban %age	Unserved population to be served by 2020
				Projected Population By the year 2020	Served Population	Unserved			
1	Tigray	3,847,000	66.6%	3,934,395	2,560,563	1,373,796		85%	783,642
2	Afar	1,466,000	44.6%	1,545,951	653,836	892,115		85%	660,222
3	Amhara	17,456,000	76.1%	18,025,467	13,283,478	4,741,989		85%	2,038,169
4	Oromiya	30,113,000	60.7%	32,179,185	18,275,580	13,903,605		85%	9,076,728
5	Benishalgul	836,000	60.0%	888,278	501,600	386,678		85%	253,437
6	SNNP	15,992,000	50.7%	16,903,089	8,101,547	8,801,542		85%	6,266,079
7	Gambela	288,000	73.6%	305,292	211,968	93,324		85%	47,530
8	Harar	109,000	65.0%	117,053	70,850	46,203		85%	28,645
9	Somali	4,911,000	66.7%	5,308,238	3,275,637	2,032,601		85%	1,236,365
10	Diredawa(35l/c/d)	173,000	81.0%	188,298	140,130	48,168		85%	19,923
National			68.5%	79,395,210	47,075,189	32,320,020			20,410,739

Table 12.2: Expected number of beneficiaries in rural areas in water supply access during Phase II

Region		Baseline Population for Phase II in year 2017	Water supply Coverage in year 2017	Unserved Projection by the 2020				GTP2 target urban %age	Unserved population to be served by 2020
				Population	Served Population	Unserved			
1	Tigray	1,400,000	56.6%	1,633,334	792,680	840,654		75%	432,321
2	Afar	346,000	48.2%	414,248	166,772	247,476		75%	143,914
3	Amhara	3,682,000	69.1%	4,335,515	2,543,157	1,792,357		75%	708,479
4	Oromiya	5,354,000	51.2%	6,168,587	2,743,390	3,425,198		75%	1,883,051
5	Benishalgul	230,000	50.0%	279,896	115,000	164,896		75%	94,922
6	SNNP	3,178,000	50.3%	3,730,962	1,598,534	2,132,428		75%	1,199,688
7	Gambela	148,000	40.3%	176,690	59,644	117,046		75%	72,874
8	Harar	137,000	66.0%	150,152	90,420	59,732		75%	22,194
9	Somali	838,000	64.5%	920,373	540,510	379,863		75%	149,770
10	Diredawa(35l/c/d)	293,000	55.0%	318,749	161,150	157,599		75%	77,912
11	Addis Ababa(35l/c)	3,434,000	92.0%	3,690,979	3,159,280	531,598		109%	838,777
National		19,040,000	54.7%	21,819,386	11,970,537	9,848,849			5,648,901

Table 12.3: Expected number of beneficiaries in urban areas to benefit in water supply access during Phase II

12.7 RURAL WATER SUPPLY ANALYSIS METHODOLOGY

Each region has given an estimate of the total "unserved population to be planned for the remaining two-and-a-half years" in the region, for the rural and urban water supply, as well as the needs for institutional WASH (health and education) and for capacity building. However, in the majority of cases, these populations do not align with the unserved 2020 populations shown in Tables 12.2 and 12.3: Regional plans have been re-calculated for corrected unserved population along with adjusted (region by region) unit rates and numbers of people served by various technology types.

12.8 PHYSICAL PLAN AND FINANCIAL REQUIREMENT FOR RURAL WATER SUPPLY

12.8.1 Rural Water Supply Summary

Overall rural water supply cost becomes USD 2,096.4 million .

Region	# of Scheme/ Population/ Cost	Tigray	Gambella	B. Gumuz	Harari	Somali	Amhara	Afar	SNNPR	Oromia	Dire Dawa	Addis Ababa	Totals
Original proposal from region	Number of schemes	5,584	1,396	796	225	6,418	27,860	631	12,331	13,222	61		68,524
	Population to be served, million	2.09	0.16	0.24	0.05	1.09	4.30	0.53	13.20	4.62	0.06		26.34
	Cost, USD million*	70.3	11.4	17.7	1.3	335.6	223.0	76.8	371.4	254.2	14.8		1,376.5
	Average unit rate USD/capita	33.6	71.3	74.8	26.6	307.3	51.9	144.9	28.1	55.1	246.7		52.3
Re-calculated regional proposal based on average unit rates and population served per technology	Number of schemes	5,584	1,396	796	225	6,418	27,860	631	12,331	13,222	61		68,524
	Population to be served, million	1.74	0.56	0.25	0.16	1.80	6.25	0.56	4.69	5.14	0.11		21.25
	Cost, USD million*	113.5	19.2	12.5	13.1	223.2	141.2	64.8	274.0	294.6	10.5		1,166.7
	Average unit rate USD/capita	65.1	34.2	49.2	84.3	124.2	22.6	116.0	58.5	57.4	95.9		54.9
Adjusted target population and technology mix	Number of schemes	2,025	162	796	199	4,506	5,000	721	13,422	23,033	13		49,877
	Population to be served, million	0.78	0.05	0.25	0.03	1.24	2.04	0.66	6.27	9.08	0.02		20.41
	Cost, USD million*	64.6	2.6	12.5	6.7	160.1	111.1	85.2	367.6	543.9	1.7		1,355.9
	Average unit rate USD/capita	82	54	49	235	129	55	129	59	60	87		66
	Factored cost totals, USD million	89.8	3.6	17.3	9.3	222.5	154.4	118.4	510.9	756.0	2.4	0.0	1,884.7

Region	# of Scheme/ Population/ Cost	Tigray	Gambella	B. Gumuz	Harari	Somali	Amhara	Afar	SNNPR	Oromia	Dire Dawa	Addis Ababa	Totals
*Note 1: To these figures have here been added factors for rehabilitation (3%), investigation, design and project management (12%) Environmental Safeguard, Water Safety Plans and Water Quality Management, Catchment protection and Environmental management plans (6%), inflation (10% for 3 years), combined 39%													1.39
Non-WASH-DPA and WASH-DPA share estimates	Estimated proportion of WASH-DPA activities in the region (under CR-WASH component)	20%	0%	0%	30%	100%	20%	100%	20%	30%	30%	0%	
	Estimated proportion of non-WASH-DPA activities	80%	100%	100%	70%	0%	80%	0%	80%	70%	70%	100%	
	Estimated non-WASH-DPA share, USD million	71.8	3.6	17.3	6.5	0.0	123.5	0.0	408.8	529.2	1.7	0.0	1,162.5
	Estimated WASH-DPA share, USD million (under CR-WASH component)	18.0	0.0	0.0	2.8	222.5	30.9	118.4	102.2	226.8	0.7	0.0	
	Additional factor for 2032 design population to be used for large MV WASH-DPA schemes likely to trigger population movements	1.10	1.26	1.27	1.36	1.36	1.14	1.24	1.25	1.31	1.40		
	Total WASH-DPA, US$ million	19.7	0.0	0.0	3.8	303.5	35.2	146.9	127.5	296.2	1.0	0.0	933.9
Total including WASH-DPA (under CR-WASH) and non-WASH DPA		91.5	3.6	17.3	10.3	303.5	158.7	146.9	536.3	825.4	2.7	0.0	2,096.4
TOTAL COST under Rural Water component		71.8	3.6	17.3	6.5	0.0	123.5	0.0	408.8	529.2	1.7	0.0	1,162.5

Table 12.4 : Summary rural Water Supply Cost

Region	Self-Supply System		Spot Supply System								Piped Water supply System						Total	2018	2019	2020
Planned number of schemes	House-hold Dug well with Rope Pump	Com-munity Dug well with Rope Pump	Dug well with Hand Pump	SW (with HP)	SW (Solar system, Small On Spot)	BH+Dist (Small) On Spot	Capped Spring	Rain Water har-vest-ing	Cis-tern	Hafir Dam	SVS from spring source	MVS from spring source	SVS from BH source	MVS from BH source	SVs from Sur-face Water	MVS from Sur-face Water				
Oromia	0	0	5,875	1,461	4,000	500	4,827	5,000			300	350	700	10		10	23,033	2,303	9,213	11,517
Amhara	500	500	500	500	500	200	2,000	180			20	60	10	25		5	5,000	500	2,000	2,500
Tigray	300	300	300	200	200	80	200		180	180	15		50	20			2,025	203	810	1,013
SNNP		2,166	1,296	3,000	1,000	0	3,332	1,500			444		584	100			13,422	1,342	5,369	6,711
Benishangul-Gumuz			120	624	10		24						10	8			796	80	318	398
Gambella	100		12	10	10	2	15			7	3		2	1			162	16	65	81
Afar			148	96	100		7	100	163	7			70	30			721	72	288	361
Somali	0.0000	500	200		100		65	2,430	967	94			35	80		35	4,506	451	1,802	2,253
Harari			10			2				180	2		2	1	2		199	20	80	100
Dire Dawa				4	2	2		2			1		1	1			13			
Grand Total by type of Technology	900	3,466	8,461	5,895	5,922	786	10,470	9,212	1,310	468	785	410	1,464	276	2	50	49,877	98,854	194,242	380,023
Grand Total by type of system	4,367		42,532								2,987									

Table 12 5: Rural Water Supply Technology Mix Planned for intervention, 2018-2020

12.8.2 New Rural Water Supply Facilities

Note: Determining the technology mix involved all stakeholders, CSO, DP, regional water sector experts and at federal level hydrogeology and hydrology senior experts, department head from MoWIE and water work supervision and design enterprises to have a good picture on water quantity and quality status across the country. Besides, the renewable energy water technology section head from MoWIE was also consulted on solar and wind energy supported water supply technology with regard to existing practice and cost benefits. Regarding the unit cost, the regional variations have been assessed using relevant parameters that vary across the regions. Parameters like transport (average distances to regional commercial centres), skilled labour availability, hydro-geological conditions (drilling success rates, average depth and yield of wells and boreholes) and topographical conditions.

12.8.3 Rural Water Supply Facilities to be rehabilitated

The unit cost analyses made for rehabilitation can only be determined accurately for specific existing schemes when a scheme inspection has revealed which components needs maintenance and expansion and the magnitude of the capacity expansion that is required. It is not an easy task to determine reasonable unit cost for rehabilitation and capacity inspection at the national level where scheme by scheme assessments are not available. Therefore, the rehabilitation, upgrading and/or expansion plan has been taken from regional plans to determined proportion: based on regional proposed planning data around 11 per cent of total rural water supply cost is allowed for rehabilitation of rural water supply schemes. Rehabilitation and upgrading of rural water supply schemes are needed to reduce non-functionality to 7 per cent in line with GTP II targets.

12.8.4 Financial Requirement for Water Supply (Rural)

A total of US$1,162.5 million is required for rural water supply excluding cost for WASH-DPA, which is under the CR-WASH component, to achieve the target of 85 per cent access. This is considered reasonable considering the scale and complexity of what needs to be done for the country's population and in light of highly varied and often harsh geography and climatic conditions particularly in rural areas.

In addition to the overall rural water supply financial requirement, there is a need to include Water Quality Management, Climate Resilient Water Safety Plans (CR-WSP), Catchment Protection and Environmental Management Plans, Environmental Safeguards as well as groundwater mapping, which are determined in addition to the construction and rehabilitation of water supplies. Those key elements are included as part of the Climate Resilient WASH Component.

No	Region / City/Year	Cost of Scheme Construction
1	Tigray	
	2018	8,863,881
	2019	35,455,524
	2020	44,319,405
	Total	88,638,810
2	Gambella	
	2018	346,713
	2019	1,386,852
	2020	1,733,565
	Total	3,467,129
3	B. Gumuz	
	2018	1,677,837
	2019	6,711,346
	2020	8,389,183
	Total	16,778,366
4	Dire Dawa	
	2018	260,261
	2019	1,041,046
	2020	1,301,307
	Total	2,602,614
5	Harari	
	2018	1,002,399
	2019	4,009,594
	2020	5,011,993
	Total	10,023,986
Grand Total		2,031,000,000

No.	Region / City/Year	Cost of Scheme Construction
7	Amhara	
	2018	15,379,822
	2019	61,519,289
	2020	76,899,111
	Total	153,798,222
8	Afar	
	2018	14,236,331
	2019	56,945,326
	2020	71,181,657
	Total	142,363,314
9	SNNPR	
	2018	51,957,751
	2019	207,831,002
	2020	259,788,753
	Total	519,577,506
10	Oromia	
	2018	79,967,701
	2019	319,870,805
	2020	399,838,506
	Total	799,677,013
6	Somali	
	2018	29,407,304
	2019	117,629,216
	2020	147,036,520
	Total	294,073,040

Table 12 6: Overall Cost for rural water supply by region, OWNP Phase II, 2018-2020 becomes US$2,031 million excluding cost allocated for Water resources mapping, planning and monitoring under the CR-WASH component

Note: 6 per cent of US$1,162 million which is US$65.4 million is allocated for water resources mapping, planning and monitoring indicated under CR-WASH to make all water supply source more resilient

For the detailed cost allocated for each technology by region, see Annex 2

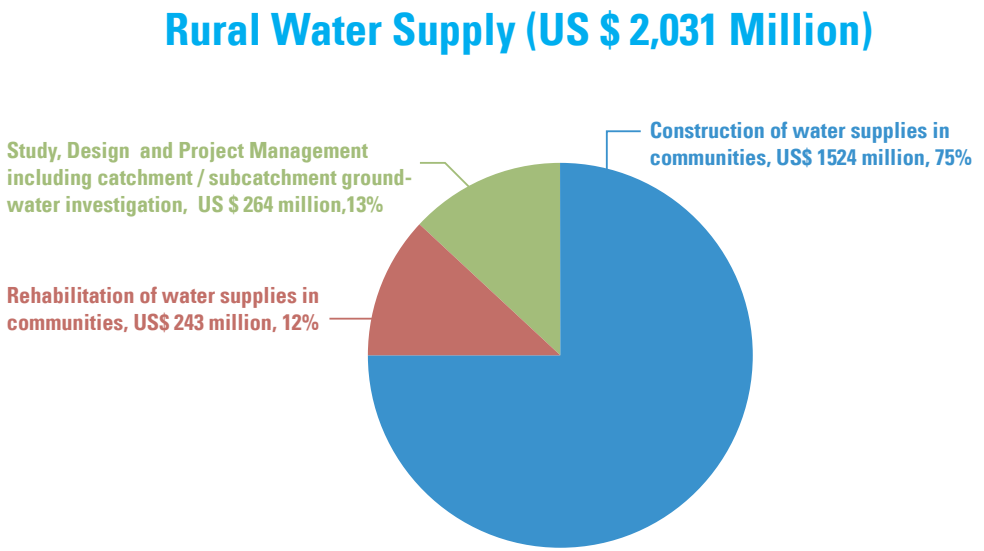


Figure 12 1: Summary of cost for rural water supply, Phase II 2018-2020

12.8.5 Institutional WASH

The investments required for water supply and sanitation facilities in institutions have been calculated based on the sanitation micro-plans to achieve the specific targets for WASH in institutions included under GTP II (80 per cent water coverage in schools and 60 per cent water coverage in health post and health centres).

The budget for School WASH also includes targeting 80 per cent of the 36,518 schools (33,524 primaries and 2,994 secondary) with MHM and other hygiene promotion packages.

The budget for WASH in health institutions includes all infrastructure investments to ensure 60 per cent of water coverage in health posts and health centres, as well as software activities such as the IPPS (Infection prevention and patient safety).

Region Name	Primary schools rural areas	Primary schools urban areas	Secondary schools (both rural and urban)	Total WASH in schools (ETB)	Total WASH in schools (US$)
Addis Ababa	-	63,428,000	67,912,320	131,340,320	4,690,725
Afar	473,473,361	-	10,669,440	484,142,801	17,290,814
Amhara	3,614,511,987	27,368,000	107,591,840	3,749,471,827	133,909,708
Benishangul Gumuz	255,842,370	-	437,340,020	693,182,390	24,756,513
Dire Dawa	14,738,589	4,040,000	111,265,000	130,043,589	4,644,413
Gambella	89,064,722	-	40,420,900	129,485,622	4,624,486
Harari	26,735,471	15,535,560	190,410,060	232,681,091	8,310,038
Oromia	6,176,829,243	2,716,800	24,348,200	6,203,894,243	221,567,651
SNNP	4,605,655,592	202,290,000	3,394,560	4,811,340,152	171,833,576
Somali	1,615,739,068	-	43,033,400	1,658,772,468	59,241,873
Tigray	185,751,624	11,320,840	3,801,000	200,873,464	7,174,052.29
Total (ETB)	17,058,342,027	326,699,200	1,040,186,740	18,425,227,967	658,043,855
Total USD	609,226,500	11,667,828	37,149,526	658,043,855	

Table 12.7: Summary of cost for WASH in schools by region, Phase II 2018-2020

Region Name	Health Post WASH Cost in rural areas (ETB)	Health Centre WASH Cost in rural areas (ETB)	Heath Centre in urban areas (ETB)	Total (ETB)	Total (USD)
Addis Ababa			25,200,000	25,200,000	900,000
Afar	56,552,000	38,178,253	55,400,000	150,130,253	5,361,795
Amhara	464,631,241	119,823,030	218,400,000	802,854,271	28,673,367
Benishangul Gumuz	50,677,704	-	10,780,000	61,457,704	2,194,918
Dire Dawa	-	-	4,060,000	4,060,000	145,000
Gambella	18,619,138	-	53,110,000	71,729,138	2,561,755
Harari	-	1,574,733	7,210,000	8,784,733	313,740
Oromia	452,272,505	182,347,862	1,970,000	636,590,367	22,735,370
SNNP	615,273,934	149,900,800	372,810,000	1,137,984,734	40,642,312
Somali	219,572,613	28,382,000	192,140,000	440,094,613	15,717,665
Tigray	75,679,164	105,216,000	24,020,000	204,915,164	7,318,399
Total	1,953,278,299	625,422,678	965,100,000	3,543,800,977	126,564,321
Total USD	69,759,939	22,336,524	34,467,857	126,564,320	

Table 12.8: Summary of cost for WASH in health centres by region, Phase II 2018-2020

Institutional WASH (USD 785 million)

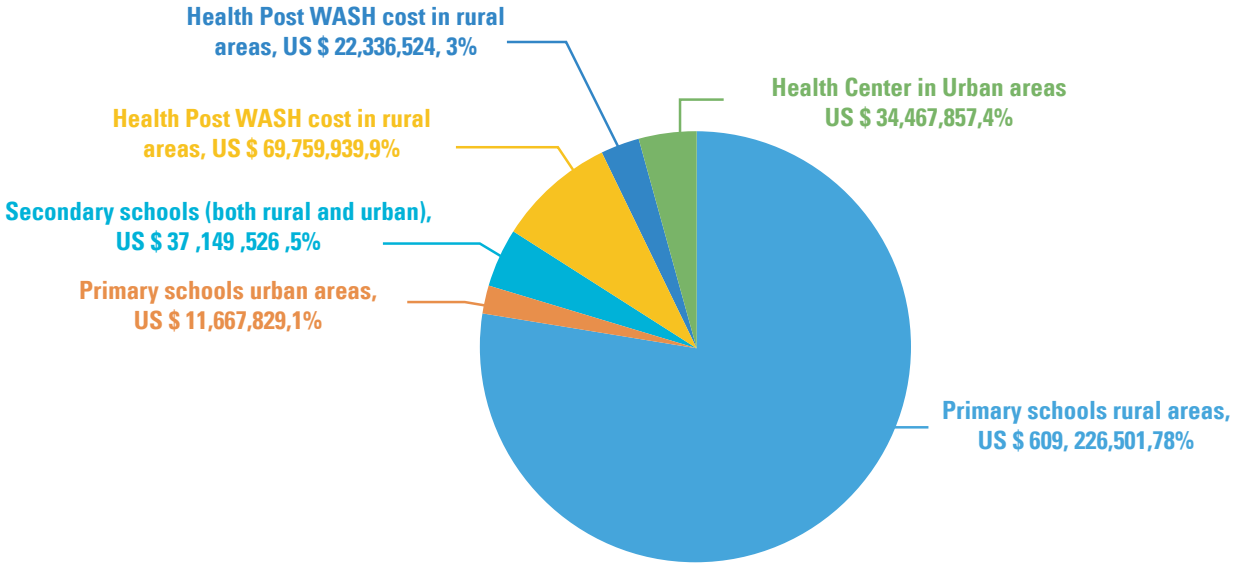


Figure 12 2: Institutional WASH estimate

12.8.6 Urban Water Supply Physical and Financial Plan

Overall urban water supply cost becomes US$1,745 million excluding cost for allocated for water resources mapping, planning and monitoring under the CR-WASH component as per Table 12.9 below.

Urban water costs to meet GTP2, USD million	Region											Total
Note: These rates are based on design population, assumed to be that projected for 2032	Oromia	Amhara	Tigray	SNNP	Somali	B Gumuz	Afar	Gambela	Harari	Dire Dawa	Addis Aba-ba	
Unit rates for activities in WASH-DPA, US$/capita	127	127	133	127	145		145	134	134	134		
Unit rates for activities in for non-WASH-DPA, US$/capita	95	95	99	96	117	101	109	101	123	98	319	
Unserved population to be served by 2020, million	1.88	0.71	0.43	1.20	0.15	0.09	0.14	0.07	0.15	0.08	0.86	5.78
Estimated share of WASH-DPA activities (under CR-WASH component)	30%	20%	20%	20%	100%	0%	100%	0%	30%	30%	0%	32%
Estimated share of non-WASH-DPA activities	70%	80%	80%	80%	0%	100%	0%	100%	70%	70%	100%	
Partial Cost, US$ million = Row 5 x (Row 3 x Row 6 + Row 4 x Row 7)	197.1	72.0	45.8	122.3	21.7	9.5	20.9	7.4	19.0	8.5	275.8	800.0
Note: To all these figures must be added factors for investigation, design and project management (15%), Environmental Safeguard (2%), Catchment Protection (2%), inflation (10% for 3 years) and risk (10%), combined 39%.												1.39
Totals	274.3	100.1	63.8	170.2	30.2	13.3	29.0	10.3	26.4	11.8	383.7	1,113.1
WASH-DPA (under CR-WASH component), US$ million, without design factor	82.3	20.0	12.8	34.0	30.2	0.0	29.0	0.0	7.9	3.5	0.0	219.8
non-WASH-DPA, US$ million, without design factor	192.0	80.1	51.0	136.2	0.0	13.3	0.0	10.3	18.5	8.3	383.7	893.3
Factor to allow for use of 2032 design population compared with GTP2 2020 population for calculating costs	1.76	1.92	1.85	1.90	1.46	2.19	1.85	2.03	1.44	1.40	1.33	
Totals with design factors US$ million	483.3	192.5	118.2	323.4	44.0	29.1	53.8	20.8	38.1	16.5	512.1	1,832
WASH-DPA (under CR-WASH component), US% million, with design factor	145.0	38.5	23.6	64.7	44.0	0.0	53.8	0.0	11.4	5.0	0.0	385.9
Non-WASH-DPA, US% million, with design factor	338.3	154.0	94.6	258.7	0.0	29.1	0.0	20.8	26.7	11.6	512.1	1,445.8
TOTAL urban WASH component (excluding investments under CR-WASH component)	338.3	154.0	94.6	258.7	0.0	29.1	0.0	20.8	26.7	11.6	512.1	1,445.8

Table 12.9: Urban water cost, GTP II, 2018-2020

Note: These rates are based on design population, assumed design period of infrastructures for 15 years
6 per cent of 1,445.8 which is US$87 million is allocated for water resources mapping, planning and monitoring indicated under CR-WASH to make water supply source more resilient.
Urban water supply activities which need to be undertaken in 973 towns to achieve 75 per cent access during Phase II are shown in Table 12.10 below.

Fiscal Year	Activities	Number of planned activities by Region and year											
		Oromia	Amhara	Tigray	SNNP	Somali	B Gumuz	Afar	Gambela	Harari	Dire Dawa	Addis Ababa	Total
	Urban Water Supply												
2018	Study and Design	50	19	12	32	4	3	4	2	0.10	0.10	0.10	126
	New Construction	11	4	3	7	1	1	1	0				28
	Rehabilitation and expansion	39	15	9	25	3	2	3	2	0.10	0.10	0.10	98
2019	Study and Design	201	76	46	128	16	10	16	8	0.40	0.40	0.40	503
	New Construction	45	17	10	29	4	2	4	2				113
	Rehabilitation and expansion	156	59	36	100	12	8	12	6	0.4	0.4	0.4	390

Table 12 10: Requirement for planned Urban Water Supply by Region and Year

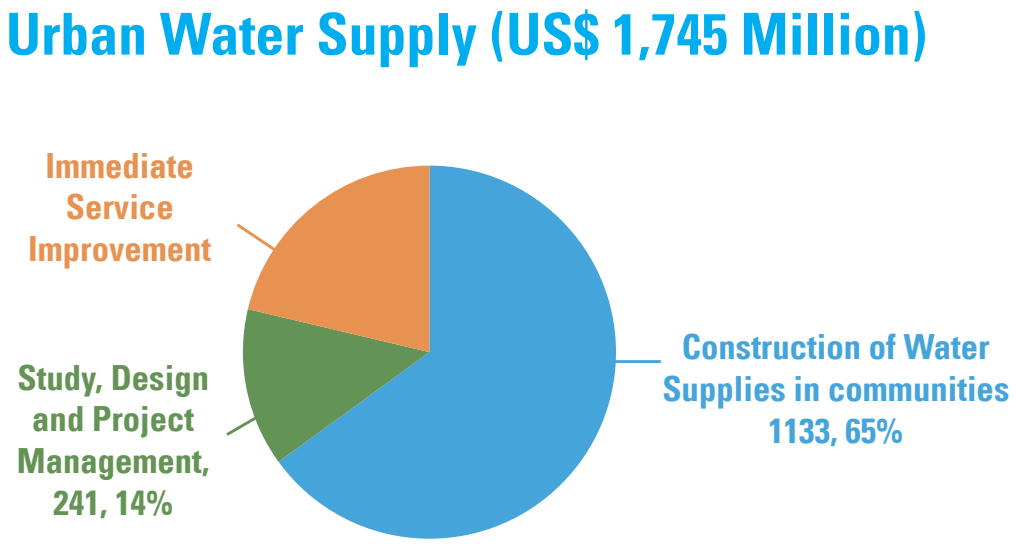


Figure 12 3: Urban Water Supply, summary of costs

City-wide master planning for the urban water supply should be prior to design and construction of any urban water supply projects to meet sustainable climate resilient water supply systems and to determine alternative surface and ground water sources. New construction will be implemented in lower category (below Category 4) towns – 280 towns. For higher category of town 1, 2, and 3, the second phase of the OWNP programme mainly focuses on rehabilitation and expansion programme because most of these towns have reached the target water supply coverage (75 per cent) and some have exceeded this coverage, although hours of supply and water quality remain poor.

12.8.7 Rural Sanitation and Hygiene Physical and Financial Plan

The target for rural sanitation activities is to increase access to improved sanitation facilities and hygiene practice. An estimated USA$394,689,743 is required to achieve the Programme's physical targets. The regional distribution of the financial requirement is shown below in Table 12.10 and total costs are illustrated in Figure 12.3.

Note that the cost of software for advocacy and capacity building is described under programme management and in the capacity building section.

Region Name	Taking villages to Primary ODF village status		Taking villages to Secondary ODF village status		Taking villages to Safely Managed sanitation village status		Fixed Costs for training; supervision and monitoring	Regional costs	Total Costs (ETB)	Total Costs (US$)
	Estimated Cost	Physical Target	Estimated Cost	Physical Target	Estimated Cost	Physical Target				
Addis Ababa	-	-	-	-	-	-	-	-	-	-
Afar	30,886,825	2,046	28,441,241	2,198	94,804,136	2,198	20,073,600	5,820,000	180,032,244	6,429,723
Amhara	197,496,941	21,454	299,330,475	33,600	312,969,611	35,131	135,453,796	22,844,000	968,185,008	34,578,036
Benishangul Gumuz	33,908,074	1,053	75,542,500	2,500	45,100,000	2,500	9,676,000	2,972,000	167,204,627	5,971,594
Dire Dawa	37,602,453	350	38,410,477	381	22,931,628	381	4,477,200	1,308,000	104,730,870	3,740,388
Gambella	29,075,896	767	20,595,120	910	20,595,120	910	483,800	2,252,000	73,004,523	2,607,304
Harari	9,811,474	84	20,934,612	191	12,498,276	191	590,400	828,000	44,663,228	1,595,115
Oromia	2,055,468,542	104,162	2,773,234,620	149,765	1,661,245,288	150,270	423,189,467	40,604,000	6,954,146,113	248,362,361
SNNP	107,189,109	56,144	302,215,478	31,659	566,350,690	91,960	324,839,034	20,684,000	1,321,458,074	47,194,931
Somali	102,341,190	4,382	89,322,499	4,462	73,253,571	4,468	58,006,832	14,220,000	337,157,404	12,041,336
Tigray	181,181,498	950	395,869,420	2,212	278,436,670	2,606	40,153,347	5,084,000	900,730,703	32,168,954
Total	2,784,962,002	191,392	4,043,896,442	227,878	3,088,184,991	290,614	1,016,943,476	116,616,000	11,051,312,795	394,689,743
Total USD	99,462,928		144,424,872		110,292,321		36,319,409	4,164,857	394,689,742	

Table 12 11: The regional distribution of the financial requirement for rural sanitation

Note: The Source of information is the sanitation micro planning prepared in 2018 by the Ministry of Health with support from UNICEF, please refer the detail activities and unit cost from that document

Cost of Rural Sanitation (USD 395 MILLION)

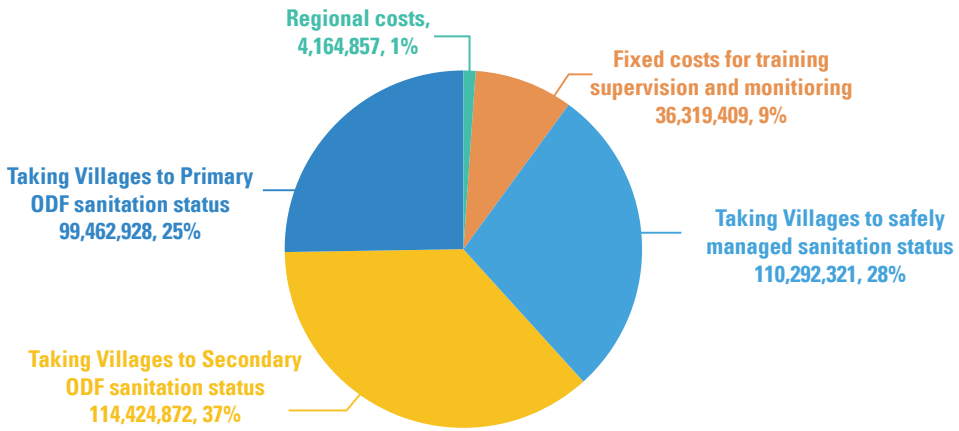


Figure 12 4: Rural Sanitation Budget

Activity	Amount (USD million)	%
Sanitation services improvement	458	61.2%
Water supply and operational efficiency improvement	76	10.2%
Project management and institutional development	11	1.5%
Public Toilets Construction in 973 towns	45	6.0%
Communal Toilets Construction in 973 towns	59	7.9%
School Toilets Construction in 973 towns	62	8.3%
14 towns study and design	3	0.4%
Rehabilitation of Sanitation Facilities	33	4.4%
Grand Total for urban sanitation	748	100%

Table 12.12: Urban sanitation plan

12.8.8 Urban sanitation

The total cost of the urban sanitation component is US$748 million. The main sources of information for the development of the detailed budget are the IUSHSAP (developed in 2016/2017), excluding Solid Waste Management (SWM) components and the World Bank's Second Ethiopia Urban Water Supply and Sanitation Project (developed in 2017). The urban sanitation costs also include city wide wastewater/ sludge master planning which should be performed prior to any other activities and integrated with water supply master planning.

Urban Sanitation (USD 748 Million)

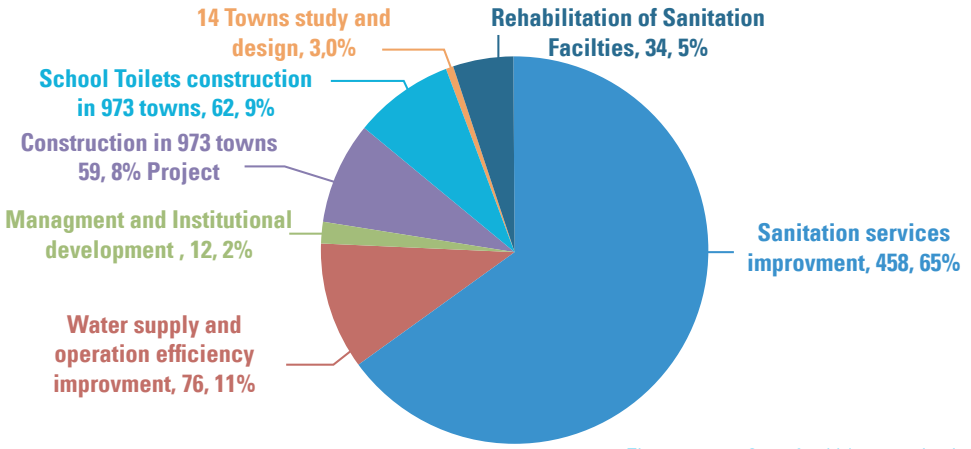


Figure 12 5: Cost for Urban sanitation

12.8.9 Capacity building and programme management component

The total budget for capacity building and programme management component is estimated as US$444 million.

Activity	Total (million US$)	%
Programme management	34	8%
Advocacy	12	3%
Capacity Building Costs including TVETCs and HSCs, Training Manual Preparation, Procurement of Software, Motor Bikes and Vehicles	100	23%
Training of Key Utility staffs on water governance such as asset management, leakage management, customer management etc.	20	5%
Establish Water supply quantity and quality monitoring system	8	2%
Capacity Building, Software, Procurement Vacuum suction trucks and other seed money for research, promotion etc. for urban sanitation programme	70	16%
Support to Supply Chains	14	3%
Self-Supply Technical Assistance	15	3%
Post construction Support	12	3%
M&E, MIS and Data Management	159	36%
Total	444	100%

Table 12 13: Budget of Capacity Building and Programme Management component

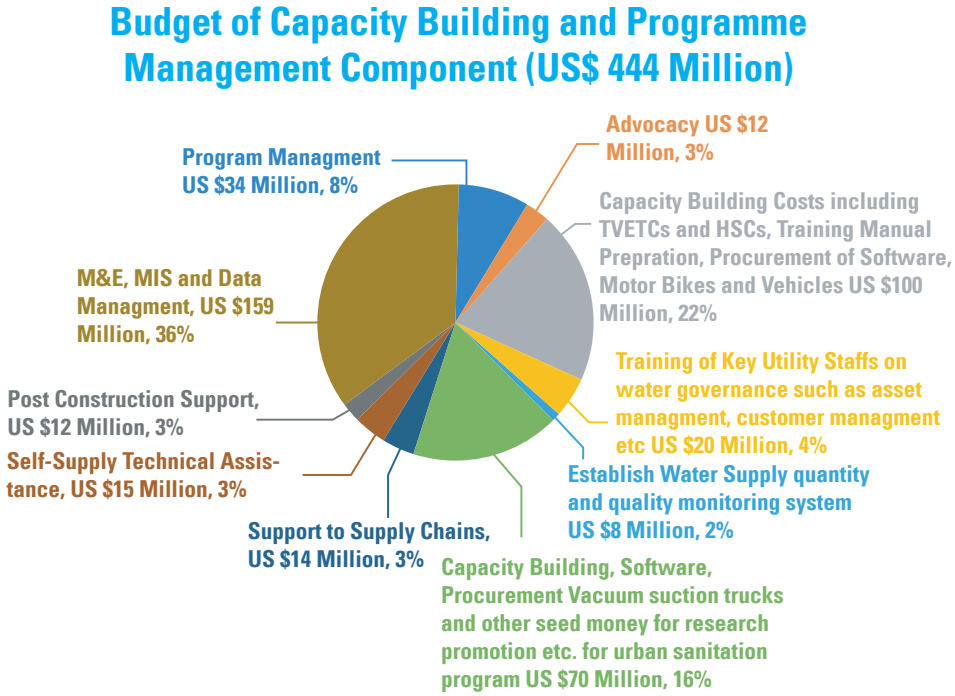


Figure 12.6: Budget of Capacity Building and Programme Management component

12.8.10 Climate resilient WASH component

The total budget for Climate Resilient WASH component is estimated as US$2,489 million, of which US$409 million is allocated under sub-component 1: water resources mapping, planning and monitoring. Under sub-component 3, US$1 million is allocated for emergency preparedness, response and recovery. The remaining US$2,079 million is allocated under sub-component 2: CR solutions in drought prone areas.

The drought prone areas include approximately 440 woredas across the country. The Target DPA region and per cent budget share calculated based on first stage CR-WASH proposal and drought prone area map from CR-WASH proposal team is Somali 100 per cent, Afar 100 per cent, Oromia 30 per cent, Harari 30 per cent, Dire Dawa 20 per cent, Amhara 20 per cent, SNNP 20 per cent and Afar 20 per cent. The total average for 32 per cent of DPA programme cost under CR-WASH is US$2,079 million. For the non-DPA of the remaining portion of the region, to make the proposed water supply technology mix sustainable and climate resilient for both rural and urban water supply subcomponent of the Programme, US$409 million has been allocated for the following specific major climate resilient activities:

Activities included under CR-WASH component	Total (million US$)
Sub-component 1: Water resources mapping, planning and monitoring	
Catchment protection and conservation of water resources	48
Climate Resilient Water Safety Plans (CR-WSP)	51
Environmental safeguards- mitigation measures	41
Groundwater mapping (countrywide)	15
Hydro-Met system upgrade-floods early warning system	50
Groundwater monitoring system	10
Production of guidelines, evidence building and research on CR-WASH	15
Solarization of rural water supply systems	89
Piloting/Demonstration of new CR technologies	55
Dissemination of good practices	3
Technical Assistance - Pastoralist WASH	17
Support to Research and technical assistance for regional water bureaus	15
Total sub- component 1	409
Sub-component 2: Climate Resilient WASH solutions	
Rural WASH interventions in drought prone areas	1,060
Urban WASH interventions in drought prone areas	625
Institutional WASH	251.2
Capacity Building and Programme Management	142.1
Total sub- component 2	2,078.9
Sub-component 3: Emergency preparedness, early response and recovery	
Emergency preparedness and response plan	1
Emergency response (zero budget)	0
Total sub- component 3	1
TOTAL	2,489

Table 12.14: Budget for non –DPA the Climate Resilient WASH component

Total Cost of Climate Resilient Sub-component 1 (US$ 409 Million)

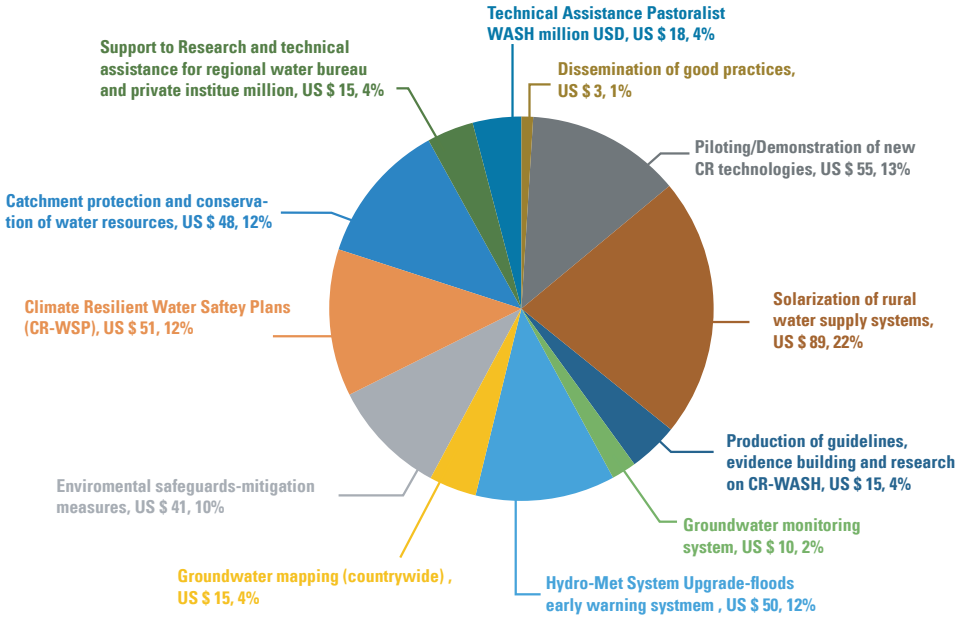


Figure 12.7: Total Cost of Climate Resilience sub-component 1 (409million)

CR-WASH Component(US$ 2,489 Million)

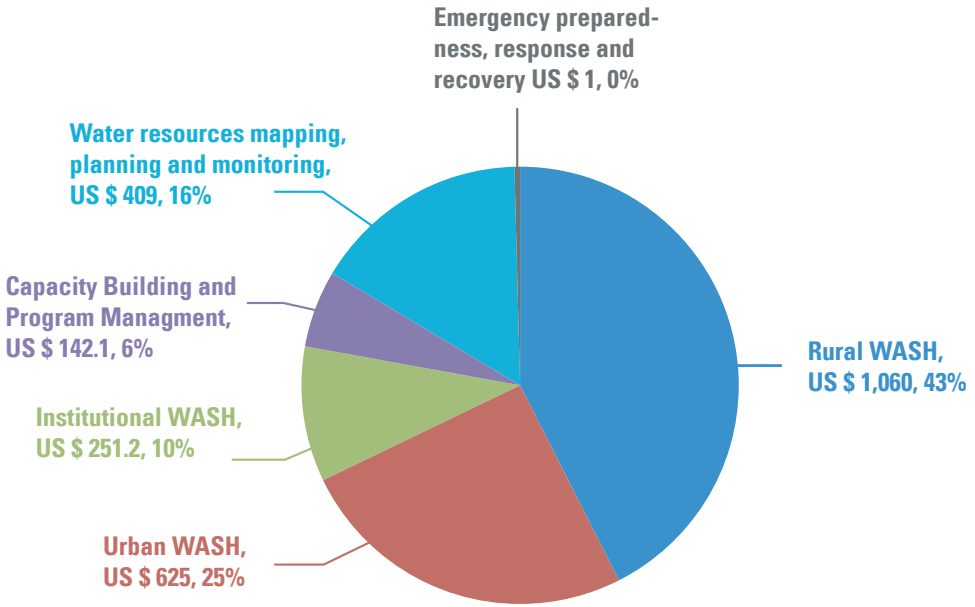


Figure 12.8: Total budget of the sub-component 1 of the Climate Resilient WASH component

12.8.11 Summary of costs

No	Description	Non -WASH DPA (US$ million)	CR-WASH component for DPA	Total including WASH-DPA (sub-component 2)
1	Rural WASH	1,367	1,060	2,427
1.1	Rural water	1,098	933.9	2,031.9
1.2	Rural sanitation and hygiene	268.6	126.4	395.0
2	Urban WASH	1,868	625	2,493
2.1	Urban water	1,359	385.9	1,745
2.2	Urban sanitation	508.6	239.4	748
3	Institutional WASH	533.8	251.2	785
4	Capacity Building and Programme Management	301.9	142.1	444
5	CR-WASH			2,489
5.1	Water resources mapping, planning and monitoring		409	409
5.2	CR solutions		2,079	2,079
5.3	Emergency preparedness, response and recovery		1	1
Total		4,070	2,489	6,558.9

Table 12.15: Summary of cost by programme component and sub-component

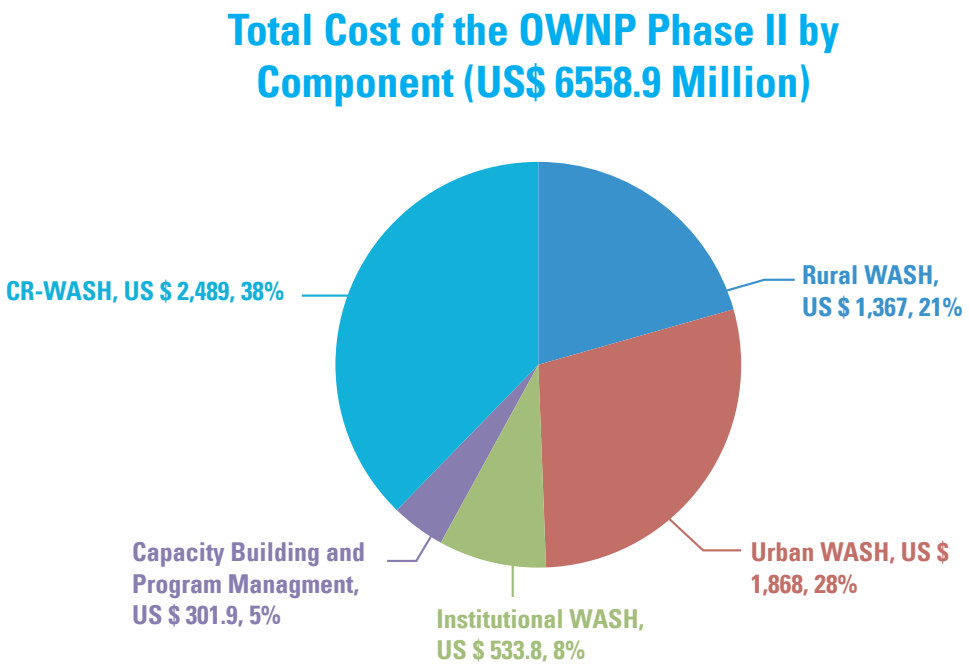


Figure 12.9: OWNP Phase II Programme total costs and by component

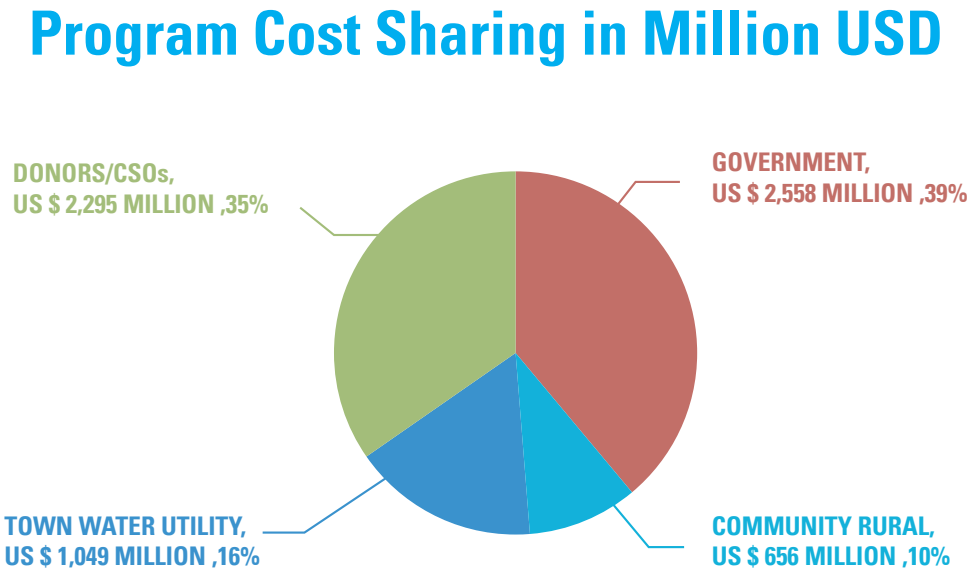


Figure 12-10: Total Programme Cost and Cost Sharing

ANNEXES

ANNEX 1: PLANNING ASSUMPTIONS

The following tables show the underlying assumptions used in determining the Programme's physical and financial requirements:

Region		Year				Average Population increase 2014-2017	2018	2019	2020	2032
	Baseline Population for 2007 EFY	2014	2015	2016	2017		Assuming"Average Population increase 2014-2017 cintinues uniformly until 2032"			Ratio of design population 2032 to 2020
Tigray	1011407	1,200,000	1,264,000	1,331,000	1,400,000	5.3%	1,473,818	1,551,527	1,633,334	1.85
Afar	104606	289,000	308,000	327,000	346,000	6.2%	367,399	390,120	414,248	1.85
Amhara	2107135	3,127,000	3,307,000	3,492,000	3,682,000	5.6%	3,888,088	4,105,711	4,335,515	1.92
Oromiya	2773896	4,647,000	4,880,000	5,510,000	5,354,000	4.8%	5,612,816	5,884,144	6,168,587	1.76
Benishangul	49009	189,000	202,000	215,000	230,000	6.8%	245,556	262,165	279,896	2.19
SNNP	1171772	2,707,000	2,856,000	2,856,000	3,018,000	5.5%	3,352,557	3,536,703	3,730,962	1.90
Gambela	64670	83,639	89,037	140,000	148,000	6.1%	157,004	166,557	176,690	2.03
Harar	123789	125,000	129,000	133,000	137,000	3.1%	141,251	145,633	150,152	1.44
Somali	723866	763,000	788,000	813,000	838,000	3.2%	864,602	892,053	920,373	1.46
Diredawa(35l/c/d)	283656	134,000	277,000	285,000	293,000	2.8%	301,343	309,924	318,749	1.40
Addis Ababa from AAWSA Sheet	3213295	3,195,000	3,273,000	3,525,000	3,434,000	2.4%	3,517,576	3,603,185	3,690,878	1.33
Special Enumeration		41,000	43,000	45,000	46,000	3.9%	47,802	49,674	51,620	1.59
Totals	11,627,103	16,500,639	17,416,037	18,256,000	19,086,000	5.0%	19,969,814	20,897,396	21,871,006	1.73

Table A1-1 Urban Population of Regions as per the Census Data of CSA for 2007

Region		Year				Average Population increase 2014-2017	2018	2019	2020	2032
	Baseline Population for 2007 EFY	2014	2015	2016	2017		Assuming"Average Population increase 2014-2017 continues uniformly until 2032"			Ratio of design population 2032 to 2020
Tigray	4,293,401	3,760,000	3,792,000	3,821,000	3,847,000	0.8%	3,876,459	3,906,124	3,934,359	1.10
Afar	1,511,776	1,389,000	1,415,000	1,442,000	1,466,00	1.8%	1,491,920	1,519,344	1,545,951	1.24
Amhara	17,763,549	16,892,000	17,092,000	17,278,000	17,453,000	1.1%	17,644,707	17,837,621	18,025,467	1.14
Oromiya	31,218,105	28,169,000	28,812,000	29,470,000	30,113,000	2.2%	30,785,202	31,480,338	32,179,185	1.31
Benishangul	1,245,768	787,000	803,000	819,000	836,000	2.0%	853,175	870,438	888,278	1.27
SNNP	18,167,901	15,130,000	15,420,000	15,701,000	15,992,000	1.9%	16,293,458	16,595,486	16,903,089	1.10
Gambela	365,546	272,000	277,000	282,000	288,000	1.9%	293,711	299,274	305,292	1.26
Harar	104,703	101,000	103,000	107,000	109,000	2.6%	111,098	114,324	117,053	1.36
Somali	4,441,023	4,511,000	4,665,000	4,785,000	4,785,000	2.6%	5,041,045	5,172,626	5,308,238	1.36
Diredawa(35l/c/d)	132,096	159,000	163,000	168,000	173,000	2.9%	177,751	182,917	188,298	1.40
SPECIAL ENUMERATION		75,000	75,000	77,000	77,000	0.9%	77,000	78.027	78,547	1.11
Total	79,243,868	71,278,000	72,617,000	73950000	75,265,000	1.8%	76,645,525	78,056,519	79,473,756	1.25

Table A1-2 Rural Population of Regions as per the Census Data of CSA for 2008

Notes (Tables A1-1 and A1-2): The population projection figures are based on the results of National Population and Housing Census of Ethiopia conducted in May 2007. The base population for the projection was obtained from the 2007 Population and Housing Census for each of the regions and adjusted to the mid of the census year, 1 July 2007. Up to 2017 population projection figures at woreda and zonal levels are prepared and printed in the yearly Statistical Abstract of the Agency. The population figure from the year 2018–2032 is projected by the geometric increase method assuming per cent increase in population of all regions from year 2014–2017 remain constant.

Water supply Systems	Beneficiaries per Scheme by Region										
	Tigray	Gambella	B-Gumuz	Harari	Somali	Amhara	Afar	SNNP	Oromia	Diredawa	Average
Household Dug well with Rope Pump	7	6	6	6	3	6	6	7	7	6	6
Community Dug well with Rope Pump	10	19	33	38	33	32	33	54	54	42	35
Dug well with Hand Pump	171	135	115	193	150	188	185	234	166	171	171
Shallow well with hand pump	237	237	236	280	300	274	350	260	217	320	271
Shallow well with solar system (small on spot)	237	237	236		300	274	350	260	217	320	270
Borehole with distribution (small on spot)	1,250	1250	1250	1800	1800	1250	2000	1500	1500	2000	1560
Borehole with distribution (on spot) + solar	1,250	1250	1250	1800	1800	1250	2000	1500	1500	2000	1560
Capped Spring	253	200	188	263	175	271	175	287	256	350	242
Rain water harvesting	300	249	44	50	45	300	44	300	72	737	214
Cistern	150	127	44	50	45		44	72	72	57	73
Hafir Dam		2225	222	250	493		222		359	493	609
Single village from spring source + gravity distribution with 2 -4 water points (small)	1,650	1400	1450	1450	1500	1395	1350	1445	1479	1400	1452
Single village from spring source + motorized distribution with 2 water points (small)	1,450	1300	1400	1400	1000	2000	1200	1800	2000	1444	1499
Single village from spring source + motorized distribution with 2 water points + solar	3,000	3000	3000	1400		3000	1200	1800	2000	1444	2205
Multi village from spring source + gravity distribution with 4-6 water points (medium)	3,000	3300	3200	3200	2200	3500	3000	3800	4200	3200	3260
Multi village from spring source + gravity distribution with 6-10 water points (large)	8,100	9228	8100	8100	4500	8500	6500	10200	11000	8100	8233
Multi village from spring source + motorized distribution with 4-6 water points (medium)	5,500	3300	3200	3200	2200	3500	3000	3800	4200	3200	3510
Multi village from spring source + motorized distribution with 6-10 water points (large)	8,100	8350	8100	8100	4500	8500	6500	10200	11000	8100	8145
Multi village from spring source + motorized distribution with 4-10 water points + solar		8350				8500					8425
Single village borehole source + distribution for 4-6 water points (medium)	6,500	3000	3000	3500	4000	3000	4000	3000	3000	3500	3650
Single village borehole source + distribution for 4-6 water points + Solar	6,500	3000		3500	4000	3000	4000	3000	3000		3750
Multi village from borehole source with 5-8 km distribution (large)	7,799	7921	8500	8000	6500	12500	7000	11000	10500	8000	8772
Multi village from borehole source with 5-8 km distribution + Solar	7,799	7921				12500					9407
Large multi village from one or more very deep boreholes with long km distribution	10,000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Single village from river source with treatment				3500							3500
Multi village from river source with treatment					6500	12500			10000		9667

Table A1-3 Rural water supply scheme beneficiaries per scheme derived from Government (CWA), DP and CSO projects

Sr No	Types of water sources/ water scheme	National Standard for GTP I	National Standard for GTP II
1	Hand dug well (Household)	6	6
2	Hand dug well (community) Average depth 10 m	75	50
3	Modern hand dug well. Av. Depth 15m	270	160
4	Spring on the spot (onsite)	338	200
5	Spring development (with motor or gravity system)	900	550
6	Motor fitted spring	2,500	1500
7	Gravity system spring	5,000	3000
8	Medium spring	5,000	3000
9	Shallow well (with hand/manual pump)	425	250
10	Shallow well (with motor pump)	2,400	1450
11	Deep well	3,313	2000
12	Others (purified surface water)	28,756	17000
13	Shallow well (with solar pump)	1,750	1000
14	Shallow well (wind mill)	1,750	1000
15	Cistern (with wall)	50	30
16	Pond (with manual pump)	350	210
17	Cistern (with plastic lining)	117	70

Table A1-4: Number of maximum beneficiaries per scheme that could access safe water supply by each type of rural water supply schemes as per GTP I and GTP II rural water supply access standards

Note:

GTP-2 standards system types do not coincide with the technology types actually used by regions so we have considered average beneficiaries per schemes from different stakeholder CSO, DP and Government water sectors programs.

CWA projects are mainly implemented by WASH sector offices.

The accurate beneficiaries from spring, deep well, and surface water except hand pump fitted scheme will be determined during feasibility study and design stage based on the actual yield from water quantity measurement and pumping tests.

Water supply Systems	Unit cost per capita per scheme by Region										
	Tigray	Gambella	B/Gumuz	Harari	Somali	Amhara	Afar	SNNP	Oromia	Diredawa	Average
Household Dug well with Rope Pump	112	133	133	133	224	164	133	112	112	133	139
Community Dug well with Rope Pump	78	47	38	32	44	37	44	21	21	32	39
Dug well with Hand Pump	27	34	30	19	20	26	21	25	23	25	25
Shallow well with hand pump	44	95	41	71	89	45	56	47	41	127	66
Shallow well with solar system (small on spot)	44	95	41		89	45	56	47	41	127	65
Borehole with distribution (small on spot)	125	135	115	117	211	125	151	140	134	110	136
Borehole with distribution (on spot) + solar	125	135		117		125	151	140	134	110	130
Capped Spring	21	30	31	27	43	19	30	19	20	25	27
Rain water harvesting	45	40	39	32	40	45	44	45	21	29	38
Cistern	45	140	106	89	118		120	59	90	90	95
Hafir Dam		13	105	89	98		119		59	98	83
Single village from spring source + gravity distribution with 2 -4 water points (small)	39	96	66	68	104	34	103	35	35	41	62
Single village from spring source + motorized distribution with 2 water points (small)	75	117	105	109	268	58	186	92	81	130	122
Single village from spring source + motorized distribution with 2 water points + solar	52	52	52	52		52	52	52	52	52	52
Multi village from spring source + gravity distribution with 4-6 water points (medium)	79	49	48	52	173	38	97	51	44	55	68
Multi village from spring source + gravity distribution with 6-10 water points (large)	39	108	37	35	114	34	65	32	31	38	53
Multi village from spring source + motorized distribution with 4-6 water points (medium)	54	69	69	73	203	58	76	68	60	76	80
Multi village from spring source + motorized distribution with 6-10 water points (large)	47	41	45	44	129	42	76	38	35	46	54
Multi village from spring source + motorized distribution with 4-10 water points + solar		52				52					52
Single village borehole source + distribution for 4-6 water points (medium)	88	105	79	97	164	75	129	107	104	101	105
Single village borehole source + distribution for 4-6 water points + Solar	88	105		97	164	75	129	107	104		109
Multi village from borehole source with 5-8 km distribution (large)	84	39	50	73	148	77	112	51	52	74	76
Multi village from borehole source with 5-8 km distribution + Solar	84	39				77					67
Large multi village from one or more very deep boreholes with long km distribution	133	134	140	134	145	127	145	127	127	134	135
Single village from river source with treatment				118							118
Multi village from river source with treatment	118	118	118	118	118	118	118	118	118	118	118

Table A1-5: Unit rate USD per capita per water supply system

Note: GTP II standards system types do not coincide with the technology types actually used by regions so to develop the above table of unit costs, we have considered average unit costs per beneficiary per scheme from different stakeholders (CSO, DP, CWA and Government) water sectors programmes.

Inflation: For urban project costing from feasibility studies, contract agreements and contract amounts recorded from different report years, an annual inflation rate is used to estimate the current value contracts from official inflation rate the country is the following

Year	%	Multiplication Factor
2012	33%	133%
2013	23%	123%
2014	8%	108%
2015	12%	112%
2016	7.29%	107%
2017	9.81%	110%

Table A1-6. Inflation in the country.

Source: Statistical Agency of the Government of Ethiopia, Tuesday , 6 March 2018

Note: For Rural scheme unit rate factored and current value is directly collected from all stakeholder

Exchange rate: average exchange rate for the month of July 2013 (1 US$= ETB 19.01), July 2014(1 US$= ETB 19.78), July 2015 (1 US$= ETB 20.84), July 2016 (1 US$= ETB 21.91), July 2017 (1 US$= ETB 22.96, is considered to convert the actual contract values adjusted for inflation in ETB to US$.

Study, design and project management for both rural and urban is 13 per cent of water supply infrastructure respectively

Feasibility study and planning	4.5 per cent
Design	4.5 per cent
Supervision and project management	4 per cent

Study and design quality need more attention because poor quality design can lead to poor quality outputs, resulting in disputes, delays and cost increase. Sufficient budget must be allocated to engage competent consultants to supervise design and project management.

ANNEX 2: PROPOSED TECHNOLOGY MIX AND NUMBER OF SCHEMES

Rural water

This proposal is based on the initial estimation based by each of the regions, with an adjusted unit cost, and also considering the technology mix adjustment made after including climate resilient technologies. The number of schemes and the technology mix has been re-assessed through consultation with the national Government, DP and CSO experts and regional stakeholders to both match the needs of the unserved population and also to begin to increase resilience, sustainability and reliability.

The detailed Physical and Financial plan (Section 12) has been prepared for each region and each year of the remaining GTP II Plan.

As described under "methodology" (Annex 1), the spreadsheet tool gives the opportunity to adjust both the number of systems (down and up) as well as the technology mix, based on the best available knowledge of rural water (hydrology, hydrogeology, demographics, climate, socio-economic factors, etc.), to meet 100 per cent of the target.

The new technology mix involves ones that are more expensive per capita but are considered to be more "resilient" and are less likely to fail when combined with institutional changes, capacity building and advocacy measures as proposed in this OWNP Phase II document.

A revised technology mix and total cost is thus obtained, to which can be added factors for Programme management, inflation, risk, etc.

The spreadsheets and diagrams below represent just one possible re-adjustment scenario. This can be further refined through regional and national consultation, see Steps 14, 15, 16 on Figure 7.1, Sub-section 7.3.

A2-1 TIGRAY REGION

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Ad-just-ment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	924	300	32%	7	2,100	0.3%	112	234,899
	2	Community Dug well with Rope Pump	0	300		10	3,000	0.4%	78	234,899
On spot	3	Dug well with Hand Pump	837	300	36%	171	51,300	6.5%	27	1,372,287
	4	Shallow well with hand pump	2,557	200	8%	237	47,300	6.0%	44	2,099,717
	5	Shallow well with solar system (small on spot)	0	200		237	47,300	6.0%	44	2,099,717
	6	Borehole with distribution (small on spot)	80	40	50%	1,250	50,000	6.4%	125	6,263,982
	7	Borehole with distribution (on spot) + solar	0	40		1,250	50,000	6.4%	125	6,263,982
	8	Capped Spring	414	200	48%	253	50,600	6.5%	21	1,049,229
	9	Rain Water harvesting	0	0		300	0		45	0
	10	Cistern	180	180		150	27,000		45	1,208,054
	11	Hafir Dam	180	180			0			0
		Other		0			0			0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	180	0		1,650	0	0.0%	39	0
	12b	Single vllage from spring source + motor-ized distribution with 2 water points (small)		10		1,450	14,500	1.9%	75	1,089,778
	12c	Single vllage from spring source + motor-ized distribution with 2 water points + solar		5		3,000	15,000	1.9%	52	782,998
13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,000	0	0.0%	79	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		8,100	0		39	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		5,500	0		54	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		8,100	0		47	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0			0

14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	90	40	44%	6,500	260,000	33.2%	88	22,968,619
	14b	Single village borehole source + distribution for 4-6 water points + Solar		10	11%	6,500	65,000	8.3%	88	5,742,155
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	22	18	82%	7,799	140,376	17.9%	84	11,855,938
	15b	Multi village from borehole source with 5-8 km distribution + Solar		2	9%	7,799	15,597	2.0%	84	1,317,326
	15c	Large multi village from one or more very deep boreholes with long km distribution		0	0%	10,000	0		133	0
16. Single Village -river	16	Single village from river source with treat-ment	60	0			0			0
17. Multi Village -river	17	Multi village from river source with treat-ment	60	0			0		118	0
		Other								0
Totals			5,584	2,025			839,073	103.6%		64,583,582

Table A2-1 Tigray Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

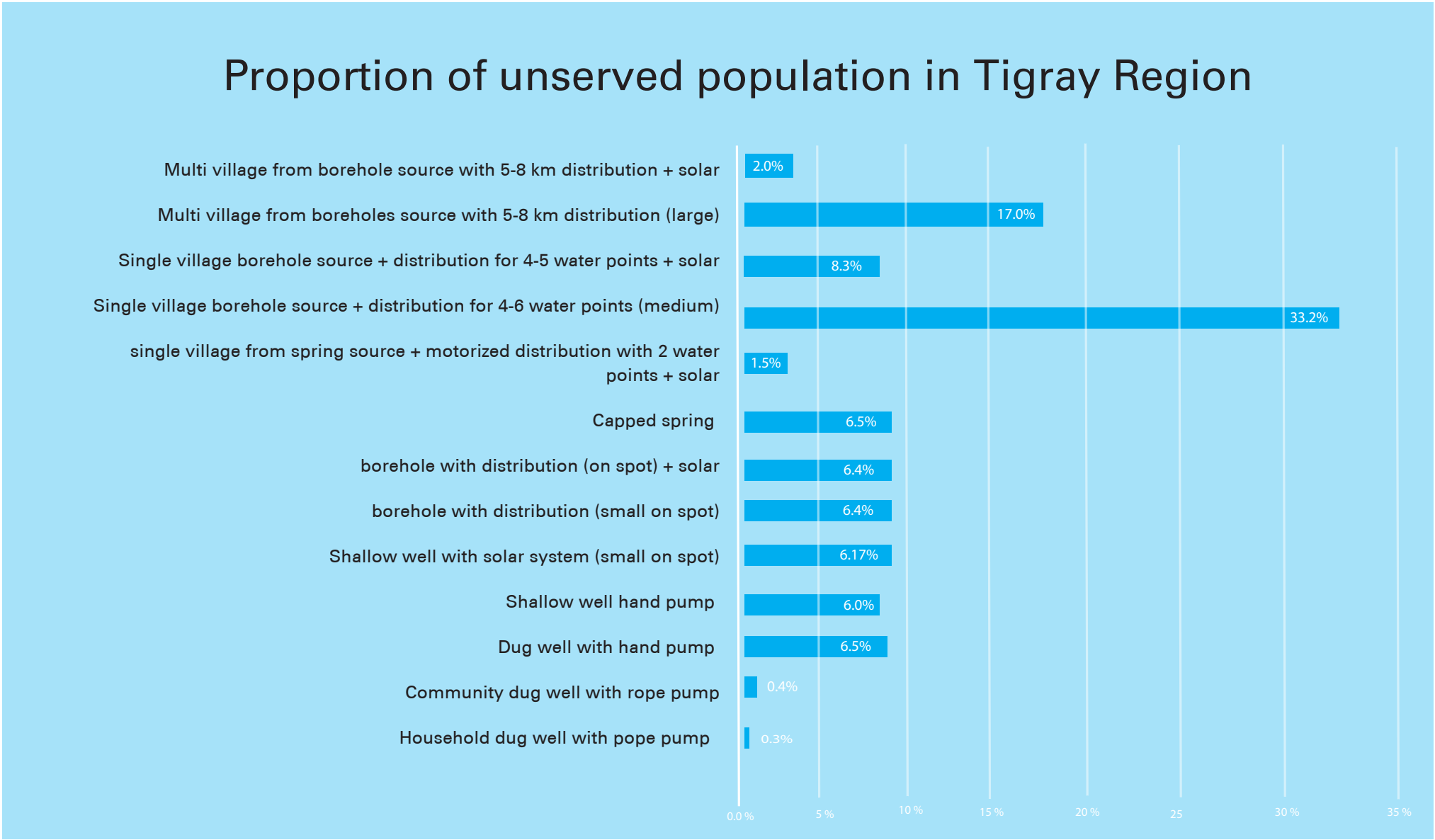


Figure A2-1 Tigray Region - Unserved population

A2- 2 GAMBELLA REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	650	100	15%	6	590	1.2%	133	78,461
	2	Community Dug well with Rope Pump	0	0		19	0	0.0%	47	0
On spot	3	Dug well with Hand Pump	163	12	7%	135	1,620	3.4%	34	55,535
	4	Shallow well with hand pump	238	10	4%	237	2,365	5.0%	95	223,643
	5	Shallow well with solar system (small on spot)	111	10	9%	237	2,365	5.0%	95	223,643
	6	Borehole with distribution (small on spot)	0	0		1,250	0	0.0%	135	0
	7	Borehole with distribution (on spot) + solar	0	2		1,250	2,500	5.3%	135	336,596
	8	Capped Spring	34	15	44%	200	3,005	6.3%	30	91,083
	9	Rain Water harvesting	0	0		249	0	0.0%	40	0
	10	Cistern	0	0		127	0	0.0%	140	0
	11	Hafir Dam	180	7		2,225	15,575	32.8%	13	198,845
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	8	2	25%	1,400	2,800	5.9%	96	268,227
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,300	0	0.0%	117	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		1		3,000	3,000	6.3%	52	156,600

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,300	0	0.0%	49	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		9,228	0	0.0%	108	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		3,300	0	0.0%	69	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		8,350	0	0.0%	41	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0		8,350	0	0.0%	52	0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	12	1		3,000	3,000	6.3%	105	315,245
	14b	Single village borehole source + distribution for 4-6 water points + Solar		1		3,000	3,000	6.3%	105	315,245
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	0	0		7,921	0	0.0%	39	0
	15b	Multi village from borehole source with 5-8 km distribution + Solar		1		7,921	7,921	16.7%	39	311,492
	15c	Large multi village from one or more very deep boreholes with long km distribution		0		10,000	0	0.0%	134	0
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	0			0	0.0%	118	0
		Other					0	0.0%		0
Totals			1,396	162			47,741	100.4%		2,574,614

Table A2-2 Gambella Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

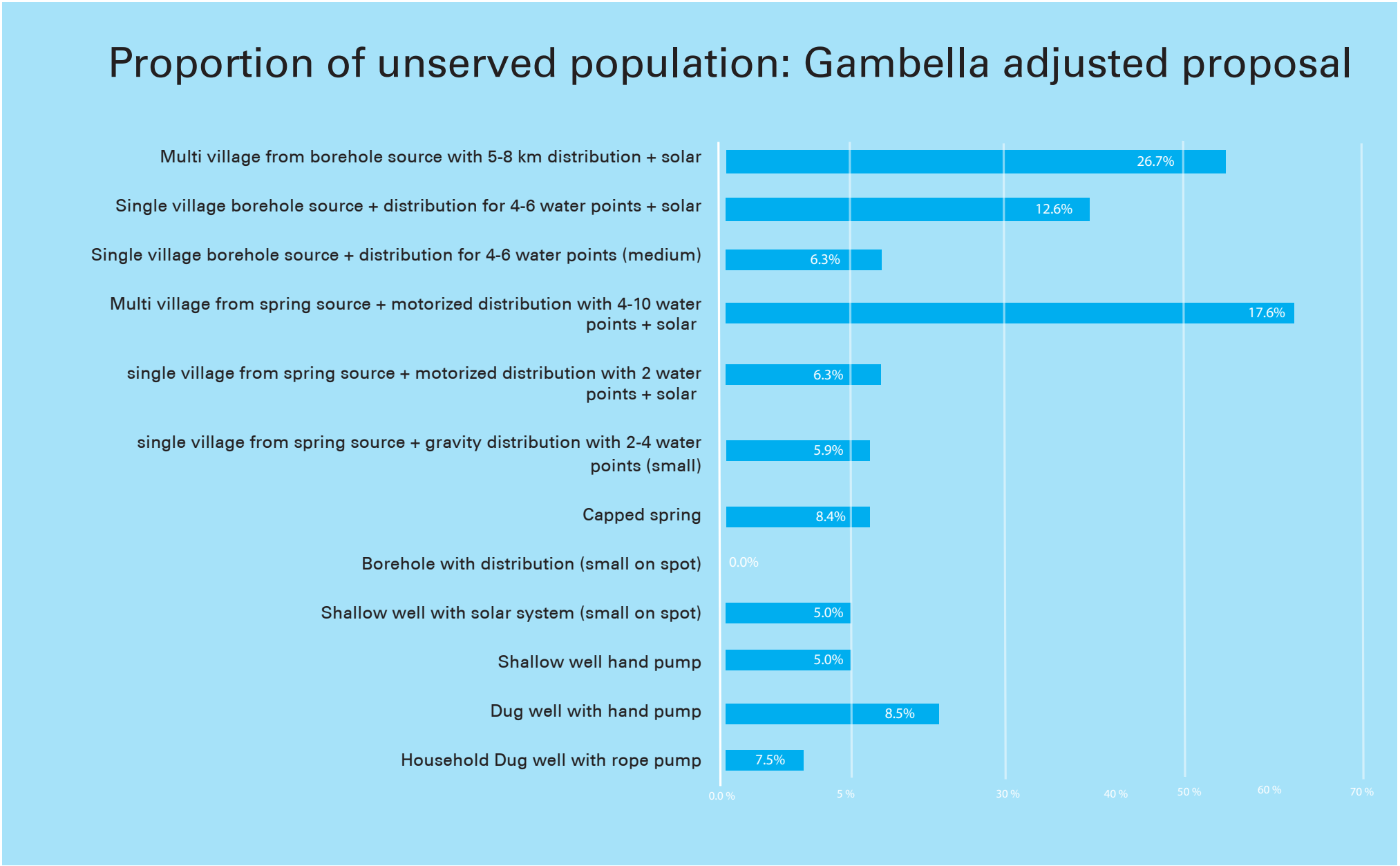


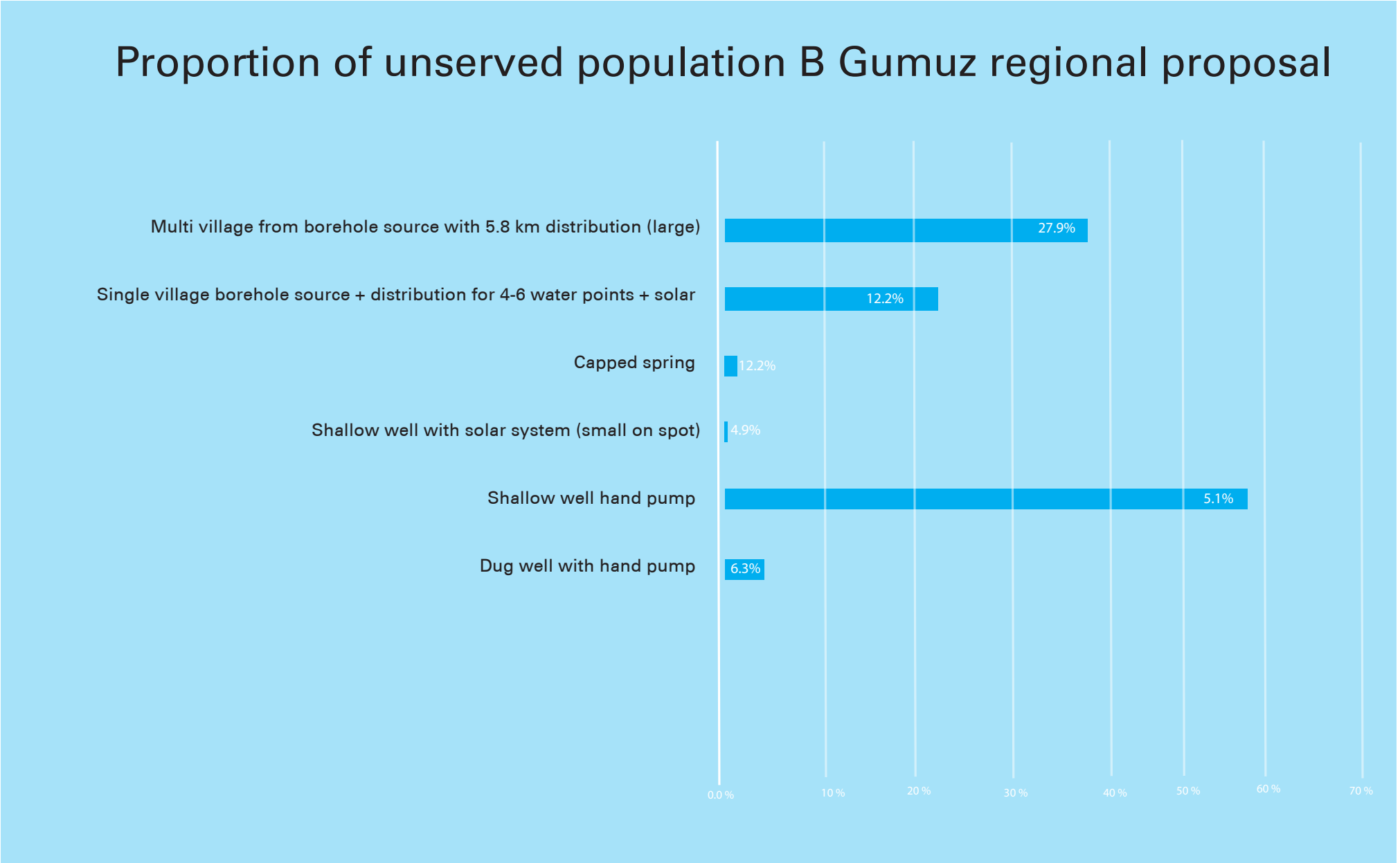
Figure A2-2 Gambella Region - Unserved population

A2- 3 BENISHALGUL GUMZ REGION

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		6	0	0.0%	133	0
	2	Community Dug well with Rope Pump	0	0		33	0	0.0%	38	0
On spot	3	Dug well with Hand Pump	120	120	100%	115	13,800	5.4%	30	416,311
	4	Shallow well with hand pump	624	624	100%	236	147,264	58.1%	41	6,034,378
	5	Shallow well with solar system (small on spot)	10	10	100%	236	2,360	0.9%	41	96,705
	6	Borehole with distribution (small on spot)	0	0		1,250	0	0.0%	115	0
	7	Borehole with distribution (on spot) + solar	0	0		1,250	0	0.0%		0
	8	Capped Spring	24	24	100%	188	4,500	1.8%	31	140,042
	9	Rain Water harvesting	0	0		44	0	0.0%	39	0
	10	Cistern	0	0		44	0	0.0%	106	0
	11	Hafir Dam	0	0		222	0	0.0%	105	0
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	0	0		1,450	0	0.0%	66	0
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,400	0	0.0%	105	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		0		3,000	0	0.0%	52	0

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,200	0	0.0%	48	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		8,100	0	0.0%	37	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		3,200	0	0.0%	69	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		8,100	0	0.0%	45	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	10	10	100%	3,000	30,000	11.8%	79	2,371,365
	14b	Single village borehole source + distribution for 4-6 water points + Solar		0			0	0.0%		0
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	8	8	100%	8,500	68,000	26.8%	50	3,400,447
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0	0%		0	0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		0	0%	10,000	0	0.0%	140	0
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	0			0	0.0%	118	0
		Other					0	0.0%		0
Totals			796	796			265,924	104.9%		12,459,248

Table A2-3 B Gumz Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY



FigureA2-3 B Gumz Region - Unserved population

A2- 4 HARARI REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjust-ment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		6	0	0.0%	133	0
	2	Community Dug well with Rope Pump	0	0		38	0	0.0%	32	0
On spot	3	Dug well with Hand Pump	20	10	50%	193	1,925	6.7%	19	36,047
	4	Shallow well with hand pump	0	0		280	0	0.0%	71	0
	5	Shallow well with solar system (small on spot)	0	0			0	0.0%		0
	6	Borehole with distribution (small on spot)	4	1	25%	1,800	1,800	6.3%	117	210,291
	7	Borehole with distribution (on spot) + solar	0	1	25%	1,800	1,800	6.3%	117	210,291
	8	Capped Spring	0	0		263	0	0.0%	27	0
	9	Rain Water harvesting	0	0		50	0	0.0%	32	0
	10	Cistern	0	0		50	0	0.0%	89	0
	11	Hafir Dam	180	180		250	45,000	157.1%	89	4,003,380
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	5	1	20%	1,450	1,450	5.1%	68	98,088
	12b	Single vllage from spring source + motorized distribution with 2 water points (small)		0		1,400	0	0.0%	109	0
	12c	Single vllage from spring source + motorized distribution with 2 water points + solar		1	20%	1,400	1,400	4.9%	52	73,080

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,200	0	0.0%	52	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		8,100	0	0.0%	35	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		3,200	0	0.0%	73	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		8,100	0	0.0%	44	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	4	1	25%	3,500	3,500	12.2%	97	340,045
	14b	Single village borehole source + distribution for 4-6 water points + Solar		1	25%	3,500	3,500	12.2%	97	340,045
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	8	1	13%	8,000	8,000	27.9%	73	583,893
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0			0	0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		0		10,000	0	0.0%	134	0
16. Single Village -river	16	Single village from river source with treat-ment	4	2	50%	3,500	7,000	24.4%	118	828,055
17. Multi Village -river	17	Multi village from river source with treat-ment	0	0		0	0	0.0%	118	0
		Other					0	0.0%		0
Totals			225	199			75,375	263.1%		6,723,213

Table A2-4 Harrari Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

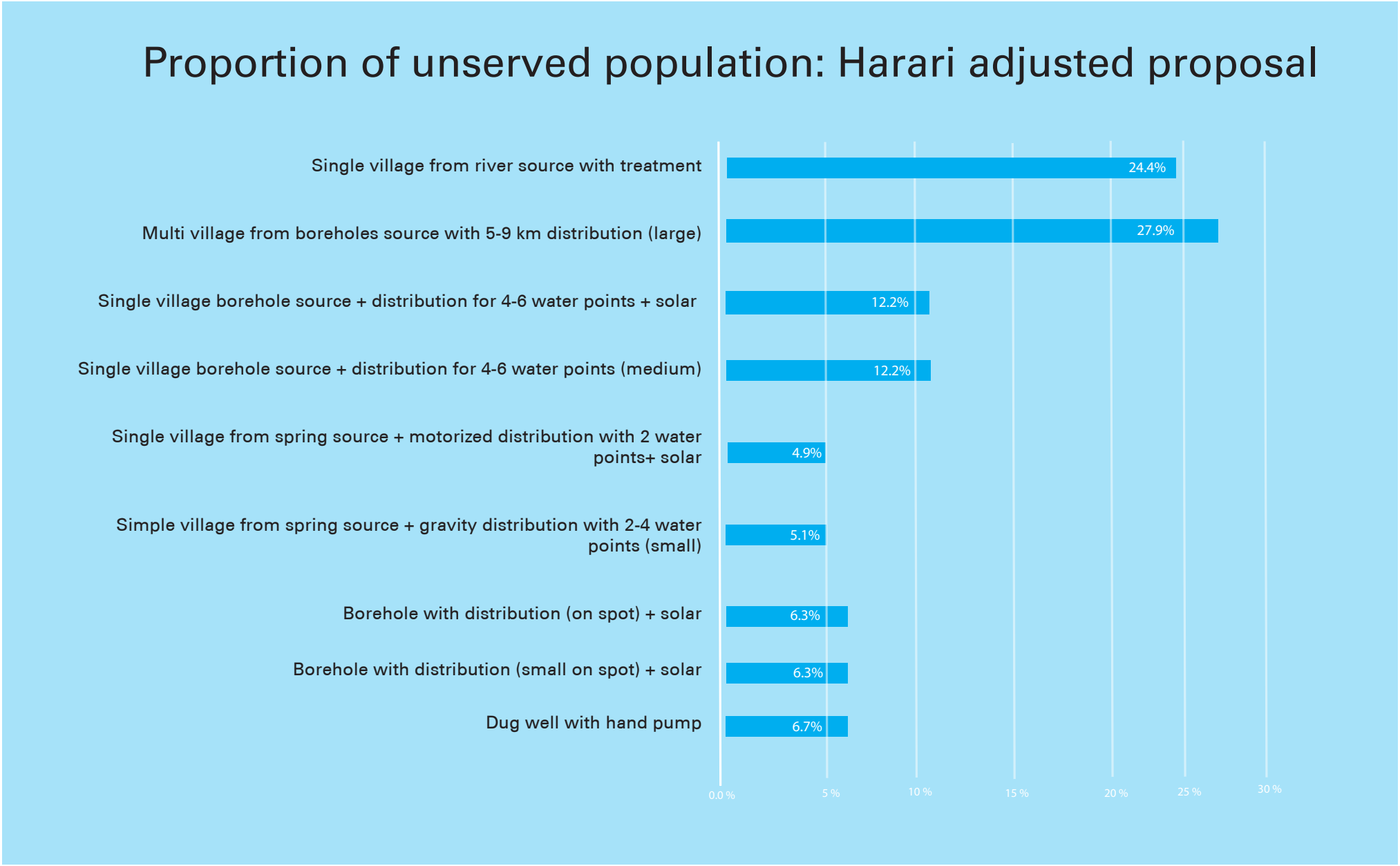


Figure A2-4 Harrari Region - Unserved population

A2- 5 SOMALI REGION

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		3	0	0.0%	224	0
	2	Community Dug well with Rope Pump	1,780	500	28%	33	16,500	1.3%	44	722,000
On spot	3	Dug well with Hand Pump	670	200	30%	150	30,000	2.4%	20	596,570
	4	Shallow well with hand pump	0	0		300	0	0.0%	89	0
	5	Shallow well with solar system (small on spot)	163	100	61%	300	30,000	2.4%	89	2,684,564
	6	Borehole with distribution (small on spot)	0	0		1,800	0	0.0%	211	0
	7	Borehole with distribution (on spot) + solar	0	0		1,800	0	0.0%		0
	8	Capped Spring	65	65	100%	175	11,375	0.9%	43	494,407
	9	Rain Water harvesting	2430	2,430	100%	45	109,350	8.8%	40	4,348,993
	10	Cistern	967	967	100%	45	43,515	3.5%	118	5,120,265
	11	Hafir Dam	94	94	100%	493	46,300	3.7%	98	4,558,347
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	0	0		1,500	0	0.0%	104	0
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,000	0	0.0%	268	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		0			0	0.0%		0

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		2,200	0	0.0%	173	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		4,500	0	0.0%	114	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		2,200	0	0.0%	203	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		4,500	0	0.0%	129	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	96	30	31%	4,000	120,000	9.7%	164	19,731,544
	14b	Single village borehole source + distribution for 4-6 water points + Solar		5	5%	4,000	20,000	1.6%	164	3,288,591
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	98	50	51%	6,500	325,000	26.3%	148	48,098,434
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0			0	0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		30	31%	10,000	300,000	24.3%	145	43,500,000
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	55	35	64%	6,500	227,500	18.4%	118	26,911,775
		Other					0	0.0%		0
		Totals	6,418	4,506			1,279,540	103.5%		160,055,488

Table A2-3 Harrari Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

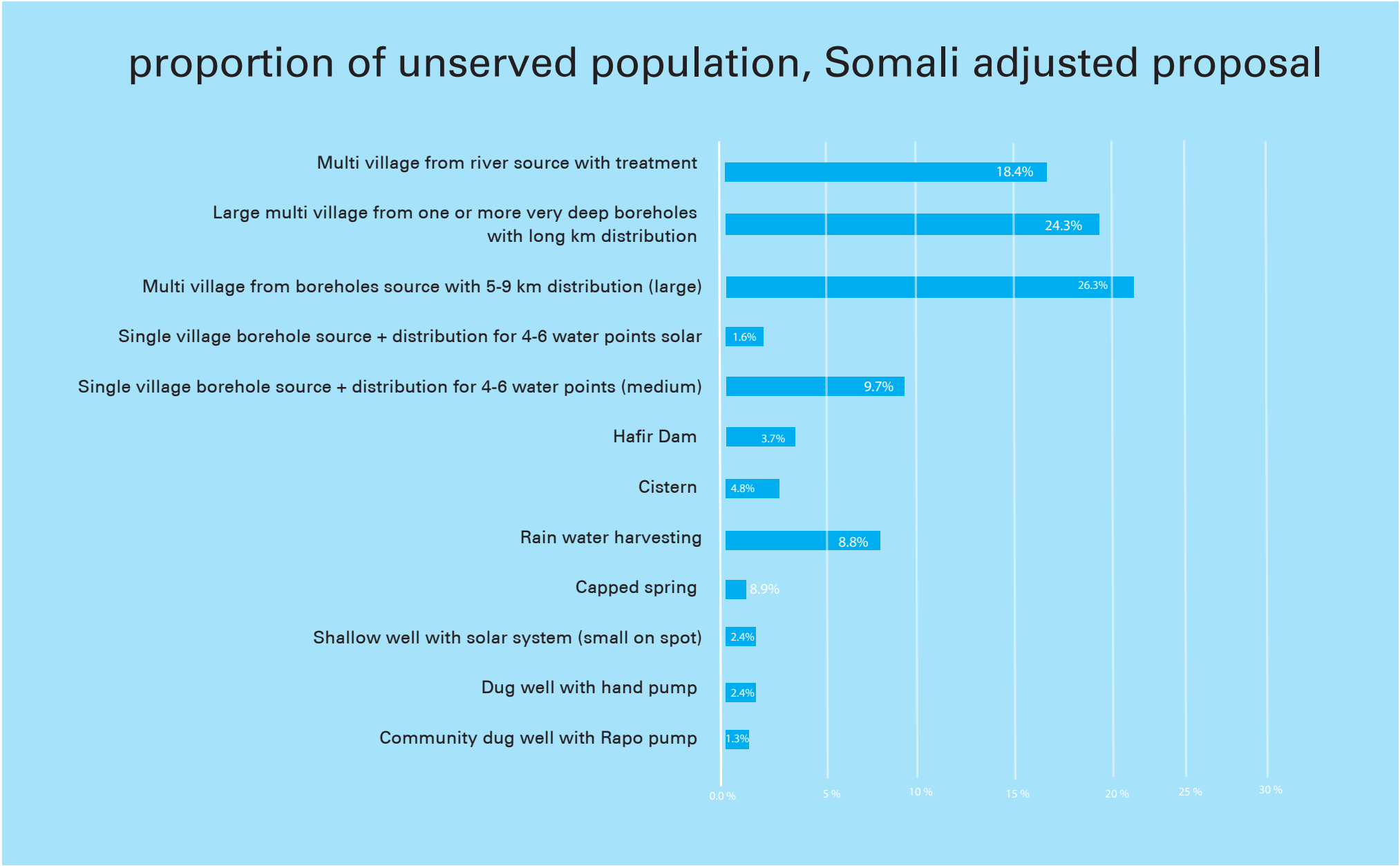


Figure A2-5 Somali Region - Unserved population

A2-6 AMHARA REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjust-ment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	1,260	500	40%	6	2,750	0.1%	164	451,156
	2	Community Dug well with Rope Pump	1,720	500	29%	32	16,000	0.8%	37	594,360
On spot	3	Dug well with Hand Pump	12,000	500	4%	188	93,900	4.6%	26	2,453,493
	4	Shallow well with hand pump	1,500	500	33%	274	137,138	6.7%	45	6,223,221
	5	Shallow well with solar system (small on spot)	1,500	500		274	137,138	6.7%	45	6,223,221
	6	Borehole with distribution (small on spot)	0	100		1250	125,000	6.1%	125	15,659,955
	7	Borehole with distribution (on spot) + solar	0	100		1250	125,000	6.1%	125	15,659,955
	8	Capped Spring	9,000	2,000	22%	271	542,000	26.6%	19	10,511,106
	9	Rain Water harvesting	180	180	100%	300	54,000	2.6%	45	2,416,107
	10	Cistern	180	0			0	0.0%		0
	11	Hafir Dam	180	0			0	0.0%		0
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	180	0		1395	0	0.0%	34	0
	12b	Single village from spring source + motorized distribution with 2 water points (small)		10		2000	20,000	1.0%	58	1,158,340
	12c	Single village from spring source + motorized distribution with 2 water points + solar		10		3000	30,000	1.5%	52	1,560,000

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	80	20	25%	3500	70,000	3.4%	38	2,684,564
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		20	25%	8500	170,000	8.3%	34	5,816,555
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		10	13%	3500	35,000	1.7%	58	2,013,423
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		5	6%	8500	42,500	2.1%	42	1,789,709
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		5	6%	8500	42,500	2.1%	52	2,210,000
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	80	5		3000	15,000	0.7%	75	1,118,568
	14b	Single village borehole source + distribution for 4-6 water points + Solar		5		3000	15,000	0.7%	75	1,118,568
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	60	20	33%	12500	250,000	12.3%	77	19,239,374
	15b	Multi village from borehole source with 5-8 km distribution + Solar		5	8%	12500	62,500	3.1%	77	4,809,843
	15c	Large multi village from one or more very deep boreholes with long km distribution			0%	10000	0	0.0%	127	0
16. Single Village -river	16	Single village from river source with treat-ment	60				0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	60	5		12500	62,500	3.1%	118	7,393,345
Other							0	0.0%		0
Totals			28,040	5,000			2,047,926	100.5%		111,104,864

Table A2-6 Amhara Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

Proportion of unserved population, Amhara adjusted proposal

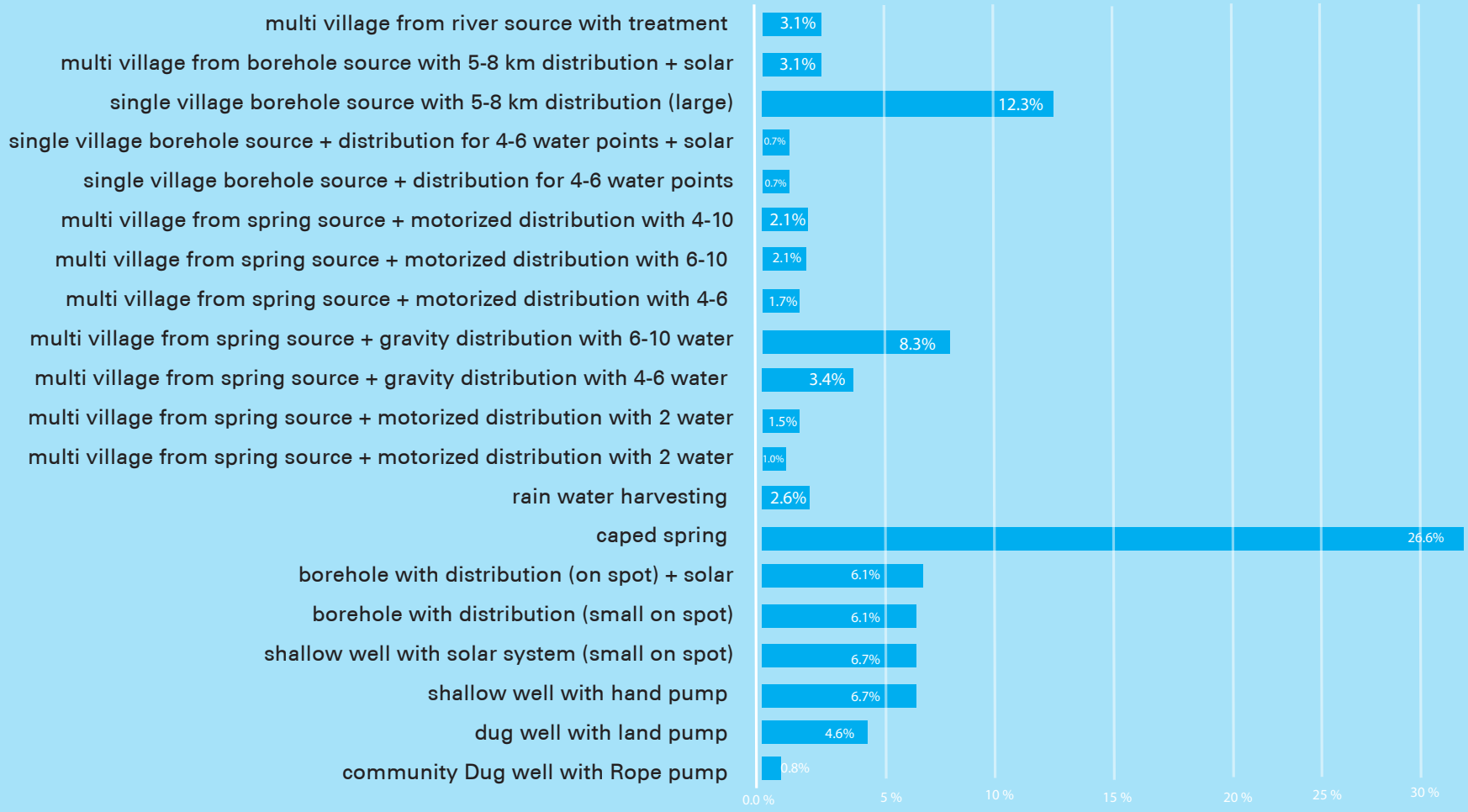


Figure A2-6 Amhara Region - Unserved population

A2-7 AFAR REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		6	0	0.0%	133	0
	2	Community Dug well with Rope Pump	0	0		33	0	0.0%	44	0
On spot	3	Dug well with Hand Pump	148	148	100%	185	27,380	4.1%	21	588,027
	4	Shallow well with hand pump	96	96	100%	350	33,600	5.1%	56	1,866,618
	5	Shallow well with solar system (small on spot)	53	100	189%	350	35,000	5.3%	56	1,944,394
	6	Borehole with distribution (small on spot)	0	0		2,000	0	0.0%	151	0
	7	Borehole with distribution (on spot) + solar	0	0		2,000	0	0.0%	151	0
	8	Capped Spring	7	7	100%	175	1,225	0.2%	30	36,422
	9	Rain Water harvesting	40	100	250%	44	4,400	0.7%	44	192,500
	10	Cistern	163	163	100%	44	7,172	1.1%	120	863,085
	11	Hafir Dam	7	7	100%	222	1,554	0.2%	119	185,339
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	0	0		1,350	0	0.0%	103	0
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,200	0	0.0%	186	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		0		1,200	0	0.0%	52	0

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,000	0	0.0%	97	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		6,500	0	0.0%	65	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		3,000	0	0.0%	76	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		6,500	0	0.0%	76	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	117	60		4,000	240,000	36.4%	129	30,872,483
	14b	Single village borehole source + distribution for 4-6 water points + Solar		10		4,000	40,000	6.1%	129	5,145,414
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	0	0		7,000	0	0.0%	112	0
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0				0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		30		10,000	300,000	45.4%	145	43,500,000
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	0			0	0.0%	118	0
Other							0	0.0%		0
Totals			631	721			690,331	104.6%		85,194,282

Table A2-7 Afar Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

Proportion of unserved population: Afar adjusted proposal

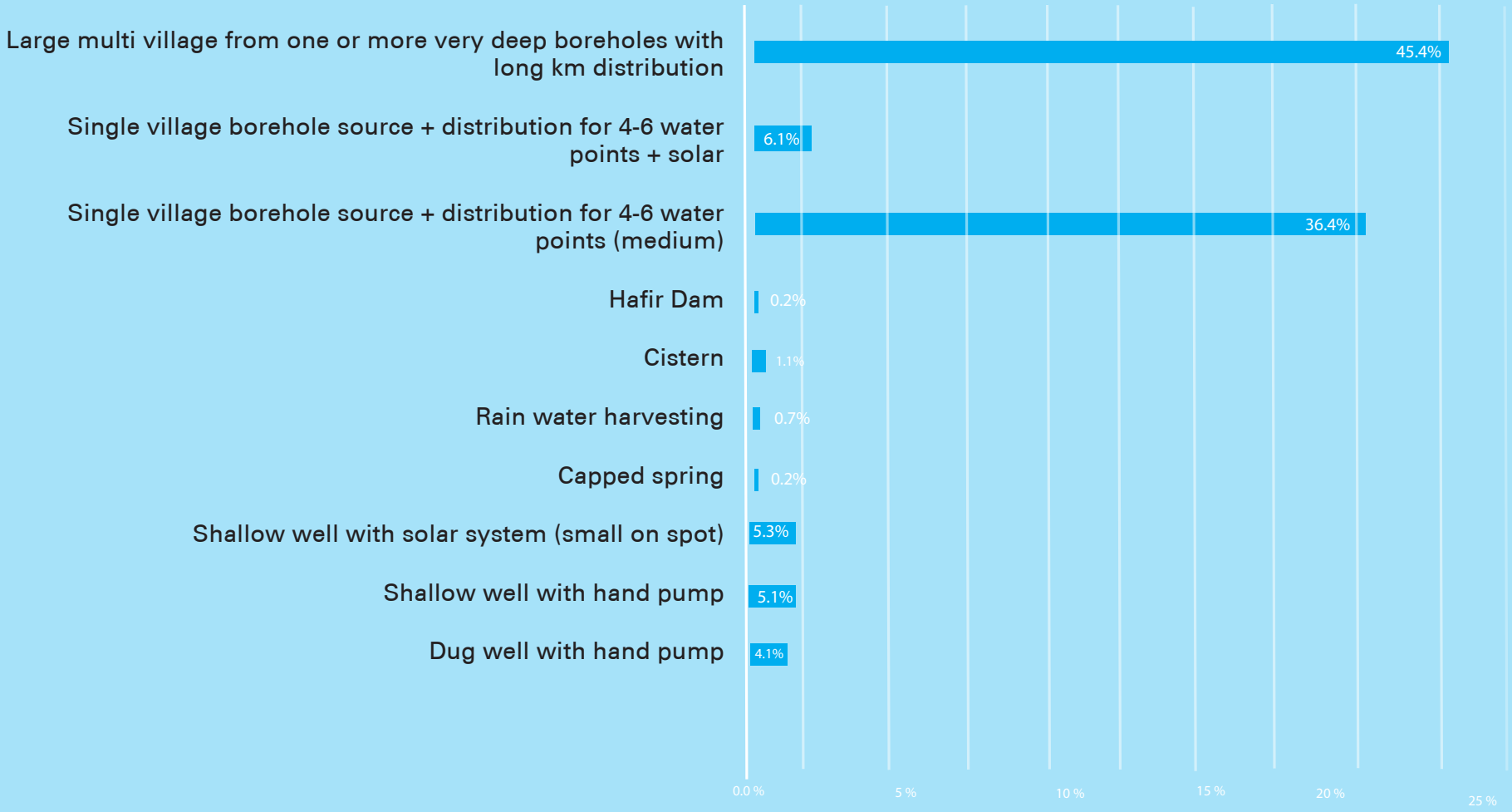


Figure A2-7 Afar Region - Unserved population

A2-8 SNNRP REGION

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjust-ment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		7	0	0.0%	112	0
	2	Community Dug well with Rope Pump	2,166	2,166	100%	54	116,964	1.9%	21	2,501,730
On spot	3	Dug well with Hand Pump	1,296	1,296	100%	234	303,005	4.8%	25	7,709,732
	4	Shallow well with hand pump	4,659	3,000	64%	260	779,328	12.4%	47	36,297,796
	5	Shallow well with solar system (small on spot)	0	1,000		260	259,776	4.1%	47	12,099,265
	6	Borehole with distribution (small on spot)	0	0		1,500	0	0.0%	140	0
	7	Borehole with distribution (on spot) + solar	0	0		1,500	0	0.0%	140	0
	8	Capped Spring	3,332	3,332	100%	287	955,729	15.3%	19	17,762,375
	9	Rain Water harvesting	0	1,500		300	450,000	7.2%	45	20,134,228
	10	Cistern	0	0		72	0	0.0%	59	0
	11	Hafir Dam	0	0			0	0.0%		0
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	344	344	100%	1,445	497,208	7.9%	35	17,622,186
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,800	0	0.0%	92	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		100		1,800	180,000	2.9%	52	9,395,973

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	0		3,800	0	0.0%	51	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		10,200	0	0.0%	32	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		0		3,800	0	0.0%	68	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		0		10,200	0	0.0%	38	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	534	534	100%	3,000	1,602,000	25.6%	107	172,026,846
	14b	Single village borehole source + distribution for 4-6 water points + Solar		50		3,000	150,000	2.4%	107	16,107,383
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	0	100		11,000	1,100,000	17.6%	51	55,928,412
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0			0	0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		0		10,000	0	0.0%	127	0
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	0			0	0.0%	118	0
Other							0	0.0%		0
Totals			12,331	13,422			6,394,009	102.0%		367,585,925

Table A2-8 SNNPR Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

Proportion of Unserved Population: Adjusted SNNPR Proposal

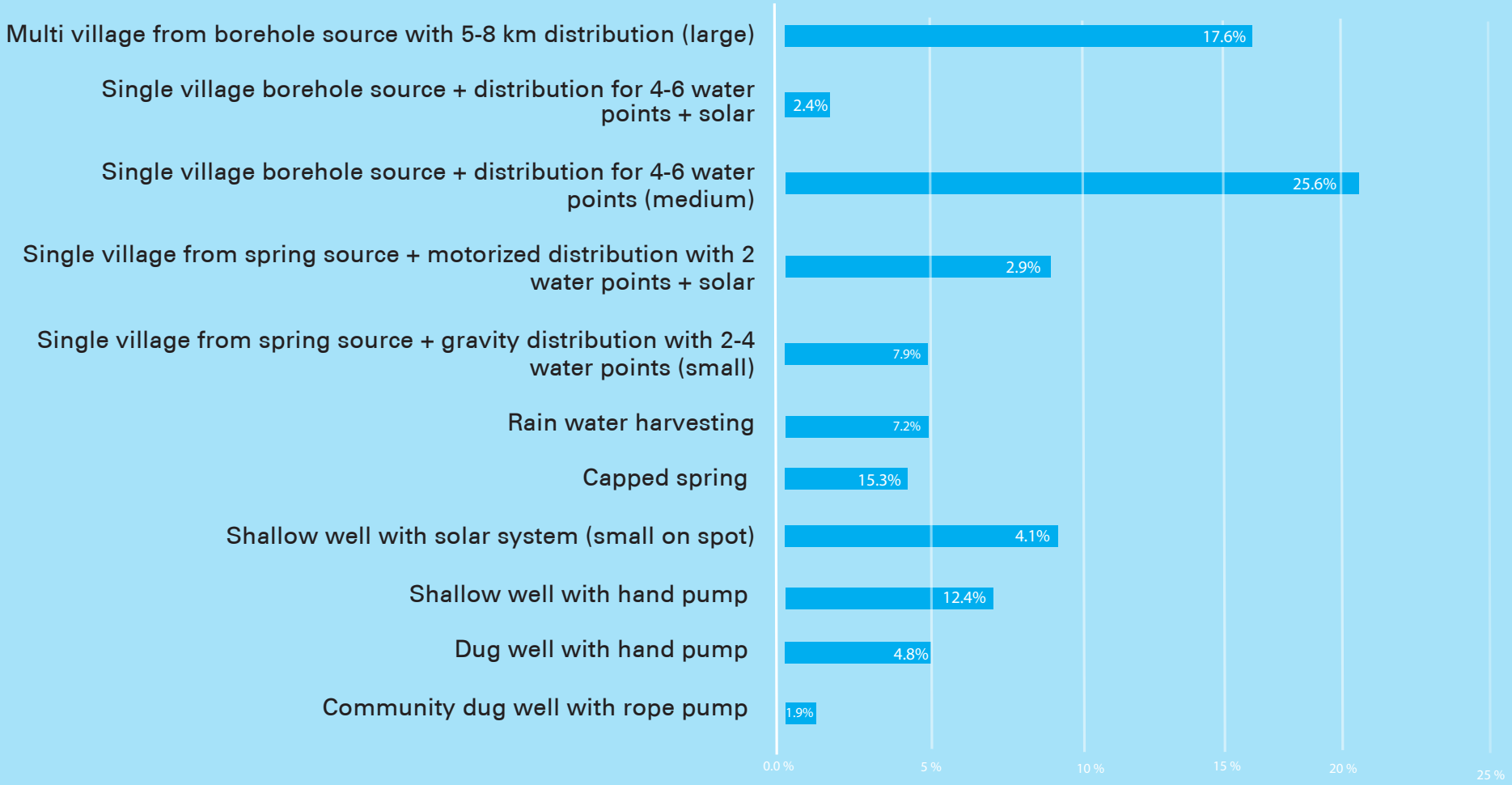


Figure A2-9 SNNPR Region - Unserved population

A2-9 OROMIA REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		7	0	0.0%	112	0
	2	Community Dug well with Rope Pump	0	0		54	0	0.0%	21	0
On spot	3	Dug well with Hand Pump	5,875	5,875	100%	166	972,900	10.7%	23	22,372,502
	4	Shallow well with hand pump	1,461	1,461	100%	217	316,953	3.5%	41	13,034,585
	5	Shallow well with solar system (small on spot)	0	4,000		217	867,770	9.6%	41	35,686,749
	6	Borehole with distribution (small on spot)	0	0		1,500	0	0.0%	134	0
	7	Borehole with distribution (on spot) + solar	0	500		1,500	750,000	8.3%	134	100,671,141
	8	Capped Spring	4,827	4,827	100%	256	1,236,402	13.6%	20	24,881,648
	9	Rain Water harvesting	0	5,000		72	360,000	4.0%	21	7,700,000
	10	Cistern	0	0		72	0	0.0%	90	0
	11	Hafir Dam	0	0		359	0	0.0%	59	0
		Other	0	0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	372	300	81%	1,479	443,612	4.9%	35	15,469,239
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		2,000	0	0.0%	81	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		50		2,000	100,000	1.1%	52	5,219,985

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	0	100		4,200	420,000	4.6%	44	18,344,519
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		0		11,000	0	0.0%	31	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		100		4,200	420,000	4.6%	60	25,055,928
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		100		11,000	1,100,000	12.1%	35	38,926,174
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		0			0	0.0%		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	687	600	87%	3,000	1,800,000	19.8%	104	187,919,463
	14b	Single village borehole source + distribution for 4-6 water points + Solar		100		3,000	300,000	3.3%	104	31,319,911
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	0	10		10,500	105,000	1.2%	52	5,467,562
	15b	Multi village from borehole source with 5-8 km distribution + Solar		0			0	0.0%		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		0		10,000	0	0.0%	127	0
16. Single Village -river	16	Single village from river source with treat-ment	0	0			0	0.0%		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	10		10,000	100,000	1.1%	118	11,829,351
		Other					0	0.0%		0
Totals			13,222	23,033			9,292,637	102.4%		543,898,759

Table A2-10 Oromia Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

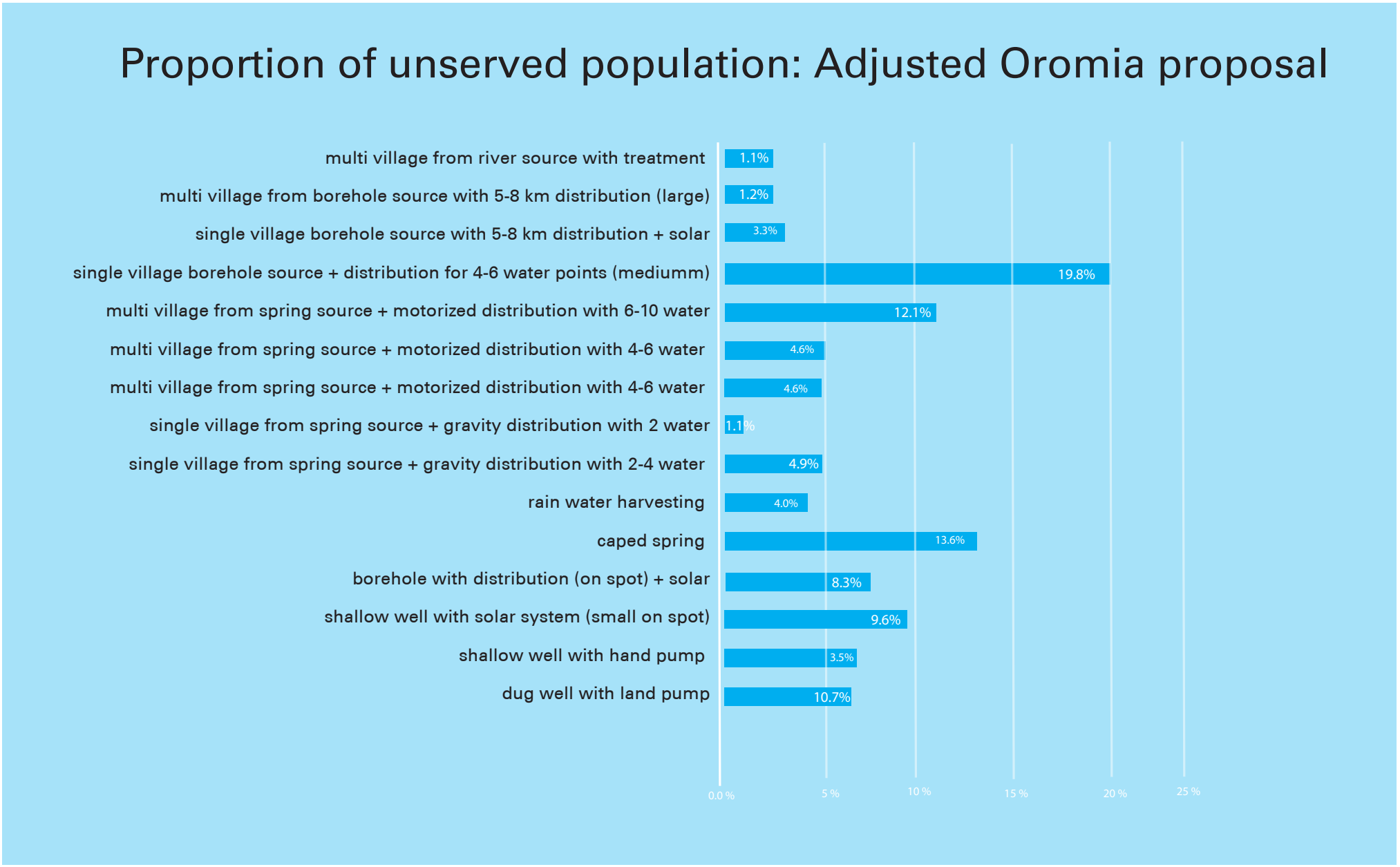


Figure A2-10 Oromia Region - Unserved population

A2-10 DIRE DAWA REGION ADJUSTED

Type	Sr No	Technology	No. of systems initially proposed (non-CR)	Planed number of systems adjusted to climate-resilient technology mix	Adjustment %age	Av. population served per system in this region	Adjusted regional population to be served by this system	Proportion of unserved population	Unit cost per capita USD	Total cost USD
Self supply	1	Household Dug well with Rope Pump	0	0		6	0	0.0%	133	0
	2	Community Dug well with Rope Pump	0	0		42	0	0.0%	32	0
On spot	3	Dug well with Hand Pump	0	0		171	0	0.0%	25	0
	4	Shallow well with hand pump	25	4	16%	320	1,280	6.4%	127	162,058
	5	Shallow well with solar system (small on spot)	0	2		320	640	3.2%	127	81,029
	6	Borehole with distribution (small on spot)	18	1	6%	2,000	2,000	10.0%	110	219,239
	7	Borehole with distribution (on spot) + solar	0	1		2,000	2,000	10.0%	110	219,239
	8	Capped Spring	0	0		350	0	0.0%	25	0
	9	Rain Water harvesting	0	2		737	1,474	7.4%	29	42,452
	10	Cistern	0	0		57	0	0.0%	90	0
	11	Hafir Dam	0	0		493	0	0.0%	98	0
		Other		0			0	0.0%		0
12. Single Village - spring	12a	Single village from spring source + gravity distribution with 2 -4 water points (small)	5	1	20%	1,400	1,400	7.0%	41	56,767
	12b	Single village from spring source + motorized distribution with 2 water points (small)		0		1,444	0	0.0%	130	0
	12c	Single village from spring source + motorized distribution with 2 water points + solar		0		1,444	0	0.0%	52	0

13. Multi Village -spring	13a	Multi village from spring source + gravity distribution with 4-6 water points (medium)	-	-		3,200.00	-	-	54.53	0
	13b	Multi village from spring source + gravity distribution with 6-10 water points (large)		-		8,100.00	-	-	37.56	0
	13c	Multi village from spring source + motorized distribution with 4-6 water points (medium)		-		3,200.00	-	-	75.50	0
	13d	Multi village from spring source + motorized distribution with 6-10 water points (large)		-		8,100.00	-	-	45.85	0
	13e	Multi village from spring source + motorized distribution with 4-10 water points + solar		-			-	-		0
14. Single Village -bore-hole	14a	Single village borehole source + distribution for 4-6 water points (medium)	10.00	1.00	0.10	3,500.00	3,500.00	0.18	100.99	353,468
	14b	Single village borehole source + distribution for 4-6 water points + Solar		-			-	-		0
15. Multi Village -bore-hole	15a	Multi village from borehole source with 5-8 km distribution (large)	3.00	1.00	0.33	8,000.00	8,000.00	0.40	73.83	590,604
	15b	Multi village from borehole source with 5-8 km distribution + Solar		-			-	-		0
	15c	Large multi village from one or more very deep boreholes with long km distribution		-		10,000.00	-	-	134.00	0
16. Single Village -river	16	Single village from river source with treat-ment	0	-			-	-		0
17. Multi Village -river	17	Multi village from river source with treat-ment	0	-			-	-	118.29	0
Other							-	-		0
Totals			61.00	13.00			20,294.22	101.9%		1,724,857

Table A2-10 Dire Dawa Region - Unserved population to be served during the OWNP phase II, according to data derived from draft MoWIE report 2009EFY

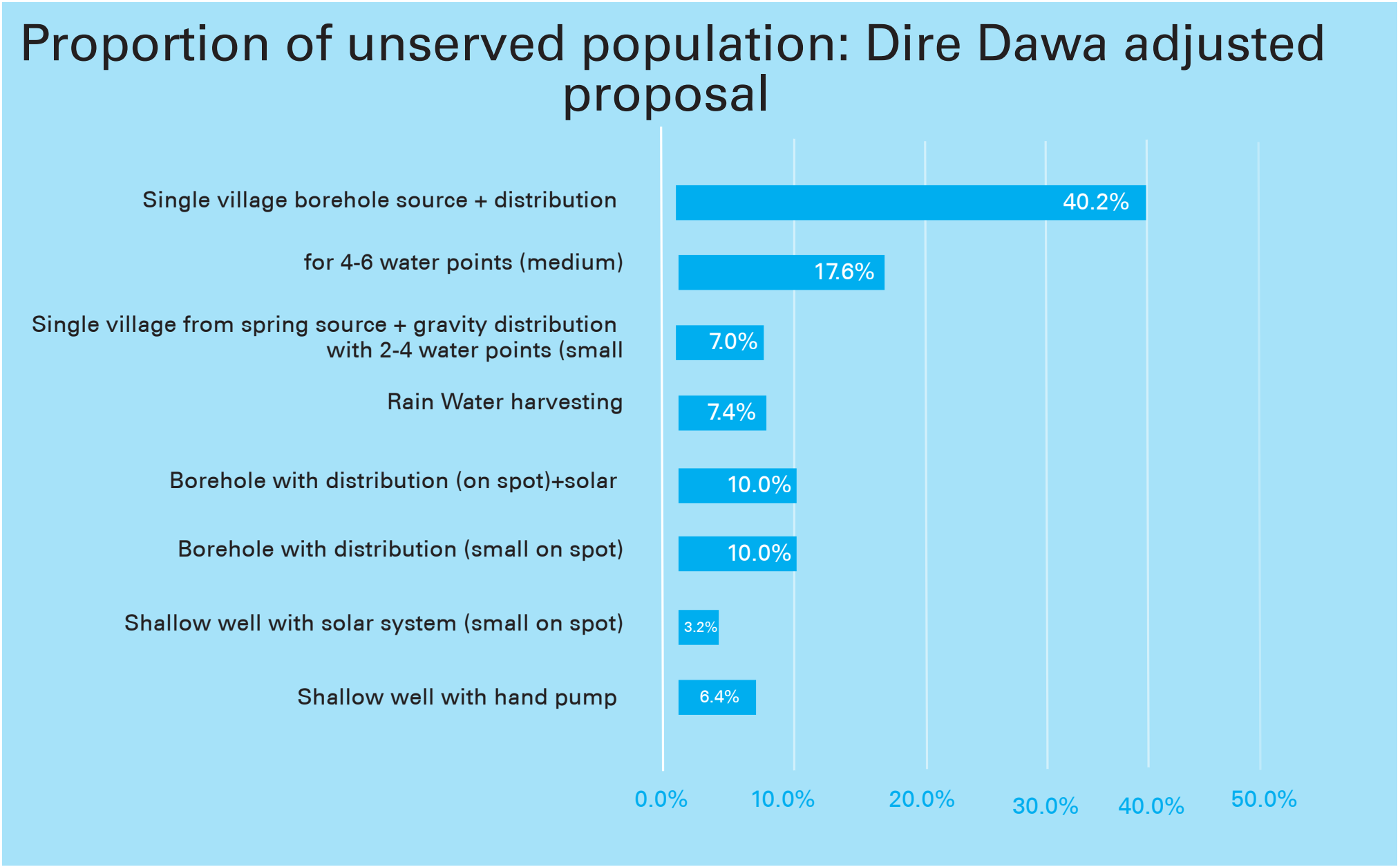


Figure A2-10 Dire Dawa Region - Unserved population

ONE WASH NATIONAL PROGRAMME - Phase II

ANNEX 3: SUMMARY OF RESULTS
PROGRAMME COST BY REGION

Sr No	Activities	Tigray	Gambella	B. Gumuz	Harari	Somali	Amhara	Afar	SNNPR	Oromia	Dire Dawa	Total
1	Construction of water supplies in communities	70.96	2.82	13.63	7.54	190.50	122.33	98.61	406.85	608.07	1.94	1,523
	2018	7.10	0.28	1.36	0.75	19.05	12.23	9.86	40.68	60.81	0.19	152
	2019	28.38	1.13	5.45	3.02	76.20	48.93	39.44	162.74	243.23	0.78	609
	2020	35.48	1.41	6.81	3.77	95.25	61.17	49.31	203.42	304.04	0.97	762
2	Rehabilitation of water supplies in communities	10.41	0.41	2.00	1.11	27.94	17.94	14.46	59.67	89.18	0.28	223
	2018	1.04	0.04	0.20	0.11	2.79	1.79	1.45	5.97	8.92	0.03	22
	2019	4.16	0.17	0.80	0.44	11.18	7.18	5.79	23.87	35.67	0.11	89
	2020	5.20	0.21	1.00	0.55	13.97	8.97	7.23	29.84	44.59	0.14	112
3	Study, Design and Project Management including catchment / sub-catchment groundwater investigation	13.25	0.53	2.54	1.41	35.56	22.84	18.41	75.95	113.51	0.36	284
	2018	1.32	0.05	0.25	0.14	3.56	2.28	1.84	7.59	11.35	0.04	28
	2019	5.30	0.21	1.02	0.56	14.22	9.13	7.36	30.38	45.40	0.14	114
	2020	6.62	0.26	1.27	0.70	17.78	11.42	9.20	37.97	56.75	0.18	142
	G. Total Cost by Region	94.61	3.75	18.17	10.06	254.00	163.11	131.48	542.47	810.76	2.59	2,031
	2018	9.46	0.38	1.82	1.01	25.40	16.31	13.15	54.25	81.08	0.26	203
	2019	37.85	1.50	7.27	4.02	101.60	65.24	52.59	216.99	324.30	1.04	812
	2020	47.31	1.88	9.08	5.03	127.00	81.56	65.74	271.23	405.38	1.29	1,016

Table A3-1: Rural water supply summary programme cost including other activities that are necessary for the component to function as intended by region and year in million US$

A3-2 RURAL SANITATION PROGRAMME COSTS AND TARGETS

Region Name	Taking villages to Primary ODF village status		Taking villages to Secondary ODF village status		Taking villages to Safely Managed sanitation village status		Fixed Costs for training; supervision and monitoring	Regional costs	Total Costs (ETB)	Total Costs (US$)
	Estimated Cost	Physical Target	Estimated Cost	Physical Target	Estimated Cost	Physical Target				
Afar										
2018	3,088,683	205	2,844,124	220	9,480,414	220	2,007,360	582,000	18,003,224	642,972
2019	12,354,730	818	11,376,496	879	37,921,654	879	8,029,440	2,328,000	72,012,898	2,571,889
2020	15,443,413	1,023	14,220,621	1,099	47,402,068	1,099	10,036,800	2,910,000	90,016,122	3,214,862
Total	30,886,825	2,046	28,441,241	2,198	94,804,136	2,198	20,073,600	5,820,000	180,032,244	6,429,723
Amhara										
2018	19,749,694	2,145	29,933,048	3,360	31,296,961	3,513	13,545,380	2,284,400	96,818,501	3,457,804
2019	78,998,776	8,582	119,732,190	13,440	125,187,844	14,052	54,181,518	9,137,600	387,274,003	13,831,214
2020	98,748,471	10,727	149,665,238	16,800	156,484,806	17,566	67,726,898	11,422,000	484,092,504	17,289,018
Total	197,496,941	21,454	299,330,475	33,600	312,969,611	35,131	135,453,796	22,844,000	968,185,008	34,578,036
Benshangul Gumuz										
2018	3,390,807	105	7,554,250	250	4,510,000	250	967,600	297,200	16,720,463	597,159
2019	13,563,230	421	30,217,000	1,000	18,040,000	1,000	3,870,400	1,188,800	66,881,851	2,388,638
2020	16,954,037	527	37,771,250	1,250	22,550,000	1,250	4,838,000	1,486,000	83,602,314	2,985,797
Total	33,908,074	1,053	75,542,500	2,500	45,100,000	2,500	9,676,000	2,972,000	167,204,627	5,971,594
Dire Dawa										
2018	3,760,245	35	3,841,048	38	2,293,163	38	447,720	130,800	10,473,087	374,039
2019	15,040,981	140	15,364,191	152	9,172,651	152	1,790,880	523,200	41,892,348	1,496,155
2020	18,801,227	175	19,205,239	191	11,465,814	191	2,238,600	654,000	52,365,435	1,870,194
Total	37,602,453	350	38,410,477	381	22,931,628	381	4,477,200	1,308,000	104,730,870	3,740,388
Gambella										
2018	2,907,590	77	2,059,512	91	2,059,512	91	48,380	225,200	7,300,452	260,730
2019	11,630,358	307	8,238,048	364	8,238,048	364	193,520	900,800	29,201,809	1,042,922
2020	14,537,948	384	10,297,560	455	10,297,560	455	241,900	1,126,000	36,502,262	1,303,652
Total	29,075,896	767	20,595,120	910	20,595,120	910	483,800	2,252,000	73,004,523	2,607,304

Note: Source of information is from sanitation micro-planning prepared by Ministry of Health with support from UNICEF; see the detailed activities and unit costs in the sanitation micro-plan documents by region

Harari										
2018	981,147	8	2,093,461	19	1,249,828	19	59,040	82,800	4,466,323	159,512
2019	3,924,590	34	8,373,845	76	4,999,310	76	236,160	331,200	17,865,291	638,046
2020	4,905,737	42	10,467,306	96	6,249,138	96	295,200	414,000	22,331,614	797,558
Total	9,811,474	84	20,934,612	191	12,498,276	191	590,400	828,000	44,663,228	1,595,115
Oromia										
2018	205,546,854	10,416	277,323,462	14,977	166,124,529	15,027	42,318,947	4,060,400	695,414,611	24,836,236
2019	822,187,417	41,665	1,109,293,848	59,906	664,498,115	60,108	169,275,787	16,241,600	2,781,658,445	99,344,944
2020	1,027,734,271	52,081	1,386,617,310	74,883	830,622,644	75,135	211,594,734	20,302,000	3,477,073,057	124,181,181
Total	2,055,468,542	104,162	2,773,234,620	149,765	1,661,245,288	150,270	423,189,467	40,604,000	6,954,146,113	248,362,361
SNNP										
2018	10,718,911	5,614	30,221,548	3,166	56,635,069	9,196	32,483,903	2,068,400	132,145,807	4,719,493
2019	42,875,644	22,458	120,886,191	12,664	226,540,276	36,784	129,935,614	8,273,600	528,583,230	18,877,972
2020	53,594,555	28,072	151,107,739	15,830	283,175,345	45,980	162,419,517	10,342,000	660,729,037	23,597,466
Total	107,189,109	56,144	302,215,478	31,659	566,350,690	91,960	324,839,034	20,684,000	1,321,458,074	47,194,931
Somali										
2018	10,234,119	438	8,932,250	446	7,325,357	447	5,800,683	1,422,000	33,715,740	1,204,134
2019	40,936,476	1,753	35,729,000	1,785	29,301,428	1,787	23,202,733	5,688,000	134,862,962	4,816,534
2020	51,170,595	2,191	44,661,250	2,231	36,626,786	2,234	29,003,416	7,110,000	168,578,702	6,020,668
Total	102,341,190	4,382	89,322,499	4,462	73,253,571	4,468	58,006,832	14,220,000	337,157,404	12,041,336
Tigray										
2018	18,118,150	95	39,586,942	221	27,843,667	261	4,015,335	508,400	90,073,070	3,216,895
2019	72,472,599	380	158,347,768	885	111,374,668	1,042	16,061,339	2,033,600	360,292,281	12,867,582
2020	90,590,749	475	197,934,710	1,106	139,218,335	1,303	20,076,674	2,542,000	450,365,352	16,084,477
Total	181,181,498	950	395,869,420	2,212	278,436,670	2,606	40,153,347	5,084,000	900,730,703	32,168,954
Grand Total in Eth Birr	2,784,962,002	191,392	4,043,896,442	227,878	3,088,184,991	290,614	1,016,943,476	116,616,000	11,051,312,795	394,689,743
2018	278,496,200	19,139	404,389,644	22,788	308,818,499	29,061	101,694,348	11,661,600	1,105,131,280	39,468,974
2019	1,113,984,801	76,557	1,617,558,577	91,151	1,235,273,996	116,246	406,777,390	46,646,400	4,420,525,118	157,875,897
2020	1,392,481,001	95,696	2,021,948,221	113,939	1,544,092,496	145,307	508,471,738	58,308,000	5,525,656,398	197,344,872
Grand Total in USD	99,462,928		144,424,872		110,292,321		36,319,409		394,689,742	

A3-2 Rural sanitation programme costs and targets

URBAN TECHNOLOGY MIX

In order to achieve greater resilience and reliability, it has been decided to consider a technology mix where the water source in drought prone areas is assumed to be from deep boreholes, however during the design phase the water source options will have to be assessed on a case by case basis.

URBAN WATER COSTS

Table A3-15 below shows the calculations for urban water costs based on 75 per cent population to be served under GTP II. Total costs are US$1,745 million in total.

Note that the US$1,745 million estimate is based on a standard 15-year (2032) design horizon which predicts around double the 2020 population to be served.

Fiscal Year	Activities	Number of planned activities by Region and year											Total
		Oromia	Amhara	Tigray	SNNP	Somali	B Gumuz	Afar	Gambella	Harari	Dire Dawa	Addis Ababa	
	Urban Water Supply												
2018	Study and Design	50	19	12	32	4	3	4	2	0.10	0.10	0.10	126
	New Construction	11	4	3	7	1	1	1	0				28
	Rehabilitation and expansion	39	15	9	25	3	2	3	2	0.10	0.10	0.10	98
2019	Study and Design	201	76	46	128	16	10	16	8	0.40	0.40	0.40	503
	New Construction	45	17	10	29	4	2	4	2				113
	Rehabilitation and expansion	156	59	36	100	12	8	12	6	0.4	0.4	0.4	390
2020	Study and Design	252	95	58	160	20	13	19	10	0.5	0.50	0.50	628
	New Construction	56	21	13	36	4	3	4	2				140
	Rehabilitation and expansion	196	74	45	125	16	10	15	8	0.5	0.5	0.5	488
	Study and Design	504	189	116	321	40	26	39	19	1	1	1	1256
	New Construction	112.5	42.3	25.8	71.7	9.0	6.0	9.0	4.0	0.0	0.0	0.0	280
	Rehabilitation and expansion	391	147	90	249	31	20	30	15	1	1	1	973

Table A3-3: Urban water supply Programme Physical plan by region and Year in Number

Sr No	Activities	Oromia	Amhara	Tigray	SNNP	Somali	B Gumuz	Afar	Gambela	Harari	Dire Dawa	Addis Ababa	Total
1	Construction of water supplies in communities	280.83	111.84	68.68	187.92	25.55	16.92	31.26	12.11	22.13	9.62	297.58	1,064
	2018	28.08	11.18	6.87	18.79	2.56	1.69	3.13	1.21	2.21	0.96	29.76	106
	2019	112.33	44.74	27.47	75.17	10.22	6.77	12.50	4.84	8.85	3.85	119.03	426
	2020	140.41	55.92	34.34	93.96	12.78	8.46	15.63	6.05	11.07	4.81	148.79	532
2	Study, Design and Project Management including catchment and or sub catchment groundwater investigation	64.45	25.67	15.76	43.13	5.86	3.88	7.17	2.78	5.08	2.21	68.30	244
	2018	6.45	2.57	1.58	4.31	0.59	0.39	0.72	0.28	0.51	0.22	6.83	24
	2019	25.78	10.27	6.31	17.25	2.35	1.55	2.87	1.11	2.03	0.88	27.32	98
	2020	32.23	12.83	7.88	21.56	2.93	1.94	3.59	1.39	2.54	1.10	34.15	122
3	Immediate service improvement	46.04	18.34	11.26	30.81	4.19	2.77	5.12	1.98	3.63	1.58	48.78	175
	2018	4.60	1.83	1.13	3.08	0.42	0.28	0.51	0.20	0.36	0.16	4.88	17
	2019	18.42	7.33	4.50	12.32	1.68	1.11	2.05	0.79	1.45	0.63	19.51	70
	2020	23.02	9.17	5.63	15.40	2.09	1.39	2.56	0.99	1.81	0.79	24.39	87
4	G. Total Cost by Region	460	183	113	308	42	28	51	20	36	16	488	1,745
	2018	46.04	18.34	11.26	30.81	4.19	2.77	5.12	1.98	3.63	1.58	48.78	175
	2019	184.15	73.34	45.04	123.23	16.75	11.10	20.50	7.94	14.51	6.31	195.14	698
	2020	230.19	91.68	56.30	154.03	20.94	13.87	25.62	9.92	18.14	7.88	243.92	873

Table A3-4: Urban water supply programme cost by region and Year in Million USD

URBAN SANITATION ACTIVITY AND FINANCIAL PLAN BY YEAR

Fiscal Year	Activities	Number of planned activities by Region and year											Total
		Oromia	Amhara	Tigray	SNNP	Somali	B/ Gumuz	Afar	Gambella	Harari	Dire Dawa	Addis Ababa	
2018	Sanitation services Improvement	0.600	0.400	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	2
	Water supply and operational efficiency improvement (#Towns)	0.60	0.40	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	2
	Project management and institutional development	0.60	0.40	0.20	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10	2
	Public Toilets Construction in 973 towns	32.40	12.20	7.50	20.60	2.60	1.60	2.50	1.30	0.40	1.30	14.90	97
	Communal Toilets Construction in 973 towns	32.40	12.20	7.50	20.60	2.60	1.60	2.50	1.30	0.40	1.30	14.90	97
	School Toilets Construction in 973 towns	32.40	12.20	7.50	20.60	2.60	1.60	2.50	1.30	0.40	1.30	14.90	97
	14 towns Study and design	0.90	0.60	0.40	0.40	0.40	0.20	0.20	0.20	0.10	0.10	0.10	4
	Rehabilitation	11.00	4.00	2.50	6.60	0.80	0.80	1.00	1.00	0.10	0.10	0.10	28
	Sub-Total planned for the year 2018	12.68	11.46	5.21	7.53	2.41	0.60	0.79	0.85	1.57	3.37	28.34	75
2019	Sanitation services Improvement	2.4	1.6	0.8	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	8.8
	Water supply and operational efficiency improvement	2.4	1.60	0.80	0.80	0.80	0.40	0.40	0.40	0.40	0.40	0.40	8.80
	Project management and institutional development	2.40	1.60	0.80	0.80	0.80	0.40	0.40	0.40	0.40	0.40	0.20	8.60
	Public Toilets Construction in 973 towns	129.60	48.81	30.00	82.40	10.40	6.40	10.00	5.20	1.60	5.20	59.60	389.21
	Communal Toilets Construction in 973 towns	129.60	48.81	30.00	82.40	10.40	6.40	10.00	5.20	1.60	5.20	59.60	389.21
	School Toilets Construction in 973 towns	129.60	48.81	30.00	82.40	10.40	6.40	10.00	5.20	1.60	5.20	59.60	389.21
	14 towns Study and design	3.60	2.40	1.60	1.60	1.60	0.80	0.80	0.80	0.40	0.40	0.40	14.40
	Rehabilitation	44.00	16.00	10.00	26.40	3.20	3.20	4.00	4.00	0.40	0.40	0.40	112.00
	Sub-Total planned for the year 2019	50.72	45.83	20.85	30.14	9.64	2.42	3.18	3.40	6.29	13.46	113.36	299
2020	Sanitation services Improvement	3.0	2.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5	11.00
	Water supply and operational efficiency improvement	3.00	2.00	1.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	11.00
	Project management and institutional development	3.00	2.00	1.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	11.00
	Public Toilets Construction in 973 towns	162.00	61.02	37.50	103.00	13.00	8.00	12.50	6.50	2.00	6.50	74.50	486.5
	Communal Toilets Construction in 973 towns	162.00	61.02	37.50	103.00	13.00	8.00	12.50	6.50	2.00	6.50	74.50	486.5
	School Toilets Construction in 973 towns	162.00	61.02	37.50	103.00	13.00	8.00	12.50	6.50	2.00	6.50	74.50	486.5
	14 towns Study and design	4.50	3.00	2.00	2.00	2.00	1.00	1.00	1.00	0.50	0.50	0.50	18.00
	Rehabilitation	55.00	20.00	12.50	33.00	4.00	4.00	5.00	5.00	0.50	0.50	0.50	140.00
	Sub-Total planned for the year 2019 (In million US$)	63.40	57.28	26.06	37.67	12.05	3.02	3.97	4.26	7.87	16.83	141.70	374
	Grand Total Urban sanitation	126.81	114.56	52.13	75.34	24.09	6.04	7.95	8.51	15.73	33.65	283.4	748

Table A3-5 Urban Sanitation Activity and Financial Plan by Year

Region	Health Center WASH Cost in rural areas (USD)			Heath Center in urban areas (USD)			Total Cost (USD)
	2018	2019	2020	2018	2019	2020	
Addis Ababa	0	0	0	90,000	360,000	450,000	900,000
Afar	136,351	545,404	681,755	197,857	791,429	989,286	3,342,080
Amhara	427,939	1,711,758	2,139,697	780,000	3,120,000	3,900,000	12,079,394
Benishangul Gumuz	0	0	0	38,500	154,000	192,500	385,000
Dire Dawa	0	0	0	14,500	58,000	72,500	145,000
Gambella	0	0	0	189,679	758,714	948,393	1,896,786
Harari	5,624	22,496	28,120	25,750	103,000	128,750	313,740
Oromia	651,242	2,604,969	3,256,212	7,036	28,143	35,179	6,582,781
SNNP	535,360	2,141,440	2,676,800	1,331,464	5,325,857	6,657,321	18,668,243
Somali	101,364	405,457	506,821	686,214	2,744,857	3,431,071	7,875,786
Tigray	375,771	1,503,086	1,878,857	85,786	343,143	428,929	4,615,571

Table A3-6: Institutional WASH: Health Centre WASH Facility including Rehabilitation by Region and year in (USD)

Note 1: For urban sanitation the planned activities in 22 towns implementation is started in the current year and for the remaining 14 towns study and design is expected to be executed in the coming two years of GTP II period. Other onsite urban sanitation activities like communal, public and school latrine are planned as per needs base study proposal of IUSHS&SSAP.

Note 2: Some of the planned activities described above are presented in decimal points since project activities may not be complete within one year: For overall GTP II target budgeting purposed it is assumed that 10 per cent, 40 per cent and 50 per cent will be completed in 2018, 2019 and 2020 respectively.

Region	Health Post WASH Cost in rural areas (ETB)			Total (US$)
	2018	2019	2020	
Addis Ababa	-	-	-	-
Afar	201,971	807,886	1,009,857	2,019,714
Amhara	1,659,397	6,637,589	8,296,986	16,593,973
Benishangul Gumuz	180,992	723,967	904,959	1,809,918
Dire Dawa	-	-	-	-
Gambella	66,497	265,988	332,485	664,969
Harari	-	-	-	-
Oromia	1,615,259	6,461,036	8,076,295	16,152,589
SNNP	2,197,407	8,789,628	10,987,035	21,974,069
Somali	784,188	3,136,752	3,920,940	7,841,879
Tigray	270,283	1,081,131	1,351,414	2,702,827
Total	6,978,012	27,905,995	34,881,990	69,759,939

Table 3-7 Institutional WASH: Health Post WASH Facility including Rehabilitation by Region and year in (US$)

Region	Primary schools rural areas			Primary schools urban areas			Total Cost (US$)
	2018	2019	2020	2018	2019	2020	
Addis Ababa	0	0	0	226,529	906,114	1,132,643	2,265,286
Afar	1,690,976	6,763,905	8,454,881	0	0	0	16,909,763
Amhara	12,908,971	51,635,885	64,544,857	97,743	390,971	488,714	130,067,142
Benishangul Gumuz	913,723	3,654,891	4,568,614	0	0	0	9,137,227
Dire Dawa	52,638	210,551	263,189	14,429	57,714	72,143	670,664
Gambella	318,088	1,272,353	1,590,441	0	0	0	3,180,883
Harari	95,484	381,935	477,419	55,484	221,937	277,421	1,509,680
Oromia	22,060,104	88,240,418	110,300,522	9,703	38,811	48,514	220,698,073
SNNP	16,448,770	65,795,080	82,243,850	722,464	2,889,857	3,612,321	171,712,342
Somali	5,770,497	23,081,987	28,852,483	0	0	0	57,704,967
Tigray	663,399	2,653,595	3,316,993	40,432	161,726	202,158	7,038,302
Total	60,922,650	243,690,600	304,613,250	1,126,351	4,505,405	5,631,756	620,894,329

Table A3-8 Institutional WASH: Primary School WASH Facility including rehabilitation by Region and year in (US$)

Region	Secondary schools (both rural and urban)			Total WASH in schools (US$)
	2018	2019	2020	
Addis Ababa	242,544	970,176	1,212,720	2,425,440
Afar	38,105	152,421	190,526	381,052
Amhara	384,257	1,537,026	1,921,283	3,842,566
Benishangul Gumuz	1,561,929	6,247,715	7,809,643	15,619,287
Dire Dawa	397,375	1,589,500	1,986,875	3,973,750
Gambella	144,360	577,441	721,802	1,443,603
Harari	680,036	2,720,144	3,400,180	6,800,360
Oromia	86,958	347,831	434,789	869,578
SNNP	12,123	48,494	60,617	121,234
Somali	153,691	614,763	768,454	1,536,908
Tigray	13,575	54,300	67,875	135,750
Total	3,714,953	14,859,811	18,574,764	37,149,528

Table A3-9 Institutional WASH: Secondary School WASH Facility including rehabilitation by Region and year in (US$)

INSTITUTIONAL WASH: SECONDARY SCHOOL WASH FACILITY INCLUDING REHABILITATION BY REGION AND YEAR IN (US$)

No.	Activity	Oromia	Amhara	Tigray	SNNP	Somali	B Gumuz	Afar	Gambella	Harari	Dire Dawa	Federal	Total (million US$)
1	Programme management												34
	2018	0.81	0.48	0.25	0.43	0.27	0.13	0.17	0.13	0.07	0.00	0.66	3
	2019	3.25	1.92	0.99	1.72	1.06	0.53	0.68	0.51	0.29	0.00	2.64	14
	2020	4.07	2.41	1.24	2.14	1.33	0.67	0.85	0.63	0.37	0.00	3.29	17
	Total	8.14	4.81	2.48	4.29	2.66	1.34	1.70	1.26	0.74		6.59	34
2	Advocacy												12.0
	2018	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.06	
	2019	0.46	0.46	0.46	0.46	0.46	0.46	`	0.46	0.46	0.46	0.24	
	2020	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.30	
	Total	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	0.60	12.00
3	Capacity Building Costs including TVETCs and HSCs, Training Manual Preparation, Procurement of Software, Motor Bikes and Vehicles												100
	2018	3.83	1.44	0.88	2.44	0.30	0.19	0.29	0.15	0.31	0.16	0.00	10
	2019	15.33	5.77	3.52	9.77	1.22	0.77	1.17	0.59	1.22	0.63	0.00	40
	2020	19.16	7.21	4.40	12.21	1.52	0.97	1.46	0.74	1.53	0.79	0.00	50
	Total	38.33	14.42	8.80	24.42	3.05	1.93	2.93	1.48	3.06	1.59	0.00	100
4	Training of Key Utility staffs on water governance such as asset management, leakage management, customer management etc.												20
	2018	0.77	0.29	0.18	0.49	0.06	0.04	0.06	0.03	0.06	0.03	0.00	2
	2019	3.07	1.15	0.70	1.95	0.24	0.15	0.23	0.12	0.24	0.13	0.00	8
	2020	3.83	1.44	0.88	2.44	0.30	0.19	0.29	0.15	0.31	0.16	0.00	10
	Total	7.67	2.88	1.76	4.88	0.61	0.39	0.59	0.30	0.61	0.32	0.00	20
5	Establish Water supply quantity and quality monitoring system												8
	2018	0.31	0.12	0.07	0.20	0.02	0.02	0.02	0.01	0.02	0.01	0.00	1
	2019	1.23	0.46	0.28	0.78	0.10	0.06	0.09	0.05	0.10	0.05	0.00	3
	2020	1.53	0.58	0.35	0.98	0.12	0.08	0.12	0.06	0.12	0.06	0.00	4
	Total	3.07	1.15	0.70	1.95	0.24	0.15	0.23	0.12	0.24	0.13	0.00	8
6	Capacity Building, Software, Procurement Vacuum suction trucks and other seed money for research, promotion etc. for urban sanitation programme												70
	2018	2.69	1.01	0.62	1.72	0.21	0.14	0.21	0.10	0.21	0.11	0.00	7
	2019	10.77	4.05	2.47	6.86	0.86	0.54	0.82	0.42	0.86	0.45	0.00	28
	2020	13.46	5.06	3.09	8.58	1.07	0.68	1.03	0.52	1.07	0.56	0.00	35
	Total	26.92	10.13	6.18	17.15	2.14	1.36	2.06	1.04	2.15	1.11	0.00	70

7	Support to Supply Chains											14
	2018	0.54	0.20	0.12	0.34	0.04	0.03	0.04	0.02	0.04	0.02	1
	2019	2.15	0.81	0.49	1.37	0.17	0.11	0.16	0.08	0.17	0.09	6
	2020	2.68	1.01	0.62	1.71	0.21	0.14	0.21	0.10	0.21	0.11	7
	Total	5.37	2.02	1.23	3.42	0.43	0.27	0.41	0.21	0.43	0.22	14
8	Self-Supply Technical Assistance											15
	2018	0.57	0.22	0.13	0.37	0.05	0.03	0.04	0.02	0.05	0.02	0.00	2
	2019	2.30	0.87	0.53	1.47	0.18	0.12	0.18	0.09	0.18	0.10	0.00	6
	2020	2.87	1.08	0.66	1.83	0.23	0.14	0.22	0.11	0.23	0.12	0.00	8
	Total	5.75	2.16	1.32	3.66	0.46	0.29	0.44	0.22	0.46	0.24	0.00	15
9	Post construction Support											12
	2018	0.46	0.17	0.11	0.29	0.04	0.02	0.04	0.02	0.04	0.02	0.00	1
	2019	1.84	0.69	0.42	1.17	0.15	0.09	0.14	0.07	0.15	0.08	0.00	5
	2020	2.30	0.87	0.53	1.47	0.18	0.12	0.18	0.09	0.18	0.10	0.00	6
	Total	4.60	1.73	1.06	2.93	0.37	0.23	0.35	0.18	0.37	0.19	0.00	12
10	M&E, MIS and Data Management											159
	2018	3.80	2.25	1.16	2.01	1.24	0.62	0.80	0.59	0.34	0.00	3.08	16
	2019	15.22	9.00	4.64	8.02	4.97	2.50	3.18	2.37	1.38	0.00	12.33	64
	2020	19.02	11.25	5.80	10.03	6.22	3.12	3.98	2.96	1.72	0.00	15.41	79
	Total	38.05	22.50	11.59	20.06	12.43	6.25	7.95	5.91	3.44		30.81	159
	Grand Total												444

Table A3-10: Capacity Building and. Programme Management Costs by Region and Year (million USD)

ANNEX 4: SANITATION AND HYGIENE IMPLEMENTATION IN RURAL AND PASTORALIST AREAS: 2018-2020

A4.1. Introduction

Sanitation and hygiene issues are of major importance and yet rarely make the list prioritized activities in the world, especially in Ethiopia. Politicians, artists, environmentalists and other prominent figures don't advocate for sanitation and hygiene. Sanitation is not an appealing word like water, medicine, clinic, hospital, school, and economy. But, water is be useless if handled in unsanitary conditions, expensive drugs have to be imported to treat illness caused by these conditions, students' cognitive power, health, height and weight are affected by parasitic infections.

The economy of a country is harmed by sickness, absence from work and high medical costs.

According to many studies, malnutrition, environmental conditions and infectious diseases are highly associated and affect children under 5 years of age. Childhood malnutrition is associated with diseases, poor mental development and reduced learning ability (Alderman and others, 2006).

In a study by the World Bank study, Repositioning Nutrition as Central to Development, nutrition is presented as a central issue and it establishes that malnutrition is not due just to lack of food but also the result of environmental risk factors. A recent ESI desk review conducted by WSP with consent from FMoH indicates that poor sanitation costs Ethiopia ETB 13.5 billion each year, equivalent to about ETB 170 per person per year or 2.1 per cent of the national GDP. In order to deal with WASH-related infectious diseases, nutritional disorders and improve the national economy, the Government of Ethiopia together with development partners, have paid substantial attention to rural hygiene and sanitation improvement through the Health Extension Programme (since 2004).

It is high time for a paradigm shift from the business as usual approach we have been following in the past to more pragmatic methods or approaches to achieve a sustainable change. The approach is to make the communities responsible for improved sanitation and hygiene through a "community centred" approach which would empower WSP (2015) Desk review on Economics of Sanitation (ESI) for Ethiopia, unpublished them through training of prominent, respected, influential people such as religious leaders, women groups, elders, teachers and students. (see box)

Box 1

Why a Community-Centred Approach?

If people can express their opinion on the processes that affect them, in this case the problem of sanitation and hygiene, and become part of any change, it will give them an intrinsic satisfaction and power. Community action is valid if the aim of community involvement in thinking, planning, deciding, acting and evaluating is taken seriously.

When a local population fully participates in planning and decision making and realizing a project, the community collectively considers it their own project, making them proud of their accomplishment and committing them to sustain it.

When communities are involved in a common ground for change, it means they have made their decision for a cause and will inherently respect the process they helped create.

Involving the community will tap into local knowledge and skills which are well adapted and respected.

Taking action on issues of poverty and its relationship to sanitation and hygiene is more effective when the centre of planning is the community. Reaching out to the bottom 40 per cent of people is much easier if communities are empowered to lead WASH programmes and change processes at their level.

A4.2. Objectives of the Community Centred Approach

The main objective of the strategy is to delineate the ways and means of achieving the national target through organizing a community centred approach, providing guidelines and capacity building on life skills by addressing key barriers, identifying and involving key sector stakeholders and strengthening enabling conditions.

The specific objectives are:

- Introduce the community centred approach to all those concerned at the regional, woreda and kebele levels by April 2008.
- Increase awareness and knowledge for attitudinal change to 80 per cent of the population in Ethiopia by 2020.
- Increase the availability and consistent use of improved latrine to 82 per cent by the end of 2020.
- Increase the number of households practicing hand washing with soap at critical moments by 70 per cent by the end of 2020.
- Establish sanitation marketing to provide improved and affordable sanitation options in at least 40 per cent of the woredas by 2020.
- Reduce faecal-oral disease transmission through the promotion of hygiene and sanitation behaviour change in 70 per cent of communities in Ethiopia by 2020.
- Mobilize communities in rural and urban areas to use animal dung, chicken waste and human excreta to produce bio-gas plants for collective use in 30 per cent of households in communities by 2020.
- Support the establishment of a simple and practical approach for small towns so that solid, liquid and human excreta disposal problem currently prevailing in small towns will be improved in at least 80 per cent of small town municipalities by 2020.
- Establish a robust rural and urban water quality monitoring mechanism to inform ONEWASH National Programme Steering Committee members three times a year.
- Strengthen and support the water, sanitation and hygiene monitoring and reporting system.
- Reach out to all households and mobilize communities with a view for a rapid change in improved sanitation, water safety and hygienic practice by everyone in all communities in Ethiopia by 2020 and beyond.

A4.3. Goals of the Community Centred Approach

Reach out to all households and mobilize communities with a view for a rapid change in improved sanitation, water safety and hygienic practice by everyone in all communities in Ethiopia by 2020 and beyond.

A4.4. The Guiding Principles for Community Centred Approach

Empower communities and make them the centre of planning, action and follow up for sustainable hygiene and environmental health/sanitation behaviour change by enhancing local involvement, using local aspirations, motivations, knowledge, skill and action.

Engage political leaders and key local residents from federal, regional and local levels and key influential people such as religious leaders, women groups, youth at all levels

Catalysing "the multiples"

- Use multi-level (national, regional, zonal, woreda, kebele and community levels) advocacy and planning
- Engage multi-sectoral partners (health, education, water, development partners, youth, women, private commercial),
- Use multiple communication channels (face-to-face, community events, religious institutions, school curricula, mass media, advocacy, IEC, mobile film shows, drama, soap operas, etc.)
- Align all hygiene and environmental health programmes with the Health Extension Programme, emphasizing the role of Health Extension Workers (HEWs)and Women Health Development Army (WHDA)
- Base all hygiene and sanitation interventions on the local context (existing beliefs, norms, aspirations and practices and behaviour approximations)
- Focus on feasible behaviour rather than jumping directly to ideal behaviour. Environmental health/sanitation improvement programmes should address the problem incrementally, basing the intervention programme on doable actions using local skill and available local material at the beginning and build up from there to introduce a more robust and ideal system.
- Advocate for WASH as a barrier of disease. From an epidemiological perspective, safe water, clean sanitation and proper hygiene practices are the first barrier to many WASH and behaviour-related diseases,

- Promote consistent and correct practice of hygiene and environmental health/ sanitation-related behaviours through a focus on their benefits beyond just health (honour, beauty, Godliness, privacy, dignity, comfort, safety)
- Support the expansion of sanitation marketing for affordable, technically feasible key sanitation and hygiene technologies and supplies.
- Develop and implement a behaviour-based monitoring and improvement system to refine the intervention

The environmental health/sanitation programme should equally address the needs, preferences, and behaviours of children, women, men and persons with disabilities.

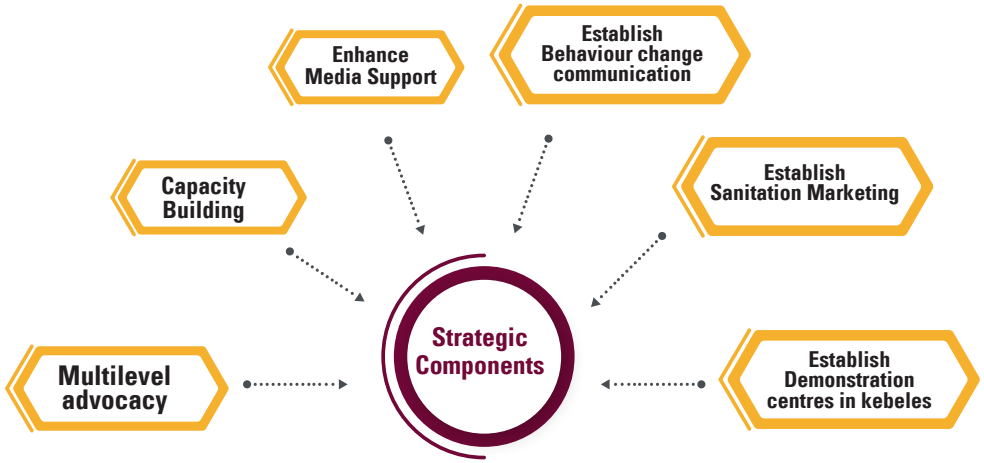


Figure A4.1 Strategic components of the sanitation and hygiene strategy

SC 1: Multi-Level Advocacy

Advocacy activities will be multi-level. National, regional and local authorities will be targeted to promote hygiene and sanitation Improvement, acknowledging some and inviting others for specific actions, programmes, support and enforcement. Officials at all appropriate levels will be guided to understand the role they can play in achieving the national strategic goals.

SC 2: Strengthening Household and Community hygiene and sanitation/environmental health conditions.

Community mobilization and household visits are essential for hygiene behaviour change. This will be achieved by coordinated and independent activities of government and NGO partners. health extension workers together with trained community resource people and the development armies organized at the community level are to be the primary promoters of domestic hygiene and sanitation in all communities.

Environmental health workers, WASH volunteers, WASHCOs, community-based organizations working on child survival, agricultural extension agents, NGO home-visitors will expand their activities with household and community outreach.

SC 3 Capacity building

The Programme will use cascade training methods to develop trainers at the regional level and implement training at the woreda, kebele and village levels to all sector actors such as environmental health workers, health officers, health extension workers, health extension programme supervisors, WASHCOs, members of the health development army and primary health care staff at the PHCUs and community resource people.

SC 4: Media Support

While access to radios is by no means universal or equally accessible to all family members, a radio is the best medium for wide reach into communities and households, especially in the Ethiopian context where TV is not widely used in rural communities. Various programming, from public announcements to radio dramas to games and contests can provide credibility, popularity and support to more intensive community and household behaviour change efforts. They magnify impact and increase the number of contacts with households, a factor known to catalyse change. Equally useful nowadays is the mobile phone which is a source of information and that which can be a medium for sanitation, water and hygiene behaviour change promotion.

SC 5 Behaviour Change Communication Strategy

The communication and messaging strategy will make practicing WASH behaviours seem "fun, easy and popular," and promise benefits that are appreciated by most households. However, well-designed methods and tools will be necessary for effectiveness (see Number 8 below for details).

SC 6: Increasing Availability and Affordability of Hygiene and Sanitation Products through Private Sector Initiative

The strategy must not only build demand for products, but support the private sector's role in providing affordable quality products. As gaps in key products are identified through regional, woreda, and household analysis, the behaviour change strategy responds by identifying, or if necessary, by building, public and private sector networks to provide affordable access.

SC 7: Demonstration Latrines, Hand Washing Stations, and other Hygiene-related products.

Creating model showrooms of hygiene and sanitation products allows people to see, touch and try hygiene, safe water, and sanitation products. They can actually try various options, and understand the related costs, benefits, and upkeep.

A4.6. KEY CRITICAL SUCCESS FACTORS (BARRIER ANALYSIS)

Existing H and EH Behaviour	Feasible or doable behaviour	Ideal behaviour
Human Excreta Management		
Many people still defecate in the open	People can use simple methods (cat method) and cover their faeces to prevent any access by flies and animals	Everyone in a community uses an improved latrine which is cleanable and that which lasts longer, protects the users from disease and provides adequate privacy
Most of the existing latrines are unimproved, not providing adequate privacy	Even if people can't construct improved latrine with slabs of concrete, available latrines can be transformed to have the features of an improved type with local materials	
People in urban and rural communities don't dispose child faeces properly	People can help child defecate on leaves, paper, broken clay and dispose it in latrine or cover it with soil to deny fly access.	
Those who own and use latrine don't keep their latrine clean, cover squat holes and maintain it regularly	Latrine floors can be made with dung or mud to make it smooth and cleanable and latrine squat holes can be covered with any available discarded household materials Pot makers in the community can easily shape clay covers for squat holes	
Latrine is not considered part of the living house	Households can use their building skills to also construct proper latrines Housewives and children can make the latrine floor, walls etc. cleanable and comfortable using local materials that will not cost them money but only their time.	Latrine floor and walls can be constructed from durable materials such as cement, brick or blocks and covered with a tin sheet
Hand Washing practice		
People who own latrines have no hand washing facilities by the latrine, or the facilities lack water and soap	Compared with latrine construction tasks, hand washing arrangements are simple and cheap	Hand washing facilities with running water and soap or soap substitute available by the toilet and kitchen
People don't practice proper hand washing even if they have the facilities and water	People can be made aware about the critical moments and encouraged to wash their hand with soap or ash	
Solid and Liquid Waste Management		
The immediate housing environment in communities are littered with animal (dung and urine), farm (crop chaffs) and other solid waste	People have to be encouraged to do daily cleaning and practice proper storage that discourages fly breeding or other animals harbourage Use the organic wastes such as house sweepings and dung waste for composting, land reclamation, soil conditioning or plastering of walls and floors	Use cow dung together with human faeces for bio-gas production Compost all organic waste and use it for soil Conditioning.
Liquid waste from cloth washing, food utensil washing, bathing and animal urine are indiscriminately thrown outside the house	People should be made aware of the health effects of such wastes and encouraged to dispose of them in a seepage pit or use the wastewater to water plants	
Water safety measures		
People are still using an unprotected water source	Water boiling is a simple and cheap method of making water safe for drinking Use a water guard which is simple to use, accessible and affordable	All people rural/urban use improved water source in at least at intermediate access level
Water transport, storage containers and water drawing utensils are largely unclean	Water container should be cleaned every time when water is fetched or whenever water is finished from storage	
People don't practice point of use treatment for water	Chlorine solutions such as wuha agar which is available in local pharmacies and affordable can be used for disinfection	

Table A4-1: Hygiene and Sanitation/Environmental Health Behaviour analysis

Stakeholders	What we expect from stakeholders	Stakeholders' expectation
1.Private sector	Their involvement in sanitation marketing. Robust plans to reach out to rural communities with appropriate water treatment methods. Participate in demand creation for sanitation and water quality improvement.	Government to lead the development and to take responsibilities in organizing and facilitating financial inputs.
2.Faith-based and religious organizations	Their understanding and commitment to support hygiene and sanitation changes as stated in the scriptures. Guide their followers according to the scriptures by organizing the communities towards achieving a clean and healthy environment. Act as change agents in their communities.	Capacity building on prescribed sanitation and hygiene facts in the religious texts. Introduce construction skills in latrine construction.
3.NGOs	NGOs who are frontline community supporters are expected to be part of: Community mobilization process. Follow government approved strategies and directions. Adopt designed tools. Be part of the monitoring and evaluation process in the communities.	Aligned plan Receive inputs Motivation and feedback
4.Micro and small enterprise development agencies, micro finances at federal, regional and woreda levels	Organizing private sector actors to take up sanitation and hygiene as a business. Rendering capacity building to newly established sanitation businesses. Support in making available the much-needed seed money and necessary tools to the private sectors. Align their plans with sectors.	Consultation and support to facilitate capacity building efforts Expert support Guarantee for financial repayment
5.Community members	Community participation in the change process. Trust, involvement, cooperation, attitudinal change. Cooperation in allocating their time, local resources and skill for sanitation and hygiene improvement.	Capacity building Regular follow up and encouragement Technical support
6.Teachers	School teachers being the most educated members of a community should lead and support the hygiene and sanitation behaviour change process, taking active part in involving school children in promoting improved sanitation in their households and immediate neighbours. Enhance and support the construction of improved latrines and support efforts for ODF achievement in their communities. Create a positive public image by transforming the school environment.	Recognize their importance as change agents in their settings Capacity building Follow up support Printed materials such as guides and manuals
7.School children and parents	Agree that school children are the future generation. Behaviour changed at this stage will be sustained for life. Cooperate to involve for a rapid behaviour change in their households and neighbourhood.	Capacity building in Hygiene and sanitation Hands-on training on latrine construction Support their community mobilization effort Introduce simple child friendly behaviour change communication methods such as dramas, skits.
8.Women's organizations	Understanding that behaviour transformation starts at the household level. Awareness creation that children and women are the most vulnerable and most exposed to adverse sanitation and hygiene related adverse effects. Support women empowerment and make them part of the solution by mobilizing women for behaviour change. Awareness creation by promoting positive sanitation and hygiene behaviours.	Involvement in initial intervention programme Invitation to workshops, Participating in campaigns Training
9.Community level organizations such as Idir, development team (limat budin)	Understand that empowering and enhancing community involvement will support rapid changes in sanitation and hygiene behaviours. Create awareness for communities to believe in themselves and enhance their self-esteem. Follow up progress and support efforts by households and community members.	Hands on Training Motivation and feedback

Table A4-2 Stakeholders Analysis Important for Community Centre Programming

AREAS OF FOCUS IN SANITATION AND HYGIENE IN COMMUNITIES

Risk evaluation studies and critical factor analyses (Table 1 above) made by national and other researchers using qualitative study (community dialogue, environmental surveys and focus group discussion (FGD) and literature review on five environmental health domains, including water, sanitation and hygiene) indicate risky behaviours in all domains.

Rural and pastoralist sanitation: The efforts by health extension workers have resulted in substantial change, especially in unimproved sanitation in rural agrarian regions but not so in pastoralist regions. However, improved sanitation is still low and ODF attainment is not sustained. The didactic method of communication by health extension workers should be strengthened through the enhancement of community empowerment. (see Box 1)

Just as with adult sanitation, safe disposal of children's faeces should ensure separation of the stool from human contact and an uncontaminated household environment. Although some people think that children's faeces are less harmful than adults', this is untrue. Due to higher prevalence of diarrhoea and pathogen counts (e.g. for entero viruses, hepatitis A, rotavirus, E-coli, shigella, vibrio cholerae) and other tropical diseases such as soil transmitted helminths (STH), child stool often poses a greater health risk than that of adults. A 2010 study on child faeces disposal conditions in Ethiopia found that 69 per cent reported that the faeces of their youngest child under three was not deposited into a toilet/latrine – i.e. that the child faeces were unsafely disposed. Poorer rural households and those without improved sanitation or any type of sanitation system consistently reported higher rates of unsafe child faeces disposal.

Urban sanitation: The current sanitation conditions for Ethiopia's urban areas and small towns are very alarming. Solid waste is disposed anywhere as long as it is out of site; liquid waste of any kind (domestic, industrial, institutional, flood etc), and human excreta are dumped, polluting the rivers, the land and the atmosphere. If there was a recycling programme the waste produced in urban areas could be made economically viable.

The great majority of urban dwellers, especially poor people, rely on non-sewered systems that generate a mix of solid and liquid wastes generally termed faecal sludge. In poor and rapidly expanding cities, faecal sludge management (FSM) represents a growing challenge, generating significant negative public health and environmental risks.

Most sanitation facilities (about 91 per cent) in Addis Ababa are onsite sanitation that requires pit emptying services. Nevertheless, 85.4 per cent of the residents are dissatisfied with the pit emptying services. As a result of the severe constraints of pit emptying and FSM services, most toilet facilities (about 50 per cent) were full. The general situation in small and big cities requires a pragmatic and sustained approach for solid and liquid waste management and enforcement.

Water Quality: Water quality monitoring is an essential environmental health programme aiming at preventing water borne diseases such as diarrhoea. A recent study by EPHI indicates that 43 per cent of water sources[62]

considered improved are contaminated with e coli. Some samples even indicate the contamination of water with lead and iron. Although there are a few regional laboratories and partner-supported field monitoring kits being used for water quality surveillance, there is a need to strengthen the programme at all levels.

Disease Burden: Poor sanitation and unhygienic practices, malnutrition, and acute respiratory infections prevailing in the country are major contributors to ill health and mortality especially for infants and children.

The MDG report (2010) clearly states that 23 per cent of under-5 mortality in Ethiopia is due to diarrhoea resulting from poor sanitation and hygiene. The recent Health Sector Transformation Plan (HSTP) also indicated that diarrhoea is the second biggest killer of under-5 children next to acute respiratory infection.

The facts and figures therefore indicate the need to strengthen the water, sanitation and hygiene programme so that healthy, productive and vibrant citizens prevail. In order to take sanitation, hygiene and water safety forward a community-centred approach has been designed.

62. EPHI: Water Quality assessment in SNNPR

A4.7. Strategic Approaches

- Establish common ground with WASH member institutions, sector staff, NGOs and others at all levels on the need to make the hygiene and environmental health transformation a community centred programme.
- Design tools, procedures, manuals and guidelines with all its principles, print and distribute to all kebeles
- Develop simple, replicable and affordable sanitation and hygiene technology options with steps and pictures to be included in the community manual.
- Conduct capacity building programmes and create a critical mass of trained sector actors at the regional, woreda and kebele level who in turn, train Community Resource People (CRP) from each community.
- Recruit CRP from religious organizations, teaching institutions (teachers and students), women and youth groups to take responsibility for community mobilization in hygiene and the environmental health behaviour change process.
- Establish monitoring, reporting and benchmarking mechanisms.
- Establish a kebele hygiene and environmental health planning tool and make it a biannual procedure and exercise.
- Develop IEC materials and BCC tools to promote hygiene and sanitation/ environmental health behaviour and enhance a continuous and mass public engagement process
- Capacity building to health extension workers and women health development armies on:
  - Community dialogue, which is needed to communicate doable actions at the household level using job aides. Doable is defined as the first level actions that are simple but useful and can be upgraded as community level behaviour changes. It also helps to have persistent contacts and dialogue for more simple intervention method. Reporting: True report at the right time is useful for planning and evaluation.
  - CLTSH and SLTS facilitation skills: There has never been CLTSH training for HEWs as such except very short training in the integrated refreshment training which was not adequate. The facilitation of CLTSH requires motivation, skill, tactics and commitment. HEWs are the immediate contact to the communities so enabling them to have the necessary skills will be useful and make them independent.
  - The planning process should be a continuous exercise by all sectors especially to start behaviour change activities at the community level. Planning will include what, why, when and by whom.
  - Conducting surveys, analysing data and presentation: One of the main gaps in the health sectors is the lack of true, reliable and up-to-date data. The sector should establish a monitoring system based on baselines. Sector staff should be able to collect and collate data to have evidence on where to start and what to accomplish.
  - Reporting: True report at the right time is useful for planning and evaluation.

A4.8. Communication for Social and Behaviour Change (SBCC)

Box 2 Behaviour Approximations

- *The white traditional Ethiopian cloth now adopted by all tribes reflects clean appearances and maintaining dignity in public.*
- *Ethiopians have fly whisks that they hold while eating to keep flies away from their food.*
- *Ethiopians use different types of sticks for tooth brushing.*
- *Ethiopians wet their fingers with water before they eat and use soap after eating.*
- *Ethiopian women use ash to clean greasy cooking utensils or anything that is contaminated with smelly substances such as gasoline or kerosene*
- *In Ethiopia, Muslims after they have made themselves clean before prayer will not shake hands fearing they could be contaminated with anything, including faecal matter.*
- *Ethiopians clean their house and compound and burn all trash once a year in November (Hidar 12).*
- *Ethiopians know the benefits of organic waste. They want family members to defecate or dump ash on their farms especially the backyards which is usually reserved for vegetable farming.*

Behaviour change and practice for sanitation and hygiene may become more productive if it is based on the knowledge of key aspects of what people know, do and want. Starting with positive aspects of hygiene is much preferable than to start discussing germ theory and disease. Would our result change if we include behaviour approximations (see Box 2) that are cultural in Ethiopia? Basing our behaviour change approach on the existing approximate behaviour that are cultural norms and qualifying it further may be an easy means of discussing the issue than telling people what to do as if they don't know about it. For example, telling people to wash their hand before eating is not new for Ethiopians because it is a cultural practice to do so. Some of the pertinent approximate behaviours for Ethiopia are listed in Box 2.

Objectives	Responsibility	When	Resources (material, human, financial)
Strategic Objectives 1: Introduce the community centred approach to all concerned federal, regional, woreda and kebele level leaders, other stakeholders and partners by December 2019.			
Task 1.1 Introduce the new approach to regional and zonal staff, local NGOs and other stakeholders and partners	NWCO, RWCO, RPMUs	September 2018	Stationary Venue rent Transport and Per diem
Task 1.2 Introduce the new approach to all WWT members, PHCU and kebele leaders and agree on the composition.	Regional WCO RPMUs ZPMUs Partners-NGOs	September 2018	Stationary Venue rent Transport and Per diem
Strategic Objective 2: Establish Community Centred Programme in 50 per cent of the communities in Ethiopia by 2020.			
Task 2.1 Training of trainers for selected sector staff to create a critical mass of trained sector staff and partners at woreda level	Regional WCO RPMUs ZPMUs Partners-NGOs	October- 2018	Stationary Venue rent Transport and Per diem
Task 2.2 Recruit CRP members from each community	WWT members, Kebele leaders Health extension workers Primary health care unit staff	November 2018	Transport and Per diem
Task 2.3 Train Community Resource People on the merits of the new ap-proach, roles and responsibilities, the religious doctrines on sanitation and hygiene,	1. WWT members Woreda HEP supervisors 2. PHCU staff 3. HEWs	December 2018 to -May 2019	Printed pictorial job aides, training materials and Guides
Task 2.4 Introduce action planning templates	1.WWT kebele leaders 2. Woreda HEP supervisors 3. PHCU 4. HEWs	December 2018	Stationary
Task 2.5 Construct a model demonstration latrine, hand washing device and a model house in each community	Kebele leaders CRP WHDA HEWs PHCU	January to February 2019	Hand tools/digging equipment Stone, wood, mud/dung

Objectives	Responsibility	When	Resources (material, human, financial)
Strategic Objective 3: Increase awareness, knowledge for attitudinal change to 70 per cent of the population in Ethiopia by 2020.			
Task 3.1 Mobilize all community members through CLTSH triggering	1.Woreda HEP supervisors PHCU 3. HEWs	February to March 2019	Printed pictorial job aides training materials and guides
Task 3.2 Mobilize all schools through SLTSH triggering tools	1.Woreda HEP supervisors 2. PHCU 3. HEWs	February to March 2019	Printed pictorial job aides training materials and guides
Strategic Objective 4: Increase the availability and consistent use of improved latrine to 82 per cent by the end of 2020.			
Task 4.1 Organize a community action to support improved latrine construction including with the elderly, persons with disability and poor households.	Community members led by CRP HEP supervisors PHCU staff HEWs WHDA	January 2019 to June 2010	Labour cost Local materials Nails Wood
Task 4.2 Follow up to strengthen: Behaviour change and practice proper utilization of the latrines Proper cleanliness and maintenance of the latrine	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2010 July	
Strategic Objective 5: Increase the number of households practicing hand washing with soap at all critical moments by 77 per cent by the end of 2020.			
Task 5.1 The importance of washing hands at all critical times will be the first task for the trained community resource people (CRP) to communicate.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2010	
Task 5.2 Promotion of hand washing containers and how to make them easily using local materials will be one of the important activities at the household level.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Task 5.3 Installation of hand washing containers with water and soap or substitute is part of the improved latrine construction programme.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Task 5.4 Regular follow up using check lists including proxy indicators, availability of water in the container, availability of hand cleansing agent by the water container.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	

Objectives	Responsibility	When	Resources (material, human, financial)
Strategic Objective 6: Establish sanitation marketing with the private sector providing improved and affordable sanitation options in at least 50 per cent of woredas by 2020			
Task 6.1 CRPs and others continue to create demand for sanitation options	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Task 6.2 Cooperate with the private sector to promote available technology options, negotiate and registering individual buyers	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Strategic Objective 7: Reduce faecal-oral disease transmission through the promotion of hygiene and sanitation behaviour change in 100 per cent of communities in Ethiopia by 2020.			
Task 7.1 Conduct a behaviour change programme through household outreach and introducing doable actions that are within household limits (skill, economy etc)	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Promote safe water handling, storage and use through the use of point of use water treatment.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Task 7.2 Facilitate mass campaigns, shows, benchmarking that helps to motivate households change to a better behaviour.	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	
Task 7.3 Distribute leaflets, posters, banners and other communication materials	1. PHCU staff 2. CRP 3. HEWs 4. WHDA	January 2019 to June 2020	

Table A4.3. Strategic Objectives and Strategic Action Plan and Time Line to Enhance Sustainable Behaviour Change in WASH

A4.9. Source of Funds

A community centred hygiene and environmental sanitation/health programme does not require direct funding other than what is allocated for rural and urban programmes. The reasons are:

In the community centred programme, households are mobilized to decide on their own to change the hygiene and environmental conditions for a lasting healthful living.

The people directly involved in the community mobilization process are:

- Community resource people (CRP), which includes religious leaders, teachers, students, women health development army, women and youth groups, who are all permanent residents of the community and not paid.
- Frontline health staff from Primary Health Care Unit, health extension workers, kebele political leaders and woreda WASH Team members are paid by government to support the community centred programme (CRP).

Funding may be necessary to cover the cost for capacity building, community triggering, mass BCC campaign, printing of IEC materials, such as posters, stickers, banners, purchasing air time for radio shows etc.

The source of funds for these activities are:

- Government allocation
- Partner organizations who support the programme but who are not directly contributing to the ONEWASH National programme.
- Consolidated WASH Account.
- NGOs operating in the specific areas within the regions could also support.

ANNEX 5: OWNP RESULT FRAMEWORK-2018-2020

TABLE A5-1: RESULTS FRAMEWORK

Parameter	Outcome	Indicator
Outcome	Serve 85 per cent of the total rural population with access to 25 l/c/d water supply source within a distance of 1 km from the delivery point (20.4 million more rural people will need to be served).	Per cent of population with access to 25 l/c/d water supply source within 1 km radius for rural areas.
	Decrease RWS non-functionality rate of water supply system from 11.2 per cent to 7 per cent.	Percent of non-functionality rate
	Serve 75 per cent of the total urban population (5.7 million more urban people will need to be served) from 40 l/c/d for Category 5 towns to 100l/c/d to Category 1 towns/cities.	Per cent of population with access from 40l/c/d for Category 5 towns to 100l/c/d to Category 1 towns/cities in urban areas.
	Decrease non-revenue water for urban communities from the 39 per cent to 20 per cent for UWS utilities of Category 1-3.	Number of UWS utilities of Category 1-3 towns that decrease non-revenue water.
	increase use of improved latrine from the present 28 per cent to 82 per cent in rural areas.	Per cent of rural and urban population with improved latrines.
	Increase proportion of ODF communities in kebeles from 18 to 82 per cent.	Per cent of rural population that is ODF.
	Increase hand washing with soap and water in households from 17 per cent to 82 per cent.	Per cent of households hand washing with soap and water.
	Improve full package WASH services access from the present 3.2 per cent to at least 40 per cent of schools including MHM.	Per cent of schools and health institution with access to a full package of WASH services.
	100 per cent of health facilities with full package of WASH facilities including MHM facilities.	Per cent of health facilities with a full package of WASH services.
	Increase proportion of households using correct and consistent water treatment and safe storage from 10 to 35 per cent	Per cent of households practicing point of use (POU) water treatment.
Outputs 1) Improved water supply increased in rural, pastoral and urban areas,	Rural and Pastoralist WASH	
	49,877 water supply schemes constructed (2,987 conventional and of the 46,890 non-conventional, 4,366 self-supply and 42,524 on spot)	Number of water supply schemes constructed, as per cent of target.
	5,871 water schemes rehabilitated	Number of water supply systems rehabilitated, as per cent of target.
	Improved functionality of water supplies	Per cent increase in functionality of rural water supplies.
	Urban WASH	
	1,256 feasibility studies and design reports prepared	Number of feasibility studies and design reports prepared/approved
	280 new water supply system constructed for Category 4 and Category 5 towns	Number of new urban water supply systems constructed for Category 4 and Category 5 towns
	976 water supply systems rehabilitated/expanded	Number of urban water supply systems extended and or rehabilitated for all category of towns

Parameter	Outcome	Indicator
2) Improved WASH facility with full package for institutions	Institutional WASH	
	17,874 WASH facilities with full minimum package (safe water system, latrine construction and MHM facilities with hygiene promotion and training on WASH facility management and O&M) provided in schools	Number and per cent of schools having access to WASH facility with full minimum packages
	8,306 WASH facilities with full minimum (Inclusion safe water system and latrine construction with hygiene promotion and training on WASH facility management and O&M) provided in health institution	Number and per cent of health institutions having access to WASH facility with full minimum packages
	Rural and Pastoralist WASH	
	Improved sanitation facilities constructed	Number of improved latrines constructed Sanitation coverage in communities where CLTSH is launched
	ODF kebeles increased	Number and per cent of ODF kebeles
	Sanitation marketing introduced	No. of sanitation markets established
	Per cent of households practicing hand washing with soap at critical times increased.	Per cent of households practicing hand washing with soap at critical times.
	Household water treatment and safe storage promoted	Number and per cent of households practicing safe water treatment and storage.
	Unimproved latrines upgraded to improved latrines	No. and per cent of latrines upgraded in rural areas
	Urban WASH	
	1,201 public toilets constructed in 973 towns	Number (per cent) of public latrine built and the number of towns
	2,237 communal latrines constructed in 973 towns	Number (per cent) of communal latrines built and the number of towns
	1,946 school toilets constructed, two per each town, in 973 towns	Number (per cent) of school toilet constructed and the number of towns
	100 per cent communal and public latrines rehabilitated in all regional/town administration level	Number (per cent) of rehabilitated public and communal latrines constructed and the number of regions
	48 procurement of 8 m3 capacity vacuum trucks for 50 towns and surrounding cities	Number (per cent) of vacuum trucks supplied
	25 procurement of 5 m3 capacity vacuum trucks for 50 towns and surrounding cities	
	1 procurement of a 3 m3 capacity vacuum truck for 50 towns and surrounding cities	
	Procurement of 184 pumps and 97 generators for wastewater management system for Addis Ababa town	Number (per cent) of pumps and generators supplied and installed
	100 per cent of study, design and construction of wastewater management for Addis Ababa	Number (per cent) of wastewater/seepage systems constructed
	100 per cent study, design and construction of wastewater management for 22 towns	Number (per cent) r of wastewater/seepage systems design prepared and constructed
	Feasibility study and design for wastewater management for 14 towns	No. of feasibility studies and designs prepared
3) Enabling environment and good governance in the WASH sector	WASHCOs have legal status	Number and per cent of WASHCOs with legal status
	WASHCOs and Water Boards have 50 per cent women members	Per cent of WASHCO and Water Boards with 50 per cent women members
	Geographical equity increased	Per cent of woreda/regions geographical equity within acceptable limits
	Programme launch workshops held	Number of Programme launch workshops held
	CSOs and emergency programs reporting to WASH structure on their plan, budgets, reports on expenditure and costs.	Number per cent of CSOs/NGOs and emergency programs reporting to WASH structures on their WASH plans, budgets, costs and expenditure
	WASHCO, woreda, zonal RWCO, NWCO and federal staff trained in data collection and database management (WASH MIS, HMIS and EMIS)	Number of staff trained in data collection, database management, (WASH MIS, HMIS and EMIS) and reporting formats
	WASH data collected/analysed using key performance indicators/NWI updated	Per cent of standardized WASH data collection/analysed using key performance indicators.
	KWT, WWT, RWCO and NWCO prepare consolidated WASH progress reports monthly, quarterly and annually	Per cent of consolidated reports prepared at all levels on a regular basis
	WASH review meetings held quarterly at all levels as per the WIF recommendations, including JSR and MSF, followed up.	Number and per cent of quarterly WASH review meetings held by level JTR and MSF meetings held annually and biannually, respectively.
	Technical and financial audits carried out	Number of technical and financial audits carried out/year.
	Non-functionality rate of rural water schemes reduced to from 11.2 per cent to 7 per cent.	Per cent of non-functional rural water supply schemes.
	Non-revenue of water of all towns in all regions reduced from 39 per cent to 20 per cent.	Per cent of non-revenue water
	Category 1 to Category 3 of towns reached 80 per cent of full cost recovery, Category 4 towns reached 60 per cent and category V towns reached 50 per cent and all towns cover 100 per cent O&M.	Per cent of full cost recovery Per cent of O&M recovery
	100 per cent water safety plan prepared and monitored for at least Category 1, 2 and 3 towns.	Per cent of water safety plan prepared
	100 per cent establish groundwater monitoring and catchment protection system around water supply sources implemented by Urban Water Supply Utilities.	Per cent established groundwater monitoring

Parameter	Outcome	Indicator
4) Efficient use of resources	Capacity in groundwater knowledge and siting strengthened	Per cent successful BHs/wells
		Per cent reduction in drilling unit cost
	Sub-regional operation and maintenance units and supply chain outlets established.	Per cent increase in functioning rate of water supply systems in rural areas
	Per capita cost for urban water supply: Category 1 US$319, Category 2 US$74, Category 3 US$59, Category 4 US$95, Category 5 US$136 and for rural water supply per capita cost US$89, US$74 and US$85 for self-supply, spot supply and piped water supply respectively.	Per cent reduction in per capita investment costs in town, cities and rural areas.
	Per capita cost for urban sanitation: USD 342 for AAWSA, USD 162 for other towns and for rural sanitation USD 19.	
	Monitoring data analysed and used in decision making	
	Pilot/demonstration activities documented and scaled up	No. and type of pilot/demonstration activities scaled up
	Water supply in drought-prone areas prioritized to reduce water delivery by tanker	Per cent reduction in water delivery by tankers
5) Strengthened capacity of WASH sector actors for achieving and sustaining results	Woreda/zonal/regional staff trained in:	No. of trainees by gender
	2,655 high level professionals trained (600 water engineers, 240 geologists, 420 hydro-geologists, 75 hydrologists, 510 electro-mechanical engineers, 420 sociologists, 90 economists, 150 chemists and 150 biologists)	
	7,800 medium level professionals trained (4,050 water supply technicians, 3,390 E&M technicians and 360 drillers)	
	6,300 artisans and 320,000 caretakers	
	Standard bidding/contract management/supervision documents prepared	No. of manuals for tendering, contract management and supervision
	75 TVETCs/HSCs supported to offer WASH courses	No. (per cent) TVETCs and HSCs offering relevant WASH courses/no. of graduates
	11 women and youth-led entrepreneur groups established and linked to suppliers.	No. and per cent increase women and youth-led suppliers of WASH products and services
	280 post-construction support units established/functioning for Category 4 and 5 towns.	Per cent of post-construction support units established and functioning
	Health clubs established in schools	Per cent of schools with active WASH/health clubs
	Water Boards established in Category 3 towns; capacity of TWBs in business planning, asset management, planning, monitoring operators, oversight of Programme implementation, strengthened.	No. of Category 3 towns establishing water boards No. (per cent) of TWBs in Category 1 and 2 towns with adequate capacity to fulfil their roles in urban water supply
	TWUs trained in routine O&M, asset and financial management, customer relations, reducing UAW, etc.	Per cent of TWU recovering full costs Per cent of TWU recovering O&M and replacement cost
	1,000 vehicles and 74 vacuum trucks/carts, tool sets, office equipment, water quality testing equipment procured.	No. of vehicles, vacuum trucks/carts, tool sets, office equipment, water quality equipment, etc. procured and distributed.
	11 water quality laboratories supported at regional level	No. (per cent) water quality laboratories supported and operational
	Trained personnel in water and wastewater quality testing	Per cent of water quality tests meeting Ethiopian water quality guidelines and discharge from wastewater treatment plant meeting WHO guidelines for agriculture use.

ANNEX 6: PRELIMINARY STRATEGY ACTION PLAN
PRELIMINARY STRATEGY ACTION PLAN, PHASE II, OWNP-2018-2020

Result	Core activities	Indicators	Baseline	Targets by Year		
				2018	2019	2020
Goal 1: By 2020 provide safe and adequate water supply to rural communities with minimum service level of 25 l/c/d within a distance of 1 km from the water delivery point. Coverage to reach 85 per cent of the rural population of which 20 per cent is with RPS						
Rural communities in woredas are provided with adequate and safe water with well-established governance system ensuring sustainability	Regions map woredas by service levels and prioritize woredas to provide improved and safe water supply. Woredas involve and mobilize communities to participate in planning, construction and management. Organize governance mechanism (WASHCOs) with at least 50 per cent women members. Train WASHCOs on O&M, water handling, book keeping and reporting.	1.1 Per cent of households in rural communities served with conventional, clean, safe and adequate water supply access at a rate of 25 l/c/d within 1 km. with on spot supply and RPS	68.5	70	77	85
Goal 2: By 2020 Provide safe and adequate water service to urban communities						
Towns/cities are provided with safe and adequate water as per their category	Regions map and categorize towns and provide adequate and safe water. Towns establish utilities and utility management mechanism. Towns or town water board set tariffs for water usage. Towns/water boards establish O&M programme, tools and spare parts. Towns/water board conduct continuous capacity building on O&M, water treatment, preventive maintenance, record keeping, water safety plan to sector staff.	2.1 Percent of Category 1 towns/cities provided with 100 l/c/d 2.2 Percent of Category 2 towns/cities provided with 80 l/c/d 2.3 Percent of Category 3 towns/cities provided with 60 l/c/day 2.4 Percent of Category 4 towns/cities provided with 50 l/c/d up to the premises 2.5 Percent of Category 5 towns/cities provided with 40 l/c/d within a distance of 250 m from piped system	54.7	61	70	75
Goal 3: By 2020 Carry out study and design for urban wastewater management systems						
Undertake 36 urban wastewater management system studies and designs.	Towns/water boards/city administrations identify and document background information on the problem. Set budget and time line to conduct feasibility studies on WWM programme Organize/hire professionals to design appropriate WWM system for the selected town/city.	3.1 Number of studies and designs of urban waste management systems for Category 1,2,3 towns and cities.		4	14	18
Build wastewater management infrastructure for six towns/cities		3.2 Number of built WWM infrastructures for towns / cities with a population of 200,000 and more.	1	2	3	
Goal 4: By 2020 decrease RWS Non-functionality rate of water supply system in rural communities						
Number of non-functional water systems are decreased from 11.2 per cent to 7 per cent	Regions together with woredas map non-functional water systems by category. Identify common problems. Design mechanism/budget and organize manpower and rehabilitate non-functional water systems. Woredas with support from regions and NGOs set up a maintenance crew with tools and spare parts and communication system to maintain pumps and reduce downtime and non-functionality rates	Percent achievement of NFR from the present 11.2 per cent to the target of 7 per cent.	11.2	9	8	7
Goal 5: By 2020 Empower women in WASHCOs management including in decision making						
WASHCOs are established with 50 per cent female members	Woredas involve communities including women in the planning process. Discuss with communities on roles and responsibilities in WS management. Establish WASHCOs with women participation of at least 50 per cent. Train WASHCOs on book keeping, O&M, setting tariffs etc.	Number of WASHCOs that increase membership to 50 per cent and more		4,551	18,204	22,756
Goal 6. By 2020 Strengthen RWS community management through legalization of WASHCOs						
100 per cent of WASHCOs in all regions are legalized	Regions register the number of WASHCOs. Regions advocate on the importance of legalizing WASHCOs so that they function legally following government rules. Regions continue on capacity building to WASHCOs to strengthen their water management roles	Number of RWS that legalize WASHCOs by region		4,551	18,204	22,756

Goal 7. By 2020 Establish supply chain for low cost WS technologies and spare parts						
Regions have motivated private sectors and established 20 supply chains for water supply	Contact with micro and small enterprise agency and discuss private sector's need for water supply. Discuss with TVET to develop curriculum for private sector training. Establish systems, linkage mechanisms of the private sector to funding agencies.	Number of private sector actors involved in water supply by category established in each region/ woreda.		2	8	10
Goal 8. By 2020 Establish WS extension supporting system at kebele level to enhance implementation of household and communal level self-supply water and improve O&M of RWS						
Establish 2,000 water supply extension systems to enhance implementation of household and communal level self-supply water and improve O&M of RWS.	Woredas discuss the advantage of self-supply and the support they can get from woredas. Woredas organize kebeles and communities to undertake enhancing self-supply water supply system. Woredas with support from regions prepare O&M manuals. Establish water safety mechanism from the source to use with community using self-supply and other on spot water systems.	Number of WS extension supporting system established.		200	800	1,000
Goal 9. By 2020 Ensure rural water supply safety through water quality monitoring and water safety planning and implementation						
Prepare 45,551 water safety plans	Train selected water surveillance officers from among the staff. Purchase portable water analysis kits with adequate supply of reagents. Prepare a protocol on frequency of testing, recording and reporting. Have in stock water disinfecting chemicals.	Number of water safety plans prepared		4,551	18,204	22,756
Goal 10. By 2020 Establish ground water monitoring and catchment protection system around water supply sources to be implemented by rural WASHCOs.						
Establish ground water monitoring and catchment protection system in regional woredas	Conduct surveys on all water systems and identify areas of concern Plan and design protection mechanisms such as protecting from flood, animals, open defecation etc.	Per cent of woredas who have established catchment protection and monitoring mechanism in woredas in each region	.	10	40	50
11. By 2020 Decrease Non-Revenue Water for urban communities						
Non-revenue water for urban areas is decreased.	Establish a water policing mechanism to identify NRW hot spot areas.	Decrease NRW from the 39 per cent to 20 per cent by 2020 for UWS utilities of Category 1-3 towns.	39	37	29.5	20
Goal 12. By 2020 improve water service hours in the 24 hours in urban areas						
Water service hours is increased to 16 hours per day within the 24 hours.	Assess possibilities of raising service hours. Enhance capacity to meet the plan.	Per cent of towns that have improved UWS continuity to 16 hrs per day excluding WS delivery through public taps for UWS utilities of Category 1 to 3 towns.	.	10	40	50
Goal 13. By 2020 enable cost recovery mechanism for urban water supply system						
Urban towns/cities utilities have established reasonable tariffs.	Prepare an advocacy statement to enable the establishment of cost recovery mechanism. Discuss the issue with water board and beneficiaries. Involve communities/beneficiaries before setting tariffs.	Per cent Category 1, 2 and 3 towns that recover their investment cost at least by 80 per cent, Category 4 by 60 per cent, Category 5 by 30 per cent and O&M cost by 100 per cent for all towns		10	40	50
Goal 14. By 2020 Ensure UW safety through water quality monitoring system and water safety planning and implementation for UWS utilities of Category 1 to 3						
Urban utilities have established a regular water quality monitoring plan.	Train selected water surveillance officers from among the staff. Purchase portable water analysis kits with adequate supply of reagents. Prepare a protocol on frequency of testing, recording and reporting. Have in stock water disinfecting chemicals.	Per cent of urban utilities that established water quality monitoring and reporting programme in woredas.		10	40	50
Goal 15. By 2020 Establish ground water monitoring and catchment protection system around WS sources to be implemented by urban WS utilities						
Utilities have made ground water monitoring and catchment protection a well-organized routine activity	Establish groundwater monitoring unit with the necessary tools. Conduct surveys on all water systems and identify areas of concern. Plan and design monitoring and protection mechanisms such as protecting from flood, animals, open defecation etc.	Per cent of water utilities in urban areas that establish urban water catchment protection mechanisms.	.			

Goal 16. By 2020 Conduct capacity building to higher and middle level professional, artisans and caretakers						
Capacity building is conducted to higher, middle WASH professionals and artisans.	Design training manuals for higher, medium professionals and artisans. Prepare the necessary supporting training materials Use trained trainers for effectiveness.	16.1. Number of high level professionals trained		885	885	885
		16.2. Number of medium level professionals trained		2,600	2,600	2,600
		16.3. Number of artisans and caretakers trained of which 25 per cent are women		112,100	107,100	107,100
Goal 17. By 2020 Establish independent WS and wastewater service regulatory agency to ensure high service quality						
Water and wastewater management regulatory agency is established	Design policy or identify existing policy to establish regulatory agencies. Advocate that higher political leaders endorse the agency as per government regulation.	Number of regions that has processed the establishment of regulatory agency for water supply and wastewater services.			11	
Goal 18. By 2020 enable Category 1,2, 3, and 4 water supply utilities to have in their organizational structure responsible section for wastewater management						
A unit for wastewater management within the utilities for Category 1,2,3,4 towns is established	Establish a unit for wastewater management Establish an integrated and coordinated mechanism with other institutions.	Per cent of 1,2,3,4 category water utilities who have established organizational structure.		10	40	50
Goal 19. By 2020 increase the involvement of the private sector in the WS activities particularly in O&M of urban water supply utilities						
Private sector actors are organized for water supply O&M in urban utilities	Map existing private sector actors who would take the business. Advocate for the business and attract private sector actors to take up the business of O&M. Design a capacity building programme for the private sector actors.	Number of new private sector actors in water utilities who are engaged in water supply and O&M.				
Goal 20. By 2020 Strengthen WASH integration to meet the objectives of OWNP and establish coordination with the Ministry of Urban Development and Construction Affairs at all levels in all urban WASH interventions						
OWNP has integrated its national WASH plan with like ministries.	Advocate the health, development and economic impact of WASH with like ministries. Discuss ways and means to integrate the programme and for coordinated action for WASH in urban areas. Establish standing committees of professionals overlooking design and intervention programmes. Establish forums for wider learning and sharing.	Number of regions who established WASH integration with ministry of urban development.		11		
Goal 21. By 2020 implement national ICT based M&E and MIS system for the sub-sector, that would capture, collect, analyse and report the data of the sub-sector staff and service beneficiaries disaggregated in sex and age						
21. ICT for M&E is established at all levels in Ethiopia	Learn and share experiences of regions and NGOs and bilateral organizations who have started ICT based monitoring in Ethiopia. Speed up the ICT-based national programme and record real time information in the MIS. Establish mechanism for reviewing and learning.	Number of regions that establish a functional ICT based M&E and MIS system		11		

Table 6.1 reliminary Strategy Action Plan, Phase II, OWNP-2018-2020

PRELIMINARY STRATEGY ACTION PLAN FOR SANITATION IN PHASE II OWNP-2018-2020

Result	Core activities	Indicators	Baseline	Targets by year		
				2018	2019	2020
Goal 1. By 2020 introduce community centred approach to sector staff at all levels particularly at the woreda level (Primary Health Care Unit staff, kebele WASH team, kebele leaders, HEWs, HDAs, WASHCOS and Agricultural Extension Agents in all kebeles in the country)						
Common ground with sectors and stakeholders and community members established.	Prepare advocacy package to suit the level of local residents, sector staff and officials. Include in the advocacy meetings stakeholders such as local NGOs, religious leaders and schools Conduct a number of meetings to form common ground on the need of involving communities for behaviour change programmes.	Per cent of woredas who advocate initiatives undertaken to establish common ground with sector staff and other stakeholders.		10	40	50
Goal 2: By 2020 increase the availability and consistent use of improved latrines from the present 28 per cent to 82 per cent in rural areas.						
Improved sanitation system with hand washing increasing in all regions	Identify respected, trusted and prominent residents, teachers and women of a community together with HEW, WHDA. Create awareness on the problem of poor sanitation and hygiene to health and development. Train them on how successfully they carry out and sustain changes if committed and make their community ODF. Demonstrate simple improved sanitation construction and hand washing devices using job aides/pictures. Select a community chairperson, preferably women or religious leader and a secretary (preferably HEW) for the committee. Design an action plan on the way forward.	Per cent of improved sanitation coverage in each region by woreda	28	33	55	82
Goal 3: By 20 20 Increase proportion of ODF communities In kebeles from 18 to 82 per cent						
ODF kebeles are increasing in number in all woredas in Ethiopia.	Design a follow up mechanism and a support programme to the committee established in communities in all kebeles.	Per cent of kebeles in each region who have achieved ODF.	18	24	50	82
Goal 4. By 2020 increase hand washing with soap and water from the present 17 per cent to 82 per cent						
Hand washing with soap has increased in all kebeles/ woredas in Ethiopia	Design a follow up mechanism and a support programme to the committee established in communities in all kebeles.	Percent of households in kebeles who have achieved hand Washing with soap in each region	17	24	50	82
Goal 5. By 2020 Establish supply chain for sanitation components and low cost WS technologies and spare parts						
Supply chains for sanitation established in all woredas in Ethiopia	Map existing private sector actors who would take the business. Advocate for the business and attract private sectors to take up the business of O&M. Design a capacity building programme for the private sector actors.	Number of private sector companies established and started supply chain activities for WASH products.		2	8	10
Goal 6. By 2020 100 per cent of schools will have hand washing promotional materials in their schools						
Hand washing promotional materials are made available and displayed in 100 per cent of schools in Ethiopia	Design simple interactive hygiene messages and distribute to all schools in woredas. Advise schools to use all walls, latrine shades, trees to be talking walls and trees with appropriate behaviour change messages (use soap to wash your hands after toilet etc). Prepare print materials such as posters to communicate WASH.	Percent of schools in each region with hand washing facilities with adequate provision of running water and soap.		10	50	100

Goal 7. By 2020 Improve full package WASH access from the present 3.2 per cent to at least 40 per cent of schools including MHM						
Institutions, donors and government support full package WASH service to schools.	Advocate to funding agencies and government about the importance of providing full package WASH for schools rather than only one or two interventions. Arrange the construction of a functional MHM facility in schools even using local materials.	Percent of schools in each region that have been provided with complete package of WASH services in Schools	3.2	6.9	21.6	40
Goal 8. By 2020 provide improved and gender segregated sanitation facilities with hand washing from the present 36 per cent to 75 per cent of primary schools and 100 per cent of high schools including MHM						
Gender separated improved sanitation and MHM facilities are increasing in all schools.	Organize parents and teachers association to participate and support to construct separate latrines for boys, girls, teachers. Organize fund raising festivals, or school days to raise money to support latrine construction. Plan to use revenues usually from coffee, crop, grass, and wood sales to support latrine construction.	Per cent of schools in each region with adequate and gender segregated and improved sanitation systems.	36	40	56	75
Goal 9. By 2020 100 per cent of health facilities with full package of WASH facilities including MHM facilities 100 per cent						
Institutions, donors and government support full package WASH service to health facilities.	Advocate for the need of providing full package to health facilities.	Percent of health facilities with full package of WASH services		10	50	100
Goal 10. By 2020 Increase proportion of households using correct and consistent water treatment and safe storage from 10 to 35 per cent						
Point of use treatment of water is practiced in households in Ethiopia	Discuss the need of enhancing point of use treatment with the community centred committees. Discuss with water safety supply chains to make water disinfectant available to the locality.	Percent of households practicing point of use (POU) water treatment.	10	13	23	35
Goal 11. By 2020 prepare and provide pictorial job aides, operational manuals, implementation guidelines for use by health extension workers to support facilitation of behaviour change in communities						
Outreach doable behaviour change programme is enhanced using job aides in kebeles in Ethiopia.	Explore WASH communication materials availability in the sector ministries. Evaluate the content and determine whether to use it or not. Design new or additional communication products. Kebele level HEW will need pictorial job aides which are available in the Ministry of Health.	Percent of kebeles provided with set of job aides including latrine construction, hand washing, water safety measures, personal and environmental hygiene materials.		10	40	50

Table 6.2: Preliminary Strategy Action Plan for Sanitation in Phase II OWNP-2018-2020

ANNEX 7: LONG TERM RECOMMENDATIONS TOWARDS ACHIEVING SDGS

A7.1 Introduction

The medium to long term objective (to 2030) of the OWNP is to achieve the SDGs. However, where these goals are inappropriate, unachievable or unaffordable in the Ethiopia context then alternative standards will be developed.

The activities required will be continuation, establishment and formalization of the short to medium term actions described in Section 8 in order to create a robust water and sanitation sector able to meet the needs of urban and rural WASH in Ethiopia.

A7.2 Water resources

Full monitoring and control and sustainable exploitation of surface and groundwater.

WASH fully incorporated in water resource master plans under WRM multi-sector activities, including CR-WASH and WASH-DPA.

All water sources mapped, abstraction registered and information held and regularly updated on regional data bases.

Long term monitoring stations (purpose-built piezometer tubes, capped wells and pumped wells with flow meters) installed across each region to monitor levels, quality and discharge to check on long term resource depletion or improvement.

One agency (in each region) responsible for issuing abstraction licences, issued only on basis of sustainable recharge in the case of groundwater and minimum dry weather compensation flows in the case of surface water.

Development of Environmental Protection Agencies (EPA), also responsible for monitoring and regulatory control of wastewater discharge to the environment (industrial and commercial, point source wastewater treatment plants, dispersed sources such as septic tanks, etc.)

Multi-sector governing body of the EPA (agriculture, hydropower, pastoral, urban and rural, industrial, commercial and domestic liquid and solid wastes, refugees, IDPs, climate influenced emergencies, etc.)

The same regional EPAs sufficiently resourced and having regulatory/legal powers to enforce licences.

Regional data bases accessible (read only) at national government level and also freely available to DPs, educational establishments, CSOs, etc.

TA provided at the national level to assist regions with (1) setting up and running water resource data bases and (2) sustainable water resource feasibility level studies.

Fully established innovative systems for catchment protection to improve recharge, involving agriculture, irrigation and livestock authorities and enterprises.

Trials may be undertaken on artificial recharge to improve sustainability of relatively shallow aquifers not topped by aquicludes.

Fully established and efficient supply chains (allowing import but maximizing local production) that anticipate procurement needs and that create stocks of most common spare parts for drilling equipment to avoid delays

Solid Waste Management (SWM) – fully engineered and protected waste disposal sites and maximisation of "3Rs" (reduce, reuse, recycle) to protect water resources and health impact, particularly on low income areas located near disposal sites.

Hazardous Waste Management (HWM) to protect water resources and health impact, particularly on low income areas located near downstream:

Solid and liquid hazardous wastes will primarily be generated by industry (with enormous variations) and health institutions, although e-wastes may come from all sources.

Hazardous solid waste that includes health care waste, e-waste and industrial waste should be handled separately from municipal waste so as to reduce the risk of irreversible pollution from heavy metals, hazardous health care waste, etc.

Hazardous and industrial liquid wastes also have toxic effects and need special treatment to make them less harmful. Common examples of hazardous substances include paints, fuels, oils, cleaners, metal processing chemicals, agrochemicals, etc.

All hazardous solid and liquid wastes generated must receive treatment at the production facilities prior to disposal in a manner approved by the municipal authority. Following treatment, the proposed method and timing of the disposal must also be approved by the municipal authorities following consultation with regulatory and environmental bodies.

Regulations should be enforced and financial penalties and high disposal charges should be implemented to encourage in-factory processing and recycling of industrial wastes. In the management of these wastes, it is better to implement fully the "polluter pays" principle.

The industries should take responsibility for the processing, collection and safe disposal of the wastes by contracting with the municipality or specialist enterprises. They should also cover all the costs encountered in the management of these wastes.

A7.3 Technology innovation and mix

A fully sustainable water and sanitation technology mix resilient against climate change, demographic shifts, rapid urbanization, impact of industrial and agricultural development, arid area encroachment, etc.

This will be tailored to meet the diverse needs within Ethiopia; such as dense urban development, highland areas, arid zones, refugee areas and population shifts.

- Involving risk-informed planning.
- Optimization of existing infrastructure.

A6.4 Urban Sanitation

Appropriate level sanitation services based of sustainability master planning and feasibility studies including:

- Centralized systems
- DEWATS
- Low cost FSM
- Reuse of liquids and solids
- Integration with SWM where appropriate
- Development of city/woreda wide sanitation plans for all woredas/cities in the country
- Complete integration of urban sanitation and environmental protection, including SWM, industrial solid and liquid wastes
- Full enforcement of urban and industrial physical plans that include comprehensive watershed management and protection

A6.5 Established national utility regulation and large (clustered) public utilities

A7.5.1 Potential new implementation modalities

In order to meet the exacting requirements of GTP II and the SDGs, to fill gaps (for instance, urban sanitation, drought resilience, M&E) as well as to take on board the strategies and guidelines that have been developed since the start of the OWNP, then new "implementation and operational modalities" will need to be developed in line with the principles listed in in Section 8.

The reforms will need to cover both urban and rural services. Such modalities should be designed for smooth transition from existing implementation routes as described in the Phase I OWNP and modalities as described in Section 8 and can be used to strengthen such routes (for instance, the WRDF).

A7.5.2 Utility regulators

According to the UNICEF Webinar series on accountability, to achieve effective and sustainable service provision, it is important that the links between actors and institutions are clear, accountable and enforceable. It states that accountable WSS delivery requires public institutions to put mechanisms in place that monitor the degree to which public officials and institutions comply with established standards, impose sanctions on officials and private actors who do not comply, and ensure that appropriate corrective and remedial action is taken when required. This is commonly achieved through independent national or (less commonly) regional regulators.

Note: This subject is currently under discussion in Ethiopia but no firm proposals have yet been made or adopted. There is currently South-South dialogue between Ethiopia and Brazil (which has a federal system of government) over establishment of utility regulator(s) and more local examples may be found in eastern and southern Africa.

A7.5.3 Delegation of services

There are many advantages for large or voluntarily grouped (and eventually formally clustered) municipalities/utilities to delegate some of their services to delegated operators which will be responsible either for a specific geographical area, where accountability and efficient service delivery to customers may be greatly improved, or for specialist technical activities, such as operation of FSM treatment systems and solid waste disposal sites.

In this case, the mandated operators (public utility) should sign a Delegated Service Management Contract (DSMC) with the delegated operators. The main advantage of a DSMC relates to the physical and financial ring-fencing of services and in establishing a clear full cost recovery (that is, including investment costs) modality in order to both deliver and sustain services.

A7.5.4 Performance contracts

Performance agreements between asset owners (towns and woredas) and single or clustered utilities with oversight of internationally recognised KPIs by the national utility regulator.

Employee incentive schemes should be introduced in both SMCs and DSMCs to drive efficiency and improved levels of service. For instance, staff might receive a monetary bonus or other incentive for achieving high KPI (Key Performance Indicator) scores in water and sanitation provision. Additionally, competition between municipalities in any region, and acknowledgement through award and recognition, should be initiated to drive improvement: Ability to cover operation and maintenance costs from revenue and to create a surplus for repayment of loans for capital infrastructure would be a high level and valuable long-term indicator worthy of recognition.

Large private operators should only be considered once systems have been fully installed and financial sustainability has been clearly demonstrated, since private operators are generally not able to receive International Financial Institution (IFI) grant money and since private companies will be risk averse and likely to pass risk on to customers in increased charges. It is envisaged that, for instance, a delegated sanitation operator serving several adjacent towns should, at least in the short to medium term, be publicly owned. In this way, charges can be controlled to ensure affordability but at the same time minimizing outside subsidies.

There should be full cooperation, and written agreements put in place, between all departments and organizations within a municipality or cluster of municipalities with respect to water supply, sewerage, sanitation services, beautification and greening, health services, etc. It is again expected that the municipal authorities, with assistance and guidance from the regional authorities, will play leading roles to ensure that such full cooperation and written agreement are put in place.

One clear example of where inter-departmental agreements will be essential is in relation to the planned use of Decentralized Wastewater Treatment Systems. Since the DEWATS will be adjacent to buildings (medium rise clusters and institutions) within the town, then the technology and re-use paths will need to be fully evaluated at master planning and feasibility stages, fully tested through business models, in terms of financial sustainability, financing, economic value of products (soil conditioner and bio-gas), responsibility for operation and maintenance, use of private sector, community acceptance, health and safety, ESIA, etc. Inter-department cooperation will be required for many of these links in the DEWATS supply chain (for instance, between the operator of the plant and users of treated products).

A7.5.5 Conditionality

Historically, water projects have received higher attention and are better funded, but by tying water and sanitation (including SWM, as in the UNICEF/DFID ONEWASH Plus in eight towns) then, among other things, it will promote sanitation as an integral and indispensable urban (and rural) WASH component and something that is essential for economic growth in Ethiopia.

There will be exceptions to this principle of tied funding; some towns have already completed their water projects and new funds should be aimed primarily at sanitation; in some cases, funders are only interested in either water or sanitation, or in some cases just solid waste management.

A7.5.6 Community engagement

Targeted TA for community management of WASH including

- Point-of-use water treatment (all users)
- Appropriate sanitation systems (flood plain, highlands, arid areas, etc.)

- Full community engagement with safe rural water and hygienic sanitation practice.
- Fully sustainable self-supply and shared community systems.
- WASH as "business package" involving private sector in sanitation marketing.
- Rainwater harvesting, shallow wells, etc. fully linked to agriculture and livestock activities; drought and flood resistant.
- Fully effective HEW programme.

A7.5.7 Capacity building

Fully developed capacity including:

- Public and private WASH skills
- Safe water quality monitoring in all towns and villages supported by sufficient accredited laboratories throughout each region
- Water abstraction licensing and monitored and enforced pollution control (both dispersed and point source) – see also Sub-section 8.1.

Also refer to Section 9 for more detailed recommendations for capacity building.

A7.5.8 Procurement and implementation

Established and efficient procurement, supply chain and implementation procedures with maximum use of national manufacturers, suppliers and contractors, while not precluding international suppliers and competition.

Full contract compliance and professional contract management under guidelines based on collaborative international and national approaches.

See also Sub-section 8.3 for more details of recommendation for procurement.

A7.5.9 Advocacy

Fully established advocacy procedures for water security, sanitation and hygiene, with responsible engagement at all levels (government, utilities, DPs, CSOs, private sector).

Full community engagement with safe rural water and hygienic sanitation practice.

See Sub-section 8.5 and Annex 3 for more details of recommendation/proposals for BCC and advocacy.

A7.5.10 Urban Planning

Full enforcement of urban and industrial physical plans that also include watershed management and catchment protection.

A7.5.11. M&E

Comprehensive WASH data base and updating system fully implemented.

Regular dissemination of appropriate information to national regulator, regional bureaus, woredas, utilities, etc. for M&E use, asset management and investment planning.

See also Section 11 for details of recommendation/proposals for M&E

A7.5.12. Institutional (schools and health facilities)

Institutional WASH budgets: Ring-fenced sector CAPEX and OPEX budgets for WASH in schools and health facilities.

Water supply and sanitation services to/from property boundary being the role and obligation of utility or WASHCO.

A7.5.13 Enhanced Multi Sector Inclusion

Inclusion of all relevant water resources, sanitation and environmental related ministries in the OWNP WIF or through other formal agreement.

It has been decided that the future approach for the OWNP should be a combination of two options (i) continuity of the Phase I modality and (ii) redesign a new approach and modality for Phase II. The holistic principles (Integration, Harmonization, Alignment and Partnership) embodied in the OWNP should be retained and expanded to fully allow for parallel sectors such as H&EH, SWM, commerce and industry, agriculture and livestock, land management, employment, women's interests, etc. as illustrated below.

Future changes to the WIF and OWNP MoU may be considered to allow for

inclusion of cross-cutting and/or new areas, if agreed upon. Such changes could be timed to come into effect before the end of GTP II timeframe.

A7.6 Vision towards SGD 2030

A7.6.1. Introduction

As per the main objectives of OWNP supplying clean, safe and resilient water supply, improved sanitation and hygiene practice access and development will extend to 2030. The programme used GTP II goals and indicators during Phase II. Following completion of GTP II targets under the directions recommended in Section 8 (short to medium term), the next step will be to drive towards full WASH sector targets and achievement of SDG goals, targets and indicators (or the equivalent best practice deemed appropriate for Ethiopia).

It is anticipated that this OWNP document 2018 will form the basis for development of GTP III (2020-2025) and GTP IV (2026-2030). In designing this indicative plan for the programme from 2020-2030 the following information, assumptions and goals of SDG are used.

Rural and Urban Water Supply indicative Access to GTP2 service level by Region and Year (%)

No.	Region/City	Base Year	Phase III					Phase V				
		2017	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	Tigray											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
2	Gambella											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
3	B. Gumuz											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
4	Dire Dawa											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100

No.	Region/City	Base Year	Phase III					Phase V				
		2017	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
5	Harari											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
6	Somali											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
7	Amhara											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
8	Afar											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
9	SNNPR											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
10	Oromia											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	85	89	93	97	100	100	100	100	100	100
11	Addis Ababa											
	Urban	109	86	89	92	96	100	100	100	100	100	100
	Total	109	86	89	92	96	100	100	100	100	100	100
12	National											
	Rural	85	86	90	94	98	100	100	100	100	100	100
	Urban	75	78	84	90	96	100	100	100	100	100	100
	Total	83	86	89	92	96	100	100	100	100	100	100

Table A7-1: Rural and Urban Water Supply indicative Access to GTP2 service level by Region and Year (%)

Note: The indicative access coverage is projected based on history of GTP I and GTP II growth rate trend which is found to be 3-4 per cent. The overall (ambitious) target is to at least meet 100 per cent GTP II targets achievement of all unserved population of the country and achieve as much as possible SDGs (or Ethiopian equivalent).

A7.6. 2. SDG Goals

In order to reach the SDG goals, the actions listed and described above (long term recommendations) will be required; in particular:

For Water Supply

- Use high resilience water source from deep boreholes or surface water development
- Use appropriate, easily managed water pumping technology such as solar pump system
- Multi village schemes with deep well sources are preferable for resilient supply
- Deep borehole drilling supported with comprehensive study and design using cutting-edge technology
- Focus more on catchment protection and environmental management
- Water Safety Plan and Water Quality Management (from catchment up to house hold level)

For Rural Sanitation

- Improved Pit Latrines
- Moving towards other more sophisticated systems such as Ecosan types of latrines or bio digesters

For Urban sanitation

- Decentralized wastewater management and treatment system
- Onsite sanitation treatment system for marginalized community at the peripheries of the town
- Conventional central sewerage system (only for Category 1 towns with more than 100 l/c/d)

A7.6.3. Information used for the design

1. The indicative plan is designed based on SDG goal 6 and targets 6.1 and 6.2 which are:

- 6.1; by 2030, achieve universal and equitable access to safe and affordable drinking water for all
- 6.2; by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
- CR-WASH for all projects long term
- WASH-DPA as immediate seven-year programme in drought prone areas
- OWNP Phase II planning Information
- Proportion of served population at the end of GTP II is deducted from population projections (drawn from CSA) in 2030
- The unit cost is determined from average of SDG estimate (country costing model for WASH) and OWNP Phase II Unit Cost Estimate
- The indicative total programme cost distribution by regions based on population ratio
- The programme component cost is estimated based on the ratio determined from OWNP Phase II programme cost sharing

The escalation of the programme cost (price escalation for dollar) is taken as ETB 3 per US$ per year (international inflation rate normally does not exceed 2.5 per cent).

A7.6.4 Assumptions

The planned activities, organization including staffing, advocacy, capacity building, involvement of CSO and private sectors, procurement procedures etc. recommended and planned in Phase II are materialized.

- Regions have enough experience on different technologies and adjusting to robust and resilient technology

- The fund utilization capacity of federal ministries and regions has improved
- Government and donors are even more enthusiastic and ready to support OWNP
- Planning encompassing the beneficiaries, frontline actors, partners and financiers
- Involvement of the private sector
- Capacity building of all involved in planning, construction, rehabilitation, monitoring and evaluation etc.
- Empowering communities and local government
- Strengthening the coordination and programme management units of the OWNP organizations at all level
- Establishing regulatory agency for water and sanitation (wastewater) programme

A6.6.5 Indicative plan for period 2020-2030

The following tables indicate the goals, objectives, programme indicators and target populations. Calculations used information from SDG goals and targets, CR WASH concepts, WASH-DPA funding and Phase II planning and design exercises. The indicative plans include population served and financial plan with different schemes.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Goal 1: Increase water supply access coverage with basic water supply services										
Goal 1.1: Increase rural water supply access coverage with basic water supply services										
% of population using water supply with basic services	86	89	92	96	100	100	100	100	100	100
% of population using piped water supply with basic services	30	31	32	34	35	37	39	41	43	45
% of population using safely managed drinking water supply	14	16	18	20	22	54	65	77	90	100
Target # of unserved population	13,477,004	1,495,852	1,525,902	1,556,588	1,587,924	1,619,924	1,652,602	1,685,975	1,720,055	1,754,861
Goal 1.2: By 2025, increase urban water supply access coverage with basic water supply services										
% of population using water supply with basic services	78	84	90	96	100	78	84	90	96	100
% of population using piped water supply with basic services	78	84	90	96	100	78	84	90	96	100
% of population using safely managed drinking water supply	16	25	35	46	58	16	25	35	46	58
Target # of unserved population	5,273,583	1,072,924	1,126,470	1,182,793	1,242,039	5,273,583	1,072,924	1,126,470	1,182,793	1,242,039
Goal 2: Ensure good governance in rural water supply enhancing sustainability, effectiveness, efficiency and climate change resilience of the service.										
% rural water supply schemes found non-functional at any time	6.5	6	5.5	5	5	4.5	4	3	2	1
% of woredas having spare parts supply chain services for rural water supply schemes maintenance	100	100	100	100	100	100	100	100	100	100
% of woredas having water supply extension supporting system at Kebele level (WEWs)	100	100	100	100	100	100	100	100	100	100
% of woredas with water quality monitoring system in place and rural water supply schemes with water safety plan	100	100	100	100	100	100	100	100	100	100

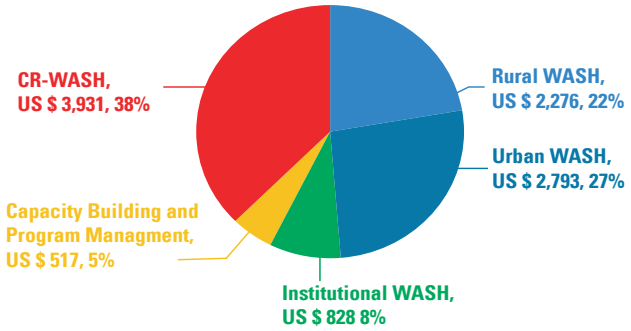
% of woredas having the private sector and/or small and microenterprises involved in rural water supply O&M activates.	20	30	40	50	60	70	80	85	90	100
Goal 3: Ensure good governance in urban water supply enhancing sustainability, effectiveness, efficiency and climate change resilience of the service.										
% of urban water supply utilities with NRW 20% or less (Percent)	38	46	54	62	70	75	80	85	90	100
% of urban water supply utilities with 16 hours/day or more continuity of water supply at premises.	14	18	22	26	30	32	34	36	38	40
% of urban water supply utilities meeting sustainability tariff system target	100	100	100	100	100	100	100	100	100	100
% of urban water utilities meeting water safety target through water safety plan implementation & water quality monitoring among all categories (1-5) of water utilities.	20	40	60	80	100	20	40	60	80	100
The regulatory system capacitated and delivering its service throughout the country efficiently.	1	1	1	1	1	1	1	1	1	1
% of urban water supply utilities at least one of their services outsourced to the private sector	100	100	100	100	100	100	100	100	100	100
Goal 4: Build the sub-sectors' overall capacity.										
*% of professionals refresher-trained and engaged into the sector	20	40	60	80	100	100	100	100	100	100
Strengthened independent water supply and wastewater service regulatory agency	1	1	1	1	1	1	1	1	1	1
Strengthened functional MIS System	1	1	1	1	1	1	1	1	1	1
% of WASH coordination structures Strengthened and functional from federal to kebele level	60	70	80	90	100	100	100	100	100	100

Table A7.2: 2020-2030 Goals/Objective, Programme indicators and Target population

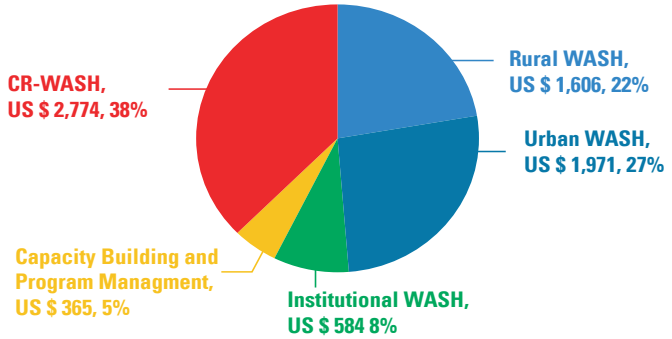
Year	Total programme cost for Rural water	Total programme cost for Urban water	Total programme cost for Rural Sanitation	Total programme cost for Urban sanitation	Total programme cost for Institutional WASH	Total programme cost for Capacity Building and Programme Management	CR-WASH	Total
Year 2025	3,854	1,254	372	929	558	293	3,086	10,346
Year 2030	2,248	1,233	267	667	400	270	2,216	7,301

Table A7-4: Indicative Financial Plan (2021-2030) US$ 17,647 million

Indicative Financial Plan (USD 10,346million)(2021-2025) Breakdown by Five Program Component



Indicative Financial Plan (USD 7,301 million) (2026-2030) Breakdown by Program Component



Sustainable Development Goals (SDG)

The sustainable development goals are global programme for which the Government of Ethiopia is committed to achieve 100 per cent safely managed water and sanitation by 2030. Achieving SDG may be difficult for Ethiopia given the present state of development in water and sanitation.

However, in the remaining 12 years, drastic changes can be achieved provided a focused programme strategy is designed and if:

1. The sectors fully utilize the enabling environment such as the favourable administrative structure of the country, the SWAp programme and its organization, the interest and commitment of the government and development partners for WASH programme and the favourable policies, directives, guidelines and strategies

2) There are a number of threats in OWNP which can be categorized as human, material and technological and financial.

The human elements includes lack of capacity, sector staffs working motivation, lack of innovation (business as usual mentality), modality; accepting all weaknesses as natural rather than reversible, non-accountability, poor planning and poor involvement of beneficiaries, rapid staff turnover etc.

Material and technological: this include lack of the necessary construction, pumping and other electromechanical materials; tools such as for operation and maintenance, M&E mechanism; survey or other scientific investigation; lack of a viable underground and integrated water resource management; inadequate climate resilient water sources and using durable and cheap technologies such as solar pumps, waste stabilization ponds, etc.

Financial: Inadequate fund, poor fund discernment schedule and methods contributing to poor fund utilization.