THE FEDERAL
DEMOCRATIC REPUBLIC
OF ETHIOPIA

MINISTRY OF WATER, IRRIGATION AND ENERGY

TEN YEAR (2013-2022) STRATEGIC PLAN

1. Introduction

Ethiopia has set an ambition of becoming a middle-income country by 2022. In order to achieve this, huge attention has been given for the overall development of all sectors. Promoting drinking water and sanitation, irrigation and energy development are among the key areas for the government's contribution in the achievement of this vision..

The Ministry of Water, Irrigation and Energy (MoWE), as a key ministry of the FDRE, will provide the construction and expansion of the necessary infrastructures for the advancement of the daily life of the society.

. In the past years of the development plan;the study, design and implementation of a wide ranges of projects have been carried out. Ensuring that these infrastructures can be safely utilized by the community and contribute significantly to the economic development and sustainability of the environment. It will also continue to do so in a stronger way.

Currently, Ethiopia's population is estimated at 110 million. Ethiopia covers a land area of about 1.13 million square kilometers occupying a significant portion of the Horn of Africa; off this 99.3% is land and 0.7% water body. The country's topography is complex ranging from high mountains, rugged landscapes and low plains. It has five Climatic Zones, 18 rainforests and 32 ecological zones.

Ethiopia has 12 river basins (8 wet, 3 dry and 1 lakes), 980 BCM Rainfall, 122 BCMsurface water, 36-40 BCM Groundwater, 12 wetlands,11 fresh and 9 salty lakes and 15 major man-made lakes with an estimated 5.8-7.5 Milion hectares of irrigable land. Considering our country's energy potential, the average solar energy is 5.5 KWh /Sq.m., hydro power potential 45,000 MW, average wind output 1000 GW at 7 m/s and 50 m height and geothermal capacity of about 10.000 MW.

The **importance** of this sector's ten-year development plan is to accelerate sustainable water management and River Basin development, make drinking water and sanitation available to all citizens. As well as accelerate irrigation development and thereby increase production and productivity to ensure supply for industries and food security. In addition ensure provision of adequate energy by developing private and public partnership alternatives. Moreover to improve living standards and build the economy by providing access to electricity and services. Overall, the purpose of this sector's ten-year development plan is to contribute to ensuring sustainable development in the economic, social, environmental and political sectors.

The **main areas of focus** of this plan are river basin development and sustainable water resource management, access to safe drinking water and sanitation, adequate irrigation development for food security and industry, and rapid energy development and access for all citizens.

The plan focused on the performance of the last 4 years of the 2nd growth and transformation plan and the performance of 2012 EC, its strengths and weaknesses, challenges and opportunities during the implementation period, as well as the inputs from various stakeholders as well as the country's political, economic, social and environmental conditions..

Regarding the preparation process the original plan is developed in discussions with stakeholders and accountable institutions on a draft document prepared by a team of experts in accordance with the guidelines of the National Planning and Development Commission.

2. Human and Material Resources Critical to the development of the Sector

Critical human and material resources for the sector's performance are mainly natural resources, institutional capacity, human resources, financial resources and an enabling environment.

2.1. Natural Resource

The natural resources to sustain social, economic and environmental development in a sustainable manner are identified by location, size and quality as follows:

- 122 billion cubic meters of renewable surface water resources
- 25-40 billion cubic meters of renewable groundwater resources
- 5.8 Million Hectors of Irrigable land
- Wide renewable energy potential (45,000 MW hydro power potential, 5.5 kWh/ sq. m of solar potential, 1000 GW, at 7 m^2 / h @ 50 m, average wind energy potential, 10,000 MW estimated geothermal potential)

2.2. Institutional capacity and human resources

- Skilled manpower
- 3 newly reorganized and 7 existing accountable institutions and one additional institution to be organized to be able to fulfill the mission of the Ministry.

2.3. Financial Resource

- Increasing institutional financial capacity and increased potential to raise finance
- Strengthen the use of tariff systems in all sectors of water and electricity services
- Implement a purified water discharge tariff system

- Increased credit for the construction of urban water and sanitation facilities and the financing of the Matching Fund
- Strengthening community participation / willingness of the community to contribute both financially and via labor-intensive capital budgets

2.4. Enabling Environment

- Establishment of several universities and TVET institutes in the sector
- Having a relatively strong training institution that can build the capacity of professionals, stakeholders and others in the sector
- Increase in the number of private enterprises in the sector
- The existence of various advanced technologies used in the sector
- Good relations with development partners and the positive aspects that partners are showing to support the sector
- The emergence of spare parts suppliers and repair companies for the sector
- Increasing public participation, capacity and awareness in the development of the sector

3. Strategic Directions

3.1. Policies and Strategies

It is well known that the government has been developing a number of strategies and multi-sectoral activities. Here are some of the strategies:

- Sustainable Development and Poverty Reduction Program (1994);
- Accelerated and Sustainable Development Plan for Poverty Alleviation (1997);
- Growth and Transformation Plan (GTP I) to achieve the Millennium Development Goals (2002)
- Climate Resilient Green Economy Strategy (2003)
- National Policy and Strategy on Disaster Prevention (2005)
- Growth and Transformation Plan (GTP II) to achieve the Sustainable Development Goals (2007)
- 2003-2007 GTP-I and 2008-2012 GTP-II Growth and Transformation Plan (GTP) Plans to Achieve Sustainable Development Goals

In addition, under the above strategies, various activities are being carried out to reduce unemployment and poverty in urban and rural areas.

3.2. Ministry of Water, Irrigation and Energy Sector View

Vision: By 2022 to see a Water, Food and Energy secure Ethiopia

To see a Water, Food and Energy secure Ethiopia by 2022.

Mission: Play a significant role in the socio-economic development of Ethiopia through development and management of its water and energy resources in a sustainable manner. Via the provision of quality and equitable supplies in the entire country and by contributing significantly to food security and foreign currency earning.

Values

- Provide quality services
- Openness to new ideas and innovations
- Equal participation and benefit
- Endurance and aspiration
- Environmental protection and sustainable development
- Continuous learning
- Teamwork
- Good work ethics
- Detest corruption

4. Institutional Capacity for the Implementation of Policies and Strategies

4.1. Institutional capacity

1. Existence of Water Resources and Energy Management Policies; Sustainable Development Goals and sector growth and transformation plans
2. The reorganization of commissions and authorities that can streamline and facilitate the work of the sector.
3. Build competent manpower to carry out institutional mission
    a. Building internal capacity within university-industry linkages
    b. Design and implement short- and long-term training programs
4. The availability of a number of surveys, research and design manuals that can facilitate the work of each sector.
5. Availability of information technology infrastructure

4.2. Policies and Strategies

The Ethiopian government has set a direction of growth with the aim of becoming a middle-income country by 2022. It has given due attention to the sector consequently, the Ministry of Water, Irrigation and Energy has been preparing and implementing long and medium-term plans to fulfill these national responsibilities. Hence these long and medium term development plans are part of this process. Furthermore the below policies, strategies & activities are considered to be vital resources in this endevour.

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- The review of the Energy Policy document is nearing completion
- The existence of water resources and energy management policies and the availability of inputs as a starting point for further policy reform
- The previous water resources and energy management policies and strategy documents are being revised in line with current development needs and will be finalized and implemented.
- Strengthen and modernize transmission and distribution infrastructure of power generation in a government or public-private partnership framework.
- Improvement to the Energy Authority by carrying out radical reforms to fine-tune the performance at international level economic, technical changing and operational control Institution
- Enabling the energy sector to maintain a healthy financial position based on cost- reflective tariffs and low rate of wastage. Create a competent and ethical workforce in all energy sector institutions.
- Building capable and ethical workforce in all institutions
- The availability of a number of survey studies, study design and manuals, etc. that are prepared by consultants and self-employed professionals of the sector.
- The existence of various documents for the implementation of one WASH program
- The growth and transformation plan of the sector are being prepared and implemented
- In terms of updating the sector information, a strong information system is being developed and will continue to be strengthened
- Create a conducive environment for the private sector to invest in the sector, especially in power generation and transmission.
- Presence of other related sector policies (agricultural and rural development, environment, biodiversity conservation, research and development, national health and women's policies
- Developing the National Framework for Climate Services in collaboration with stakeholders
- Having a disaster risk prevention policy.

5. Performance Monitoring &Evaluation System

It is important to establish a strong support, monitoring and evaluation system for the success of the plans set in the sector during this strategic document period. Accordingly, the Monitoring and Evaluation will be implemented as follows

- Ensure the planning, monitoring, evaluation and information management sections are equipped with adequately trained manpower;
- Ensure the preparation of plans for monitoring and evaluation activities are participatory and transparent.
- Ensure the planning and implementation of monitoring and evaluation activities from the lower levels of government to federal institutions are being consistent, cohesive and interdependent to build capacity and support from the federal to the lower levels in this regard.
- Strengthen the information system and support, which is a tool for planning, monitoring and evaluation at all level of regions and government structure.
- Perform field monitoring on a quarterly basis and additionally within, 6 and 9 months as well as annual performance reports for each fiscal year.
- Collectively review and consolidate the sector's performance and future plans with the relevant bodies annually, in the middle of the plan period and at the end of the plan period. And collaborate on joint plans for future planning.
- Development partners who support the plan through programs and projects; Take corrective action by conducting joint monitoring and evaluation with stakeholders and the community.
- Significant focus on key sector achievement areas (KRAs) and key performance indicators (KPIs) agreed upon during the development plan period will be monitored and evaluated.
- Strengthen the monitoring and evaluation system to ensure that implementing agencies, individuals, the community, the states and other executive agencies are focused on support.

In addition, there will be a strong focus on capacity building at all levels both for federal and regional experts' contractors and consultants to strengthen the reform and ensure good governance.

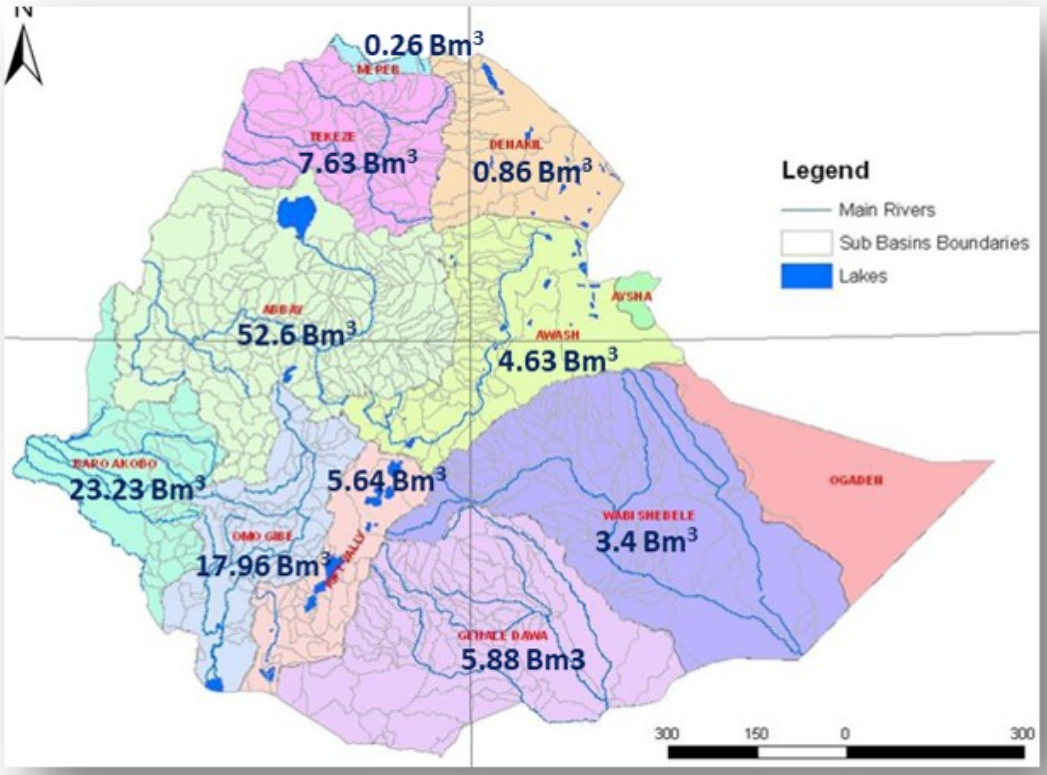
Basin Development and Water Resources Management

6.1 Basin Development Authority

Assessment of Sector Development Plan Performance

1.1. Introduction

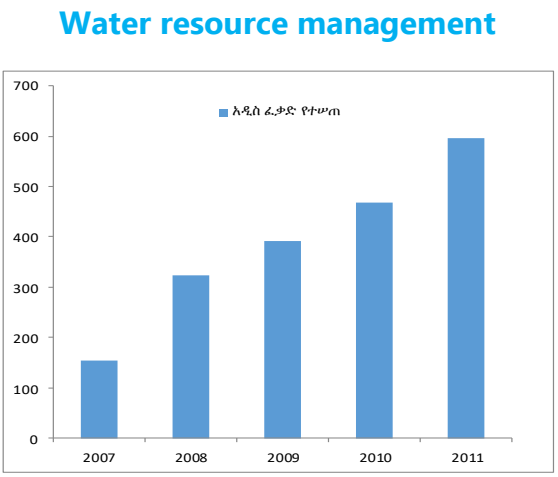
According to studies in the sector, the country's water resources are divided into 12 major basins, with an annual flow of 122 billion cubic meters per year of surface water and 25-40 billion cubic meters of groundwater per year. The spatial and temporal distribution of the resources is highly variable. Water is a trigger of growth, it is inevitable and important that the demand for water in both quantity and quality also grows to ensure proper socio-economic benefits to the people. Consequently the focuses of the 10 year plan are; updating of water resource management systems so as to ensure fair water distribution among users, developing strategies to anticipate climate impact and improve data reliability, developing models that are in line with basin realities & technology support and modernization.



Water Resource Management

An all-inclusive, equitable and effective water resource allocation/management plays an important role in ensuring sustainable development and enduring peace.

In order to ascertain balance development of surface and ground water resources, emphasis have been given to catchment plan to manage water resources development taking into account water quantity and quality for irrigation development, industry, domestic consumption, power generation, fisheries, recreation, environmental flow and other services. Encouraging work is being undertaken in this regard for greater social and economic benefit.



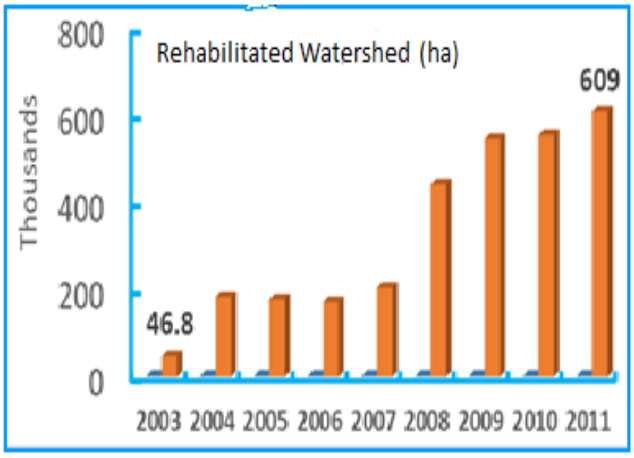
The plan of registration of all users for licensing of water resources, licensing under the Water Resources Management Proclamation and the introduction of a payment system based on water use tariffs to encourage savings produced results. Accordingly:

- In terms of surface water resources utilization so far, 34 billion cubic meters of surface water reservoirs have been constructed in all basins and additional dams with a capacity of 89 billion cubic meters, including the Grand Renaissance Dam, are under construction.
- The number of newly licensed users has increased over the years. For example, only large irrigation water users have received 596 licenses.
- In addition, licensing and tariff service for hydropower, bottled water, industrial users, water recreation, fisheries users have been studied.
- Water allocation and management is based on the principle of equitable use of water resources by identifying the location of the water user, the time (when the water resource will be used), why (why the water is being used), and who (who is the water user) is being done separately.

Water Resources Data Collection

In our Country most of socio-economic and environmental decisions are made based on water and climate monitoring data. This means that water resources and climate information have an irreplaceable role to play in the development of the water sector.
Water resources and climate information are the basis of policy, planning, design and development. In addition, the Basin Development Authority is collecting, analysing and disseminating water flow information, sediment storage, water quality, water bodies and infrastructure development, land and related information, water users information, the collection, analysis and dissemination of information on water demand and supply. For this purpose, there are

- 509 surface water (78% coverage) and
- 529 groundwater (17.95% coverage) data collection stations



Boundary and Trans-boundary water resources issues

With the exception of Ethiopia's wet basins of Awash, Ghibe Omo (drains to Turkana Lake which is partly in Ethiopia) and Rift Valley, the rest of surface water resources flow across Ethiopia's borders and we share them with neighboring countries. Accordingly, we are carefully implementing our country's water resources for cross-border cooperation with neighboring countries in order to safeguard our country's interests

Integrated Basin Development

The main reason for the depletion of water resources, siltation of water infrastructure and floods is the degradation of Ethiopia natural resources. Therefore, the Basin Development Authority has been implementing integrated watershed development activities in all basins for many years to solve this problem. With the participation of the public, the authority has carried out integrated watershed development activities on 1.1 million hectares of land since 2003 EC and 450 million seedlings have been planted in different sub-basins since 2003 EC.

Eco-Hydrology for Ecological Recovery, Basin Rehabilitation and Physical and biological activities are being carried out extensively at 31 Demonstration Stations based on riverine and water bodies' vulnerability.

Gaps and Challenges in the Sector

Gaps	Challenge
• Quality and timely access to information • Lack of identification of water resources in quantity and quality • Disparity of water demand and supply • Water pollution and waste • Basin drainage • Flood event • The spread of weeds on water bodies	• ICT Infrastructure and Standard Data Centre • High investment demand • Low water storage infrastructure • Climate change • Low water allocation system • Lack of regulations for buffer zones

Internal and External Situational Analysis

A. Internal analysis (strengths and weaknesses)

Strength	Weakness
• The established BDA's organizational and coordination structure at the national, office and branch office levels; • Available legislations on water regulation issues such as water use and permit, water tariff, buffer zone protection; • Established well-experienced expert team to build capacity on water diplomacy; • Prepared Strategic Basin Plans, and Water Hyacinth Mitigation strategy; • Established integration with stakeholders on the issues of watershed management, water allocation, water pollution and flood protection; • Accumulated water and water-related information; • Water Management Models developed for water allocation, flood forecasting, water quality monitoring, and sediment load estimation; • Commencement of practices on the new concept of Ecohydrology; • Extensive practice of integrated watershed management for erosion and flood control;	• Non-modern water resource management system; • Low skill and capacity to utilize water resource management models; • Lack of standards, protocols and manuals that facilitate water regulation; • Low level of technology application on data and information gathering; • Undeveloped information technology infrastructures; • Low level of integration for basin plan implementation; • Less communication and promotion of the duties and responsibilities of the Authority; • Absence of long-term strategy on trans boundary water use; • Gaps of legal instruments to enforcing groundwater development and management; • Low level of practice in updating data and information, and associated reduced information reliability; and • Poorly managed working environments;

B. External analysis (favorable conditions and concerns)

Opportunity	Threat
• The emerging of technologies and models to modernizing water resource management; • The bulk flow of manpower forms the higher education centres, and joining the industry sector; • The particular attention of the government to the water sector; • The policy recognitions gave for basins as primary water planning and administration units, and for IWRM implementation; • Improving awareness of the information users, policy developers and implementers on water resource issues; • The favourable situations created due to growing government's attention to green development; • The newly structured and established High Basin Council (HBC); • The establishment of university-industry linkages; • The expansion of infrastructures and technology advancement; • The improving awareness and participation of the community on water-related problems and watershed management; • The growing cooperation of partner organizations;	• The immature cooperation of stakeholders to unifying the fragmented data and basin information; • The shifting of marshy areas and important water bodies for other services; • The growing competition and emerging conflicts in some areas due to imbalance of water supply and demand; • The expansion of invasive species on water bodies; • The tendency of technical trans-boundary affairs to becoming political affairs; • The enumerating trans boundary dialogues; • The growing water loss and water pollution; • The overlapping mandates among the federal and regional institutions on activities such as water quality monitoring, watershed management, water permit, and flood protection; • The lowering quality and availability of water resource due to the growing population and the associated expansion of industries, towns, and agricultural lands; • The increasing cost of models and Information and Communication Technologies (ICT), and low financial capacity; • The continuous restructuring of institutions and associated instability affecting the performance; • The inability to enrol professional staffs with the current government salary scale from the available market;

Objectives and Goals of the Sector Focus Areas

A. Strategic Themes and Priorities

With respect to the mandates of the Basins Development Authority, the strategic pillars of this plan are seven: namely:

- Water Resource Management
- Water allocation and use
- Integrated Watershed Development
- Basin Information Mgmt.
- Trans-boundary Rivers Affairs
- Capacity Building
- Water Quality and Water resource management

B. Objectives and goals of the development plan

Objective 1: Expansion of Water Resource Management
Goal 1.1: Prepare surface and groundwater flow database in each basin by monitoring of water resource prospects.
Goal 1.2: Encourage demand-based water resource management for all users in an efficient, fair, participatory and sustainable manner by establishing an integrated water resource management system.
Objective 2: Integrated Basin Development
Goal 2.1: Increase 2,244,146.60 hectares of integrated watershed coverage to 10 million hectares
Goal 2.2: Strengthen efforts to protect and improve land and water-related ecological integration and biodiversity
Goal 2.3: Expanding Eco Hydrology Demonstrations in all basins by increasing the number from 10 to 55
Objective 3: Ensuring equitable use of cross-border water resources
Goal 3.1: To ensure our country's interests are fully respected in the case of Trans-boundary Rivers
Objective 4: To Improve the basin information management system
Goal 4.1: Establish a comprehensive watershed database for information-based water resource management and development
Goal 4.2: Increase surface water resource flow information from 78% to 100%
Goal 4.3: Increase groundwater resource information coverage from 17.95 to 35

Objective 5: Institutional and stakeholder capacity building

Goal 5.1: Build institutional capacity to realize integrated water resource management
Objective 6: Ensuring gender inclusion and disability
Goal 6.1: Increase the participation and benefit of women in the Basin Development Authority from the current low to 50 + 1 percent

Summary of Financial Need

The strategic plans estimated budget demand for five and ten years.

No	Objectives	Budget Requirement (Mill. Birr))	
		2013 - 2017	From 2013 to 2022
1	Water Resource Management	9,039.41	20,614.00
2	Integrated Basin Development	3,654.00	8,348
3	Trans-boundary Affairs	291.00	686.00
4	Basin information management system	97.25	220.00
5	Institutional and stakeholder capacity building	64.00	129.00
6	Ensure the involvement of gender and the disabled	64.00	127.00
	Total sum	**13,209.66**	**29,923.00**

Performance, Monitoring and Evaluation

Key responsibility areas (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No.	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	**Water Resources Management**				
1.1	Document is Prepared in five (5) basins main plan	Designed with long-term vision Basin plan document in number	Basins Development Authority	Six Month	MOWIE, Basins Development Authority, Irrigation Development Commission, Water Development Commission, Ministry of Agriculture, Environment, Forest and Climate Change Commission and Regional Offices
1.2	Revised Hydrological Information Road Map Document	Document that taking into account the current conditions calculate hydrological coverage	Basins Development Authority	Three month	MOWIE and Basins Development Authority
1.3	Water Resources Information Coverage Due to Established Hydrology Studio, 140 Newly Installed and Renovated 200 Hydrological Stations	Percentage of ready and accessible hydrological data	Basins Development Authority	Three month	MOWIE and Basins Development Authority
1.4	Issued flood warning information and 785 km river direction in a flood prone area	To the extent possible to prevent loss of life and property	Basins Development Authority & Disaster Risk Management Commission	Six Month	MOWIE, BDA, Disaster Risk Management Commission, IDC and Regional Offices

No.	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1.5	400 test wells and groundwater resources drilled to determine groundwater resources in size, location and quality	Percentage of groundwater resources in cubic meters and ready-to-use data for location, size and quality	Basins Development Authority	Three Month	MOWIE, Basins Development Authority and Regional Offices
1.6	Water demand and supply in all watersheds sector, Water Resources Management System Based on allocation and Licensing	Current water supply and demand in cubic meters, Number of registered and licensed users as well as documentation of water allocation	BDA, IDC,EPA, NMA and Regional Offices	Six Month	MOWIE, BDA, IDC, EPA, NMA and Regional Offices
1.7	Percentage of improved water use efficiency	Number of organized irrigation associations, Number of users who have installed a water meter and users logged into the payment system	BDA, IDC, EPA,NMA and Regional Offices	Six Month	MOWIE, BDA, IDC, EPA,NMA and Regional Offices
1.8	Percentage of established national water quality monitoring stations and increased water quality data coverage	Organized laboratory and pollution control stations by number as well as approved water quality document	BDA , Industry Ministry, MEFCCC and Regional Offices	Six Month	MOWIE, BDA, Industry Ministry, MEFCCC, IDC, and Regional Offices
2	**Integrated Basin Development**				
2.1	7,755,853.4 hectares of rehabilitated sub-basins and safe water infrastructure	Protected basins per hectare and Number of safe water bodies	BDA, MoA, MEFCCC and Regional Offices		MOWIE, BDA, MoA, MEFCCC, and Regional Offices
2.2	2 billion planted multi-service trees	Forest-protected basins per hectare and Number of job opportunities created for young people	BDA, MoA, MEFCCC and Regional Offices		MOWIE, BDA, MoA, MEFCCC, and Regional Offices

No.	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
2.3	In order to ensure the safety of water bodies, 47 Eco-Hydrological Concepts Based and Expanded Demonstrations on Priority Water bodies	Established and expanded eco-hydrology demonstrations	Basins Development Authority		MOWIE, BDA and Regional Offices
3	**Boundary and Trans-boundary water resources**				
3.1	Strategic documents proving the benefits of our country on cross-border water resources	Decision-making documents for research and analysis	MOWIE and Basins Development Authority		MOWIE and Basins Development Authority
3.2	Boundaries and trans-boundary rivers where fair and rational use is guaranteed	Negotiations and Agreements issues in number	MOWIE, BDA and Ministry of Foreign Affairs		MOWIE, BDA and Ministry of Foreign Affairs
4	**Basin Information**				
4.1	Organized information for decision making	Developed models in terms of numbers, complete ICT infrastructure, organized database and data network percentage	Basins Development Authority		MOWIE and Basins Development Authority

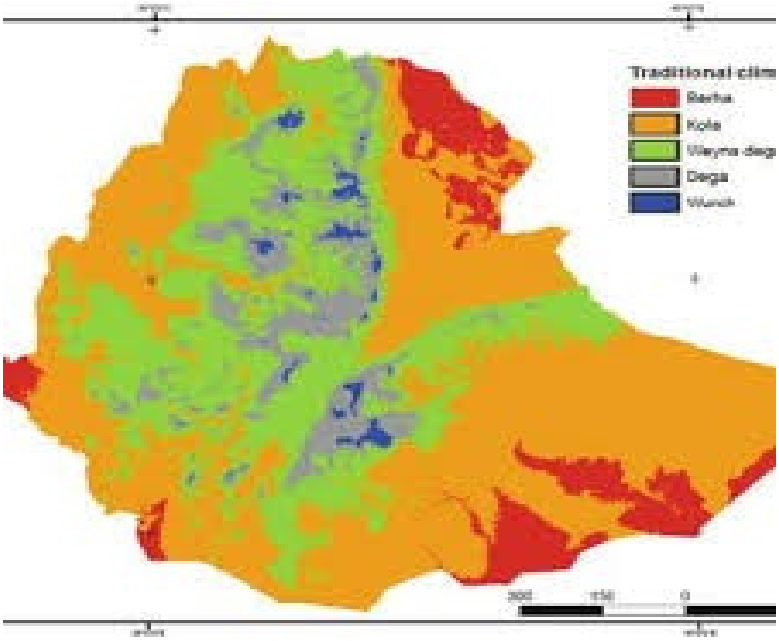
6.2 National Metrological Agency

Assessment of Sector Development Plan Performance

Introduction

Ethiopian government recognizing the importance of meteorological science for the country's development and the proper use of climate resources for the country's economic and social development established the National Meteorological Agency in 1973 by Proclamation No. 201/73. As the National Meteorological Agency is based on our natural resources, the Meteorological Service has a significant role to play in ensuring the rapid and sustainable development of our country's multi-sectorial economy. Harmful weather events such as droughts and floods, which are becoming stronger and more frequent, have also challenged the country's continued development in the past.

In this regard, the Agency is playing its part in realizing the development of our country by providing standardized weather forecasting and other meteorological services, forecasting man-made and natural disasters and disseminating the information to decision-makers and the public. Although efforts are done to improve consumer demand by improving meteorological services, in terms of customer satisfaction we still have a long way to go.



Meteorological infrastructure network development and information supply

Provision of weather and weather monitoring and forecast coverage as well as quality services in different parts of the country is only possible by establishing meteorological stations that represent the country's climate and topography nature. Therefore, there are four standard terrain data stations managed by the agency. The first are synoptic stations to collect a large amount of information for international information exchange.
The second major station is where a lot of up-to-date information is collected for early warning input. The third level is where the low and high temperatures and rainfall data are collected, and the fourth level is the station where only rainfall data is collected. In the last two years of the Transformation Plan (2003-2012), the number of standard terrestrial meteorological stations at various levels has been increased from 1,097 to 1203. This is **87%** of the plan accordingly.

- It was planned to increase the number of synoptic and major stations from 191 to 249, by the end of the second Growth and Transformation Plan, 217 has been achieved. This is 87% of the plan.
- At the beginning of the second Growth and Transformation Plan II, the number of 3rd level stations was 627, and it was planned to increase this number from 627 sites to 789 and 761 was achieved, which is 96% of the plan of
- By the end of the Second Growth and Transformation Plan (GTP), it was planned to increase level 4 stations from 403 to 451 and 319 was achieved, which is 89.4% of the plan.
- It was planned to upgrade 85 fourth-level stations to third-level stations, and 74 has been upgraded, which is 87.1% of the plan.
- In order to expand modern meteorological data collection stations, by the end of 2nd GTP, it was planned to increase the high air registration station from 2 to 3. At the end of the second Growth and Transformation Plan (GTP) the number of high air registration station achieved is 3, which is 100% of the plan:
- It is planned to establish 3 Air Pollution Monitoring and Registration at the end of the second Growth and Transformation Plan (GTP) which was not in the country at the beginning of the Growth and Transformation Plan (GTP). Nowall 3 were wstablished,
- It was planned to increase the satellite receiver station which was only two at national level. By the end of the second Growth and Transformation Plan (GTP), it was planned to increase this number from 2 to 13 and this is completely achieved.
- It is planned to increase the number of automatic weather registration stations from 107 to 700 by the end of the second Growth and Transformation Plan (GTP) and 277 is achieved, which is 40% of the plan.
- It is planned to increase the Automatic Weather Observing System (AWOS) at international airports from 4 to 5 by the end of the second Growth and Transformation Plan and this is achieved 100%.
- 10 Small Automatic Weather Observing System (S-AWOS) is planned to be installed at the airport by the end of the second Growth and Transformation Plan, and 10 were established, which is (100%).
- Climate monitoring radar station was completed at the beginning of the second Growth and Transformation Plan (GTP), which was the first in the country.

- Establish a better system for the provision of modern dissemination of information. The use of WAN and LAN computer network to different offices has made the flow of information more efficient, which was limited to headquarters at the beginning of the Growth and Transformation Plan (GTP) period. The network has been able to connect 11 regional meteorological service centers with the head office and each other.
- The Agency's website, which used to distribute limited information at the beginning of the GTP I, has been provided complete and up-to-date information, including 4 km by 4 km grid organized information in the second Growth and Transformation Plan period.
- Global Telecommunication System (GTS) has set up a network of member countries to exchange current information.
- Using Photo, Scanning, and Digitization Technologies, 70% of the data has been saved by converting over a century of paper-based data into electronic media, storing information for years, and carefully selecting data storage technologies.
- High Performance Computer and Modeling Capacity Built on two Super Performance Computers that were not available in the first GTP plan.

Meteorological forecasting, early warning and advisory services

- Climate, Weather forecasting and early warning service access has reached 77%
- Access to quality and up-to-date apolite meteorological services has reached 80%
- Aeronautical meteorological service for aviation has reached 85%
- A total of 60 research projects have been conducted on meteorological forecasting, early warning and improvement services
- Public awareness of meteorological science has reached 79%;
- Strengthening the Agency's gender-based practices has increased by 35%.
- Ethiopia's international agreements and standards are being fully implemented
- The African Meteorological Organization's Africa office has been relocated from Geneva to Addis Ababa, Ethiopia.

Human Resource Development and Capacity Building

- About 300 new positions have been filled and recruited to improve the organization and meet the required manpower.
- Professional level and special salary scale has been studied based on the unique characteristics of the institution and was presented and approved by the government.
- National Occupational Standard Assessment Tools and Assessment Center has been studied and accredited for beginner, intermediate and advanced meteorology technician.
- As per the agreement reached between International Meteorological Organization and local higher education institutions in long-term training, the number of second degrees graduates has been increased from 10 at the beginning of the first GTP to 46.

- In two training rounds, 85 professionals were graduated with postgraduate diploma in meteorology in the first Growth and Transformation Plan.
- In terms of budget utilization, recurrent and capital financial performance has reached 90% in 2012.
- Construction of the headquarters building was completed by the government on its existing site in Bole in 2012.

Specific gaps and challenges in the sector

Gaps	Challenges
▪ Lack of awareness on meteorological services ▪ Limitation of knowledge, skills and experience of meteorologists; ▪ Lack of climate service type and accessibility; ▪ Limited climate service infrastructure and financial constraints: ▪ Ensure the appropriate and proportional positive contribution of climate service for both negatively and positively affected economic sectors of our country; ▪ Build a comprehensive capacity building plan by studying the gaps of the meteorology sector. ▪ Provide new climate information and services based on research and capacity building for professionals; ▪ Ensure access to existing and new information and services with the help of modern technology; ▪ Ensure that the principles of privacy, accountability and effectiveness are met by the Meteorological infrastructure and financing gaps by government and partner organizations.	▪ Migration of skilled and experienced professionals in the field of meteorology; ▪ Lack of adequate land for the establishment of meteorological stations and lack of proof of ownership for the existing ones; ▪ Theft and destruction at meteorological stations; ▪ Poor quality, disruption and low coverage of Telecom and electricity service ▪ Lack and unavailability of foreign exchange for the purchase of meteorological equipment and ▪ Lack of vehicles for timely inspections, maintenance and calibration of meteorological stations.

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses)

Strengths	Weaknesses
▪ Benefit from modern technology tools and systems ▪ Increased reliability of the forecast by the given meteorological forecasting service ▪ Enhancing the community's awareness of meteorological services ▪ Capacity building activities to provide skilled manpower ▪ Strengthening relations with donors and contributing resources to the development and capacity building of modern meteorological equipment ▪ Capacity building of international and continental climate change support resources ▪ Establishment of a website-based user platform form; ▪ Develop a National Meteorological Service Framework; ▪ Increase the reliability of the forecast;	▪ Weakness of planning, monitoring and evaluation system ▪ Inability to adequately provide basic meteorological information services on behalf of the country's ecosystem ▪ Limited capacity to provide timely and quality meteorological services to various socio-economic sectors; ▪ Lack of public awareness of meteorological services ▪ Lack of access to short, medium- and long-term forecasts at all levels in terms of quality, time and space required by users. ▪ Failure to build the capacity and coverage of information communication technology to provide efficient meteorological services.

B. External analysis (opportunity and Threat)

Opportunities	Threat
• The commitment of the World Meteorological Organization to support the implementation of the National Weather Service Framework • Various international cooperation frameworks support and focus on climate change, including the Sustainable Development Goals (SDGs), the SANDI Framework on DRR, the United Nations Framework Convention on Climate Change (UNFCCC), and Paris Climate Change Agreements, etc. are mentioned. • Global, regional, bilateral and multi-stakeholder funding for climate change mitigation related to climate change • Developing computer and communication networks as well as modelling science and technology to support weather services; • The ever-increasing number of weather service users and new service seekers; • Increasing demand and benefits for weather and weather early warning services; • Expansion of infrastructure (roads, electricity, telecom, etc.) significantly contributes to increasing access to the Agency • Expansion of higher education institutions, creating opportunities for skilled manpower in the sector; • The existence of a decentralized government structure and system designed to provide services to the local community. • Experience developed and integrated practices with stakeholders, higher education institutions and donors	• Insecurity of external financial support; • Fast technology switching and Failure to use technology quickly and efficiently; • Receive appropriate attention to climate service at all levels; • Lack of foreign exchange • increasing cost of meteorological equipment • Insufficient budget and field vehicles from the government to purchase, properly manage, maintain and maintain modern equipment • Lack of adequate quality and accessible telecom service to collect and disseminate weather information; • Failure to retain qualified and skilled professionals at a reasonable salary and to facilitate the transfer of knowledge; • Consistently growing and continuous consumer demand for high quality and space-based weather information and services

Objectives and Goals of the Sector Focus Areas

A. Focus Areas

The National Meteorological Agency plans to use the service based on five focus areas to deliver the service properly to the users.

- Meteorological Information Service,
- Meteorological Forecasting and Early Warning Advice Service
- Meteorological research;
- Update the Meteorological Service with the support of technology and
- Gender and multidisciplinary issues

B. Objectives and goals of the development plan

Objective 1: Provide comprehensive meteorological information that represents the country's geography and ecology.

Goal 1.1. Increase the coverage of modern and standard station systems from 60% to 95% by implementing the country's climate and climate data collection network in accordance with the site distribution plan.

Goal 1.2. Increase the supply of meteorological data from 60% to 95% in a timely manner with quality, adequate space and time coverage for various economic and social sectors.

Objective 2: Provide weather, weather forecasting, early warning and counseling services to ensure the socio-economic development of our country and to reduce the impact on life and property through severe weather and climate events such as floods and droughts.

Goal 2.1. Increase the service level from 70% to 90% for reliable, time and place based and distributed weather and weather forecasting and early warning

Goal 2.2. Increase aviation meteorological service at all airports from 85% to 90% for weather and weather information, forecasting and warning

Goal 2.3. Increase access to customer satisfaction from 80% to 90% based on a jointly developed and negative impact on climate.

Objective 3: Strengthen meteorological research, research and dissemination to increase knowledge and understanding and promote improved and innovative practices.

Goal 3.1. Implement improved and innovative practices, fill knowledge gaps, and conduct air quality monitoring and analysis by designing and implementing meteorological research programs and expanding research options; Increase research efficiency from 60% to 80%

Objective 4: Build the capacity of the agency by increasing the capacity of infrastructure, technology and human resources to the level required by the times

Goal 4.1. Increase the agency's capacity level from 60% to 80% by developing the agency's human resources through knowledge and skills.

Goal 4.2. Increase technology capacity from 60% to 80% by upgrading the agency, infrastructure and technology utilization and modernization

Objective 5: Provide effective service by increasing service quality and accessibility;

Goal 5.1. Increase institutional change from 78% to 90% by continuing the work of change and good governance and reform

Goal 5.2. Raise public awareness on the nature and importance of meteorological science and climate services from 79% to 90%

Goal 5.3. Increase the agency's capacity level from 70% to 90% by ensuring human resource management, workplace health and safety

Goal 5.4: Increase the participation and benefit of women and youth by 35% to 80%

Goal 5.5: Improving the efficiency of budgeting, planning, procurement, finance, property and audit activities, increase asset, procurement and financial performance from 90% to 95%.

Summary of Financial Need

The agency is one of the basic inputs needed to implement the plan, financial needs and resources are planned to be used by the government budget and donor agencies. Therefore, the amount of money required for the implementation of the plans, the purchase of the meteorological equipment, the establishment and construction of the sites for the forecasting, research and other planned activities are presented in the following table.

No	Objective	Budget Demand (Million Birr)		
		2013-2017	2018-2022	Total
1	Providing basic information on meteorology	805.70	1,886.81	2,692.51
2	Meteorological Forecasting, Early Warning and Advice Service	152.61	803.60	956.21
3	Meteorological study, research and dissemination	11.00	13.10	24.10
4	Capacity building to achieve the agency's aim	191.87	355.64	547.51
5	Achieving service efficiency and effectiveness	502.35	662.26	1,164.61
	Total	**1,663.53**	**3,721.41**	**5,384.93**

Performance, Monitoring and Evaluation

Key responsibility areas (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No.	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	Expanded weather and weather data recording equipment and sites Built-in data collection and storage High computing capacity	Developed a modern, standardized, sustainable and favourable weather and weather monitoring and forecasting system	National Meteorological Agency	every year	National Meteorological Agency
2	Given accurate and / or reliable weather and behaviour forecasts	Improved, advanced information management, storage and modelling capabilities	National Meteorological Agency	every year	National Meteorological Agency
3	Forecasting system based on the impact of weather hazards	Satisfaction with improved meteorological services in social and economic	National Meteorological Agency	every year	National Meteorological Agency
4	Climate networks and dissemination of information	networks Meteorological information, forecasting and consulting services available to the user	National Meteorological Agency	every year	National Meteorological Agency

No.	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
5	Implement integrated national climate service with institutions	Implemented Integrated National Weather Service Framework	National Meteorological Agency And sector reports	every year	• NMA • MOA • MOWIE • MOH • National Disaster Management Commission • EFCCC
6	Professionals at various levels (Bsc, PGD, MSc and PhD) in collaboration with local and foreign higher education institution	Developmental human resources to provide successful climate services at all levels			• NMA • Institutions of Higher education • World Meteorological Organization

DRINKING WATER, SANITATION AND HYGINE

7.1 Water Development Commission

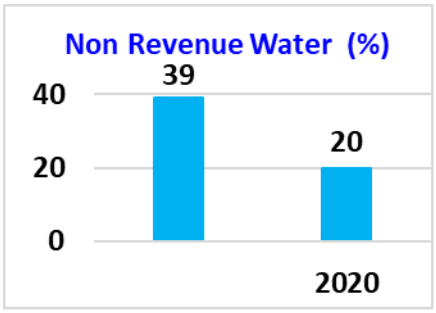
Evaluation of the Implementation plan for the drinking water and sanitation sector development plan

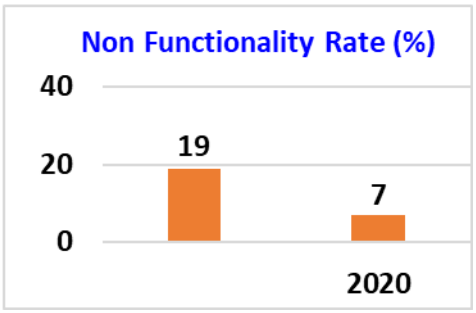
1.1. Introduction

In the last three decades the national drinking water supply coverage has shown a significant increase. It has increased from 13% in 2000 to 73% in 2019. Substantial efforts were made to register such growth in national coverage. The national drinking water supply, sanitation and hygiene program has contributed a lot for this achievement. The strategy which was recently started to recover the capital expenditure for infrastructure development has a significant role in the increase of urban water supply coverage.

The government of Ethiopia has been implementing consecutive GTPs in order to register sustainable development and reduce poverty. Under these GTPs, priority is the water and sanitation targets. The second GTP covers from 2015/16 to 2019/20 and has set related targets towards universal access plan. The targets set under this plan are:

- As per the GTP II the minimum rural drinking water supply standard is providing not less than 25 litre/person/day at a maximum distance of 1 km and reach 85% coverage by the end of the GTP II period. Among the coverage, 20% is planned to be supplied from pipe scheme.
- As per the GTP II the minimum urban drinking water supply standard is providing: 100 litre/person/day for category 1; 80 litre/person/day for category 2; 60 litre/person/day for category 3; 50 litre/person/day for category 4 and 40 litre/capita/day for category 5 towns and reaching a coverage of 75% where all are supplied from pipe scheme.
- Carrying out wastewater management study for 36 Category 1, 2 and 3 towns and constructing wastewater management system for 6 towns with a population of more than 200,000.
- Reducing non-functionality of rural water supply schemes to 7% and bringing the water loss to 20%; In order to speed up the implementation of GTP and Universal Access Program (UAP), the government of Ethiopia has formulated a national water, sanitation and hygiene implementation framework. This framework has set the responsibility of major stakeholders and supports the implementation of the program.





In most rural and urban areas, though efforts were made to increase the water supply service and improvements registered, problems are encountered in the rift valley and some pockets of highland areas. In the 194 drought prone Woredas of the nation which experience shortage of potable water supply and sanitation services, children are exposed to malnutrition. In these drought prone districts, as there is no sufficient water supply source at close proximity, it requires special strategic approach and significant expenditure for infrastructure development. The climate resilient water supply and hygiene sub-program is designed to resolve the water supply and sanitation problem of arid areas.

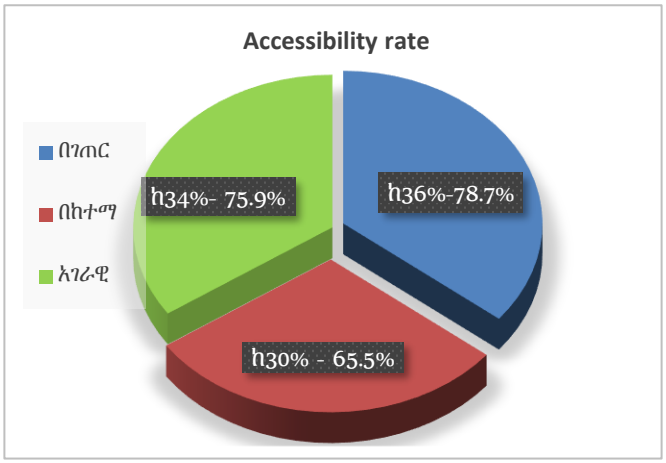
1.2. Drinking Water supply provision

The government has been implementing various strategic plans to improve the provision of the water supply and sanitation. The preparation and implementation of GTP I and II are examples of such plans. In order to realize these two five year plans a number of programs and projects were and are being implemented by the government and development partners. A number of concrete and promising results were registered in the sector in the process of implementing these plans. Accordingly, brief review of the evaluation of the performance in GTP II towards achieving main targets indicates that it has reached the level discussed hereunder.

In the period of GTP II it was planned to improve the rural drinking water supply service standard to 25 litre/person/day at a maximum distance of 1 km and reach 85% coverage of which 20% is supplied from pipe scheme. Similarly in urban areas the planned water supply provision standard was: 100 litre/person/day for category 1; 80 litre/person/day for category 2; 60 litre/person/day for category 3; 50 litre/person/day for category 4 and 40 litre/capita/day for category 5 towns and reaching a coverage of 75% where all are supplied from pipe scheme. A number of activities were being implemented by setting these targets. The four year (2015/16 – 2019/20) GTP II planned to make rural and urban population of 23,240,806 and 6,018,111 respectively beneficiaries of drinking water supply service. Through this, it was envisaged to increase the water supply coverage in rural and urban areas from 59% to 80% and 50% to 70% respectively at the end of GTP II period. In order to achieve these targets it was envisaged to construct and rehabilitate 188,624and 49375 and 340and 170new and existing schemes in rural and urban areas respectively. It was also planned to reduce the non-functionality of rural water supply schemes from that of 11.2% to 8% at the end of

GTP II period.
Based on the plan, as a result of the implementation of drinking water supply services in the last four years, a total of 90,171 and 182 drinking water supply schemes were constructed in rural and urban areas respectively.

Including the 107,440 rural and 279 urban water supply schemes constructed before 2015/16, it has bring the total sum of water supply schemes in rural and urban areas to 197,611 and 461 respectively. It was possible to benefit 17,334,197 in rural and 4,231,026 in urban in total 21,565,223 people due to the schemes constructed in four years of GTP II. This makes possible the increase the total number of beneficiaries of drinking water supply from that of year 2015/16 fiscal year: in rural areas from 42,800,370 to 60,134,567; in urban areas from 8,913,780 to 13,144,806 and the national from 51,714,150 to 73,279,373.
This brings the national drinking water supply coverage to 78.7% and 65.5% in rural and urban areas respectively and the aggregate to 75.9%. In addition though the non-functionality of rural water supply schemes was reduced to 8.9%, the inventory of 2018 has shown an increase to 19%. On the other based on the plan to carry out the wastewater management study of 29 towns and construction wastewater management plant for 6 towns, the study and design of the wastewater management system of 23 towns is undergoing of which those of 5 big towns is completed and the design of the 17 is ongoing. The preparation of a national document to eliminate open defecation –National ODF Campaign 2024 was completed as well.



1.3. Non-Functionality Rate of Drinking Water Supply Schemes

Under GTP II efforts were being made to decrease the non-functionality rate from 11.2 % in 2015/16 to 7% however the inventory of 2018 has shown an increase to 19%. The details show that the non-functionality rate of springs and wells at spot is 19.4% while that of pipe schemes is 13.8%.

1.4. Sanitation and Hygiene

In contrary to the promising efforts provide drinking water supply the issue of sanitation is neglected. Though the effort made to eliminate open defecation in the last 15 years has registered significant results, the level of sanitation infrastructure is well below the required standard. Household latrines are not clean, has risk of contamination through contact and do not have facilities to keep personal hygiene. Though open defecation has reduced from 80% in 2000 to 27% in 2015, as the reduction rate could not continue as before in some places slipping back to OD has been observed.

With regards to Institutional hygiene, that of schools is much less than that of health facilities. The hygienic situation of schools should get much attention in the plans of the coming years. It will be difficult to achieve SDG 6.2 if special emphasis is not given to this issue and strategic actions taken in time.

Ethiopia is signatory of the SDG and the SDGs are the part of the national integrated development framework. The SDG targets of sanitation focus on ensuring the realization of sanitation and service that incorporates the whole sanitation chain from containment to reuse and disposal. The main sanitation goals of SDG are listed as follows.

- Calling for accessibility of sanitation services by all
- Giving priority for those with low living standard and disadvantaged groups
- Eliminating open defecation
- Provision of higher level sanitation services; specially safe removal of fecal sludge from latrines in towns
- Beyond sanitation service for households, ensuring the sanitation for educational and health institutions
- Bringing sustainable behavioural change in communities in addition to the construction of sanitation infrastructure
- Realizing sustainable sanitation service program, instruments and behavioural change

Latrine Waste Management:

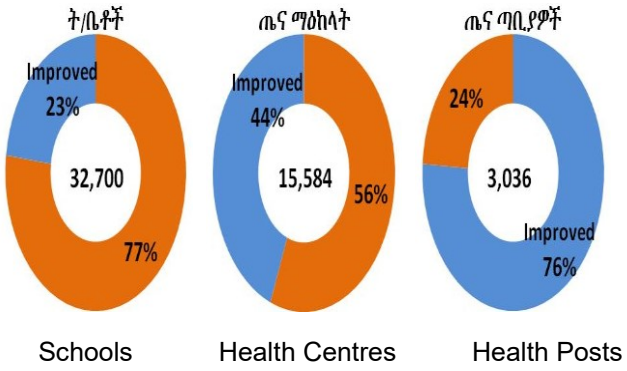
The annual urbanization rate in Ethiopia is 4.8%. Employment opportunities are created due to the increase in industries and service sector institutions. This has caused rise in the migration of the unemployed to towns. Thus, the urban waste management strategy has to design special solutions to address this issue. It is critical to introduce an integrated urban solid waste management system.

The management of waste from latrine incorporates disposal of waste without polluting the environment through utilization of technology, and includes recycling of sludge and separating and disposal of the solid waste that should be removed.

1.5. Institutions Drinking Water supply, Sanitation and Hygiene

Among the 32,000 schools in the nation, only 22% have access to potable water supply in their compounds. Most of the schools are either have no access to potable water supply service or are

using non-potable water sources. Many school age children, especially girls are forced to fetch water from distant sources. They waste most of their time in bringing water for their parents. With regards to health facilities only 12% and 53% of health posts and health centers respectively have access potable water supply service.



1.6. Water Quality and Water Resources Management

Ethiopia has substantial amount of surface and groundwater resources. The chemical content of groundwater has substantial variation depending on the geographic location in the country. Most of the areas in the rift valley have higher content of fluoride. About 11 million people live in areas of the lower rift valley which is affected by fluoride. In many areas of the nation there are places where the iron, magnesium and calcium content is above the threshold set by the World Health Organization (WHO). Hence, unless there are alternative water sources it is necessary to utilize the water quality improvement technology which is under process. This demands huge capital and operation and maintenance expenditure.

The provision of drinking water supply is under pressure due to reduction of yield in groundwater and springs and river flows; and drying of small rivers. Watershed development is a watershed management strategy which has substantial impact of reviving water sources. Water utilization planning and responsible use of surface and ground water sources have significant importance in solving the problem in water availability. During project implementation, sustainable climate change resilient water utilization plan should be practiced with a support of legal instrument. Water abstraction and utilization and allowing it to recharge itself is an integrated water resource management strategy.

(Potable) Water Consumption Survey: In our country, specially in towns the fact that potable water is being used for other purposes in addition to drinking and cooking has make clean water inaccessible to the community. The potable water is being used for livestock, small and large manufacturing industries and construction works such as building, roads and dams. Based on initial survey carried out in 2019 the annual industrial water consumption was estimated as 2410 million m3.

1.7. Water supply, sanitation and hygiene information system

Weak operation and maintenance, unbalanced allocation of resources by various institutions and lack of coordination between regional and federal government are the outcome of lack of information in water supply, sanitation and hygiene interventions. There should be organized and current

information system that shows the status and related conditions of water supply schemes from federal to village level. In addition to information on water supply schemes, having groundwater and surface water resource maps which indicate the available water resources is the basis for short and long-term planning. Locality based water supply and environmental health and personal hygiene infrastructures and related behaviours has to be registered and updated from time to time.

1.8. Institutional Capacity Building

Water supply and sanitation service provision demands strong institutional capacity beginning from the preparation of plans all the way to construction management. It requires diversified professional mix and coordination from federal up to regional level. It is necessary to equip current employees with knowledge in water, sanitation and hygiene technologies. The partnership among the government, private sector and development partners, besides creating suitable environment for the increase of financial and physical performance, will form an organizational set up suitable to work among institutions.

There is a need for continuous capacity building trainings in the study and design; project, procurement, contract and financial management as well as accountability issues for federal and regional professionals. In addition to the capacity building activities carried out in the last five years One WaSH National Program (OWNP), planning of the next program should be given due emphasis. Allowing the participation of the private sector (contractors, consultants, suppliers, well drilling companies and others) in technical trainings shall make the implementation of plans smoother.

1.9. Challenges in the Drinking Water, Sanitation and Hygiene Sector

The following are some of the major challenges facing the drinking water and sanitation sector.

- Low level of service
- Limited financial capacity and use constraints
- Limited technical capacity
- Limited Stakeholders and private sector participation
- Rapid urbanization
- Lack of strong sanitation policy and institutional responsibility
- Weak institutional capacity

Specific Gaps and Challenges in the Sector

Gaps	Challenges
• Limited Supply	• Low investment capital • Climate Change

▪ National Drinking Water Supply Coverage: 75% ▪ Rural Sanitation Coverage : 28% • Unsustainability Pollution, Intermittent Services	• Shortage of Foreign Currency • Higher wastage • Non-functionality up to 19% • Non-Revenue Water (NRW) up to 39% • Absence of sound information system • Limited Implementation Capacity of the Sector • Limited Private Sector Capacity (Contractors, Consultants, and Suppliers)

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses)

Strengths	Weaknesses
• Establish a Water Development Commission to facilitate and make the development of the sector more efficient and effective • Efforts are being made to strengthen the new organization with manpower and materials • There is a good management process to ensure improved development and service delivery in the sector • Preparations for the establishment of a new water quality control and management institution • Increase water supply coverage • Existence of a national program strategy • National Wash Unit Program Strategy • Initiate the urban Sanitation Administration • Supply of climate change mitigation in water shortages • Experience the inclusion of gender and people with disabilities • Preparation of a clean environment creation document • Ongoing emergency WaSH support • Monitoring of water quality issues (iron, fluoride) • Establishment of water, sanitation and hygiene committees and support for maintenance and repair • Having a better professional in the technical capacity of the sector • Initiate a joint venture with highly experienced professionals in the field to strengthen the sector • Efforts to create an environment conducive to employment • Professional capacity building is underway at various levels and it is planned to continue to do so • Cost-effective urban water supply • Establishing and organizing a false information system • Financial capacity is at a safe level • Efforts are being made to organize the institution with materials	• Lack of coordination with stakeholders (federal, state, etc.) • The structure of the sector is not the same from the federal to the lower levels of government. • The monitoring, evaluation and reporting process is not as required • Delaying of WaSH goals (GTP, sustainable development) • Low sanitation coverage • Low service delivery • Poor contract management • High level of water loss • High water facilities damage rates • Reduction of water yield of wells • Low private sector participation • Lack of a solid information system • Lack of required manpower in the sector • Lack of motivation for employee salaries, allowances and various benefits • Employee migration • Lack of employee motivation • Inadequate budget allocation for the sector • Low infrastructure costs • Inadequate size and quality of construction and maintenance spare parts

A. External analysis (Opportunities and Threat)

Opportunities	Threat
• Commitment of government and development partners • Having an encouraging government policy and strategy • Willingness of the Political leadership at all levels to facilitate access to safe drinking water and sanitation • The organization of the sector can be structured up to the lower government level • Economic growth and the existence of a favorable physical policy • Existence of ambitious sustainable development goals • Compulsory water tariff payment • Water is an economically valuable natural resource • Access to various sector data from Central Statistics • Urban water supply cost recovery • Encourage urban water services • Rural Sanitation Campaign • The community's desire to participate in development is at a good level • Census will be held in the coming years, creating a favorable environment for employment • Adequate number of educated youths for maintenance work • Climate resilience wash and a strategy to create an eco-free environment • and sanitation sector	• Unstable political system • Overlapping responsibilities (Sanitation is being done in different sectors) • Lack of cooperation with the federal government as regions are self-organized • Escalation of the cost of construction of drinking water and sanitation facilities • Lack of foreign exchange • Population growth • High infrastructure costs • Reduce the support of development partners • Limited financial capacity and utilization • Stakeholders and private sector participation • Rising market inflation • Changes in the living standards of citizens in urban areas • Lack of water use savings • Challenging the growing population with water supply; • Existence of security problems • Increased demand for emergency support • Ownership and rights issues • Human migration • The impact of human settlement on water supply • Technology development and job creation • Climate change

Opportunities	Threats
• Environmental pollution prevention strategies; • The availability of technologies to support the development of the sector • Water-saving technologies, Renewable Energy Options, Water Quality Assurance Technologies, Availability of sanitation materials and equipment • The availability of new technologies for information exchange • Existence of a one-wash strategy • Equitable distribution of safe drinking water and sanitation services to all citizens, Women's and ensuring the benefit of young people and disabilities • Existence of water user's association and federation • Lack of legal oversee body in the water	• Reduction of groundwater and surface water levels • The impact of climate change on drinking water facilities • Unbalanced local natural water distribution • Rapid urbanization • Boundary enforcement problems • Limitations on the ability to use new technologies that are constantly evolving • Lack of interest in using technology in some areas • Ownership and rights issues • Unauthorized use of water • Assigning responsibility for the task of controlling water pollution and leakage

Objectives and Goals of the Sector Focus Areas

C. Focus Areas

In order to enhance the implementation capacity of the water supply and sanitation sector, the government of Ethiopia has established the Water Development Commission (WDC), which has already organized itself and started to undertake its duties. In order to realize the sector's vision in cooperation with regions and relevant stakeholders, the WDC will focus on the following strategic directions.

- Providing water supply and sanitation service to un-served areas
- Expanding climate-resilient drinking water supply
- Carrying out maintenance, repair and conservation works to ensure the sustainability of existing water supply schemes
- Utilizing renewable energy as one source of energy for rural water supply schemes
- Strengthening urban wastewater management system and constructing the necessary infrastructure
- Expanding urban and rural sanitation services to create clean Ethiopia
- Creating conducive working environment that is supported by information technology and making information exchange efficient
- Seeking for fund from various development partners and stakeholders for implementation of the plan
- Increasing the benefits and participation of women, disabled people and persons with special needs in water supply and sanitation services and utility management
- Undertaking water supply, sanitation and hygiene support services in areas where there are communities suffering from natural or manmade calamities
- Providing support in the sector to regions that require special assistance and pastoral areas
- Capacitating the commission with the required human resources; organizing and creating conducive working environment; widely disseminating its duties and responsibilities as well as the strategic plan up to the lowest level; and creating hierarchical structure
- Carrying out extensive capacity building activities to enhance the implementation capacity of the sector

B. Objectives and goals of the development plan

The main objective of the development plan is to enable our country to contribute to the achievement of the Sustainable Development Goals (2030) by expanding the supply of drinking water, sanitation and hygiene in the medium term and benefiting the inaccessible people.

Objective 1: Deliver safe, reliable and adequate drinking water supply for all citizens by 2030

The 2019 second WASH inventory is used as a baseline (2020 budget year) for the planned water supply coverage in the next 10 years

Goal 1.1: Increase the national water supply coverage from 55.7% in 2020 to 100% at the end of 2030 based on the improved service standard.

- By 2030, improve rural water supply service standard at least 25 liter/person/day within 1 km distance and increase the coverage from 54.88% in 2020 to 100% of which 50% will be served by piped schemes
- By 2030, achieve the following daily per capita water supply in urban areas based on category of towns - Level 1: 100 l/c/d; Level 2: 80 l/c/d; Level 3: 60 l/c/d; Level 4: 50 l/c/d; Level 5: 40 l/c/d. With this service standard, increase the water supply coverage from 58.9% in2020 to 100% by the end of 2030 with all beneficiaries served by piped schemes

Goal 1.2: By 2030, make all schools and health facilities have access to safe drinking water and sanitation services

Objective 2: Urban and rural sanitation service delivery

Goal 2.1. By end of 2030, implement basic integrated wastewater management system in 95 towns

Goal 2.2. By 2030, make all rural villages beneficiaries of latrines

Objective 3: Improving service delivery and water quality monitoring

Goal 3.1. By 2030, ensure the quality and sustainability of drinking water through provision of safe water supply and sanitation facilities

Goal 3.2. Decrease the rate of non-functionality from 19% in 2020 to 7% by 2030

Goal 3.3. Reduce water loss from 39% in 2020 to 20% by 2030

Goal 3.4. Supply fluoride-free water to 3.5 million residents that depend on fluoride contaminated water

Goal 3.5. Strengthen the administration of all Water, Sanitation and Hygiene Committees (WaSHCOs) by enabling them to get legal entity.

Goal 3.6. Enable all Woredas to have access to supply of spare-parts and maintenance services

Objective 4: Strengthen institutional and technical capacity

Goal 4.1. Create organized water supply and sanitation service regulatory body

Goal 4.2. Build the technical and financial capacity of the private sector (Contractors, Consultants, Suppliers and Well Drillers)

Goal 4.3. Strengthen coordination among development partners, sector institutions, regions and other stakeholders

Objective 5: Establish state-of-the-art WASH information management system

Goal 5.1. By 2030, increase the participation of women and the youth in the sector to 50%

Goal 5.2. Make all WASH services disabled-people-friendly

Objective 6: Ensure the development and benefits of multi-sectorial affairs

Goal 6.1. By 2030, increase the participation of women and the youth in the sector to 50%

Goal 6.2. Make all WASH services disabled-people-friendly

Goal 6.3. Create temporary and permanent job opportunities for 200,000 young people in the water supply and sanitation sector

Goal 6.4. Ensure implementation of environmental and social impact mitigation strategy for projects in the sector

Objective 7: Increase WASH investment/budget to ensure reliable financing

Goal 7.1. Increasing the annual budget allocated for WASH from 4 Billion to 223.92 Billion ETB

Goal7.2.:Increasing community participation from 10% to 15%

Water Supply and Sanitation Supply Key Activities to Achieve Goals

Objectives	Goal	Performance Indicators	Main functions	Result
Objective 1: Deliver safe, reliable and adequate drinking water supply for all citizens by 2022	**Goal 1.1:** Increase the national water supply coverage from 55.7% in 2020 to 100% at the end of 2030 based on the improved service standard. • By 2030, improve rural water supply service standard at least 25 liter/person/day within 1 km distance and increase the coverage from 54.88% in 2020 to 100% of which 50% will be served by piped schemes • By 2030, achieve the following daily per capita water supply in urban areas based on category of towns - Level 1: 100 l/c/d; Level 2: 80 l/c/d; Level 3: 60 l/c/d; Level 4: 50 l/c/d; Level 5: 40 l/c/d. With this service standard, increase the water supply coverage from 58.9% in2020 to 100% by the end of 2030 with all beneficiaries served by piped schemes	By 2022, a total of 120.2 million ppl. Enabling citizens to use safe drinking water By 2022 in rural areas 88.5 Million citizens utilization of safe drinking water By 2022, 31.7 million in the city. Enabling citizens to enjoy safe drinking water	• Construction of 204,105 various rural and 1,513 urban infrastructure; From existing water pipeline expansion; Repair of damaged seals; • Identify priority rural areas and cities • Community participation development activities;	Ensure clean and safe water supply for all citizens
		Supply of drinking water for humans and animals in 100 isolated and drought-affected districts	Conduct research and design of 100 multi-village drinking water projects Construction of about 100 drinking water facilities; Increasing the number of loan beneficiary cities; Organizing a water and sewerage service organization for drinking water facilities Carrying out capacity building activities in these areas	Providing safe drinking water to people and animals in drought-prone areas

Objectives	Goal	Performance Indicators	Main functions	Result
	Goal 1.2: By 2022, make all schools and health facilities have access to safe drinking water and sanitation services	Schools and health facilities provided with safe drinking water	Expansion of 15,000 drinking water facilities; Repair and new construction	Ensure safe drinking water service in all schools and health facilities
Objective 2: Urban and rural sanitation service delivery	**Goal 2.1.** By end of 2022, implement basic integrated wastewater management system in 95 towns	Cities with a basic integrated urban sanitation system	• Sequencing and design of sewage disposal system • Gather resources to streamline sewage disposal systems; • Raise awareness of rural and urban communities for sanitation; • Construction of sewage disposal system infrastructure • Supporting low-income communities with sanitation finance.	• Placement of urban sewage disposal systems • Supporting rural community use toilets
	Goal 2.2. By 2022, make all rural villages beneficiaries of latrines	HH and villages that use clean toilets.		
	Goal 2.3. 2022 Make access to sanitation infrastructure for all educational and health institutions	• Schools and health facilities that benefit from improved toilets • Prepared waste disposal sites	15,000 sanitation infrastructure expansion; Repair and new construction	Ensuring sanitation services in all schools and health facilities

Objectives	Goal	Performance Indicators	Main functions	Result
Objective 3: Improving service delivery and water quality monitoring	• **Goal 3.1.:** By 2030, ensure the quality and sustainability of drinking water through provision of safe water supply and sanitation facilities • **Goal 3.2.:** Decrease the rate of non-functionality from 19% in 2020 to 7% by 2030 • **Goal 3.3.:** Reduce water loss from 39% in 2020 to 20% by 2030 • **Goal 3.4.:** Supply fluoride-free water to 3.5 million residents that depend on fluoride contaminated water • **Goal 3.5.:** Strengthen the administration of all Water, Sanitation and Hygiene Committees (WaSHCOs) by enabling them to get legal entity. • **Goal 3.6.:** Enable all Woredas to have access to supply of spare-parts and maintenance services	• Drinking water facilities certified • Reduced non functionality of water facilities; • Reduced NRW • Fluoride-free water consumption population • Rural community water facilities that have acquired legal framework and established a system of governance • Districts where access to drinking water and sanitation spare parts and maintenance services are accessible	• Supply of water quality testing materials and chemicals • Prepare and implement water quality assurance protocols & rules, • Procurement and supply of water treatment chemicals • Construction of fluoride filtration technology; • Organize WASH committees in all departmental level services • Organize the Urban Water and Sewerage Service Board	• Low supply interruption rate (less than 8 hours) and; Ensuring National Water Quality Standards
Objective 4: Strengthen institutional and technical capacity	• **Goal 4.1.** Create organized water supply and sanitation service regulatory body • **Goal 4.2.** Build the technical and financial capacity of the private sector (Contractors, Consultants, Suppliers and Well Drillers) • **Goal 4.3.** Strengthen coordination among development partners, sector institutions, regions and other stakeholders	• Established drinking water and sewerage service regulator; • Capable private sector companies and professionals • A streamlined and integrated system	• Reviewing the existing drinking water policy and prepare a document to establish a water and sanitation regulator; • Tax-free import of materials and water purification chemicals and machinery needed for the sector • Carry out various capacity building activities, facilitate tax-free machinery and equipment support • Strengthen the Liaison Forum with Development Partners, establish a system of	• Create competitive capacity to facilitate efficient operation • Create competent body of water and sanitation sector supervisor

			cooperation and support with regions	
Objective 5: Establish state-of-the-art WASH information management system	• **Goal 5.1.** By 2030, increase the participation of women and the youth in the sector to 50% • **Goal 5.2.** Make all WASH services disabled-people-friendly	• The number of regions that have developed a modern WASH data management system • The number of urban water and sewerage systems in place with modern meter reading and payment systems	• Develop WASH infrastructure for the implementation of up-to-date information systems • Regularly register of water facilities, Analysis ,information dissemination and related information;	Placement of modern WASH information management system for coverage, leakage. Non functionality and Updated information
Objective 6: Ensure the development and benefits of multi-sectorial affairs	• **Goal 6.1:**By 2030, increase the participation of women and the youth in the sector to 50% • **Goal 6.2:** Make all WASH services disabled-people-friendly • **Goal 6.3:** Create temporary and permanent job opportunities for 200,000 young people in the water supply and sanitation sector • **Goal 6.4:** Ensure implementation of environmental and social impact mitigation strategy for projects in the sector	• Participating and benefiting women and youth in the sector • Water facilities suitable for people with disabilities • Job opportunities in the sector for youth in the temporary and permanent for sustainable drinking water and sanitation • Projects in which environmental and community impact reduction strategy is implemented	• Increase women's participation in rural and urban water users' associations • Increasing the number of female in water sector (in number, placement) • Make all water and sanitation facilities accessible to people with disabilities; • Conduct an environmental and impact assessment; • Identify areas vulnerable to climate change, conduct appropriate research and design using appropriate technology.	• Increased women's participation and capacity building • Convenient service for people with disabilities • Creating job opportunities for young ppl • Assessed and

				developed projects • Sustainable drinking water facilities
Objective 7: Increase WASH investment/budget to ensure reliable financing	• **Goal 7.1:** Increasing the annual budget allocated for WASH from 4 Billion to 223.92 Billion ETB • **Goal 7.2:** Increasing community participation from 10% to 15%	• Growing annual national budget for WASH • Increased community participation	• Increase the amount of aid and loans available; • Increase government capital budget • Increase private sector participation; • Increase urban water service revenue; • Increase the contribution of the user community;	Financial supply proportionate with the demand for drinking water and sanitation

Summary of Financial Need

An estimated total budget ETB 500.182 Billion is required for the 10 years strategic development plan. The detailed budget forecast is presented in the following table

S.No.	Goal	2020 Baseline	Budget need		
			2013-2017	2018-2022	Total
1	Deliver safe, reliable and adequate water supply for all citizens	11,334	113,335	238,665	352,000
2	Urban and rural sanitation service delivery	2,970	29,702	63,030	92,732
3	Increasing institutional water supply and sanitation services	1,057	10,569	22,855	33,424
4	Improving service delivery and water quality monitoring	253	2,530	5,971	8,500
5	Strengthening implementation capacity of the sector	147	1,464	3,734	5,199
6	Modernizing WASH information management system	156	1,554	3,924	5,478
7	Increasing the participation and beneficiation of women, disabled people and youth	63	632	2,216	2,848
			159,787	**340,395**	**500,182**

Performance, Monitoring and Evaluation

Key responsibility areas (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

S.No.	Key Results Areas (KRAs)	Key Performance Indicators (KPIs)	Source of Information	Reporting time	Responsible body
1	Improving Water Supply and Sanitation Services	Rural drinking water supply access coverage based on the improved water supply standard (%)	WDC, Regions, CSA	Annual	WDC and Regions
		Urban drinking water supply access coverage based on the improved water supply standard (%)	››	››	››
		National drinking water supply access coverage based on the improved water supply standard (%)	››	››	››
		Rural piped water supply schemes (%)			
		Provision of basic integrated urban sanitation system (No. of towns)	››	››	››
		Basic rural sanitation facility coverage (ODF) (%)	››		
		Average reduction in water supply schemes' non-functionality rate	››	››	››
		Average reduction in non-revenue water (%)	››	››	››
		Annual average water supply interruption in urban households (days)	››	››	››
		Number of urban and rural water supply schemes that have been constructed, maintained and expanded			

7.2 Water Technology Institute

Assessment of Sector Development Plan Performance

1.1. Introduction

The Ethiopian Institute of Water Technology is a government institution established by Regulation No. 293/2005 to contribute to human resource development and technology transfer in order to increase the implementation capacity of the water sector. In order to achieve the goals, of the institute has been carrying out the following and other related activities; capacity building activities, short-term performance-oriented capacity of trainers for training professionals in the TVET sector and and human resource development through long-term trainings; Providing technical support, vocational competency assessment center and specialized laboratory services

1.1.1. Manpower Capacity Building, Research and Technology Transfer, Professional Qualification Assessment Service and Specialized Laboratory Service

The results of the institute in terms of the four areas of focus during the second GTP period since the establishment of the institute are as follows:

- It was planned to provide short-term action-oriented training to 4625 professionals and TVET instructors and 4160 professionals have been trained.
- It is planned to provide vocational assessment services to 2550 professionals and 2460 professionals have been provided with the service.
- Planned to provide technical support to 650 TVET leaders and trainers and 570 capacity building training has been provided.
- It is planned to conduct 10 researches in the sector and 8 researches have been carried out.
- It is planned to transfer 5 technologies for the benefit of the society and 8 technologies have been transferred.
- The Specialized Laboratory, apart from preparing documentation for international accreditation, has set up 11 samples from three lakes in the Rift Valley (Zeway, Langano and Abiyata) and carried out 16 Fisco-Chemical and 2 Micro-Biological Surveys.

1.1.2. Challenges of the Ethiopian Institute of Water Technology

As the institute has limited and outdated material resources to provide services to improve the capacity building of the sector, it will be able to use various strategies to generate the necessary material resources in terms of technical activities in line with the plan to achieve the expected results. In order to achieve the missions of the institute during this plan period, human resources will be strengthened in better organization, quantity and level of education

Specific Gaps and Challenges in the Sector

Gap	Challenges
• Lack of capacity in terms of building the professionals and managers in the sector. • Lack of information technology-enabled systems; • Inability to supply specialized laboratory equipment; • Lack of coordination with various institutions.	• The lack of training machines and the fact that they are too old. • Lack of training rooms, • Lack of budget to supply laboratory equipment • Lack of capacity building programs for human resource development.

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses)

Strengths	Weaknesses
• The existence of procedure for developing training tools during training sessions. • The existence of a planning monitoring and evaluation system; • Efforts to implement reform work • The existence of a standard for service delivery • Work is underway to improve service delivery by identifying surveys • There are a training being given in the water sector which are not offered by other institutions sector • Have a professional with experience in certain professions; • Have a manpower organization to carry out the mission; • Having professional and supportive leaders who are committed to making a difference • Being able to carry out tasks with minimal manpower; • The availability of basic tools and workshops for practical training; • The existence of expansion projects under construction;	• Limitations on accountability • Lack of a complete implementation manual • Lack of information technology. • Lack of coordination at the required level; • Failure to achieve customer satisfaction • Failure to provide the required service as per the mission of the institution • Inability to meet professional requirements in key positions to achieve a mission; • Limited ability of professionals to perform and execute • Lack of staff to meet manpower needs due to low wages. • Lack of capacity building programs to enhance manpower; • Engaging in day-to-day activities instead of planning and focusing on strategic issues; • Lack of drilling machinery and, in spite of, lack of up-to-date technology; • Lack of training technologies such as water well drilling simulators • Insufficient resources for work;

B. External analysis (Opportunity and Threat)

Opportunity	Threat
• Having a bright doable national vision, policy and strategies • The government's focus on the water sector and sustainable national development • Enabling national higher education policy and TVET training strategy to work with institutions • The presence of development partners interested in supporting the institution • The existence of economic stimulus in the country • Focus of the government for infrastructure development. • Increasing demand for education and training • Fast urbanization and population growth • The availability of human resources that can be easily trained and employed; • Presence of information technology to facilitate access to information • Having a community that can use technology; • The greater need for technology and the opportunity to use it; • Attention of government for the environment; • The existence of huge water resource in the country	• The process of improving guidelines and regulations is too slow; • The cost of living affects workers • Lack of funding to achieve the goals set during the plan period. • Existence of donor interest only in selected sectors; • The impact of the HIV / AIDS epidemic on productivity. • Lack of highly trained manpower in critical professions. • Lack of committed workers and work culture to bring growth and change • Lack of capacity to meet the needs of the community in the water sector • Lack of awareness on the environment; • Global warming • Increased environmental pollution by industrial emissions

Objectives and Goals of the Sector Focus Areas

A. Focus directions

For Building human resource capacity to bring rapid development in the water sector and bringing technology transfer through research and capacity building to provide laboratory and competency assessment services, the main issues that the institute will follow are following:.

- Accelerate and sustain the sector's human resource development and technology capacity building;
- Establish democratic and developmental good governance by building the capacity of the institution based on the needs of the customers and enhancing the efficiency of service delivery.
- Increase the capacity, participation and benefit of women and youth;
- Strengthen natural resource and environmental protection activities;
- To play our role in creating a healthy community by providing comprehensive support on HIV / AIDS.
- Establish an organizational structure to better address the institutional mission;
- Develop and implement internal revenue generating business plan.

B. Objectives and goals of the development plan

Objective 1. To increase the implementation capacity of the sector by providing short-term task-oriented training and long-term training to professionals and trainers of TVET institutions and increase trainee professionals from 4160 to 12290.

Goal 1. Training for 8,130 trainees in short term task-oriented training and long-term training program;

Objective 2. Providing the necessary inputs to the professionals and trainers of the institute, enhancing the institute's professional competency assessment role and offer the competency service at 6 different professional levels and Increase the number of professionals who have received the service from 2,460 to 4710 in 2012 .

Goal 2. To provide vocational evaluation services for 2,250 professionals and trainees of TVET institutions.

Objective 3. To increase the capacity of TVET institutions, enhancing their leadership capacity, offering technical support and increase number of trainees from 570 in 2012 to 1740 during the planning period.

Goal 3. Provide technical support and capacity building training for 1,170 TVET leaders and professionals on various topics.

Objective 4. To solve problems of drinking water coverage, irrigation and drainage technology and renewable energy in the sector, increase the number of studies conducted in 2012 from 10 to 53 and benefit the community.

Goal 4. Conduct 43 researches on drinking water coverage, irrigation and drainage technology and renewable energy for the benefit of the community.

Objective 5. To improve the development and utilization of drinking water and sanitation, irrigation and drainage technology and renewable energy benefiting the community by increasing the number of technologies transferred from 8 in 2012 to 44.

Goal 5. Transfer 36 technologies to benefit the community to improve drinking water and sanitation, irrigation and drainage technology and renewable energy development.

Objective 6. Organizing and accrediting the Specialized Laboratory in 5 research areas (Physico-Chemical, Micro-Biology, Radio-Activity, Acoustic-Biology and Water Engineering Resources) and increase the number of sample testing from 40 in 2012 to 605 samples.

Goal 6. Provide diagnostic and testing services on 605 samples in 5 research sectors (Physico-Chemical, Micro-Biology, Radio-Activity, Acoustic-Biology and Water Engineering Inputs).

Summary of financial needs

The budget for the institute to be used for the physical activities of the institute is as follows:

No	Objectives	Budget Demand (Million Birr)		
		2013-2017	2018-2022	Total
1	Increasing the capacity of the sector to execute and enforce	195	195	390
2	Providing professional competency assessment services	75	75	150
3	Provide technical support to TVET and sector institutions	60	60	120
4	Conducting research that can streamline the performance of the sector	135	135	270
5	Transfer of technologies that can solve the gaps in the sector	112.5	112.5	225
6	Providing specialized laboratory testing and testing services	172.5	172.5	345
	Total	**750**	**750**	**1,500**

Performance, Monitoring and Evaluation System

Key responsibility areas (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	Qualified sector experts	Capacity building professionals	EWTI	Quarterly and annually	EWTI
2	Occupational competency assessment	Professionals who have received professional qualification assessment services	EWTI	Quarterly and annually	EWTI
3	Technical support for professionals in the sector	Technically supported professionals	EWTI	Quarterly and annually	EWTI
4	Research	Research conducted	EWTI	Quarterly and annually	EWTI
5	Technology transition	Technologies passed on to the community	EWTI	Quarterly and annually	EWTI
6	Specialized Laboratory Testing and Testing Service	Samples taken for laboratory testing	EWTI	Quarterly and annually	EWTI

7.3 Water Development Fund Office

Assessment of Sector Development Plan Performance

1.1. Introduction

Water Development Fund Office established by Proclamation No. 268/94 to provide low-interest long-term loans to institutions engaged in urban drinking water and sanitation supply and irrigation water user associations, respectively, and for irrigation and water and sanitation projects. Since its commencement, the office has disbursed 9.8 billion-birr long-term loans to 114 drinking water projects in 104 cities and provided access to more than 7.5 million urban communities. Out of this, 580 million birrs has been reimbursed.
The Water Development Fund Office is working to meet the investment needs of the urban water and sewerage services organizations, especially those involved in the supply of safe drinking water to the community, as well as to increase the coverage of drinking water and ensure the benefit of the people. Therefore, the office, in collaboration with the Ministry of Water, Irrigation and Energy and development partners and undertaking capacity building activities in the sector by seeking financing for the sector, providing loans for profitable projects, timely repayment of loans and holding revolving fund.

1.2. Drinking water coverage

As a result of the country's economic and social development, it is believed that the urban population is growing rapidly and the demand for safe drinking water and sanitation services is increasing. Therefore, to meet this growing demand, the sector aims to extend the coverage of drinking water coverage to urban areas by the end of the planing period. According to the revised standard, it is planned to increase the water coverage in the cities from 51% to 75%.

A significant amount of investment (82.8 billion birr) is needed to achieve the target, of which 77.8 billion birr is for the capital budget, 5.0 billion birr for the regular budget, 28 billion birr for the construction and maintenance of rural drinking water and the remaining 44.2 billion birr for urban drinking water and 5.5 billion birr for urban sanitation service. It is known that Birr will be used for the construction of urban sewerage services.
It is planned that this money will be collected from various sources: 49% from the government, 31% from donors and loans; 4% by NGOs and 16% by the user community and urban water service facilities.

Urban Drinking Water and Sanitation Development

The Water Development Fund is in line with the sector's plan to support the development of drinking water and sanitation in the sector during the second Growth and Transformation Plan period. The Water Development Fund has provided loans to a number of urban water and sanitation projects in collaboration with various development partners and the National One-WaSH program.

In this regard, by the end of the 2011 fiscal year, the office has reviewed the performance of the second five-year (2008-2012) Growth and Transformation Plan (GTP) for the next four years. Accordingly,

1. The number of loan beneficiaries was increased from 56 in 2007 EC to 103 by the end of 2011/12 and the number of loan beneficiaries has reached 104 / 100.9%/.
2. The number of loan financing projects was planned to increase from 56 in 2007 to 113 at the end of 2011/12 and the number of projects has now reached 114 / 100.9%/.
3. The amount of loan repayment collected by the office was Birr 173.3 million in 2007. It is planned to increase to Birr 777.63 by the end of 2011 but it was only possible to collect Birr 582.47.0 ml. (75%).
4. The amount of money received from various financial sources will be increased from Birr 5.7 billion in 2007 to Birr 13.62 billion at the end of 2011. It is planned to deliver about 10 billion birr which is about 73.4% which is possible to reach.
5. It is estimated that the number of projects completed and operational has increased from 17 projects in 2007 EC to 37 (84%) by the end of 2011/12.

In the next 11 years (2012-2022), the office is working with the relevant development partners and the National One Wash program to mobilize additional funding for the development of drinking water and sanitation for more cities. The office will continue to intensify its efforts to ensure that more cities benefit from the loan by collecting the loans that have been repaid in the past.

Specific Gaps and Challenges in the Sector

Gaps	Challenges
• Debt collection inefficiency • Incomplete structure, manpower and low wage scale • Inability to use credit financing on time	• Inadequate financing of foreign loan and grants • Delays in projects; • The fund lacks a complete set of rules and regulations (on loan repayment, irrigation financing, sanitation, short-term lending, etc.)

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses)

Strengths	Weaknesses
• The leadership during the plan period was stable, committed, transparent and participatory. • Improving the culture of directing, monitoring and evaluating activities in a planned and participatory manner. • Better performance than previously planned loan beneficiary cities and projects;	• The low level of credit collection from cities; • Poor performance of the total loan scheme for various programs / projects; • Low performance compared to the planned programs / projects. • Incomplete office structure and manpower; • Lack of adequate funding for loans;

B. External analysis (Opportunity and Threat)

Opportunity	Threat
• The office is working on the principle of sharing the cost of its financing projects with the relevant regional governments, borrowing cities and water service organizations. • The office regularly communicates with the executive bodies of the projects and relevant stakeholders in connection with the implementation of programs and projects through joint evaluation and discussion and sets common decisions and directions.	• Lack of adequate laws, regulations and guidelines to guide the operation of the fund in a transparent, fair and binding manner; • Lack of sufficient financial capacity to meet the demand of the loan fund; • Lack of institutional structure and manpower to provide efficient and effective service; • Negative impact on the office's lending and project implementation due to political and security instability. • Low project implementation capacity;

Objectives and Goals of the Sector Focus Areas

A. Focus directions

The Water Development Fund is an institution that has been established as a reliable source of financing for the water sector, especially for urban drinking water and sanitation services projects. The following are the main issues to be met in order to meet the demand of the cities and to improve the service from the current level to a better and more modern financial service delivery.

- Increase the amount of the fund in various ways to improve the loan service provided by the fund.
- Increase the amount of loans provided to improve urban drinking water and sanitation coverage.
- Increase the overall executive capacity of the office.
- Develop a transparent and fair system.

B. Objectives and goals of the development plan

Objective 1: To increase the fund's reserves to improve the loan service.
Goal 1.1. To increase the loan collection from 582.47 million birr to 4.58 billion by the end of 2022.
Goal 1.2. Securing Birr 16.0 billion from various development partners for different cities water supply and sanitation projects until the end of 2022.
Goal 1.3. Collecting additional Birr 31.2 million birr by using additional income-generating methods
Objective 2. To contribute to the achievement of the national plan for the sector by improving the number of borrowing cities and the amount of loans to be provided to improve the coverage of urban drinking water and sanitation.
Goal 2. To increase the number of borrower cities from 104 to 129 by the end of 2022 and to increase the loan amount from the current Birr 10 billion to 26.0 billion by the end of 2022.
Objective 3. Improving the overall enforcement capacity of the office and the level of professional support provided to project executives and borrowing cities;
Goal 3.1. Study and implement a roadmap that can show the institutional structure and the next steps of the office, as well as the office's five-year business plan document study and implementation to fully fulfill the functions and responsibilities over the next two years.
Goal 3.2. Carry out a study to open a branch office in regional capitals and implement until the end of the plan period.

Goal 3.3. Conduct capacity building trainings for an average of 25 leaders and professionals annually, supported by training needs survey and human resource development plan.
Goal 3.4. By the end of the plan period, prepare a standardized and complete data center to fully modernize the office's operations, data management and utilization which Includes financial, borrowed cities and projects management, website and mail management, data protection antivirus, human resources and registry data:
Goal 3.5. Monitoring and evaluation of on-site projects at least twice a year in collaboration with project executives and stakeholders.
Goal 3.6. Develop project management and supervision trainings at least once a year to help build project executives.
Goal 3.7. Study the problems and causes of project delays and conduct a study to find solutions during the first two years of the plan period:.
Objective 4. Identify legal issues and practices that have gaps in the operation of the office and establish a transparent and fair system by enacting amendments or preparing new laws, regulations and directives
Goal 4.1. Address the gaps on four pre-identified proclamation issues encountered (loan guarantee, short-term loan, sanitation definition and fund payable) during the first two years of the plan period.
Goal 4.2. Request and follow up with the Ministry of Water, Irrigation and Irrigation Development Commission on the regulation and implementation of detailed irrigation development expenditures and loans.
Goal 4.3. Facilitate the legal process for microfinance institutions that provide loans for the construction of drinking water and sanitation for small and rural towns until the end of the plan period.
Goal 4.4. Identify issues that need legal support to implement the additional income-generating options offered by the consultant and make amendments or regulations by the end of the plan period.
Objective 5. Inclusion of Gender, disabled and Youth
Goal 5.1. Ensure that loan financing projects benefit women and people with disabilities
Goal 5.2. Advising credit service providers to create job opportunities for people living with HIV, especially helpless women and others.

Summary of Financial Need

Overall, it is estimated that a total of 20.63 billion birr will be spent on the implementation of regular and loan projects. The strategic plan's estimated budget demand for the next five and ten years is as follows.

No	Objective	Budget Demand (Million Birr)		
		2013-2017	2018-2022	Total
1	Increase the loan supply of the fund in various ways to improve the amount of the fund.	18.38	69.55	87.93
2	To contribute to the achievement of the national plan of the sector by improving the number of borrowing cities and the amount of loans to be provided to improve the coverage of urban drinking water and sanitation.	4,663.31	2,733.46	7,396.77
3	Improving the overall implementation capacity of the office and improving the provision of credit services and the level of support and monitoring provided to borrower cities and project executives	12,825.35	259.67	13,085.02
4	Identify the legal and procedural gaps in the office and develop a transparent and fair system by preparing amendments, new laws, regulations and directives as appropriate.	11.95	46.37	58.32
5	Gender, disability and Youth Inclusion	0.91	4.64	5.55
	Total	**17,519.90**	**3,113.69**	**20,633.59**

Performance, Monitoring and Evaluation System

Key responsibility areas (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	Number of cities that have access to credit financing	Cities that have signed a loan agreement with the possibility of a loan	Water Development Fund	Every quarter	WDF, WDC, MOWIE and MOFD
2	Loan amount for new urban drinking water and sanitation projects	Signed loan amount	Water Development Fund	Every quarter	WDF, WDC, MOWIE and MOFD
3	Amount of loan fund	Debt collection from cities	Water Development Fund	Every quarter	WDF, Borrowed cities and guaranteed regions
4	Projects completed and operational	Current loan amount, monitoring and support for projects	Water Development Fund	Every quarter	Project Executive Regions, Borrowed Cities and WDF
5	Office service delivery that is guided by transparency and legal support	Issues for revised and new proclamations, regulations and directives	Water Development Fund	Every quarter	WDF, WDC, MOWIE

Irrigation Development



8. Irrigation Development

Assessment of Sector Development Plan Performance

1.1. Introduction

It is known that Ethiopia's economy is largely dependent on the agricultural sector. However, as the sector follows a rain-dependent approach to production, the country is frequently exposed to drought and famine due to seasonal fluctuations and shortages. To solve this problem in a sustainable way, it is necessary to modernize the agricultural sector and expand irrigation development. In terms of natural resources, the country has sufficient water resources and vast land to use for this purpose.

Irrigation development can increase agricultural productivity by reducing the impact of rainfall and producing at least twice a year. In addition, the expansion of irrigation development will be a key factor in the country's economic growth by providing sufficient food crops to meet the growing demand for food crops and supplying industrial raw materials.

1.2. The current status of the irrigation sector

Modern irrigation farming in Ethiopia began in the 1950s in the Awash Basin. Since then, various studies have been conducted on the country's watersheds by local and foreign experts and organizations to determine the potential water and land resources for irrigation. Based on this, it has been possible to identify a number of irrigation projects that can be developed at different levels, from preliminary study to detailed study and design.

Despite this, irrigation development has not improved for many years due to lack of attention from the government and various problems, mainly due to limited resources (manpower and finances). Over the past two decades, however, the government has made significant progress as a result of its focus on the sector. For example, out of the 176,105 hectares of irrigated land in the country in 1982, it reached 1.2 million hectares in 2010. Of this, 490,000 hectares has been partially and fully constructed with a large and medium-sized irrigation system, and less is being used properly. This is less than 8 percent of the 15 million hectares of irrigated land so far and only 20 percent of the estimated 5.8 to 7.5 million hectares. Although this is a relatively encouraging development, irrigation development is still very low in terms of the country's water and land development potential. The main reasons for this are limited institutional capacity, lack of skilled manpower, lack of access to finance, lack of coordination among stakeholders, limited technological capacity and market linkages.

As noted above, Irrigation development sector starting from 2003 for two consecutive Growth and Transformation Plans have been designed and implemented to expand the irrigation sector. In particular, despite the good performance of the primary and secondary irrigation research and design and maintenance works in the first edition (2003-2007), the performance of the irrigation sector was evaluated. Since the beginning of the second edition (2008-2012), most of the projects have been completed during the plan period, with a lot of focus on projects and better monitoring and evaluation.
Various efforts and solutions have been put in place to alleviate the many problems facing the sector, especially those related to construction work. Among these the following are mentioned:

- Efforts have been made to lease and purchase additional machinery and equipment for contractors
- Efforts have been made to speed up construction work by increasing construction workload
- Various efforts have been made to increase sector capacity by implementing sector capacity building activities as a program
- Efforts have been made to manage projects through joint steering and technical committees from the state and federal government and to make effective decisions.
- The production of some machinery and equipment locally is being manufactured.

1.3. Issues that need attention in irrigation development management

- The issues that need attention in the sector are as follows
- The level of irrigation development in the country is not commensurate with the demand for food, industrial raw materials and foreign exchange needs
- The sector has not been able to create as many jobs as it needs
- Low participation of private investors in irrigation
- Lack of funding for the sector
- Lack of coordination among stakeholders
- The frequency of the role of government institutions involved in irrigation development
- Low productivity and sustainability of irrigation projects
- Weak management of irrigation facilities
- Lack of competent institution and manpower to manage and implement irrigation projects
- Irrigation projects are not completed on time, budget and quality
- Low levels of irrigation use in terms of water conservation and climate change
- Irrigation development is not integrated with related economic sectors and is not linked to the value chain
- Lack of irrigation system
- Lack of organized information and information system in the sector
- Lack of standards and guidelines for the study and design of irrigation projects as well as monitoring their implementation
- Low participation of women and people with disabilities in the sector

Specific Gaps and Challenges in the Sector

Gaps	Challenges
• Low arable land (<20% arable land) • <33% productivity of existing irrigation systems • Inadequate project management; • Lack of quality project documentation • Ignorance of the country's irrigation potential • Not creating enough jobs • Weak and unstable institutional irrigation management and organization • Lack of qualified manpower in the field • Lack of financial supply • Lack of coordination among stakeholders • Limited technological capacity and lack of market linkages	• A lack of widespread deployment of a suitable system for climate and rain fluctuations • Inadequate irrigation system based on Agriculture (agro-industry, foreign exchange, food grains income / expenditure) • High investment demand • Limited capacity and capacity

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses)

Strengths	Weaknesses
• The positive contribution of the establishment of the Irrigation Development Commission to the acceleration of irrigation development; • The sector is being led by professionals with sufficient knowledge and experience in the field; • The existence of federal and regional institutions engaged in irrigation research and construction; • Working with university experts in the field to strengthen the sector; • The availability of laboratory services and technical training facilities to a lesser extent; • Availability of Master Plans and Growth Corridors to guide irrigation development for all basins	• Lack of institutional capacity to manage and implement projects from planning to implementation; • The negative impact of repetitive role of government institutions on irrigation development; • Lack of coordination and participation among actors in the irrigation sector; • Low implementation of national irrigation policies and strategies; • Low efficiency of existing irrigation projects; • The study and design of irrigation projects has not started in sufficient preparation and the studies have not been done to the required quality level; • Lack of consistent standards for the study and design of irrigation projects; • Irrigation constructions are not completed on time and on budget and at the required quality level; • Irrigation development is not coordinated with other sectors of the economy; • Failure to establish a payment system for irrigation users; • Lack of institutional structure to manage medium and large scale irrigation project networks; • Low performance of establishing and strengthening water user associations; • Lack of participation of women and people with disabilities in membership and leadership at water user associations; • Low participation of educated citizens in irrigation development; • Irrigation development sector not supported by research results; • Lack of cooperation with universities and research institutes;

	• Lack of quality standards for imported irrigation technologies and equipment; • Limitations of consultants and contractors engaged in the irrigation sector; • The country's irrigation potential is unknown; • Lack of irrigation development database system; • Lack of qualified and experienced professionals in the field • High labor migration; • Lack of a strong modern laboratory and facility to support irrigation research and design;

B. External analysis (Opportunities and Threat)

Opportunities	Threat
• Special attention given to the sector by the government; • Expansion of educational institutions providing training in the sector; • The favorable conditions created by the government to allow foreign direct investment in the irrigation sector; • The existence of a national irrigation policy and strategy; • Creating favorable conditions for the private sector to engage in various economic sectors in partnership with the government; • That the country's economic growth has positively contributed to the development of the sector; • Expansion of agro-industries contributes to the growth of the sector; • The country's location is conducive to international markets; • Improving and expanding infrastructure (roads, electricity, telephone); • Improving the financial support of various partner organizations and countries for the development of the sector; • Large population, high labor and market resources; • The rapid development of technologies that can help the sector; • Living suitable and irrigated land, especially in low-land areas; • Adequate surface and groundwater availability;	• The negative impact of land management and related performance challenges on irrigation development; • Irrigation land distribution implementation problem; • Non-compliance with applicable laws; • The negative impact of land management and related performance challenges on irrigation development; • Lack of adequate and reliable funding for the development of the sector; • Lack of foreign exchange; • The private investor's interest in participating in the sector is low; • Increase in project cost related to irrigation land compensation; • Potential land disputes related to irrigation development; • The negative impact of overpopulation on water and land; • The tendency of an educated youth to be a caretaker rather than an entrepreneur; • Impact on the participation of women and people with disabilities in the sector; • Lack of capacity to produce irrigation technology inputs locally; • The impact of climate change on the sector;

A. Focus directions

Irrigation development ranks among middle-income countries Facilitate green growth; An Irrigation Development Commission has been established and organized to take into account the sustainable development goals and the 2063 Agenda of Africa. The Irrigation Development Commission will work with the regions and other concerned bodies to realize the vision of the sector by focusing on the following areas of focus.

- Increase agricultural production and productivity through irrigation development
- Create jobs in the irrigation sector
- Reduction of government spending and develop alternative financing sources
- Increase institutional capacity and human resource development in the sector
- Ensuring gender inclusion and disability in irrigation development

B. Objectives and goals of the development plan

Objective 1: Increase agricultural production and productivity through irrigation development

Goal 1.1. Increase study and design of medium-sized irrigation systems from 600,000 ha to 1.6 m ha

Goal 1.2. Construction of medium-sized irrigation systems from 490,000 ha to 990,000 ha

Goal 1.3. Increase the use of improved irrigation technologies from 2% to 30%

Goal 1.4. Increase water use efficiency from 10 existing irrigation projects from 30% to 65% and cultivate land use from 33% to 100%

Objective 2: Create job opportunities in the irrigation sector

Goal 2.1. Create employment opportunities through modern irrigation for educated and low-skilled youth

Goal 2.2. Irrigation Maintenance; Construction and related work Create employment opportunities for youth

Goal 2.3. Create jobs for the community by expanding the irrigation system

Objective 3: Reduce government spending and develop alternative sources of finance

Goal 3.1. Ensure that irrigation projects are completed on time and on budget as well as at the required quality level

Goal 3.2. Enabling irrigation water users' associations to cover maintenance costs

Goal 3.3. Meeting budget needs by developing alternative financing sources for irrigation development

Objective 4: Increase institutional capacity and human resource development in the sector

Goal 4.1. Enable policy, strategy, develop guidelines and standards

Goal 4.2. Strengthen institutional processes and meet facilities

Goal 4.3. Capacity building for irrigation professionals and irrigation users

Goal 4.4. Establish a system that integrates irrigation development with other sectors of the economy

Objective 5: Ensuring Gender Inclusion in Gender and disabled

Goal 5.1. Promoting women's participation and benefit in irrigation development

Goal 5.2. By ensuring that people with disabilities are considered in all irrigation development projects

Summary of Financial Need

The main objectives of the strategic plan are the estimated budget needs of the 10-year plan as follows

No	Objective	Budget Demand (Million Birr)		
		2013-2017	2018-2022	Total
1	Increasing agricultural production and productivity through irrigation development	152,900	161,600	314,500
2	Creating job opportunities in the irrigation sector	8.500	27.700	36.200
3	Government spending cuts and development of alternative financing sources	800	0	800
4	Institutional capacity and human resource development in the sector	5089	700	5789
5	Ensuring gender and disability inclusion	550	275	825
	Total	**167,839**	**190,275**	**358,114**

Performance, Monitoring and Evaluation System

Key Outcomes (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	Development of medium and large irrigation facilities	Irrigation land studied and designed by Ha	Irrigation Dev'nt Commission, Regions, Sugar Corporation, Central Statistics Authority	Per year	IDC, MoA, Sugar Corporation and Regions
		Prepared and developed irrigated land by Ha			
		The share of prepared and developed irrigated land from the total irrigated land by Ha			
2	Improved sustainability of medium and large irrigation facilities	Percentage of completed irrigation infrastructure	››	››	››
		Irrigation facilities that provide efficient and sustainable services	››	››	››
3	Mechanizing and modernizing agriculture through irrigation development	The share of land prepared for the export of imported irrigated land	››	››	››
		The role of youth and gender in the creation of job opportunities in irrigated agriculture	››	››	››

ENERGY DEVELOPMENT

9. Energy Development

Assessment of Sector Development Plan Performance

1.1. Introduction

Energy is known to be the basis of a country's economy. In particular, quality and efficient electricity service is important not only for basic social services such as health and education, but also for industry and modern agriculture. However, in light of the major national needs mentioned; the energy sector still has a long way to go. Therefore, it is important to carry out general sector reforms. This 10-year master plan will help transform the energy sector over the next ten years and contribute to the country's economy.

1.2. The capacity of generating electricity

Given the current situation in the energy sector, the availability of timely, reliable and affordable electricity supply is crucial to achieve the growth and development vision of our country. In this regard, the current generation capacity has reached 4,300 MW, but only 44 percent of the population (33% connected to the national grid and the remaining 11 percent to the non-national grid) use electricity and is still the lowest in terms of coverage and size in the world. Therefore, it is necessary to significantly increase the power and supply of electricity.
The total national production capacity is 4413 MW, of which 4064 MW is from water; 324 MW from the wind; 25 MW is from solid waste. Projects have been launched to increase national production capacity; The plans for the future are as follows:

- Hydropower
  - 2 Construction 7310 MW (Renaissance and Koisha Dams)
  - 5 projects 2220 MW (Those who are in the process of entering development)
  - 2 projects 840 MW (In the study stage)
- Wind power generator
  - Aisha 1 of 120 MW (under construction)
  - 2 projects of 400 MW. (Aisha 2 and Assala) In development
  - 3 projects 600 MW (In progress)
  - 8 projects 1050 MW (In the study stage)
- Solar power
  - 3 in negotiation 350 MW.
  - 6 Prepared for competition at 750 MW.
  - 6 under study at 625 MW.
- Geothermal power
  - 2 under construction120 MW
  - 1 in negotiation 50 MW
  - 8 in the study at 800 MW.

- Solid waste power plant
  - 2 under construction50 MW
- Natural gas power generation
  - 1 in the study 500 MW

In addition, preparations are already underway to introduce new power generation technologies in the long run. For example, natural gas, the right amount of potential to launch large-scale coal and nuclear technologies over the next 15-20 years; there is a direction to work on technology assessment and human resource development.

The national grid has a total of 19,000 km of transmission lines at various capacities, including 132 kV, 230 kV, At 400 kV and 500 kV at least 200 different levels of service are being provided. A number of projects have also been launched to strengthen the transmission and substation system

For example:

- Ethio-Kenya 500 DC Kevo Project
- Bahir Dar Woldia 400/230 KV Project
- Mekelle Dalol 230 KV Project
- Semera Afdera 230 KV Project
- Adama 2nd 230 KV Project
- Gibe 3 Addis Ababa 400 KV Project

1.3. Electricity Consumption

Currently, only 44 percent of the population (33 percent connected to the national grid and the remaining 11 percent to non-national grid) use electricity, which is still relatively low in terms of coverage and size globally. Therefore, there is a need to significantly increase the power and supply of electricity.

Electricity consumers at home; In business: In industry (low and high); They are also divided by street lights; According to the Ethiopian Electric Power Corporation, the total domestic and export demand for the next ten years is as follows.

Years	Domestic Demand (GW)	Export Demand (GW)
2013	2,951	325
2014	3,299	325
2015	4,386	475
2016	4,996	475
2017	5,469	475
2018	6,305	475
2019	6,917	663
2020	7,636	663
2021	8,451	663
2022	9,357	813
	13.4%	**9.6%**

The population of our country is estimated at 110 million; of these, only 34% use electricity connected to the grid. Although 11% of the population is not connected to the grid; with low solar technology they get electricity for radio or mobile charging services. In addition, in relation to environmental and climate change and the demand for foreign exchange for the purchase of oil and spare parts. It is also planned that in addition to electric trains and buses, at least 30 percent of vehicles on the road will be electric cars in the next 10 years, thereby increasing energy demand.

According to the distribution network, the 232,000 km line includes 40 transformers and 43,000 transformers, which will accommodate 5.8 million customers. Major projects mentioned in the distribution system:

- Cities Improvement Project
- 6 Cities Improvement Project
- Minigrid of 12 Rural Cities (under construction)
- Minigrid of 25 Rural Cities (Bidding Process)
- Minigrid of 130 Rural Cities (in preparation)

The highest registered energy demand so far is 2,600 MW from that 1933 National Energy Waste; Studies also show that there is an annual growth rate of 14%. On the other hand, the average share of the country's energy production does not exceed 70 kilowatts, which is very low even among the backward countries, and efforts will be made to exceed 400 kilowatts over the next 10 years.

It is believed by both the Ethiopian Electric Service and Ethiopian Electric Power that the quality and reliability of the electricity service should be continuously improved in accordance with international standards in the event of power fluctuations.

1.4. Energy efficiency and savings

Along with increasing national production capacity, the focus is on reducing energy waste and freeing rural communities from traditional firewood use. In particular, to reduce waste on the distribution network in a world-class manner; requires repair of old distribution lines and transformers. Energy saver for rural communities, extensive solar heating and biogas technologies is believed to save energy and reduce deforestation and improve public health.

Specific Gaps and Challenges in the Sector

Gaps	Challenges
• Failure to provide electricity to all citizens • Supply of the energy required by the economy, especially the manufacturing industry • The energy generated depends on the energy of the water • The interest burden on delayed loan projects, Waste of time and the resulting loss • Quality and timely access to information • Involvement of the private sector and the lack of benefits	• Climate change • Low income of the sector institutions and thus inability to carry out regular maintenance and improvement • Lack of modern operating technology • Lack of trained and ethical manpower • Rural access to traditional and harmful fuels and the resulting health problems; Lack of productivity; Deforestation:

Analysis of Internal and External Conditions

A. Internal analysis (strengths and weaknesses

Strengths	Weaknesses
• New change-oriented leadership; • Ongoing sector reform; • Conditions for implementing cost-based tariffs: • Focus on renewable energy and more than 95% renewable energy generation capacity; • Convenient to use public-private legal framework	• Low and unfair access; • Qualified and unsatisfactory service; • Expenditure and income disproportionate and in high debt; • Minor contribution to national economic growth; • Mostly dependent on imported products and services • Lack of well-trained manpower and experience in mega projects

B. External analysis (Opportunities and Threat)

Opportunities	Threat
• Indoor and outdoor environment conducive to renewable energy; • political support at all levels; • Increasing private sector participation; • Widening supply and demand gaps; • Conventional climate pollutant fuels being under influence • Decreasing the cost of solar and storage technologies • Contribute to job creation	• Inconsistency between the organization of the ministry and the regional offices and the resulting loose relationship; • Local government and community support for expansion and consolidation projects; • Establish a cost-effective tariff system; • Climate change and the resulting inefficiency of our hydropower

Objectives and Goals of the Sector Focus Areas

A. Focus directions

The main focus of the energy sector is to accelerate the development and access to energy for all citizens and in order to achieve this; the following are some of the key issues that need to be addressed.

- Improving the living standards of citizens by ensuring access to affordable electricity services
- Promote access to clean and energy-efficient technology;
- Promote quality electric service
- Reliable electrical infrastructure
- A healthy institutional financial position
- Strong energy sector investment
- Qualified and ethical manpower

B. Objectives and goals of the development plan

Objective 1: Improving the living standards of citizens by ensuring access to affordable electricity services

Goal 1.1. Access to electrical Service to all Citizens

Objective 2: To strengthen the national economy by providing quality and reliable electricity service;

Goal 2.1. Reliable and modern energy infrastructure

Goal 2.2. A service that meets international quality standa

Objective 3: Sustainable Financial Investment and Income Verification

Goal 3.1. Increased institutional income

Goal 3.2. Significant national economic support

Objective 4: Enhance the use of clean and energy efficient technology;

Goal 4.1. Improved and healthy rural society with modern energy technology

Summary of Financial Need

The overall financial needs of the sector are summarized in the five- and ten-year of the sectors, with the main objectives of the plan are as follows

No	Objectives	Financial need (Billion Birr)		
		2013-2017	2018-2022	Total
1	Improving the living standards of citizens by ensuring access to affordable electricity services	227.5	284.0	511.5
2	Strengthen the national economy by providing quality and reliable electricity service	605.5	284.0	889.5
3	Creating a sustainable financial investment and Income Verification	-	-	-
4	Enhance the use of clean and energy efficient technology;	5.0	5.0	10.0
	Total	**838.0**	**573.0**	**1,411.0**

Performance, Monitoring and Evaluation

Key Outcomes (KRAs) and Key Performance Indicators (KPIs) Implementation Monitoring and Evaluation Action Plan

No	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
1	Increasing foreign exchange earnings from electricity sales	The share of foreign exchange earnings from the export of electricity (USD and %)	EEP	Per year	MOWIE & EEP
2	Increasing electricity generation capacity and access to electricity equitably and affordably	Total Electric Power Generation (in megawatts)	>>	>>	>>
		Installed electric power generated (MW)	>>	>>	>>
		Generated electricity (in watts per hour)	>>	>>	>>
		The share of electricity generated from renewable energy sources (%)	>>	>>	>>
		Current per capita electricity	EEP & EEA	>>	MOWIE,EEP & EEA
		The total amount of electricity used is from the Ratio.	>>	>>	>>
		Per capita energy consumption	>>	>>	>>
		Number of households connected to the main grid (region)	>>	>>	>>
		Ppl with off-grid electricity have a total share of households if they do not have access to electricity (per region).	>>	>>	>>
3	Improving the efficiency and effectiveness of electricity generation and distribution	Average Annual Distribution Electricity Waste (in%)	EEU	>>	MOWIE & EEA

No	Key scope fields Key responsibility areas (KRAs) & Outcomes	Key Performance Indicators (KPIs)	Source of information	Reporting time	Executive
		Average Annual Distribution Electricity Waste (in%) Average Annual Transmission Electricity Loss (in%)	EEP	>>	MOWIE & EEU
		Average System Power Interruption Frequency (SAIFI)	EEA & EEP	>>	MOWIE, EEA, EEP
		Average System Interruption Time (SAIDI)	>>	>>	>>
4	Improving private sector participation in the development sector	The share of electricity generated by the private sector at the national level compared to that generated by the government (MW)	>>	>>	>>
5	Job opportunities created in the electricity sector	Number of young people in the energy sector (male, female)	>>	>>	>>
6	Restoring Increasing Investment Costs	Average revenue collection efficiency (in%) per quarter	>>	In a quarter	>>

Appendices

Appendix 1. Annual distribution of macroeconomic and sector goals

Basin Development and Water Resources Management Sector

No	Sector Indicators	Unit	Start year 2012 Performance	Predictive access				
				2013	2014	2015	2016	2017
1	Reach the basin leader plan out of three (3) to eight (8)	Document	3	4	5	6	7	8
2	Updating the basin information system	%	16.66	25	33.3	41.6	49.9	58.2
3	Increase surface water resource flow information from 78% to 100%	%	78	79	80	81	84	86
4	Increase groundwater resource coverage from 17.95% to 35%	%	17.95	19.35	20.8	22.3	23.8	25.4
5	By implementing water quality control and monitoring system improvements to 80% of the national water quality control coverage		0	10	15	20	35	50
6	Demand and supply of water allocation in an effective, fair, participatory and sustainable manner for all users and establish a licensing water resource management system.	%	100	100	100	100	100	100
7	Increase integrated basin development coverage from 2.2 million hectares to 10 million hectares	Ha	2.24	2.8	3.8	4.7	5.6	6.5
8	Expanding Eco Hydrology demonstrations in all basins by increasing the number from 10 to 57	Number	10	17	23	27	33	37
9	100% protection of the interests of our country in the case of borders and transboundary rivers	%	100	100	100	100	100	100
10	Ensuring gender and disability inclusion	%	100	100	100	100	100	100

11	Build institutional capacity to realize integrated water resource management	%	100	100	100	100	100	100

National Meteorological Agency

No	Sector Indicators	Unit	Start year 2012 Performance	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	Information supply												
1.1	Station distribution	Percentage of site distribution number and site quality level implemented in accordance with master plan	56	57	60	68	77	83	86	88	89	91	92
1.2	Information supply	Percentage of data collection, quality and supply	70	72	74	79	79	52	83	86	90	92	97
2	Forecasting and Early Warning and Advice Service												
2.1	Prediction and early warning	With up-to-date, alternative meteorological forecast accuracy and user satisfaction percentage	70	71	72	75	77	79	82	84	87	88	90
2.2	Aviation Meteorology	Distributed meteorological information to the user, the quality and accuracy of the forecast and early warning, and the percentage of customer satisfaction	85	86	87	87	88	90	91	92	92	93	94
3	Research and Dissemination												
3.1	Research and Dissemination	Number of successfully implemented research programs; Number of published, published and distributed research findings	40	46	49	54	58	61	66	70	76	80	85

No	Sector Indicators	Unit	Start year 2012 Performance	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
4	**Capacity building to achieve the agency's purpose**												
4.1	Build knowledge and skills	Number of undergraduate, postgraduate professionals in the country and abroad and number of vocational training and number of short trainings offered	38.2	39.8	43.9	47.4	50.1	54.4	58.8	64.8	69.1	74.6	80.0
4.2	Foundation development, technology and updating	Expanded modern technology system in type and number as well as number of infrastructures built	14	15	16	23	30	50	55	61	74	87	89
5	Service efficiency and effectiveness	Successful Good Governance, Transformation, Outcome, Internal Performance, Service Efficiency, and Continued Improved User Satisfactio	61	64	66	70	73	75	78	82	85	89	92

National Meteorological Agency

Drinking Water and Sanitation Sector

A. Number of drinking water facilities to be built

No.	Type of Scheme	Number of Schemes by year											
		Base (2020)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
1.	**Rural schemes total**	**14,944**	**17,023**	**17,774**	**18,666**	**19,394**	**20,116**	**20,450**	**21,365**	**22,115**	**23,208**	**23,994**	**204,105**
1.1	Hand dug wells	6,725	5,200	5,300	5,400	5,500	5,600	5,700	5,900	6,100	6,400	6,594	57,694
1.2	Spring at spot	4483	4,867	5,267	5,667	6,067	6,467	6,500	6,800	6,900	7,150	7,277	62,962
1.3	Shallow wells	2,989	2,438	2,537	2,638	2,738	2,837	2,850	3,015	3,215	3,416	3,623	29,307
1.4	Rural Pipe Scheme	747	3,211	3,312	3,461	3,539	3,612	3,750	3,950	4,150	4,442	4,650	38,077
1.5	Expansion works	0	1,307	1,358	1,500	1,550	1,600	1,650	1,700	1,750	1,800	1,850	16,065
2.	**Urban schemes total**	**128**	**96**	**105**	**114**	**120**	**127**	**95**	**143**	**190**	**238**	**285**	**1,513**
2.1	New Construction	54	40	45	50	50	52	38	57	76	95	114	617
2.2	Rehabilitation and Expansion	74	56	60	64	70	75	57	86	114	143	171	896
Total Number of Schemes to be Constructed, Rehabilitated and Expanded		**15,072**	**17,128**	**17,888**	**18,789**	**19,526**	**20,257**	**20,604**	**21,531**	**22,295**	**23,403**	**24,197**	**205,618**

*Since data is not yet received it is prepared considering current coverage, existing schemes and population growth, hence it could be revised when data is obtained from regions

B. Drinking Water, Sanitation and Hygiene

S.No.	Sector Indicators	Unit	Baseline 2020	Planned Performance									
				2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	Increasing National Drinking Water Supply Coverage based on GTP-II standard	%	55.7	60.3	64.9	69.4	73.8	78.2	82.6	87	91.3	95.7	100
2	Increasing Rural Drinking Water Supply Coverage based on GTP II standard	No. of woredas	54.88	59.41	63.99	68.51	78.05	77.59	82.11	86.61	91.09	95.56	100
3	Increasing Urban Drinking Water Supply Coverage based on GTP II standard	No. of towns	58.9	63.6	68.2	72.4	76.5	80.3	84.2	88.1	92.1	95.9	100
4	Provision of Water Supply for humans and animals in identified woredas which are frequently affected by drought	%			8	18	28	40	50	60	70	85	100
5	Basic integrated urban sanitation system shall be established in towns.	%			5	15	25	36	45	55	70	85	95
6	People will benefit from having clean toilets in their homes, workplaces and public areas	%			5	15	25	35	45	55	70	85	100
7	Ensure that all schools and health facilities have access to safe drinking water supply by strengthening coordinated action	%		10	20	30	40	50	60	70	80	90	100
8	Reduce non-functionality rate of water supply schemes	%	19	18	17	16	15	14	13	12	11	9	7
9	Reduce rate of non-revenue water	%	39	37	35	33	31	29	27	25	23	22	20
10	Reduce the number fluoride-contaminated water users	Million persons	3.5	3.35	3.2	3.05	2.9	2.75	2.6	2.45	2.3	2.15	2
11	Establishing water supply and sewerage service regulatory/ supervisory institution	No. of Institution				1							
12	Number of regions with modern WASH Management Information System	No. of regions		2	2	2	2	1	1				
13	Number of urban water utilities with smart water meter reading and billing system	No. of towns			30	80	130	180	230	280	330	380	450
14	Increase in government budget	%	184	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6
15	Ensuring water committees have legal status in all regions	No. Regions	3	4	5	6	7	8	9	10	11		
16	Raise temporary and permanent employment opportunities for young people in the water supply and sanitation sector to 200,000 a year	No. of employees, in thousands	200	200	200	200	200	200	200	200	200	200	200

Ethiopian Water Technology Institute

No	Sector Indicators	Unit	2012 Performance	Objectives				
				2013	2014	2015	2016	2017
1	Training for 15,270 trainees' in short task-oriented training and long-term training program.	Short-term trained	4160	4886	6602	8368	10184	12050
		Long-term trained	-	20	60	120	180	240
2	Provide Vocational Competency Assessment Center for 6,090 professionals and trainees of TVET institutions and trainees of the institute.	Numerous qualified professionals	2460	2810	3210	3660	4160	4710
3	Provide technical capacity building training to 1270 TVET leaders and trainers on various topics.	Number of leaders and trainers who have received capacity building training	570	745	940	1190	1440	1740
4	Conduct 75 research on drinking water coverage, irrigation and drainage technology and renewable energy for the benefit of the community.	Conducting research	10	14	19	25	33	43
5	Transfer 55 technologies to benefit the community to improve drinking water and sanitation, irrigation and drainage technology and renewable energy development.	Transformed technology in numbers	8	12	17	23	29	36
6	Providing 1,970 diagnostic and testing services in 6 research sectors (Physico-Chemical, Micro-Biology, Radio-Activity, Acoustic-Biology, Toxicity and Water Engineering Inputs);	Number of test fields performed	1	2	3	5	5	5
		Sample of examination and examination	40	90	165	295	440	605

Water Development Fund Office

No.	Sector indicators	Unit of Measurement	Baseline 2019/20	10 Year Plan	Forecasted Target									
					2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
1	Increasing loan repayment amount from the current Birr 672.11 million to Birr 4.582 Billion through timely collection of loan repayment	Million Birr	672.1	4582	1021.9	1281.9	1635.8	2034	2448.1	2869.6	3295.6	3723.6	4152.6	4582.1
2	By 2020, securing Birr 1.851 Billion from various sources of finance for the implementation of water supply and sanitation projects for new towns	Million Birr	0	1851	61.2	183.6	430	640.7	851.4	1051.4	1251.4	1451.4	1651.4	1851.4
3	Achieving an income of Birr 31.207 million from interest paid on deposited loan repayment by the end of the planning period as an additional income	Million Birr	0.805	31.21	2.079	3.682	6.013	8.797	15.224	18.823	22.679	26.802	28.602	31.207
4	Government approved study document on other income generating activities by mid 2025	%	0	100	10	30	55	80	100	0	0	0	0	0
5	Increasing the number of towns benefitting from loan from the current 106 to 128.	Number of Towns	106	128	107	114	116	123	124	125	126	127	127	128

No.	Sector indicators	Unit of Measurement	Baseline 2019/20	10 Year Plan	Forecasted Target									
					2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
6	Increasing the amount of loan forwarded to towns from the current Birr 22.1 Billion to 28.893 billion	Million Birr	22100	28893	22,300	23,642	25,668	27,693	27,893	28,093	28,293	28,493	28,693	28,893
7	Studied, approved and implemented office organizational structure, human resources organization and system	%	0	100	65	100								
8	Through provision of required follow up and support to project implementing bodies, increasing the number of water supply projects which are completed, finalized loan repayment and operational from the current 57 to 127 by 2029/30.	No.	57	127	69	108	117	119	122	123	124	125	126	127
9	Identifying legal gaps in relation to loan financing and repayment, taking appropriate rectifying measures and preparing 12 approved proclamation review, regulations and guidelines	Number of Documents	-	12	4	6	8		10		11		12	
10	Approved legal framework-proclamation or regulation-prepared to make loan financing accessible to small towns through partnership with microfinance institution.	Number of Documents	-	1	0	0	0	1						
No.	Sector indicators		Baseline		Forecasted Target									

		Unit of Measurement	2019/20	10 Year Plan	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
11	Reports that confirms project financed during the planning period by the office has feasibility report showing women, the disabled and disadvantaged group will benefit.	No. of Feasibility Study Documents	-	23	1	9	13	17	18	19	20	21	22	23

Irrigation Development Sector

No.	Sector indicators	size	Unit	Result	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Responsibility for the work
Objective 1. Increase agricultural production and productivity through irrigation development															
1.1	Medium and extensive irrigation Improving network, research and design;	1,400,000		Irrigation Systems Research and Design Reports	100,000	100,000	100,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	MOWIE, Regions and other executive bodies
1.2	Expanding the construction of medium and large scale irrigation systems;	710,000	H/A	Built-in irrigation systems	20,000	25,000	30,000	40,000	60,000	80,000	100,000	110,000	120,000	125,000	MOWIE, Regions and other executive bodies
1.3	Increase the use of improved irrigation technologies;	18	%	Modern and improved irrigation technologies used	1	1	2	2	2	2	2	2	2	2	MOWIE, Regions and other executive bodies
1.4	Increase productivity by improving 10 existing irrigation projects;														

1.4.1	**Increase the water efficiency of 20 existing irrigation projects from 30% to 70%**	20	Number	**Water use effective irrigation facilities**		4		4		4		4		4	MOWIE, Regions and other executive bodies
1.4.2	Make repairs to 20 existing irrigation projects to their full potential	20	Number	Make them perform their best by doing maintenance		4		4		4		4		4	
Objective 2. Creating job opportunities in the irrigation sector															
2.1	Creating job opportunities for educated youth in modern agriculture;	120,000	Number	work opportunity created for Young people by irrigation sector	6,000	6,000	5,000	4,000	3,000	10000	16000	20000	20000	30000	MOWIE, Regions and other executive bodies
2.2	Irrigation maintenance for young people; Creating job opportunities through extensive involvement in construction and related work;	110,000	Number	work opportunity created for Young people by the sector	5,000	10,000	15,000	10,000	10,000	10,000	10,000	10,000	15,000	15,000	

2.3	**Create jobs for the community by expanding the irrigation network;**	820000	Number	work opportunity created for Citizens by irrigation sector	50,000	50,000	50,000	75,000	75,000	100,000	100,000	100,000	100,000	120,000	
Objective 3. Reduce government spending and develop alternative sources of financing															
3.1	Irrigation projects with quality; Enabling them to complete their work on time and with the money allocated to them														MOWIE, Regions and other executive bodies
		From 400% to 50%	%	With time 400%		350		300		250		150		50	
		From 350% to 30%	%	With money350%		250		150		100		70		30	
3.2	Enabling irrigation water users to cover maintenance costs by organizing associations														MOWIE, Regions and other executive bodies
3.2.1	Organizing irrigation water user associations	1,400	Number	Organized and potential irrigation water user associations	30	110	130	140	150	160	160	170	170	180	
3.2.2	Enabling irrigation water user associations to cover maintenance costs	100	%	Cost of maintenance covered by irrigation water user associations		5	10	20	30	40	50	70	90	100	

3.3															MOWIE, Regions and other executive bodies
3.3.1	Government share of total irrigation budget demand by%	From 100% to 70%	%		100	98	96	94	90	86	82	78	74	70	
3.3.2	Community share of the total irrigation budget demand by%	From 0% to 7%	%				0.5	1	2	3	4	5	6	7	
3.3.3	The share of development partners of the total irrigation budget demand by%	from0% to 23%	%			2	3.5	5	8	11	14	17	20	23	
Objective 4. Increase institutional capacity and human resource development in the sector															
4.1	Develop Affordable policy: Strategy: guidelines and standards	10	Number	Presence of Affordable policy: Strategy, Guidance and Standards	5	5									MOWIE, Regions and other executive bodies
4.2	Strengthen institutional processes and meet facilities	100	% Complete	Complete facilities and modern operation	30	30	20	15	5						MOWIE, Regions and other executive bodies
4.3	Capacity building of irrigation professionals and members of the committee of	55,000	Number	Capable actors of the sector	4,000	6,000	5,000	3,000	2,000	7000	7000	7000	7000	7000	MOWIE, Regions and other executive bodies

	irrigation beneficiaries														
4.4	Linking irrigation development to other sectors of the economy	100	% Bounded	Irrigation development linked to other sectors of the economy	10	20	20	30	20						MOWIE, Regions and other executive bodies
4.5	Implementation of the Transformation Study and Pilot Project for Irrigation Institute Administration;														MOWIE, Regions and other executive bodies
4.5.1	Conducting Transformation Study for Irrigation Institution Management;	100	%	A study conducted for irrigation management transformation ;	50	50									
4.5.2	Implement on two pilot projects:	100	%	Irrigation management system applied to pilot projects;			30	40	30						

Objective 5. Ensure Gender Inclusion and diability in Irrigation Development															
5.1	Increase women's participation and benefit in irrigation development	35	% Participation	In the irrigation sector where women benefit	5	10	10	5	5						MOWIE, Regions and other executive bodies
5.2	Ensure the benefit of disability in all irrigation development projects	10	% Participation	Irrigation sector for the benefit of Disabled	1	2	3	2	2						MOWIE, Regions and other executive bodies

Energy Development Sector

The development plan forecasts macroeconomic and sector goals

No	Sector Indicators	Unit	2012 Performance	2013-2017
1	Power generation capacity	MW	4413	17.618
2	Electrical transmission line	KW	18.400	28.000
3	Electric Energy Export	KW	350	1.300
4	Electric consumer customer	Mil.Customer	7.1	11.4
5	Grid user client	%	33	65
6	Off-Grid user client	%	11	35
7	General electrical waste	%	17	15

Appendix 2. List of capital budgeted and allocated capital projects to be implemented in the development plan

Basin Development and Water Resources Management Sector

A. Existing projects

No	Existing projects (on-going projects)	The owner of the project	Project place	Starting time	Completion time	Allocated Capita
1	Zeway Shala Water Resources Assignment Model Study	Gov't	Oromia region	July 2008	June 2012	9.520.000.00
2	Arjo Dedesa - Fincha Basin Development and Maintenance	»	Oromia(Dedesa - Fincha)	July 2007	June 2015	9.800.000.00
3	Conducting Basin Basin Development and Care at Megech	»	Amhara(Megech)	July 2008	June 2013	11.580.000.00
4	Rib Basin development and maintenance	»	Amhara(Rib)	July 2006	June 2013	11.050.000.00
5	Bersina development and maintenance of the Basin Basin	»	Bersina	July 2008	June 2012	2.640.000.00
6	Development and maintenance of 377170 hectares of loggia basin	»	Amhara and Afar regions	September 2010	June 2014	2.865.000.00
7	Development of 636648 hectares of Upper kesem and Mille Dirma Basin	Gov't	Aleltu, Ginbichu and Hageremariam Woreda	July 2003	June 2009	5.816.000.00
8	211715 Hectare Mojo, Teji, Wolenchiti Basin Development and Maintenance	»	Southwest Shoa and East Shoa	September 2007	June 2013	6.070.000.00
9	61230.66 hectare Gimichu and Bofa Basin Care Research and Development	»	Ginbichu and Boset district	July 2007	June 2013	1.465.000.00
10	Melka Wakana Integrated Basin Care and Development Project	»	Oromia region (Bale)	June2007	June 2012	18.300.000.00
11	Zeway Shala Sub-Basin Development and Maintenance	»	Oromia region	July 2007	June 2012	3.650.000.00
12	Abaya Chamo Sub-Basin Development and Maintenance	»	Southern and Oromia regions	July 2007	June 2012	3.100.000.00
13	Hawassa Sub-Basin Development and Maintenance	»	Oromia and SNNPR	July 2007	June 2012	5.300.000.00
14	Reconstruction and maintenance of wetland swamps at Chelelleka	Gov't	Southern and Oromia regions	July 2009	June 2012	1.510.000.00

15	A flood risk assessment study	»	Throughout the Awash Basin	July 2008	June 2012	7.588.000.00
16	Central Awash Dick Construction and Maintenance Project	»	Central Awash	Septebmer 2009	June 2015	49.240.000.00
17	Establishment of surface and underground stations	»	All Regions	July 2008	June 2012	7.900.000.00
18	Modeling unit establishment and water resource modeling	»	All Regions	July 2009	June 2012	9.484.000.00
19	Evaluation of Transboundary River Projects	»	AA	August 2008	June 2012	35.780.000.00
20	Teru Cefra groundwater Survey Design and Construction	»	Afar	August 2001	June 2012	70.163.000.00
21	Shinile Groundwater Survey Design and Construction	Gov't	Sumale	October 2002	June2012	50.190.000.00
22	Kobo Chafa Groundwater Study Design and Construction	»	Amhara	August 2001	June 2012	50.190.000.00
23	Establishment of eco-hydrological demonstration stations	»	Amhara, SNNPR, Oromia, Tigray and Addis Ababa	July 2007	June 2012	30.976.000.00
24	Institutional capacity building	»		July 2010	June 2015	10.398.000.00
25	Preparation of 3 Basin Water Usage and Basin Planning	»		July 2011	June 2016	20.425.000.00
Sum						**435.000.000.00**

Drinking Water and Sanitation Sector

A. Existing projects

No	Existing projects (on-going projects)	The owner of the project	Project place	Starting time	Completion time	Allocated Capita
1	Construction Project of 23 Cities of water supply and sewerage institutions	Water Development Commission	In all regions and city administrations	November/2010	June 30/2015	505 Million dollars
2	Coordinating, monitoring and technically supporting drinking water sanitation and hygiene program phase-2 project	Water Development Commission	In all regions and city administrations	ሀምሌ 2011 ዓ. ም	ሰኔ 2016 ዓ. ም	350 Million dollars
3	Construction of solar and wind power rural drinking water facilities	Water Development Commission	In 8 regions except Harari	July 2001		393.395.460.00
4	Drought-resistant drinking water supply project	Water Development Commission	In selected woredas of Oromia, Amhara, SNNPR, Afar, Tigray and Somali regions	July 2010 E.c	June 30/2018 E.c	5 Miliion Birr
5	Fluorosis Prevention Project	Water Development Commission	Rift Valley, Afar, Oromia, Somali and Southern Nations, Nationalities and People's Region	September 2005 E.c		200.584.000 Birr
6	MIS / M&E Information System (PBS) to be implemented in all woredas of the country	Water Development Commission	All Regions	January 2005	June 2013 E.c	35.300.000.00
7	South Ayat North Fanta well field deep water well development project	AAWSA	South Ayat	2008 E.c	June 2013 E.c	1.150.093.596.39
8	Legedadi Phase-2 Deep water well development Project (Phase-2)	AAWSA	Legedadi	2008 E.c	2014	2.717.161.564.22
9	Water Supply development for oromia water source area phase-2	AAWSA	For Gedadi, Gefersa and Dere dam areas	2011	2014	833.070.180.64
10	Kality Waste water treatment plant and sewer line construction project	AAWSA	Kaliti	2010 G.C.	2020 G.C.	1.789.135.569
11	Koye Feteche Decentralized waste water treatment plant construction project	AAWSA	Koye Feche	2015 G.C.	2020G.C.	1.070.213.455
	Total Capital (Million Birr)					

B. New projects to be implemented

No	New projects to be implemented	The owner of the project	Project place	Starting time	Completion time	Allocated Capita
Drinking Water and Sanitation Sector						
1	Solar Power based	Water Development Commission		2013 E.c	2014 E.c	7.722
2	DE fluoridation and Desalination Treatment Plants	Water Development Commission	All Region	2013 E.c	2016 E.c	381499.799
3	Scaling Up of Solar Water Pumping for Domestic Use in Rural Areas of Ethiopia	Water Development Commission	South In 8 district	2013 E.c		450
4	Project of Water supply infrastructure building for Oromia and SNNP Region in Fluoride affected Rift Valley of Ethiopia	Water Development Commission	SNNP & Oromia region	2020 E.c	2025 E.c	3600
5-9 of the ordinary are operated under CR Wash						
5	Sankura woreda CR wash rural multi kebeles and urban water supply and sanitation perojecr	WDC	SNNP region			9.3
6	ayssyta-afambo multi-village water supply project	WDC	Afar Region			
7	zuhamusit town and surrounding 11 rural kebeles multi-village water supply project	WDC	Amhara region			
8	Gelchet-Sarite Water supply project	WDC	Oromia region			4219.216
9	Guradamole Multi-Village Water Supply Project	WDC	Somali region	2019-2022 G.C		344.033
10	TSEDU-Total Sanitation to End Open Defecation and Urination ፕሮጀክት	WDC & MoH	All Region	2019/20 G.C	2024 G.C	27700.595
11	6 Condominum Site decentralized waste water treatmnt plant construction (Phase-2)	AAWSA	AA	2018G.C.	2021G.C.	2.984.849
12	Operation and Maintenance for waste water treatmnt plant	AAWSA	AA	2019 G.C.	2023 G.C.	
13	Construction of decentralized Waste water treatment plant at 31 condominum site (Phase-2)	AAWSA	AA	2019 G.C	2021G.C.	
	Total Capital (Million Birr)					**420.815.51**

C. Projects at the research and design stage

No	Projects at the research and design stage	The owner of the project	Project place	Starting time	Completion time	Allocated Capita
1	Sibilu dam construction project	AAWSA	Oromia Specialist zone Gerebi	2012 G.C.	2023 G.C.	5.944.388
2	Eastern catchment waste water treatment plant and sewer line project	AAWSA	AA	2019G.C.	2022G.C.	
3	Bole arabsa condominum site decentralized Waste water tratment plant construction (Phase-2)	AAWSA	AA	2019G.C.	2022G.C.	
4	South Akakai waste water treatment plant and sewer line Project	AAWSA	AA	2019G.C.	2022G.C.	

Energy Development Sector

A. Existing projects

Projects	Budget Demand (Billion Birr)					
	2013	2014	2015	2016	2017	Total
The Great Renaissance Dam Hydropower	12.5	12.5	15.0	-	-	40.0
Koisha Hydropower	15.9	15.9	15.9	-	-	47.7
Aysha 2 wind energy	2.7	2.7	-	-	-	5.4
Asela1 wind energy	2.2	2.2	-	-	-	4.4
Aluto geothermal power plant	1.8	1.8	1.8	1.8	1.8	9.0
Total sum	**35.1**	**35.1**	**32.7**	**1.8**	**1.8**	**106.5**

B. Planned projects

Power Generation projects (4045 MW)	Budget Demand (Billion Birr)*	
	Annual	ጠቅላላ
Hydropower (2,220 + 840 MW) Power Plant	3.916	97.902
Solar Pv (1,100 + 625 MW) Power Plant	1.663	41.580
Wind (600 + 1,050 MW) Power Plant	1.134	28.350
Geothermal (100 + 800 MW) Power Plant	0.504	12.600
Solid wast (25 + 25 MW) Power Plant	0.055	1.378
For 80 power transmission substations		
18 industrial parks and 54 cities		
Total Sum	**7.272**	**181.810**

* Estimated annual cost of coverage under the 25-year framework or loan - Estimated cost per kilowatt of power generation project; $ 4.00 for Geothermal; $ 2.50 for natural gas; $ 1.50 for wind; $ 1.40 for water; $ 1.20 for Solar Pv; $ 1.75 for trash; By G.G. A: Operated by a private government partnership, E. A. A: Ethiopian Electric Service

Ethiopian Water Technology Institute

No	New Projects	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	
1	Research capacity building	Gov't	At the institution compound	2013	2017	50,000,000	
2	Institute compound landscape development	Gov't	At the institution compound	2013	2014	250,000,000	
3	An affiliate program with an internationally recognized institution	Gov't	At the institution compound	2013	2017	200,000,000	
					Total Capital Birr	**500,000,000**	
2	Purchasing of Laboratory Equipment	Gov't	At the institution compound	2011	2013	180,000,000	
3	Construction of teaching and training facilities	Gov't	At the institution compound	2011	2015	250,000,000	Morocco Mohamad 6th foundation
4	Occupational Competency Assessment Center Organization	Gov't	At the institution compound	2011	2013	15,000,000	
					Total Capital Birr	**537,945,000**	

Water Development Fund Office

A. Existing projects

No	Existing projects (on-going projects)	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	The job Opportunities	distance from the main line is in km	Other sectors involved in the project	Intended purpose
1	Dembidolo City Drinking Water Project	Oromia Water and Energy Bureau / Dembidolo City	Dembidolo City	February/ 2009	December/ 2013	43.53	NA	NA	The region, the city administration and the private sector	Improving the city's drinking water supply
2	Adama City Drinking Water Project	Oromia Water and Energy Bureau /Adama Cit	Adama City	February /2009	December /2014	1,064.75	››	››	››	››
3	Finch City Drinking Water Project	Oromia Water and Energy Bureau / Finch City	Finch City	February /2007	June /2013	53.39	››	››	››	››
4	Gegobesa City Drinking Water Project	Oromia Water and Energy Bureau Gegobesa City	Gegobesa City	February /2007	June /2012	44.86	››	››	››	››
5	Robe City Drinking Water Project	Oromia Water and Energy Bureau / Robe City	Robe City	February /2007	June /2012	278.84	››	››	››	››
6	Yabelo City Drinking Water Project	Oromia Water and Energy Bureau / Yabelo City	Yabelo City	February /2007	June /2014	44.74	››	››	››	››
7	Hasasa City Drinking Water Project	Oromia Water and Energy Bureau / Hasasa City	Hasasa City	February /2007	June /2013	59.48	››	››	››	››
8	Woliso City Drinking Water Project	Oromia Water and Energy Bureau / Woliso City	Woliso City	February /2007	June /2014	147.82	››	››	››	››

No	Existing projects (on-going projects)	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	The job Opportunities	distance from the main line is in km	Other sectors involved in the project	Intended purpose
9	Legetafo City Drinking Water Project	Oromia Water and Energy Bureau / Legetafo City	Legetafo City	February /2007	June /2014	250.83	››	››	››	››
10	Sire City Drinking Water Project	Oromia Water and Energy Bureau / Sire City	Sire City	February /2007	June /2012	109.84	››	››	››	››
11	Sendafa Beke City Drinking Water Project	Oromia Water and Energy Bureau / Sendafa Beke City	Sendafa Beke City	February /2007	June /2012	115.83	››	››	››	››
12	Bedeno City Drinking Water Project	Oromia Water and Energy Bureau / Bedeno City	Bedeno City	February /2007	June /2012	102.58	››	››	››	››
13	Dodola City Drinking Water Project	Oromia Water and Energy Bureau / Dodola City	Dodola City	May/ 2009	December /2014	123.51	››	››	››	››
14	Arejo City Drinking Water Project	Oromia Water and Energy Bureau / Arejo City	Arejo City	May /2009	December /2014	70.12	››	››	››	››
15	Kombolcha City Drinking Water Project	Oromia Water and Energy Bureau/ Kombolcha City	Kombolcha City	December /2010	December /2014	81.62	››	››	››	››
16	Awash Melka City Drinking Water Project	Oromia Water and Energy Bureau / Awash Melka City	Awash Melka City	February /2010	December /2014	56.57	››	››	››	››
17	Seka City Drinking Water Project	Oromia Water and Energy Bureau / Seka City	Seka City	February /2010	December /2014	53.79	››	››	››	››
18	Sheki City Drinking Water Project	Oromia Water and Energy Bureau/ Sheki City	Sheki City	February /2010	December /2014	74.08	››	››	››	››

No	Existing projects (on-going projects)	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	The job Opportunities	distance from the main line is in km	Other sectors involved in the project	Intended purpose
19	Ejere City Drinking Water Project	Oromia Water and Energy Bureau/ Ejere City	Ejere City	February /2010	December /2014	96.25	››	››	››	››
20	Hojadure City Drinking Water Project	Oromia Water and Energy Bureau/ Hojadure City	Hojadure City	February /2010	December /2014	55.10	››	››	››	››
21	የአርቦዬ City Drinking Water Project	Oromia Water and Energy Bureau /አርቦዬ ከተማ	አርቦዬ ከተማ	May/ 2010	December /2014	110.97	››	››	››	››
22	Bila City Drinking Water Project	Oromia Water and Energy Bureau/ Bila City	Bila City	May /2010	December /2014	86.37	››	››	››	››
										››
23	Debre Tsige City Drinking Water Project	Oromia Water and Energy Bureau/ Debre Tsige City	Debre Tsige City	May /2010	December /2014	77.62	››	››	››	››
24	Haroto City Drinking Water Project	Oromia Water and Energy Bureau/ Haroto City	Haroto City	May /2010	December /2014	129.62	››	››	››	››
25	Sagure City Drinking Water Project	Oromia Water and Energy Bureau/ Sagure City	Sagure City	May /2010	December /2014	109.27	››	››	››	››
26	Tulumilki City Drinking Water Project	Oromia Water and Energy Bureau/ Tulumilki City	Tulumilki City	May /2010	December /2014	45.10	››	››	››	››
27	Adaba City Drinking Water Project	Oromia Water and Energy Bureau / Adaba City	Adaba City	May /2010	December /2014	94.55	››	››	››	››

No	Existing projects (on-going projects)	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	The job Opportunities	distance from the main line is in km	Other sectors involved in the project	Intended purpose
28	Kumbabe City Drinking Water Project	Oromia Water and Energy Bureau / Kumbabe City	Kumbabe City	October /2011	December /2014	89.17	››	››	››	››
29	Metehara City Drinking Water Project	Oromia Water and Energy Bureau / Metehara City	Metehara City	May /2010	December /2014	208.23	››	››	››	››
30	Ashi City Drinking Water Project	Oromia Water and Energy Bureau / Ashi City	Ashi City	October /2011	December /2014	79.30	››	››	››	››
31	Mugi City Drinking Water Project	Oromia Water and Energy Bureau / Mugi City	Mugi City	October /2011	December /2014	88.67	››	››	››	››
32	Ginji City Drinking Water Project	Oromia Water and Energy Bureau / Ginji City	Ginji City	October /2011	December /2014	89.05	››	››	››	››
33	Sodo City Drinking Water Project	Southern Region Water & Energy Bureau / Sodo City	Sodo City	February /2009	December /2012	65.56	››	››	››	››
34	Boditi City Drinking Water Project	Southern Region Water & Energy Bureau / Boditi City	Boditi City	February /2007	June /2012	97.03	››	››	››	››
35	Dila City Drinking Water Project	Southern Region Water & Energy Bureau / Dila City	Dila City	February /2007	June /2014	157.34	››	››	››	››
36	Werabe City Drinking Water Project	Southern Region Water & Energy Bureau / Werabe City	Werabe City	February /2007	ሰኔ/2014	390.91	››	››	››	››

37	Chencha City Drinking Water Project	Southern Region Water & Energy Bureau / Chencha City	Chencha City	February /2007	June /2012	128.83	››	››	››	››

No	**Existing projects (on-going projects)**	**Owner of the project**	**Project Place**	**Start time**	**Completion time**	**Allocated capital Million Birr**	**The job Opportunities**	**distance from the main line is in km**	**Other sectors involved in the project**	**Intended purpose**
38	Tercha City Drinking Water Project	Southern Region Water & Energy Bureau/ Tercha City	Tercha City	February /2007	June /2014	47.45	››	››	››	››
39	Sawla City Drinking Water Project	Southern Region Water & Energy Bureau / Sawla City	Sawla City	February /2007	June/2014	84.40	››	››	››	››
40	Jinka City Drinking Water Project	Southern Region Water & Energy Bureau / Jinka City	Jinka City	May /2009	December /2014	167.16	››	››	››	››
41	Gedeb City Drinking Water Project	Southern Region Water & Energy Bureau / Gedeb City	Gedeb City	December /2010	December /2014	61.61	››	››	››	››
42	Shinshito City Drinking Water Project	Southern Region Water & Energy Bureau / Shinshito City	Shinshito City	May /2009	December /2014	65.71	››	››	››	››
43	Kewado City Drinking Water Project	Southern Region Water & Energy Bureau / Kewado City	Kewado City	December /2010	December /2014	57.62	››	››	››	››
44	Shanto City Drinking Water Project	Southern Region Water & Energy Bureau / Shanto City	Shanto City	December /2010	December /2014	50.25	››	››	››	››
45	Bue City Drinking Water Project	Southern Region Water &	Bue City	December /2010	December /2014	50.57	››	››	››	››

		Energy Bureau / Bue City								
46	Dalocha City Drinking Water Project	Southern Region Water & Energy Bureau / Dalocha City	Dalocha City	February /2010	December /2014	75.51	››	››	››	››
47	Gecha City Drinking Water Project	Southern Region Water & Energy Bureau / Gecha City	Gecha City	May /2010	December /2014	41.74	››	››	››	››
No	**Existing projects (on-going projects)**	**Owner of the project**	**Project Place**	**Start time**	**Completion time**	**Allocated capital Million Birr**	**The job Opportunities**	**distance from the main line is in km**	**Other sectors involved in the project**	**Intended purpose**
48	Tum City Drinking Water Project	Southern Region Water & Energy Bureau / Tum City	Tum City	May /2010	December /2014	30.64	››	››	››	››
49	Wacha City Drinking Water Project	Southern Region Water & Energy Bureau / Wacha City	Wacha City	May /2010	December /2014	89.74	››	››	››	››
50	Kele City Drinking Water Project	Southern Region Water & Energy Bureau / Kele City	Kele City	May /2010	December /2014	83.21	››	››	››	››
51	Key Afer City Drinking Water Project	Southern Region Water & Energy Bureau / Key Afer City	Key Afer City	May /2010	December /2014	50.14	››	››	››	››
52	Yalolala City Drinking Water Project	Southern Region Water & Energy Bureau / Yalolala City	Yalolala City	May /2010	December /2014	51.46	››	››	››	››
53	Zefine City Drinking Water Project	Southern Region Water & Energy Bureau / Zefine City	Zefine City	May /2010	December /2014	55.76	››	››	››	››
54	Kewakoto City	Southern Region Water &	Kewakoto City	February /2011	December /2014	32.28	››	››	››	››

	Drinking Water Project	Energy Bureau / Kewakoto City								
55	Shone City Drinking Water Project	Southern Region Water & Energy Bureau / Shone City	Shone City	Februa ry /2011	Decem ber /2014	133.85	››	››	››	››
56	Axum City Drinking Water Project	Tigray Water and Energy Bureau / Axum City	Axum City	Augu st201 1	July/20 15	460.62	››	››	››	››
57	Mekele City Drinking Water Project	Tigray Water and Energy Bureau / Mekele City	Mekel e City	Marc h /2010	Decem ber /2014	485.15	››	››	››	››

No	Existing projects (on-going projects)	Owner of the project	Project Place	Start time	Completion time	Allocated capital Million Birr	The job Opportunities	distance from the main line is in km	Other sectors involved in the project	Intended purpose
58	Bichena City Drinking Water Project	Amhara Water and Energy Bureau / Bichena City	Bichena City	March/2010	December /2014	75.89	››	››	››	››
59	Woldia City Drinking Water Project	Amhara Water and Energy Bureau / Woldia City	Woldia City	May /2010	December /2014	51.44	››	››	››	››
60	Haike City Drinking Water Project	Amhara Water and Energy Bureau / Haike City	Haike City	May /2010	December /2014	36.06	››	››	››	››
61	Debre Markos City Drinking Water Project	Amhara Water and Energy Bureau / Debre Markos City	Debre Markos City	January/2011	December /2014	188.07	››	››	››	››
62	Bambisa City Drinking Water Project	Benishangul Gumz Water and Energy Bureau / Bambisa City	Bambisa City	August/2007	December /2012	79.08	››	››	››	››
63	Gode City Drinking Water Project	Somale Water and Energy Bureau/ Gode City	Gode City	September /2009	December /2014	235.89	››	››	››	››
64	Gambella City Drinking Water Project	Gambella Water and Energy Bureau/ Gambella City	Gambella City	February/2007	December /2014	6.04	››	››	››	››
65	Mekelle City Water Supply Project: Phase 3	Mekele City	Mekele	2012	2016	7000	››	››	››	Improving the city's drinking water supply
Total Capital (Million Birr)						7,822.49				

A. Planned projects

No	New projects to be implemented	Owner of the project	Project Place	Start time	Completion time	Allocated capital
1	Addis Ababa Sanitation project	AAWSA	AA	2012	2016	4675
2	6 cities sanitation program funded by the Italian government	Selected 6 Water and Sewerage Service Organizations	In 6 selected cities	2013	2017	545
3	10 urban drinking water projects to be implemented by the Revolving Fund	In 10 different cities to be elected and approved by the Board in the future	In selected cities	2012	2022	2000
4	Debre Tabor City Project by Austrian Government	Debre Tabor	Debre Tabor	2013	2018	371
					Total Capital (Million Birr)	**7,591.00**

B. Projects at the research and design stage

No	Projects at the research and design stage	Owner of the project	Project Place	Start time	Completion time	Allocated capital
1	Up to 42 new cities have applied for loans for drinking water projects *	From different regions / different cities	In every city			5800
					Total Capital	**5,800**

National Meteorological Agency

A. Existing projects

Existing projects budget demand

No	Name of the project	Project Place	Start time	Completion time	The total cost of the project	Spend so far	2013-2017 Budget	2018-2022 budget	Source of Money
1	Organizing information and communication technology	At the head office and in the region		2022	102,420.00	52,660.00			Gov't
2	Main Stations Office and Fence Construction Project	All region		2015	97,540.00	66,495.00			Gov't
3	Meteorological Equipment Purchase Cost Sharing Project	In all Center		2015	500,000.00	118,500.00			Gov't and doner
4	Aviation Meteorology System Capacity Building Project	Meteorological offices at the country's airports;		2015	134,280.00	101,800.00			Gov't

B. Planned projects

New projects	Place of application	Start time	Completion time	2013-2017 Budget	2018-2022 Budget
Meteorological Stations Network Infrastructure Expansion Project	At the head office and branch	2013	2022	570,900,000.00	1,134,232,758.78
Climate Service Update and Access Project	At the head office and branch	2013	2022	158,400,000.00	295,350,000.00
Climate service capacity building project	At the head office and branch	2013	2022	844,572,413.85	1,649,544,827.70
Climate and Behavior Modeling and Research Project	At the head office and branch	2013	2022	34,155,000.00	61,380,000.00

Appendix 3. Development Plan Manpower needs at the level of education / profession

Drinking Water and Sanitation Sector

No	Education level / vocational field	Start Year (Stock)	Forecast					10 years sum
		2012	2013	2014	2015	2016	2017	
	Water Development Comission							
	Completed 4th grade	1	20					
	Completed 8th grade	8	5				1	
	Completed 10th grade	4	25					
	surveyor		3				1	
	Draftman		4				1	
	Preparation (Grade 12) Completed							
	College diploma	7						
	In the field of natural sciences							
	Computer science		1					
	GIS technicians		2					
	Computer hardware technician		1					
	In the field of social sciences							
	secretary	5	8					
	management	5	2					
	Accounting	1	3					
	Purchasing		2					
	Supply management		8					
	First degree							
	Natural science (BSc)/filed							
	Civil engineer	19	18	23	26	27	34	
	hydrogeologist	17	13	16	21	14	16	
	Water supply engineer	23	13	7	10	9	9	
	Electro mechanical engineer	2	2	5				
	Chemical engineer	1	7	3				
	Stractural engineer							
	Sanitary engineer	9	6				1	

Environmental Science. Environmental Engineering. Climate Change and related	5	9	3			
Watershade expert	1	2				
Public Health		1				
Biological Laboratory	2	4	3			
Geologist		1				
Computer science		6				
GIS		2				
Social Sciences (BA) field						
Economics. Sociology. Development Studies. Gender studies	12	18	4	6	5	6
Purchasing. marketing	4	4	4	1		
Accounting	3	5				
Supply management	3	8				
Econimist		1	1	2	2	3
Law	1					
Management	10		4			
law	2			1		
MSc degree						
Natural sciences (MSc)/field						
Engineering	7	10	12	15	17	20
Hydrologist	2	4	4	7	8	10
Civil Engineer		1	2	2	3	3
Chemistry		1	2	2	3	3
Environmental Science	1					
Social Science (MA)/field						
Accounting						
PhD						
Natural Sciences						
Physics	1	1	1	2	2	2
Engineering		1	2		3	
Hydrogiologist	1		2		3	
Civil Engineer		1	1	2	2	2
Water Engineer		1	1	2	2	2
Total	**123**	**224**	**91**	**99**	**94**	**114**

Energy Development Sector

No	Education level / vocational field	Start Year (Stock) 2012	Forecast									10 years sum
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Below Diploma												0
	Completed 4th grade											
	Completed 8th grade											
	Completed 10th grade											
	surveyor											
	Draftman											
	Preparation (Grade 12) Completed											
Diploma												0
	In the field of natural sciences											0
	Computer science											
	GIS technicians											
	Computer hardware technician											
	In the field of social sciences											0
	secretary											
	management											
First degree												38
	Natural science (BSc)/filed											32
	Electrical Engineer	2						2				4
	Mechanical Engineer	2						2				4

Civil Engineer	2	2	4
Environmental Engineer	2	2	4
Geologist	2	2	4
Computer sciences	2	2	4
Computer programmer	2	2	4
Network Administrator	2	2	4
System administrator			
Social Sciences			6
Law expert	2	2	4
Management	1	1	2
Second degree			62
Natural sciences field			62
Hydropower Engineer	2	2	4
Electrical Engineer	2	3	5
Energy Technology Engineer	4	4	8
Electro Mechanical Engineer	3	3	6
Nuclear Engineer	2	3	5
Civil Engineer	1	1	2
Geothermal Engineer	3	3	6
Environmental engineer	2	2	4
Geologist	2	2	4
Computer sciences	2	2	4
Computer programmer	2	2	4

Network Administrator	2	2	4
System Administrator	2	2	4
Web master	1	1	2
Social sciences			0
Third Degree			32
Natural sciences filed			32
Hydropower Engineer	1	1	2
Electric power Engineer	1	1	2
Energy Technology engineer	1	1	2
Electro-Mechanical Engineer	1	1	2
Nuclear Engineer	2	2	4
Geothermal Engineer	2	2	4
Environmental engineer	2	2	4
Social sciences			0
Total	**59**	**61**	**120**

Ethiopian Water Technology Institute

Educational level	In 2012	10 years plan	Manpower planning every year				
			2013	2014	2015	2016	2017
Third degree	1	20	1	1	1	1	2
Hydrologist				1			
Water Engineer			1		1		
Business Administrator							2
Civil Engineer						1	
Business management							
Bio-chemistry							
Soil sciences							
Second degree	28	72	7	6	7	7	7
Hydrogeologist			1		1	2	1
Water Engineer					1	2	1
Mechanical engineer					1		1
Electrical engineer				5			
Civil Engineer			1		1		1
Business Management			1		1		1
Bio-Chemistry			1		1	1	1
Computer sciences			1			2	
Accounting			2	1	1		1
First degree	48	112	5	7	9	10	11
Hydrogeologist			1		2		1
Water Engineer			1	1		3	2
Electrical engineer				3		1	1
Civil Engineer				1		1	1
Business Management				1		3	2
Bio-Chemistry			1		2	1	1
Mechanical Engineer				1	5		2
Accounting			2			2	1
Diploma	35	50	5	5	5	5	5
Secretary			2	1	1	3	2
Supply Management			1	2	1	1	1
Maintenance technician			2	2	3	1	2
10/12 grade complited	27	38	1	9	2	5	7
Complete 8th grade	47	110	5	8	10	12	15
total	**185**	**402**	**24**	**36**	**34**	**40**	**47**

Water Development Fund Office

Educational level	Start Year (Stock)	Forecast					5 years Sum
	2012	2013	2014	2015	2016	2017	
Below Deploma	20	2	0	0	0	0	2
Complete 4th grade	0						0
Completed 5th grade	2						0
Completed 6th grade	1						0
Completed 7th grade	4						0
Completed 8th grade	2						0
Completed 10th grade	9	1					1
Preparatoty (Grade 12) completed	2	1					1
Technical and vocational degree	11	1	2	1	0	0	4
Level 1	0						0
Level 2	2						0
Level 3	3		1				1
Level 4	6	1	1				2
Level 5	0			1			1
Certificate of professional	1	0	0	0	0	0	0
Tyiping	1						0
College diploma	4	1	1	1	1	1	6
Natural sciences field	0	0	0	0	0	0	0
Chemistry	0						0
Social sciences field	0						0
Accounting	4	1	1	1	1	1	6
secreterial sciences	3						0
First degree	1	1	1	1	1	1	6
BSc natural sciences	18	6	4	3	1	2	16
Engineering	5	2	1	1	1	0	6
Computer sciences	4	1	1		1		4
BA social sciences	1	1		1			2
Economics	13	4	3	2	0	2	10
Accounting	2	1		1		1	3

Business Admi.&Info.system	9	1	2				3
Human resource management&leadership	1	0	1				1
LAW	1	1		1		1	3
Masters Degree	0	1					
MSc natural sciences	3	1	2	1	1	1	6
Engineering	1	1	1	1	0	1	4
MA social sciences	0	1	1	1		1	4
Public Adminstration&Development Management	2	0	1	0	1	0	2
International Relation	1						0
PhD	1		1		1		2
Natural Sciences field							
Ex:- doctor of medicine, physics							
Social sciences field							
Ex:- public Admin							
Total sum							
	57	11	9	6	3	4	34

National Meteorological Agency

Educational level	Start (Stock) 2012		Forcast					5 years Sum
		Open for vacancy	2013	2014	2015	2016	2017	
Completed 4th grade	156	25	10	5	10			50
Completed 8th grade	22	22	10	10		2		44
Completed 10th grade	24	18	10		8			36
Preparatoty (Grade 12) completed	64	15	5		10			30
Technical and vocational degree								
Level 1								
Level 2								
Level 3	256	116						
Level 4	31	50						
Level 5	17	84						
College Diploma								
Natural sciences field								
Social sciences field								
Management	24	24	10		10		5	49
Secretarial science	27	16	8	8				32
Accounting	42	12	10		2			24
Law	0		1					
First degree								

BSc Natural sciences field								
Engineering	19	10	6	4				20
Meteorology Science	196	55	80	80	80	5	5	305
BA social sciences field								
Economics	1							1
Accounting	28	35	5	5	5	5	5	60
Management	55	35	10	10	5	5	5	70
Law	2	1	1					2
Masters degree								
MSc Natural sciences field								
Meteorological Science (MSc)	48 educated		7	7	10	10	10	44
Climate Change and Adaptation (MA)	1							
social sciences field	4		2		2			4
PhD								
Natural sciences field								
Meteorological Science	0		1	2	1	1	2	7
Social sciences field	0						1	1
Total sum								

Appendix 4. Financial needs and resources during the development plan during the development plan

Basin Development and Water Resources Management Sector

No	Sector Indicator	Financial needs (Million Birr)					
		2013	2014	2015	2016	2017	Sum
1	The prepared of Basin main Plan to reach from three (3) to eight (8)	100	150	175	236	200	**861**
2	Updating the basin information system	16.00	18.15	19.00	20.55	22.55	**96.25**
3	Increase surface water resource flow information from 78% to 100%	72	131	97	77	62	**439**
4	Increase groundwater resource information coverage from 17.95% to 35%	397.81	994.33	1028.0	1061.5	1162.7	**4644.34**
5	Implementing water quality control and monitoring system improvements to reach 80% of national water quality control coverage	102	354	406	125	65	**1052**
6	Water demand and supply of water allocation in an effective, fair, participatory and sustainable manner for all users and establish a licensing water resource management system.	310.8	366.6	410.6	450.2	504.8	**2043**
7	Increase integrated basin development coverage from 2.2 million hectares to 10 million hectares	613.00	676.00	710.00	740.00	793.00	**3532**
8	Expanding Eco Hydrology Demonstrations in all basins by increasing the number from 10 to 45	40.00	22.00	20.00	20.00	20.00	**122**
9	100% protection of our country's interests in the case of borders and transboundary rivers.	62.00	40.00	51.00	56.00	82.00	**291**
10	Ensuring gender and disability inclusion	12.00	12.00	13.35	12.05	14.60	**64**
11	Build institutional capacity to realize integrated water resource management	12.30	12.50	12.85	13.15	13.20	**64**
	Total sum	**1737.91**	**2776.58**	**2942.8**	**2811.45**	**2939.85**	**13208.59**

Drinking Water and Sanitation Sector

No.	Goal	2020 Baseline	Budget need (ETB in Millions)									
			2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	Total
1	Deliver safe, reliable and adequate water supply for all citizens	11,334	13,375	16,346	20,626	27,061	35,927	38,919	42,032	46,236	51,784	59,694	352,000
2	Urban and rural sanitation service delivery	2,970	3,499	4,268	5,378	7,046	9,511	10,199	11,015	12,116	13,570	16,130	92,732
3	Increasing institutional water supply and sanitation services	1,057	1,245	1,519	1,914	2,507	3,384	3,629	3,920	4,312	4,829	6,165	33,424
4	Improving service delivery and water quality monitoring	253	298	364	458	600	810	866	939	1,032	1,486	1,648	8,500
5	Strengthening implementation capacity of the sector	147	172	211	265	347	469	502	543	597	999	1,093	5,199
6	Modernizing WASH information management system	156	183	223	281	369	498	533	577	634	1,040	1,140	5,478
7	Increasing the participation and beneficiation of women, disabled people and youth	63	75	91	115	150	201	218	235	259	620	884	2,848
	Total	**15,979**	**18,846**	**23,021**	**29,038**	**38,081**	**50,801**	**54,866**	**59,260**	**65,186**	**74,329**	**86,754**	**500,182**

Irrigation Development Sector

No.	Goal	2020 Baseline										
		2013	2020/21	2015	2016	2017	2020/21	2019	2020	2021	2020/21	Total
Objective 1. Increase agricultural production and productivity through irrigation development												
1.1	Medium and extensive irrigation Improving network, research and design;	3,600	3,600	3,600	3,600	1,800	1,800	1,800	1,800	1,800	1,800	**25,200**
1.2	Expanding the construction of medium	13,680	13,680	17,100	20,520	20,520	20,520	20,520	20,520	20,520	20,520	**188,100**

	and large scale irrigation systems;											
1.3	Increase the use of improved irrigation technologies;	4,800	4,800	9,600	9,600	9,600	9,600	9,600	9,600	9,600	9,600	**86,400**
1.4	Increase productivity by improving 10 existing irrigation projects;											
1.4.1	Increase the water efficiency of 20 existing irrigation projects from 30% to 70%	400	400	400	400	400	400	400	400	400	400	**4,000**
1.4.2	Increase the water efficiency of 20 existing irrigation projects from 30% to 70%		1,800		1,800		2,160		2,520		2,520	**10,800**
	Sub Total	**22,480**	**24,280**	**30,700**	**35,920**	**32,320**	**34,480**	**32,320**	**34,840**	**32,320**	**34,840**	**314,500**
Objective 2. Creating job opportunities in the irrigation sector												
2.1	Creating job opportunities for educated youth in modern agriculture;	1,500	1,500	1,250	1,000	750	2,500	4000	5000	5000	7500	**30,000**
2.2	Irrigation maintenance for young people; Creating job opportunities through	100	200	300	200	200	200	200	200	300	300	**2,200**

	extensive involvement in construction and related work;											
2.3	Create jobs for the community by expanding the irrigation network;	250	250	250	375	375	500	500	500	500	500	**4,000**
	Sub Total	**1,850**	**1,950**	**1,800**	**1,575**	**1,325**	**3,200**	**4,700**	**5,700**	**5,800**	**8,300**	**36,200**
Objective 3. Reduce government spending and develop alternative sources of financing												
3.1	Irrigation projects with quality; Enabling them to complete their work on time and with the money allocated to them											
3.2	Enabling irrigation water users to cover maintenance costs by organizing associations	1.24	3.64	4.7	5.452	5.9	6.33	6.33	6.726	6.726	7.12	**54.164**
3.3	Meet budget needs by developing alternative financing sources for irrigation development;		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	**1.8**
	Sub Total	**1.24**	**3.84**	**4.9**	**5.652**	**6.1**	**6.53**	**6.53**	**6.926**	**6.926**	**7.32**	**55.964**
Objective 4. Increase institutional capacity and human resource development in the sector												
4.1	Develop Affordable policy: Strategy: guidelines and standards	10	10									**20**

4.2	Strengthen institutional processes and meet facilities	1,232	1,232	1,212	210	210						**4096**

4.3	**Capacity building of irrigation professionals and members of the committee of irrigation beneficiaries**	**80**	**120**	**100**	**60**	**40**	**140**	**140**	**140**	**140**	**140**	1100
4.4	Linking irrigation development to other sectors of the economy	2	2	2	2	2						**10**
4.5	Implementation of the Transformation Study and Pilot Project for Irrigation Institute Administration;											**0**
4.5.1	Conducting Transformation Study for Irrigation Institution Management;	10.24	10.24	10.24	10.24	10.24						**51.2**
4.5.2	Implement on two pilot projects:	102.4	102.4	102.4	102.4	102.4						**512**
	Sub Total	**1,436.64**	**1,476.64**	**1,426.64**	**384.64**	**364.64**	**140.00**	**140.00**	**140.00**	**140.00**	**140.00**	**5,789.20**
Objective 5. Ensure Gender Inclusion and diability in Irrigation Development												
5.1	Increase women's participation and benefit in irrigation development	125	125	100	50	50	50	50	50	50	50	700
5.2	Ensure the benefit of disability in all irrigation development projects	50	25	15	5	5	5	5	5	5	5	125
	Sub Total	**175**	**150**	**115**	**55**	**55**	**55**	**55**	**55**	**55**	**55**	**825**
	Grand Total (In Million)	**25,942.88**	**27,860.48**	**34,046.54**	**37,940.29**	**34,070.74**	**37,881.53**	**37,221.53**	**40,741.93**	**38,321.93**	**43,342.32**	**357,370.16**

Energy Development Sector

No.	Goal	Budget Demand (Billion Birr)										Total
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
1	Improving the living standards of citizens by ensuring access to affordable electricity services	45.5	45.5	45.8	45.8	45.5	56.8	56.8	56.8	56.8	56.8	511.5
2	Strengthen the national economy by providing quality and reliable electricity service	121.1	121.1	121.1	121.1	121.1	56.8	56.8	56.8	56.8	56.8	889.5
3	Sustainable Finance Investment and Revenue	-	-	-	-	-	-	-	-	-	-	-
4	Expanding the use of clean and energy-saving technology	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10.0
	Annual Demand	**167.6**	**167.6**	**167.6**	**167.6**	**167.6**	**114.6**	**114.6**	**114.6**	**114.6**	**114.6**	**1,411.0**

Ethiopian Water Technology Institute

No	Objectives	Sector Budget Demand (Million Birr)					Total
		2013	2014	2015	2016	2017	
1	Increasing the capacity of the sector to execute the work properly	31.2	33.8	39	44.2	46.8	195
2	Provide professional competency assessment services	12	13	15	17	18	75
3	Provide technical support to TVET and sector institutions	9.6	10.4	12	13.6	14.4	60
4	Conducting research that can streamline the performance of the sector	21.6	23.4	27	30.6	32.4	135
5	Transfer of technologies that can solve the breaches in the sector	18	19.5	22.5	25.5	27	112.5
6	Providing specialized laboratory testing and testing services	27.6	29.9	34.5	39.1	41.4	172.5
	Sum	**120**	**130**	**150**	**170**	**180**	**750**

Water Development Fund Office

No	Objectives	T.sum	Sector Budget Demand (Million Birr)				
			2013	2014	2015	2016	2017
1	Increase the amount of the fund in various ways to improve the loan supply	18.38	3.30	3.34	3.38	3.89	4.47
2	To contribute to the achievement of the national plan of the sector by improving the number of borrowing cities and the amount of loans to be provided to improve the coverage of urban drinking water and sanitation.	4,663.31	64.67	125.91	249.95	2,111.08	2,111.70
3	Improving the overall implementation capacity of the office. By refining the provision of credit services and the level of support and monitoring provided to borrower cities and project executives.	12,825.35	3,267.43	5,011.51	4,367.60	168.75	10.06
4	Identify the legal and procedural gaps in the office and develop a transparent and fair system by preparing appropriate proclamation amendments, new laws, regulations and directives.	11.95	2.14	2.17	2.20	2.53	2.91
5	Ensuring gender and disability inclusion	0.91	0.17	0.17	0.17	0.19	0.22
	Total sum	17,519.90	3,337.70	5,143.10	4,623.30	2,286.44	2,129.36

National Meteorological Agency

No	Objectives	2013-2017	2018-2022	Total
1	Providing basic information on meteorology	805.70	1,886.81	2,692.51
2	Meteorological Forecasting, Early Warning and Advice Servic	152.61	803.60	956.21
3	Meteorological study, research and dissemination	11.00	13.10	24.10
4	Capacity building to achieve the agency's purpose	191.87	355.64	547.51
5	Achieving service efficiency and effectiveness	502.35	662.26	1,164.61
	Total	**1,663.53**	**3,721.41**	**5,384.93**