

1. INTRODUCTION

Safe drinking water is one of the basic necessities for human beings. However, billions of people in the world have not access to it today. Of this, significant number of the population is from the developing countries. Particularly women and children are the most vulnerable segments of the society. Worldwide and in Ethiopia significant number of children are dying each day because of lack of safe drinking water and appropriate sanitation and hygiene.

To improve this situation, the international community adopted the Millennium Development Goal (MDG) and committed to reduce by half the proportion of people without sustainable access to safe water and basic sanitation by 2015. As the main development objective of the Ethiopian Government is poverty eradication, the country's development policies and strategies are geared towards this end. The provision of safe and adequate water supply for the population has far reaching effects on health, productivity, quality of life, and at large to reduce poverty and ensure sustainable socio-economic development.

In 2005 the government of Ethiopia has ratified Universal Access Program (UAP) that enables to provide safe water to all citizens of the nation. In addition, the first Growth and Transformation Plan (GTP-1) covering the period from 2011 to 2015 was also endorsed in 2010 and it is under implementation now. This plan targets to increase the rural, urban and total access to water supply coverage to 98%, 100% and 98.5% respectively and reduce the malfunctioning schemes from 20% to 10%. For the last four GTP years (2011-2014) different activities has been implemented to reach the target, accordingly in June 2014 the water supply access coverage has reached to 75.5%, 84.1% and 76.7% in urban, rural, and national respectively.

As the first growth and transformation plan will be finalized on the mid of 2015 this Second Growth and Transformation Plan (GTP-2) covering the period from 2016-2020 is prepared. As the country has a vision to reach to a level of lower middle income country in its socio-economic development by the year 2025, the plan is prepared taking into

consideration this national vision. Hence, the main focus of the plan is to ensure availability of water supply and sanitation services that satisfies the need of lower middle income countries' citizens by the year 2020. For this purpose the experiences of some middle income countries such as Indonesia, Vietnam, Ghana, and Kenya which have some similarities to our country in demography, population settlement patterns, etc is reviewed and their best experiences and achievements are used to set the objective of the plan. The detail in this regard is annexed.

The planning document contains 9 chapters. The first chapter is introduction. It describes the background and gives overview. The second chapter reviews the focus areas of GTP-1, its four years implementation status and the challenges faced during the implementation. The third chapter discusses about the objectives and goals of GTP-2. The fourth chapter describes the implementation strategy of the plan. The fifth chapter discusses the budget of the plan while the sixth, seventh and eighth chapters deals with capacity building plan and the opportunities and risks of the plan, respectively. Finally, chapter nine contains the conclusion.

2. PROGRESSES AND ACHIEVEMENTS OF GTP-1

2.1. Overall four years performance of the plan

The main objective of GTP-1 in the water supply sub-sector is to provide safe water supply of about 15 liters per capita within a distance up to 1.5 km for rural and about 20 liters per capita within a distance of 0.5 km for urban population. Accordingly, the plan set targets to attain 98.0%, 100% and 98.5% water supply access coverage for rural, urban and total respectively by the year 2015. Moreover, the plan also set target to reduce the proportion of malfunctioning water supply schemes from 20% to 10%. The baseline water supply access coverage for 2010 used to formulate GTP-1 were 65.8%, 91.5%, and 68.5% for rural, urban and total, respectively and the non-functionality rate was 20%. However, based on the National WaSH Inventory (NWI) conducted in 2011, the water supply access coverage estimated for the year 2011 was 48.85%, 74.64%, and 52.12% for rural, urban and total, respectively and the non-functionality rate was 25.5%. Accordingly, based on the National WaSH Inventory data for 2011, the base line water

supply access coverage for 2010 would have been 43.46%, 72.56%, and 47.26%, for rural, urban and total respectively. This indicates that the baseline water supply access coverage used for the planning was exceeding the access figures interpolated to the baseline year based on the inventory findings by 22.4%, 18.9%, and 21.2% for rural, urban and total water supply access coverage, respectively and the non-functionality rate was higher by 5.5% than the base line data used for the planning, i.e. for year 2010. However, the sub-sector has taken boldly the outcome and revised the GTP-1 plan based on the new data.

During the 4 years (2011-2014) GTP-1 period, it is planned to provide access overall to 26,655,661 of which 23,601,204 are rural and 2,733,869 urban people and achieve water supply access coverage of 92%, 99% and 93% for rural, urban and total, respectively by the year 2014. Accordingly, for the last 4 years, the sector has exerted significant effort to meet the objectives of the plan. These include:

- During the 4 years planning period it was planned to construct overall 74,255 water supply schemes of which 73,909 are rural and 346 urban. Of these, the construction of 66,345 water supply schemes of which 66,139 rural and 206 urban is completed. This indicates that the physical plan is achieved by 89.5% in rural and 59.6% in urban water supply. Even though the physical achievement is lower than the plan, the achievement in terms of number of beneficiaries of the facilities exceeds the plan as the types of individual facilities actually constructed has more service capacity than those in the plan.
- During the 4 years planning period it was planned to provide safe water supply access overall to 29,776,220 people of which 27,140,044 rural and 2,636,176 urban. Of these, overall 31,214,380 people (28,126,973 rural and 3,132,978 urban) have got access to safe water supply. This indicates that the plan is achieved overall by 104.8% of which 103.6% is for rural and 114.8% for urban.
- Based on the NWI baseline data the water supply access coverage has reached to 75.5%, 84.1%, and 76.7% respectively for rural, urban and total by the year 2014 indicating that the achievement has lagged behind the plan by 16.5%,

14.8% and 16.2% for rural, urban and total coverage, respectively due to the baseline data revision.

- By the year 2014 it was planned to reduce non-functionality rate of rural water supply schemes to 12% while the actual achievement is 15.5% indicating that 70.8% of the plan is achieved.
- In addition to community water supplies, 9409 schools and 4565 health institutions are also provided with safe water supply.
- Significant capacity building measures has been carried out both for rural and urban water supply services in terms of training (short, medium and long term), working manuals and guidelines development, logistical support, support in Research and Development and this intervention has significantly improved the government and the private sector implementation capacity at federal, region, zone, and woreda/town levels. As well significant effort is also exerted to improve the community capacity in planning, implementation and O&M of their own water supply facilities.
- Much experience is gained from the Joint Technical Review (JTR) field assessment conducted in association with development partners and from Multi-stakeholders Forum (MSF) which is taking place once in a year.
- Based on experiences of WASH program in the past years currently one WASH program has been developed and launched.
- In order to improve the information management of the WaSH sector, a baseline National WaSH Inventory (NWI) has been conducted in 2011. Accordingly, about 92,588 rural and 1605 urban water supply schemers have been inventoried and about 12 million households, 30 thousand schools and 20 thousand health institutions have been surveyed. Moreover, MIS software is developed and computerized information management system is established to support information flow.

The sub-sector's major plans and their 4-years implementation status are tabulated hereunder in Table 1.

Table 1: The First Growth and Transformation Plan and its 4 years' performance

No	Description	Plan		4-years performance	Performance (%)
		5-Years	4-years		
1	Water supply access (%)				
1.1	Rural	98	92	75.5	
1.2	Urban	100	99	84.1	
1.3	Total	98.5	93	76.7	
2	Beneficiary Population (In millions)				
2.1	Rural	33.7	27.1	28.1	103.6
2.2	Urban	3.2	2.7	3.1	114.8
2.3	Total	36.9	29.8	31.2	104.7
3	Water Supply Schemes (in Number)				
3.1	Rural Water Supply Schemes	93,827	73,909	66,139	89.5
3.2	Urban Water Supply Schemes	387	346	206	59.5
3.3	Total	94,214	74,255	66,345	89.3
4	Non-functional rural water supply schemes (%)	10	12	15.5	

The 4 years performance of the water supply sub-sector is encouraging even though there are lags in achieving some of the targets of the plan.

2.2. GTP-1 core strategic directions and its adherence in the implementation

The following are the main strategic directions of GTP-1:

- Provide due attention for sustainability of water supply services,
- Ensure beneficiaries participation throughout project implementation cycle,

- Encourage and support self supply,
- Provide due focus for labor intensive low cost technologies utilizing local construction material,
- Provide focus for maintenance and rehabilitation of existing water supply schemes and reduction of Nonrevenue Water (NRW) before construction of new ones,
- Provide due support for pastoralist regions,
- Provide focus on capacity building including the private sector,
- Empower women in all sub-sectors' activities,
- Strengthen stakeholders' coordination,
- Provide due attention for water sources protection and conservation,
- Establish system for recognition of best performers and mechanisms for experience sharing,
- Undertake Research and Development focusing on water quality management and appropriate technology adaptation and development,
- Strengthen MIS.

It is attempted to adhere the above mentioned core directions of the plan in the implementation. However, because of lack of awareness some of the directions are not adhered by some implementation agencies below region level. Thus, in GTP-2 focus would be given to the creation of awareness on the plan to all stakeholders at all levels.

2.3. Main challenges of the sub-sector

The main challenges of the subs-sector include;

- There is no adequate overall (government, private and community) sub-sector capacity to fulfill and manage the growing water supply demand in line with the socio-economic development of the country.

- Even though there are attempts to improve good governance in urban water supply, still there are significant problems in this regard coupled with significant water supply leakage.
- There is no coordination mechanism with the relevant stakeholders in urban master plan development to properly incorporate water supply and sanitation infrastructures in the plan.
- Significant quantity of construction materials and equipments required in the sub-sector are imported from overseas demanding foreign currency and taking long time.
- As the countries topography is rugged and mountainous in most parts of the country, rural settlement is dispersed making water supply delivery with piped system extremely difficult.
- Safe water supply sources are getting far from settlements because of groundwater depletion and pollution.

2.4. GTP-2 core strategic directions

The core strategic directions of GTP-2 are:

- Upgrade the water supply service infrastructure to the level of middle income countries by 2020.
- Increase the water supply access coverage upgrading the service level.
- Ensure good governance improving sustainability, effectiveness and efficiency of water supply services.
- Build the sub-sector's implementation capacity.
- Build effective and efficient civil service development army through strengthening the civil service reform program.
- Empower women including decision making.

- Ensure urban water supply customers' satisfaction by enabling the water supply utilities financially self-sufficient including investment cost recovery and ensuring good governance in the service delivery.
- Establish urban wastewater management system.
- Encourage use of labor intensive low cost technologies using renewable energies such as wind and solar and utilize piped system water supply technologies in urban areas and in rural areas where there are significant number of settlers such as kebele centers.
- Facilitate enabling environments for the private sector to import substitution manufacturing.
- Provide due support to build implementation capacity of pastoralist regions.
- Provide due focus to community mobilization.
- Provide due focus to strengthen the sub-sector's M&E and MIS.

3. OBJECTIVES AND GOALS OF THE PLAN

3.1. General objective

Contribute to the realization of the vision of the country to become middle income country by 2025 through provision of access to safe and sustainable water supply and urban wastewater management to the citizens of the country using low cost technologies and community mass mobilization.

3.2. Specific objectives and main goals

3.2.1. Specific objectives

Objective-1

Increase safe water supply upgrading the service level and improve urban wastewater management system.

Objective-2

Ensure good governance in rural water supply enhancing sustainability, effectiveness and efficiency of the service.

Objective-3

Ensure good governance in urban water supply enhancing sustainability, effectiveness and efficiency of the service.

Objective-4

Build the sub-sectors' overall capacity.

3.2.2. Main goals

Goal 1.1

Meet the universal target of providing access to safe and sustainable water supply for all citizens of the country in the planning period as per the minimum water supply access standard level set for GTP-1, i.e. for rural water supply 15 l/c/day within a distance up to 1.5 km and for urban water supply 20 liter per capita/day within a distance up to 0.5 km.

Goal 1.2

Provide rural water supply access with GTP-2 minimum service level of 25 l/c/day within a distance of 1 km from the water delivery point for 85% of the rural population of which 20% are provided with RPS.

Goal 1.3

Provide urban water supply access with GTP-2 minimum service level of 100 l/c/day for category-1 towns/cities, 80 l/c/day for category-2 towns/cities, 60 l/c/day for category-3 towns/cities, 50 l/c/day for category-4 towns/cities, up to the premises and 40 l/c/day for category-5 towns/cities within a distance of 250m with piped system for 75% of the urban population.

Goal 1.4

Carry out study and design of urban wastewater management system of 36 category 1, 2, and 3 towns/cities and build wastewater management infrastructure for 6 towns/cities with a population of 200,000 and more.

Goal 2.1

Decrease rural water supply schemes non-functionality rate from 15.5% to 7%.

Goal 2.2

Strengthen rural water supply community management through legalization of all WaSHCOs.

Goal 2.3

Empower Women in WaSHCO management including in decision making and increase their membership in WaSHCO to 50% and more.

Goal 2.4

Establish supply chain for low cost water supply technologies and spare parts.

Goal 2.5

Establish water supply extension supporting system at kebele level to enhance implementation of household and communal level self-supply water and improve O&M of rural water supply schemes.

Goal 2.6

Ensure rural water safety through rural water supply water quality monitoring system and water safety planning and implementation.

Goal 3.1

Decrease urban Non-Revenue Water (NRW) from 39% and more (in 2015) to 20% by 2020.

Goal 3.2

Improve the urban water supply continuity to 16 hours per day excluding water supply delivery through public taps.

Goal 3.3

Enable category 1, 2, and 3 towns recover their investment cost at least by 80%, category 4 by 60%, category 5 by 30% and O&M cost by 100% for all town categories through their water tariff.

Goal 3.4

Ensure urban water safety through urban water supply water quality monitoring system and water safety planning and implementation.

Goal 4.1

Train and engage into the sub-sector 4,374 higher and 13,000 medium level professionals and 510,000 artisans and caretakers and ensure that involvement of women in this regard is 25% and more.

Goal 4.2

Establish independent water supply and wastewater service regulatory agency to ensure high service quality.

Goal 4.3

Enable category 1, 2, 3, and 4 towns' water supply utilities have in their organizational structure responsible section for wastewater management.

Goal 4.4

Increase the involvement of the private sector in the water supply activities particularly in O&M of urban water supply utilities.

Goal 4.5

Strengthen WaSH integration to meet the objectives of One National WaSH Program (ONWP) and establish coordination with the Ministry of Urban Development and Construction and its affiliates at all level in urban WaSH intervention.

Goal 4.6

Implement National ICT based M&E and MIS system for the subsector.

As per the GTP-2 water supply service level standard, it is required to provide safe water in minimum 25 l/c/day within a distance of 1 km for rural while in urban areas it is required to provide safe water in minimum 100 l/c/day for category 1 towns/cities (towns/cities with a population more than 1 million), 80 l/c/day for category 2 towns/cities (towns/cities with a population in the range of 100,000-1million), 60 l/c/day for category 3 towns/cities (towns/cities with a population in the range of 50,000 - 100,000), 50 l/c/day for category 4 towns/cities (towns/cities with a population in the range of 20,000-50,000) up to the premises, and 40 l/c/day for category-5 towns/cities (towns/cities with a population less than 20,000) within a distance of 250m.

Review of some middle income countries' water supply service level having nearly similar demography and settlement patterns as of Ethiopia and with relatively better experience in the sub-sector is conducted among others to set the service level standard for the planning period. The details are depicted in Annex-1.

The details of the plan in terms of annual water supply access coverage targets, the number of beneficiaries planned to be served annually, and number of water supply schemes planned to be implemented annually in the planning period are depicted in Annex-2.

4. IMPLEMENTATION STRATEGIES OF THE PLAN

4.1. General strategies

- Ensure that GTP-2 plan preparation consistent to the targets of the national plan is cascaded down up to the kebele level and served as a guiding implementation tool for the planning period.
- Advocate and promote the plan to mobilize resources and trigger community mobilization.
- Build the capacity of all sub-sectors' stakeholders.
- Establish coordination mechanism with the health, education, agriculture, urban development, environmental protection, and women affairs sectors to integrate the water supply sub-sector engagements with sanitation and hygiene, urban development and environmental undertakings.
- Ensure maximized benefit of women in water supply and sanitation undertakings.
- Ensure the private sector's involvement in all sub-sector's activities providing due focus to Operation and Maintenance.
- Establish cooperation with higher education institutions in the area of training of professionals, research in the area of water quality and development of appropriate water supply technologies.
- Create enabling environment for investors to invest in manufacturing of goods imported currently from overseas such as hand pumps and their spare parts, various pipes such as DCI, fittings and devices, motorized pumps and generators and their spare parts, water meters and flow and pressure controlling apparatus etc. Moreover, ensure that all goods being manufactured currently in the country has international standard quality.
- Capacitate the government and the private sector particularly in contract management and strengthen the Public and Private Partnership (PPP) forum which is currently serving as a platform to strengthen partnership.

- Establish groundwater monitoring and catchment protection system around water supply sources by urban water supply utilities and WaSHCOs.
- Establish/strengthen water supply operation and management system in all regions.
- Establish best experience sharing among the sub-sector's stakeholders and incentive mechanisms.
- Strengthen coordination with donors and CSOs.
- Improve M&E and MIS of the sub-sector.

4.2. Rural water supply strategies

- Ensure community involvement in all project implementation cycle.
- Create enabling environment for WaSHCOs legalization/certification.
- Strengthen Community ownership and community management.
- Establish spare parts supply chain.
- Encourage multiple uses for household self-supply to generate income in addition to domestic uses.
- Ensure rural water safety through rural water supply water quality monitoring system and water safety planning and implementation.

4.3. Urban water supply strategies

- Enhance institutional capacity, improve good governance in the service delivery, and improve utilities relations with customers through customers' forum and establish benchmarking and performance evaluation mechanism with due recognition for the best performers.
- Strengthen the coordination of the sub-sector with the relevant undertakings of the Ministry of Urban Development and Construction.

- As urban water supply demand is ever increasing with the rapid urbanization and industrial development, it is becoming a challenge to satisfy the demand only from groundwater sources. Thus, use of hybrid sources both from ground and surface water would be given due attention focusing particularly on the use of dams and reservoirs for multiple use in association with the relevant stakeholders.
- Ensure urban water safety through urban water supply water quality monitoring system and water safety planning and implementation.

Environmental and social safeguard issues to be taken care of during projects' implementation cycle is addressed in Annex-5.

5. FINANCIAL PLAN

As finance is one of the inputs required for the implementation of the plan, the expenditure required is estimated taking due consideration the financial requirements throughout a project implementation cycle. As well the planning has also attempted to identify the possible financial sources with the estimated amount they could contribute to the implementation of the plan.

In order to overcome the financial limitation challenges due focus would be given to low cost technologies and use of the resources available in the community. Moreover, for the same reason the costs of imported goods from overseas needs to be less than 26% of the overall project cost.

Details of the financial requirement of the plan are depicted in Table 2. Overall financial requirement for the implementation of the plan is Birr 82.8 Billion of which Birr 77.8 Billion is capital and Birr 5 billion recurrent budget. Of the capital budget Birr 28 Billion is for rural and Birr 44.2 Billion for urban water supply construction and rehabilitation while Birr 5.5 Billion is for urban wastewater management works. Moreover, 74% of the capital budget (Birr 54.6 Billion) is planned to be spent in local currency while the remaining 26% (USD 841.3 million) is planned to be spent in foreign currency.

Expenditures in local and foreign currency are depicted in Table 4 while the details on the estimation for the same are in Annex-3.

Based on the experiences from GTP-1, the possible financial sources and their estimated budget share are depicted in Table 3. Thus, it is deemed that 49% would be covered from the government treasury, 31% from donors in terms of loan and grant, 4% from CSOs, and 16% from beneficiary communities and urban utilities.

Table 2: Financial Plan

Sr. No.	Description	Total (000 Birr)	Annual Plan (000 Birr)				
			2008	2009	2010	2011	2012
1	Recurrent budget	5063188	819922	850134	1207632	1183503	1001999
2	Capital budget						
	Rural water supply						
	New	26,706,694	4,740,137	4,872,060	6,140,999	5,380,119	5,573,379
	Rehabilitation	1,335,332	237,007	243,602	307,049	269,006	278,669
	Sum	28,042,030	4,977,144	5,115,662	6,448,049	5,649,125	5,852,047
3	Capital budget						
	Urban water supply						
	Study and design	217311	43462	43462	43462	43462	43462
	New construction	26397219	4273168	4558715	5272224	6376426	5916687
	Rehabilitation	17598147	2848778	3039143	3514816	4250950	3944459
	Sum	44212677	7165408	7641320	8830502	10670839	9904608
4	Sewerage const.						
	Study and design	17,500	3500	3500	3500	3500	3500
	New construction	5,500,000	500000	500000	2000000	2000000	500000
	sum	5,517,500	503500	503500	2003500	2003500	503500
	Sub-Total (Capital)	77772203	12646052	13260482	17282050	18323464	16260156
	Total	82835391	13465974	14110616	18489683	19506966	17262155

Table 3: Budget source

Sr. No.	Description	Amount (Birr)	
		Amount (in 000's)	Percent
1	Government	40598162	49%
2	Donors	25684551	31%
3	CSOs	3314136	4%
4	Urban water supply utilities	9113873	11%
5	Beneficiary community	4142670	5%
	Total	82,853,391	

Table 4: Cumulative rural and urban water supply and urban sewerage expenditure in local and foreign currency

Sr. No.	Description	Total Expenditure (Birr)	Amount in percent (%)		Amount		Remarks
			For Local Purchase (Birr)	For Foreign Purchase (USD)	For Local Purchase (Birr)	For Foreign Purchase (USD)	
1	Rural water supply	28042030000	79%	21%	22204907878	259427650	
2	Urban water supply	44212677000	70%	30%	30948873900	589502360	
3	Urban sewerage	5517500000	80%	20%	4414000000	49044444	
	Total sum and average %	73518878660	74%	26%	54590451940	841263410	

6. IMPLEMENTATION CAPACITY BUILDING

6.1. Human Resources Development

Human resources are the other basic input to materialize the plan. All implementation agencies need to have the necessary experts well trained and having adequate experience in the area of their specialty. The main responsibility of the government is to develop policies, legislations, strategic plans and the like and search for financial sources while

the private sector would be involved in study, design, construction, operation and maintenance. Donors and CSOs provide financial and technical assistance. As the rural communities and urban utilities are beneficiaries of projects, they will have significant involvement in all project implementation cycle.

Accordingly, all stakeholders of the plan are required to have adequate and trained human resources to fulfill their responsibilities. Thus, the human resources plan considers the need of the government, the private sector, CSOs, urban utilities, and the community for study, design, construction, operation, maintenance and capacity building activities. Moreover, the plan considers meeting 95% of the government need and to deploy water extension workers at each kebele to assist the community self-supply engagement and operation and maintenance of community managed water supplies and train care takers and artisans which provide technical assistance to the community.

Total human resources required for the sector is depicted in Table 5. Accordingly, during the planning period overall 527,874 work forces are required of which 4,374 are higher and 13,000 medium professionals and the remaining 510,500 are artisans and care takers. The details are in Annex-4. It is planned that the higher and medium professionals would be trained by government and private sectors' universities and colleges while artisans and care takers would be trained by regions, zones, woredas and Woreda WaSH Consultants (WWCs). Moreover, the JICA supported water technology training center is considered to provide training in borehole drilling and other relevant skills.

Table 5: Training and job opportunity creation plan

Sr. No.	Description	Quantity	2008	2009	2010	2011	2012
1	Higher professional	4,374	834	885	885	885	885
2	Medium professional	13,000	2600	2600	2600	2600	2600
3	Artisans and caretakers	510,000	92100	92100	112100	107100	107100
	Sum	527,874	95534	95585	115585	110585	110585

6.2. Institutional Development

Water supply regulatory agency would be established to ensure the quality of the service and monitor the fulfillment of the minimum standard service level. Urban water supply utilities of category 1, 2, 3, and 4 are required to include in their institutional arrangement a section dealing with urban wastewater management with appropriate staffing and capacity. Enabling environment would also be created for the private sector to actively be involved in operation and maintenance of urban water supply utilities. Small private enterprises would be established and capacitated to assist regions and woredas in planning, design, construction and operation and maintenance. The consultation platform of the Ministry with consultants and contractors which had been started earlier would continue and be strengthened.

Customers and urban water utilities would establish “Urban Water Forums” to strengthen relations between the customers and the service providers and improve good governance in the service delivery. Moreover, system would be established for benchmarking and performance evaluation of urban water supply utilities.

Water Extension Workers will be deployed in those Kebeles where self supply is extensively being implemented and where there is a need for close monitoring of operation and maintenance of rural water supply schemes and artisans and caretakers would also be trained and deployed to assist the community.

The coordination to integrate water, sanitation and hygiene would be strengthened and the sector would work in partnership with the Ministry of Urban Development and Construction and its affiliates at all levels in urban WaSH. The effort to strengthen the ICT based MIS of the sector would continue. Effective and efficient civil servant army would be built through the on-going civil service reform. Independent water supply and wastewater management services’ regulatory agency would be established to monitor and regulate services and in so doing ensure good governance in the service delivery and ease the Ministry’s burden to focus on policy issues.

6.3. Partnership with Industries

The following are goods which are used in the sub-sector either manufactured in the country or imported from abroad.

Table 6: Goods utilized in the sub-sector

Sr. No.	Goods manufactured in the country	Imported goods	Remarks
1	HDP, uPVC , PE, and the like plastic pipes, concrete pipes, GIS pipes	DCI pipes and large diameter steel pipes	
2	Rope pumps	Fittings for uPVC, DCI and other large diameter pipes	
3	In house ceramic sanitary equipments	Flow and pressure controlling valves and flow meters	
4		Motorized water pumps, conventional hand pumps and their spare parts, solar panels, automation equipments	

Enabling environment would be facilitated for imported goods substitution manufacturing in the subsector and goods currently produced in the country would be required to fulfill international quality standards.

6.4. Partnership with Universities and Colleges

The sub-sector would establish strong partnership with universities and colleges in the area of human resources development, research and development in water quality and appropriate technologies among others. The partnership would focus on curriculum development, internship facilitation, joint formulation of research projects and implementation, providing service as co-supervisor for post graduates.

6.5. Partnership with Sector Ministries and Relevant Public Organizations

In order to integrate water supply and wastewater management services with sanitation and hygiene, urban development and environmental protection activities coordination would be strengthened with the health, education, agriculture, environmental protection, urban development and construction, and women's affairs sectors. Coordination system with the Ministry of Urban Development and Construction and its affiliates at all levels would be established in the preparation and implementation of urban towns' development master plan. As well coordination mechanism would also be established

with all infrastructure development sectors. Moreover, as urban water demand particularly those of large cities is significantly increasing, use of groundwater as the only source of water supply is thus facing a challenge. Thus, there is a need to focus on using surface water from dams and reservoirs being built for other purposes and establish partnership for the same with relevant stakeholders.

7. OPPORTUNITIES

There are always opportunities which enhance the smooth implementation of plans and threats which could hinder the progress of the implementation. Thus, it is very important to assess beforehand the opportunities and threats that exist or could emerge during the implementation of the plan and consider mitigation measures to minimize the threats and efficiently utilize the opportunities. Accordingly, for the implementation of GTP-2, it is important to consider the following opportunities which could create favorable environment for accelerated implementation of the plan:

- Regional states political leaders are well aware of the targets of the sub-sector and the implementation strategy thus will play key role in coordinating, monitoring and evaluating the implementation.
- Harmonization of intervention among all stakeholders/partners of the sector is undergoing well which will improve the synergetic effect for the implementation by reducing negative impacts of disintegrated interventions.
- Joint technical review of implementation with the sector's financing partners and multi-stakeholders forum initiated by the partners are now streamlined in the government activities which will deepen the harmonization process.
- Even though the WaSH coordination at all levels is not strong enough as anticipated, there are some improvements also in this respect.
- The Consolidated WaSH Account (CWA) fund established for the sector by some donors will be a nucleus to bring other financers to the One WaSH implementation thus strengthening the financial capacity of the CWA for the implementation.

- The on-going studies on fluoride problem and its mitigation measures will contribute a lot in alleviating the water supply problem in the rift valley area having significant proportion of the population of the country.
- The on-going capacity building of urban water supply utilities to improve service delivery and financial capacity for self-financing of investment costs will also contribute to the implementation.
- The expansion of roads and other communication infrastructures in the country will ease the implementation improving accessibility of water supply schemes construction sites and speedy communication of stakeholders involved in the implementation.
- The national capacity building program in expansion of education institutions and improvement of public service delivery will enhance the implementation by strengthening the trained man-power of the sector at all levels and reducing idle time in implementation.
- The government's effort undergoing to strengthen the domestic financial resource mobilization capacity will reduce the effect of unpredictability of external financing thus accelerating implementation of the plan.
- Focuses given for environmental protection at national and international level will improve the water resources potential of the country through external financing enhancing the environmental rehabilitation and protection activities undergoing at the grassroots level.

8. Threats

The threats to be considered and mitigation measures planned for them to minimize their negative effects include:

- If the existing low implementation capacity both in the government and the private sector is not build to cope up with the need for accelerated implementation, this will significantly retard the required progress in the implementation.

- The on-going processes of harmonization and establishment of coordination of WaSH at all levels is very slow to cope up the required accelerated implementation in the sector.
- Low involvement of professionals in the urban water supply utilities management to change the utilities dependency on the government and lead them to self-sufficiency,
- Population pressure, accelerated urbanization process and industrialization add strain to the sub-sector.
- Financial implication to water supply infrastructure cost due to increasing distance between settlement areas and water sources because of depletion of existing ground water sources and urban settlement expansion,
- Dispersed settlement and topographical barrier for piped system water supply for rural areas.

The threats and challenges stated above will be mitigated by accelerating the on-going harmonization, WaSH coordination, and sector's capacity building. Moreover, enhanced advocacy and promotion of the strategy for accelerated implementation of the plan will continue to reach to overall consensus among all stakeholders of the sub-sector building up on the results gained in GTP-1 in this regard.

9. CONCLUSIONS

The overall objective of the plan is to contribute to the realization of the vision of the nation to become middle income country by 2025 through provision of access to safe and sustainable water supply and urban wastewater management to the citizens of the country using low cost technologies where they are feasible and through community mass mobilization.

The plan has targeted to expand the provision of safe water supply access at high standard service level during the planning period and ensure the sustainability of the services and build overall capacity of the sub-sector. It also focuses to improve urban wastewater management. To achieve these objectives, the plan includes construction and rehabilitation/expansion of water supply schemes and construction of urban wastewater management facilities. Overall, Birr 82.8 billion is required to achieve the plan. It is

planned to be financed by the government, donors, NGOs, urban utilities, and beneficiary communities. The plan also provides due focus to capacity building, WaSH coordination, water sources and catchment protection and rehabilitation, and improving partnership with all stakeholders. As well, creating enabling environments for import substitution manufacturing investment in the subsector is also given due attention.

The plan also includes the monitoring, evaluation and reporting mechanism of the implementation so as to ensure accountability and make informed decision. It is also planned that M&E will be supported with ICT based MIS.

Annexes

Annex-1: The water supply level of middle income countries and international targets in the sub-sector

One of the focus areas of the plan is to upgrade the service level of the sub-sector to the level of middle income countries based on the vision of the country for 2025. Thus, before setting targets of the plan it is appropriate to assess the status of water supply in some middle income countries and would be international targets which are discussed hereunder.

(a) Water supply service delivery performance main indicators

The following are the main international water supply service delivery performance indicators.

1. Water supply access indicators

1.1. Water supply access coverage (rural, urban, and total)

1.1.1. Water Supply access coverage with improved water supply schemes (%)

1.1.2. Water Supply access coverage with piped system (%)

2. Service levels and service delivery performance indicators

2.1. Water quality indicators (as per Ethiopian and WHO Water Quality Standards)

2.2. Quantity of water delivered (l/c/day)

2.3. Distance from the water delivery point to residence (in km or in round trip travel time-minute)

2.4. Non-functional rural water supply schemes (%)

2.5. Nonrevenue water (NRW) in urban water supply (%)

2.6. Water supply continuity in urban water supply (hours/day)

Regarding the water quality, it is expected to fulfill the water quality standards of World Health Organization (WHO) and supplied with water supply schemes labeled as “improved” by Joint Monitoring Program (JMP) of UNICEF and WHO. Thus, the water supply service is provided fulfilling the WHO water quality standard with improved water supply schemes as per the requirement of JMP.

Regarding the standards on the quantity of water needed to be supplied and the distance for water fetching; the following is internationally accepted service level ladder.

Table 1.1 Water supply service level ladder

Sr. No.	Service Level	Water quantity (l/c/day)	Water fetching travel time (minutes)
1	Higher	60 liter and above	Below 10 minutes
2	Medium	40 - 60 liter	10-30 minutes
3	For basic sanitation	20 - 40 liter	30 - 60 minutes
4	Below standard	5 - 20 liter	Above 60 minutes
5	Not considered as service delivered	Below 5 liter	

Moriarty et al., 2011

As per the standard formulated by Joint Monitoring Program of WHO and UNICEF for monitoring MDGs of the sub-sector, a person need to get in minimum 20 liters water per day within 1 km distance from the water delivery point with improved water supply schemes. These UN organizations evaluate countries' MDG performance using these standards and criteria. There is no as such minimum standard regarding non-functionality of rural water supply schemes. However, as the problem is very extensive in developing countries it also needs to be given attention in the plan.

Even though there is no figure set as a standard for urban water supplies non-revenue water (NRW), the NRW for urban water supplies with good management is usually 20% or below. Even though urban water utilities are expected to deliver water to their customers throughout 24 hours in a day, there are only few middle income countries which comply with this commitment.

3. Construction quality indicators

Currently, there are no indicators in the sub-sector to evaluate construction quality. However, the following could be used to monitor the quality of construction. In GTP-2 overall 238,770 small, medium and large projects are implemented. Thus, the indicators to be proposed need to consider these varieties. For this purpose, it is better to focus on the quality of the service the scheme delivers after construction irrelevant of the size of the scheme.

Accordingly, the indicator proposed for construction quality monitoring is;

Proportion of constructed water supply schemes facing reduction in their water supply delivery temporarily by 25% and more during their liability period of one year.

It is necessary to pinpoint the causes for construction quality problem in order to set solutions for the same. Thus, some of the causes that could be mentioned here include the following;

- Lack of well prepared study, design, and bid documents,
- Financial and technical incompetence of contractors,

- Lack of properly prepared contract agreement,
- Deployment of unethical and corrupted or not competent project supervisors,
- Non prevalence of appropriate contract monitoring and evaluation system,
- Lack of transparency, accountability, and rule of law (sticking to contract agreement) in contract management,
- Lack of proper commissioning of completed projects with involvement of beneficiaries and other relevant stakeholders.

Thus, construction quality could be maintained through alleviation of the above mentioned problems.

(b) Service level of the middle income countries as per the indicators

Table 1.2 Population of middle income countries selected for benchmarking

Sr. No.	Description	Ghana	Indonesia	Kenya	Vietnam
1	Area (square Km)	238,539	1860360	580,367	331,212
2	Total Population (in million)	23.8	224.6	40.5	86.1
3	Rural population (in million and % of the total)	11.77 (49%)	123.6 (65%)	30.8 (76%)	60.3 (70%)
4	Urban population (in million and % of the total)	12.03 (51%)	101 (45%)	9.7 (24%)	25.8 (30%)

Table 1.3 Service levels of the benchmarked middle income countries

Sr. No.	Indicators	Ethiopia and Benchmarked middle income countries					
		Ethiopia		Ghana	Indonesia	Kenya	Vietnam
		GTP-1	GTP-2				
1	Water quantity (l/c/day)						
1.1	Urban	20	40-100	46	117	56	120
1.2	Rural	15	25	20*	20*	20*	20*
2	Traveling distance in rural water supply (km)	1.5	1	1*	1*	1*	1*
3	Water supply access-%						
3.1	Urban						
3.1.1	With piped system	51	75	34	32	44	61
3.2	Rural						
3.2.1	With improved WS system	59	85	81	76	55	94
3.2.2	With piped system	-----	20	3	8	13	9
3.3	Total (rural and urban)						
3.3.1	With improved WS system	58	83	87	85	62	95
3.3.2	With piped system	-----	30	19	21	20	26
4	Non-functionality of rural water supply schemes (%)	15.5	7	20	---	30	-----
5	Urban NRW (%)	39	20	52	30	45	30
6	Urban WS continuity (hour)	-----	16**	-----	19.8	13x6	22.7

Information sources: International Benchmarking Network (IBNET) for Water Supply and Sanitation Blue Book 2014, Progress on Drinking Water and Sanitation, 2014 Update (WHO and UNICEF JMP¹, RWSN report)

¹Minimum standard for UNICEF/JMP monitoring

As urban water supply is usually with piped system the comparison with the benchmarked countries is made based on this indicator.

(C) MDG targets of the sub-sector

The sub-sectors MDG-7 (Target-10) is to reduce by half the proportion of people without access to safe water by 2015. Currently Ethiopia has met this target.

(d) Post MDG development targets under consideration for the sub-sector

The following are Post MDG development targets under consideration for the sub-sector by the UN Joint Monitoring Program (JMP) for the next 15 and 25 years. They will be legal international commitments of each member country when they are endorsed by the UN General Assembly.

Target 2: By 2030, every one use basic drinking water supply (20-40 l/c/day with a travel time of 30 minutes or less) and hand washing facilities when at home, all schools, and health centers.

Target 3: The proportion of population not using an intermediate drinking water supply service at home (40-60 l/c/day) has been reduced by half.

Target 4: All drinking water supply, sanitation, and hygiene services are delivered in progressively affordable, accountable, and financially and environmentally sustainable manner.

Thus, GTP-2 is planned taking into consideration to meet the international targets within 5-10 years before the target years.

Annex-2: Action plan

The main objective of the plan is to make all the rural and urban population have access to safe water supply by the next 5 years and expand accessibility upgrading the service level and to achieve this ensure community participation, use of low cost technologies, sustainability of the service and main cities are also provided with wastewater management infrastructures.

During the planning period it is planned to provide access to safe water for 29,324,999 rural, 7,705,913 urban and in total for 37,030,912 populations. Of these, 32,934,052 people are deemed to get water supply as per the GTP-2 service standard.

To achieve the above mentioned targets, construction of 238,370 rural and 440 urban and rehabilitation and expansion of 62, 500 rural and 200 urban water supply schemes are planned.

Annual water supply access coverage, annually served population and number of water supply schemes constructed annually as per the plan are depicted in Tables 2.1, 2.2, and 2.3 respectively.

Table 2.1: Main targets planned annually

Sr. No.	Description	Baseline for 2015	Annual targets (%)				
			2016	2017	2018	2019	2020
1	Water Supply Access Coverage as per GTP-1 Standard (%) for Afar and Somali Regions	98	99	100	-	-	-
2	Rural Water Supply Access Coverage as per GTP-2 Standard with Improved Water Supply Schemes (%)	59	64	69	75	80	85
3	Rural Water Supply Access Coverage as per GTP-2 Standard with Rural Pipes System (%)	----	4	4	4	4	4
4	Urban Water Supply Access Coverage as per GTP-2 Standard with Piped System (%)	51	55	60	65	70	75
5	Total (Urban and Rural) Water Supply Access Coverage as per GTP-2 Standard with Improved Water Supply Schemes (%)	58	63	67	73	77	83
6	Total (Urban and Rural) Water Supply Access Coverage as per GTP-2 Standard with Piped System (%)	-----	6	6	6	6	6
7	Rural Water Supply Schemes Non-functionality Rate Reduction (%)	15.5	14	12	10	8	7

Table 2.2: Population planned to be served annually at national level

Sr. No.	Description	Base line for 2015 (number)	Annual Targets (Number)					Total
			2016	2017	2018	2019	2020	
1	Rural population to be served as per the GTP-1 standard service level	71092140	2041140	2055720	-----	-----	-----	4096860
2	Rural population to be served as per the GTP-2 standard service level	42800370	4477710	4602330	5801017	5082261	5264821	25228139
3	Total rural population to be served as per the GTP-1 and 2 standard service levels		6518850	6658050	5801017	5082261	5264821	29324999
2	Urban population planned to be served as per GTP-2 standard	8913780	1309654	1375354	1539522	1793581	1687802	7705913
3	Total population (to be served as per GTP-2 standard)	51714150	5787364	5977684	7340539	6875842	6952623	32934052

Table 2.3: Water Supply infrastructures planned to be implemented annually

Sr. No.	Description	Total (No)	Annual Targets (number)				
			2016	2017	2018	2019	2020
1	Rural Water Supply Schemes:						
	New construction	238370	42308	43485	54811	48020	49745
	Rehabilitation/maintenance	62,500	11250	11250	14375	12500	13125
	Sub-total	300870	53558	54735	79186	60520	62870
2	Urban Water Supply Schemes:						
	Study and design	300	60	60	60	60	60
	New construction	400	90	90	90	70	60
	Expansion	200	50	50	40	30	30
	Sub-Total	900	200	200	190	160	150
3	Total (new construction)	238770	42398	43575	54901	48090	49805
4	Study and design of urban wastewater system	36	18	18	-----	-----	-----
5	Construction of urban wastewater system	6	-----	-----	3	3	-----

Table 2.3 (a): Lists of Projects Having Cost Estimate Exceeding USD 30 million Implemented by Budgetary Institutions

Sr. No.	On-going Projects	Project Site	Date Started	Status	Completion Date	Allocated Budget In million Birr
Total Allocated Budget (in Million Birr) -There are no projects in this category						
Sr. No.	Projects ready for implementation	Project Site	Starting Date	Status	Completion Date	Allocated Budget In million Birr
1	Shire and its environs water supply project	Shire	2017	Study and design document preparation finalized	2020 (if started earlier)	3000.00
2	Humera and its environs water supply project	Humera	2017	Study and design document preparation finalized	2020 (if started earlier)	2,000.00
3	Axum water supply project	Axum	2017	Study and design document preparation finalized	2020 (if started earlier)	2,000.00
4	Bahir Dar water supply project	Bahir Dar	2017	Study and design document preparation finalized	2019 (if started earlier)	1,000.00
5	Gonder water supply project	Gonder	2017	Study and design document preparation finalized	2018 (if started earlier)	782.00
6	Geribi Dam water supply project	Addis Ababa	2017	Study and design document preparation finalized	2020 (if started earlier)	6,000.00
7	Adama water supply project	Adama	2017	Study and design document preparation finalized	2019 (if started earlier)	1,000.00
2	Mekelle Giba dam water supply project	Mekelle	2017	Study and design on-going	2020 (if started earlier)	7,000.00

Total Allocated Budget (in Million Birr)						22,782.00
Sr. No.	Projects under study and design	Project Site	Starting Date	Status	Completion Date	Allocated Budget (In million Birr)
I	Sibilu Water Supply Project	Addis Ababa	2018	Study and design on-going	2022 (if started earlier)	12,000.00
Total Allocated Budget (in Million Birr)						12,000.00

ANNEX 3: Expenditures in local and foreign currency

Table 3.1: Rural water supply construction expenditure in local and foreign currency

Sr. No.	Description	Total Cost (in Birr)	Cost in Percent (%)		Cost in Amount		Remarks
			Local (Birr)	Foreign (USD)	Local (Birr)	Foreign (USD)	
1	Rural water supply						
1.1.	Self-supply Hand Dug Well	1892110425	100%	0%	1892110425	0	
a	Civil Works		100%	0%			
b	Pipe works		NO	NO			
c	Electromechanical Works		100%	0%			
1.2.	Conventional Hand Dug Wells	3232355309	75%	25%	2424266482	35915059	
a	Civil Works		100%	0%			
b	Pipe works		----	-----			
c	Electromechanical Works		0%	100%			
1.3.	On-spot spring	1967794842	99%	1%	1948116894	874575	
a	Civil Works		100%	0%			
b	Pipe works		98%	2%			
c	Electromechanical Works		-----	-----			
1.4.	Shallow wells	3577808804	96%	4%	3434696451	6360549	
a	Drilling		100%	0%			
b	Civil Works		100%	0%			

c	Pipe works		-----	-----			
d	Electromechanical Works		0%	100%			
1.5	Rural Piped System (Spring with gravity pipe)	1569750871	92%	8%	1444170801	5581336	
a	Civil Works		100%	0%			
b	Pipe works		90%	10%			
c	Electromechanical Works		----	-----			
1.6	Rural Piped System (Spring with motorized pumps or Pressure pipe line)	3139501742	70%	30%	2197651220	41860023	
a	Civil Works		100%	0%			
b	Pipe works		90%	10%			
c	Electromechanical Works		0%	100%			
1.7	Rural Piped System (Borehole pumped system)	12662708007	70%	30%	8863895605	168836107	
a	Drilling		100%	0%			
b	Civil Works		100%	0%			
c	Pipe works		90%	10%			
d	Electromechanical Works		0%	100%			
	Total for Rural Water Supply	28042030000	79%	21%	22204907878	259427650	
	Rural water supply expenditure in % for local and foreign currency				79%	21%	

Table 3.2: urban water supply and sewerage system construction expenditure in local and foreign currency

Sr. No.	Description	Total Cost (in Birr)	Cost in Percent (%)		Cost in Amount		Remarks
			Local (Birr)	Foreign (USD)	Local (Birr)	Foreign (USD)	
1	Urban water supply	44212677000	70%	30%	30948873900	589502360	
a	Drilling		90%	10%			
b	Civil Works		100%	0%			
c	Pipe works		65%	35%			
d	Electromechanical Works		0%	100%			
2	Wastewater system	5517500000	80%	20%	4414000000	49044444	
a	Civil Works		85%	15%			
b	Pipe works		75%	25%			
c	Electromechanical Works		0%	100%			
3	Total for urban water supply and wastewater works	49730177000	71%	29%	35362873900	638546804	

Table 3.3: Rural and urban water supply and sewerage system construction expenditure summary in local and foreign currency

Sr. No.	Description	Total Cost (in Birr)	Cost in Percent (%)		Cost in Amount		Remarks
			Local (Birr)	Foreign (USD)	Local (Birr)	Foreign (USD)	
1	Rural water supply	28042030000	79%	21%	22204907878	259427650	
2	Urban water supply	44212677000	70%	30%	30948873900	589502360	
3	Urban wastewater	5517500000	80%	20%	4414000000	49044444	
	Total	73518878660	74%	26%	54590451940	841263410	

Table 3.3 (a): Financial Need and Financial Sources of GTP-2 for Budgetary Institutions

Sr. No.	Description	Base Year (Estimate)	Projection (in Billion Birr)					5-years Total
		2015	2016	2017	2018	2019	2020	(2016-2020)
1	Total Expenditure	6.475	10.772	11.286	14.808	15.603	13.798	66.268
1.1	Investment	6.115	9.952	10.435	13.601	14.420	12.796	61.205
1.2	Recurrent	0.360	0.820	0.851	1.207	1.183	1.002	5.063
2	Foreign Currency Need (in Million USD)	99.1	136.794	143.436	186.942	198.203	175.887	841.262
2.1.	From National Bank	—	—	—	—	—	—	—
2.2.	Loan from foreign sources	59.46	82.077	86.061	112.165	118.922	105.532	504.757
2.3	Grant from foreign sources	39.64	54.718	57.374	74.777	79.281	70.355	336.505
3	Financial Sources (in Billion Birr)	6.475	10.772	11.286	14.808	15.603	13.798	66.268
3.1	From Government Treasury	4.533	6.600	6.920	9.020	9.563	8.485	40.589
3.2	Foreign Loan and Grant	1.942	4.172	4.366	5.788	6.04	5.313	25.679
3.2.1	Loan	1.165	2.505	2.627	3.423	3.629	3.221	15.405
3.2.2	Grant	0.777	1.667	1.739	2.365	2.411	2.092	10.274
3.3	Loan from financial sources in the country	—	—	—	—	—	—	—

**Table 3.3 (b): Financial Need and Financial Sources of GTP-2 for Public Enterprises
(Urban Water Supply and Sewerage Services)**

Sr. No.	Description	Base Year (Estimate)	Projection (in Billion Birr)					5-years Total
		2015	2016	2017	2018	2019	2019	2016-2020
1	Total Expenditure	0.194	1.482	1.554	2.025	2.146	1.905	9.112
1.1	Investment	0.194	1.482	1.554	2.025	2.146	1.905	9.112
1.2	Recurrent	---	-----	-----	-----	-----	-----	---
2	Foreign Currency Need (in Million USD)	---	-----	-----	-----	-----	-----	----
2.1	From National Bank	---	---	---	---	---	---	---
2.2	Loan from foreign sources	---	-----	-----	-----	-----	-----	-----
2.3	Grant from foreign sources	---	-----	-----	-----	-----	-----	-----
3	Financial Sources (in Billion Birr)	0.194	1.482	1.554	2.025	2.146	1.905	9.112
3.1	From Government Treasury		-----	-----	-----	-----	-----	-----
3.2	Internal Revenue	0.194	1.482	1.554	2.025	2.146	1.905	9.112
3.2	Foreign Loan and Grant	---	-----	-----	-----	-----	-----	---
3.2.1	Loan	---	-----	-----	-----	-----	-----	-----
3.2.2	Grant	---	-----	-----	-----	-----	-----	-----
3.3	Loan from financial sources in the country	---	---	---	---	---	---	---

Table 3.3 (c): Financial Need and Financial Sources of GTP-2 for Projects Implemented by NGOs or CSOs

Sr. No.	Description	Base Year (Estimate)	Projection (in Billion Birr)					5-years Total
		2015	2016	2017	2018	2019	2020	2016-2020
1	Total project Investment Cost	0.356	0.539	0.566	0.736	0.780	0.692	3.313
2	Foreign Currency Need (in Million USD)	3632.653	4791.111	5022.222	6542.222	6942.222	6151.111	29448.89
2.1.	From National Bank		—	—	—	—	—	—
2.2.	Foreign Source	3632.653	4791.111	5022.222	6542.222	6942.222	6151.111	29448.89
3	Financial Sources (in Billion Birr)	0.356	0.539	0.566	0.736	0.780	0.692	3.313
3.1	From in country	0.249	0.378	0.396	0.515	0.546	0.484	2.319
3.2	From Foreign	0.107	0.161	0.17	0.221	0.234	0.208	0.994

Table 3.3 (d): Financial Need and Financial Sources of GTP-2 for Projects Implemented Through Community Contribution

Sr. No.	Description	Base Year (Estimate)	Projection (in Billion Birr)					5-years Total
		2015	2016	2017	2018	2019	2020	2016-2020
1	Total project Investment Cost	0.324	0.674	0.706	0.921	0.976	0.865	4.142
2	Foreign Currency Need (in Million USD)	—	—	—	—	—	—	—
2.1	From National Bank	—	—	—	—	—	—	—
2.2.	Foreign Source	—	—	—	—	—	—	—
3	Financial Sources (in Billion Birr)	0.324	0.674	0.706	0.921	0.976	0.865	4.142
3.1	From in country	0.324	0.674	0.706	0.921	0.976	0.865	4.142
3.2	From Foreign	—	—	—	—	—	—	—

ANNEX-4: Human Resources Requirement, Training and Job Opportunities Creation

Table 4.1: Annual based action plan for training and job opportunity creation

Sr. No.	Profession and professional level	Total	2008	2009	2010	2011	2012	Remarks
A	High Level Professionals							
1	Water engineer	1080	280	200	200	200	200	
2	Geologist	400	80	80	80	80	80	
3	Hydro-geologist	684	124	140	140	140	140	
4	hydrologist	120	20	25	25	25	25	
5	electromechanical engineer	850	170	170	170	170	170	
6	sociologist	700	140	140	140	140	140	
7	economist	140	20	30	30	30	30	

8	Chemist	200		50	50	50	50	
9	Biologist	200		50	50	50	50	
	Sub-total	4,374	834	885	885	885	885	
B	Medium level professionals							
1	Water supply technicians	6750	1350	1350	1350	1350	1350	
2	E&M technicians	5650	1130	1130	1130	1130	1130	
3	Drillers	600	120	120	120	120	120	
4	Others (provide the profession name)	-----	-----	-----	-----	-----	-----	
	Sub-total	13,000	2600	2600	2600	2600	2600	
1	Artisans	10500	2100	2100	2100	2100	2100	
2	Care-takers	500,000	90,000	90,000	110,000	105,000	105,000	
	Sub-total	510,500	92100	92100	112100	107100	107100	
	Total	527,874	95534	95585	115585	110585	110585	

Table 4.1 (a): Human Requirement of GTP-2 Based on Education Level/profession

Sr. No.	Educational level/profession	Base Year 2015 (Estimate)	Projection (in Billion Birr)					5-years Total
			2016	2017	2018	2019	2020	2016-2020
1	Grade 4 completed	198000	90,000	90,000	110,000	105,000	105,000	500,000
2	Grade 8 completed	4500	2100	2100	2100	2100	2100	10500
3	Grade 10 completed	-----	-----	-----	-----	-----	-----	-----
4	Grade 12/preparatory completed	-----	-----	-----	-----	-----	-----	-----
5	Graduated from TVT							
5.1	Level- 1	360	520	520	520	520	520	2600
5.2	Level- 2	1080	780	780	780	780	780	3900
5.3	Level-3	1080	780	780	780	780	780	3900
5.4	Level- 4	360	260	260	260	260	260	1300
5.5	Level-5	360	260	260	260	260	260	1300

6	Under Graduate (BSc)							
6.1	Natural Science/Engineering							
6.1.1	Water Engineer	125	196	140	140	140	140	756
6.1.2	electromechanical engineer	25	119	119	119	119	119	595
6.1.3	Geologist	65	80	80	80	80	80	400
7	Post Graduate (MSc)							
7.1	Natural Science/Engineering							
7.1.1	Chemist	25	40	40	40	40	40	200
7.1.2	Biologist	15	40	40	40	40	40	200
7.1.3	Water Engineer	40	84	60	60	60	60	324
7.1.4	electromechanical engineer	10	51	51	51	51	51	255
7.1.5	Hydro-geologist	20	124	140	140	140	140	684
7.1.6	Hydrologist	15	20	25	25	25	25	120
7.2	Social Science (MSc)							
7.2.1	Economist	10	140	140	140	140	140	700
7.2.2	Sociologist	20	20	30	30	30	30	140

ANNEX-5: Environmental and social impact mitigation

Projects carried out in the sub-sector would have environmental and social impact assessment in order to maximize the positive benefit and mitigate negative impacts. Even though rural water supply schemes are so small to have as such significant environmental and social impacts, rural piped systems shall go through environmental and social screening. Large water supply projects such as urban water supply schemes and urban sewerage systems need to go through conventional environmental and social impact assessment procedure. Monitoring and evaluation system would be established to ensure recommendations of environmental and social impact assessment studies are implemented during construction and operation.

Moreover, regarding water sources and their immediate catchment protection and conservation, WaSHCOs and urban water supply utilities are required to make it part and parcel of their regular engagements. Monitoring system would be established to ensure the realization of the same. As urban water supply utilities are also engaged in urban wastewater management activities, they are monitored for safe disposal of effluents and sludge.