

# Service delivery models for universal, safe and sustainable water services in Ethiopia



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Position paper 2 of 5

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# Position Paper 2: Service Delivery Models for Universal, Safe and Sustainable Water Services in Ethiopia

## Featured Ideas.

When considering service delivery models that are needed to achieve the Sustainable Development Goal target 6.1 it is important to:

- Distinguish service-delivery models from infrastructure development models which, to date, have been emphasized in policy and practice.
- Recognize the occasional need for integrated implementation of different service delivery models (e.g., self-supply, community-managed, multi-village rural piped schemes and urban supplies) in a district or similar area to achieve universal access.
- Acknowledge the relevance of asset management as part of water service delivery, as well as the need to address maintenance gaps and ensure financing for project requirements beyond hardware implementation.
- Emphasize long-term planning to achieve targets and successful operations and maintenance models. Operations and maintenance are vital for future donor and government financing.
- Include support of water service providers by service authorities as part of service delivery models.



**This is the second position paper in a series of five produced through the 2017-2019 Millennium Water Alliance Bridge Program in Ethiopia. It is made possible through support from the Conrad N. Hilton Foundation.**

# Background

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Provision of water services involves supplying a certain quantity of water which is safe, accessible, reliable and available at an acceptable price point. Water services are provided through a variety of water supply facilities (infrastructure) and under different management arrangements. Day-to-day management by service providers is supported and supervised by service authorities.

In this paper, “service delivery model” is defined as: the combination of infrastructure and management arrangements required to ensure affordable, safe and reliable water for users. In urban contexts, the most common urban service delivery model is utility-managed, while community-managed wells and handpumps comprise the common service delivery model in Africa’s more rural contexts.

The level of service provided under different delivery models varies widely — even within one service delivery model, depending on the type of access point. For example, the level of service provided through household connections is often higher than services provided through public taps.

The unit cost of water service provision and the amount users pay to access services also varies depending on the service delivery model. Thus, prioritisation and implementation of certain service delivery models matters and impacts the level of service and associated costs of sustainable water access for all.

This paper presents and discusses characteristics of the main, rural service delivery models in Ethiopia. It includes discussion on levels of service, types of infrastructure, and management models, including support arrangements. This is then followed by a broader overview of the infrastructure development and delivery models in Ethiopia. The paper also presents recommendations about what is necessary to achieve Sustainable Development Goal target 6.1.

## Water Supply Service Levels

The Sustainable Development Goal (SDG) targets for water and the government of Ethiopia’s priorities, as identified in the Growth and Transportation Plan II (GTP II) (2016-2020) and the One WASH National Program (OWNP)<sup>1</sup>, focus on water and sanitation service delivery. The three core service delivery challenges related to achieving these global and national priorities for rural water supply in Ethiopia are inter-related and include:

1. Extending access to the currently unserved. This is primarily made up of households, but also includes schools and health facilities that lack water supplies. The unserved market is expanding as the population grows.
2. Sustaining services from existing water schemes<sup>2</sup>.
3. Raising service levels by focusing on water quality, reliability and other key parameters.

As part of GTP II, the government of Ethiopia established standards related to water service delivery levels, differentiating between rural and urban water services. The goal of GTP II in rural areas is to ensure a minimum level of access and quantity for at least 85% of the population (see Table 1)<sup>3</sup>. The goal includes a target to support 20% of the population with higher levels of service delivery via piped schemes. The core GTP II target for water is ambitious: universal coverage by 2020, with improvements in service delivery and access. This includes supplying much of the population with more water (25 lpcd<sup>4</sup>) within a shorter distance (1 km) and improving water quality.

**Table 1 – Service level standards according to GTP I and GTP II**

Category	Population	Water Quantity		Accessibility		Water Quality	Reliability
		GTP I	GTP II	GTP I	GTP II	GTP I and GTP II	GTP II
Rural	< 2,000	15 lpcd	25 lpcd	Within 1,500m	Within 1,000m	In line with water quality standards of WHO, supplied by schemes labelled as “improved” by the Joint Monitoring Program of UNICEF and WHO	Not noted in GTP II
Category 5 Town	2,000 - 20,000	20 lpcd	40 lpcd	Within 500m	Within 250m		Uninterrupted for at least 16 hours per day
Category 4 Town	20,001 - 50,000		50 lpcd				
Category 3 Town	50,001 - 100,000		60 lpcd				
Category 2 Town	100,001 – 1 million		80 lpcd				
Category 1 Town	> 1 million		100 lpcd				

The UNICEF/ WHO Joint Monitoring Program (JMP)<sup>5</sup> differentiates between safely-managed services (improved water services on premise, available when needed, without contamination); basic services (improved water services within thirty minutes round trip); limited water services (improved water services outside thirty minutes round trip) and unimproved water services. Figure 1 gives an overview of the different service ladders.

According to JMP analysis<sup>6</sup>, in rural areas of Ethiopia, 4% have safely managed services, 30% have basic services and 26% have limited services. This leaves 40% of the country’s rural population with unimproved water services, while the burden of water collection falls on women, who are eight times more likely to collect water than adult males and children<sup>7</sup>. According to Ministry of Water, Irrigation and Electricity (MoWIE) estimates<sup>8</sup>, rural water supply coverage reached 63% by mid-2016 (or 57% according to the Ethiopian Demographic and Health Survey 2016<sup>9</sup>), but these assessments were not made based on the JMP service delivery categories.

**Figure 1: Service level ladder overview**

UNICEF / WHO Joint Monitoring Program Ladder (SDGs)		Growth and Transformation Plan 1 (GTP I)		Growth and Transformation Plan (GTP II)	
<b>Safely Managed</b>	Drinking water from an improved water source that is located on premises, available when needed and free from fecal and priority chemical contamination.			<b>Access Meeting GTP II Urban Standard</b>	Access to an improved water source within 250m, providing at least 40 lpcd (for Category 5 town with population < 20,000).
<b>Basic</b>	Drinking water from an improved source, provided collection time is 30 minutes or less for a round trip, including queuing.	<b>Access Meeting GTP I Urban Standard</b>	Access to an improved water source within 500m providing at least 25 lpcd.	<b>Access Meeting GTP II Rural Standard</b>	Access to an improved water source within 1km providing a least 25 lpcd.
<b>Limited</b>	Drinking water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing.	<b>Access Meeting GTP I Rural Standard</b>	Access to an improved water source within 1.5km providing a least 15 lpcd.	<b>Access Meeting GTP I Rural Standards</b>	Access to an improved water source within 1.5km providing a least 15 lpcd.
<b>Unimproved</b>	Drinking water from an unprotected dug well or unprotected spring.				
<b>Surface Water</b>	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal.	<b>No Access</b>		<b>No Access</b>	

## Water Schemes and Infrastructure

There are over 200,000 estimated improved rural water supply schemes across Ethiopia. These include relatively simple — and so-called “low cost” technologies — such as hand-dug wells fitted with hand pumps (typically Afridev) and spring protections. They extend to more complex drilled shallow and deep boreholes and single and multi-village piped water schemes. Regarding pump types, India Mark II and Mark III hand pumps are typically used where groundwater is deep. In drier areas, deep boreholes require major investment and are typically off-grid and powered by diesel generators. Nationally, strategic directives include making wider use of solar-powered pumping and expanding piped water supplies<sup>10</sup>. There is concern about the resilience of low-cost technologies in drier areas, however. These can prove unreliable during the dry season and drought periods, while the costs of emergency trucking are a drain on the sector’s finances. The Ethiopian government’s “Climate resilient WASH” initiative<sup>11</sup>, launched in 2017, seeks to invest in more advanced infrastructure including deep wells and multi-village piped water supplies. In highland areas with better, shallow groundwater potential, self-supply by households is common. This often involves unprotected hand-dug wells and rudimentary lifting devices<sup>12</sup>. From the Ethiopia Demographic and Health Survey 2016 data, it’s inferred that 4% of households have service delivery through self-supply at the home — typically using a traditional well, rope pump or unprotected spring.

## Management Models<sup>13</sup>

Like most other public services, under Ethiopia’s decentralized structures, rural water supply is the direct responsibility of district (woreda)<sup>14</sup> governments. Districts independently determine the allocation of their budget to water and other sectors. District water offices are supported as service authorities by regional and national levels of government, although some also get support from designated zones.

Water service providers in rural areas are typically water, sanitation and hygiene committees (WASHCOs) or Water User Associations (WUA). WASHCO members are composed of elected people from the community and serve voluntarily. Their focus is on water supply (e.g., a well or borehole with hand pump). In more populated rural areas there can be Town Water Utilities (TWUs), in the case of small-town piped systems, and Water Boards, in the case of multi-village piped water supplies. It should be noted that a professional, rural water utility approach is now being rolled out for the multi-village piped systems<sup>15</sup>.

Although WASHCOs are responsible for both operations and maintenance (O&M), they typically only manage operations, with little emphasis on ongoing and preventative maintenance. Where maintenance lacks, failures are frequent and most WASHCOs are unable to perform anything beyond simple repairs. Government entities may step in to provide support, but generally focus on major maintenance and rehabilitation. This means preventative and other minor maintenance issues are perpetually neglected. Provision of government support comes from kebele (e.g., in Tigray where kebele water technicians are in place), district, zone (where relevant capacities exist), and regional level offices. Typically, requests are prioritized and coordinated by districts and then passed upwards. Due to limited capacity, budget, and the low priority of maintenance, maintenance responses are frequently delayed.

There are innovations being developed and piloted to strengthen the support given to WASHCOs. MoWIE, for example, is piloting the development of small and medium-sized enterprises and spare part shops under the preferred association model to create jobs for the youth and unemployed.

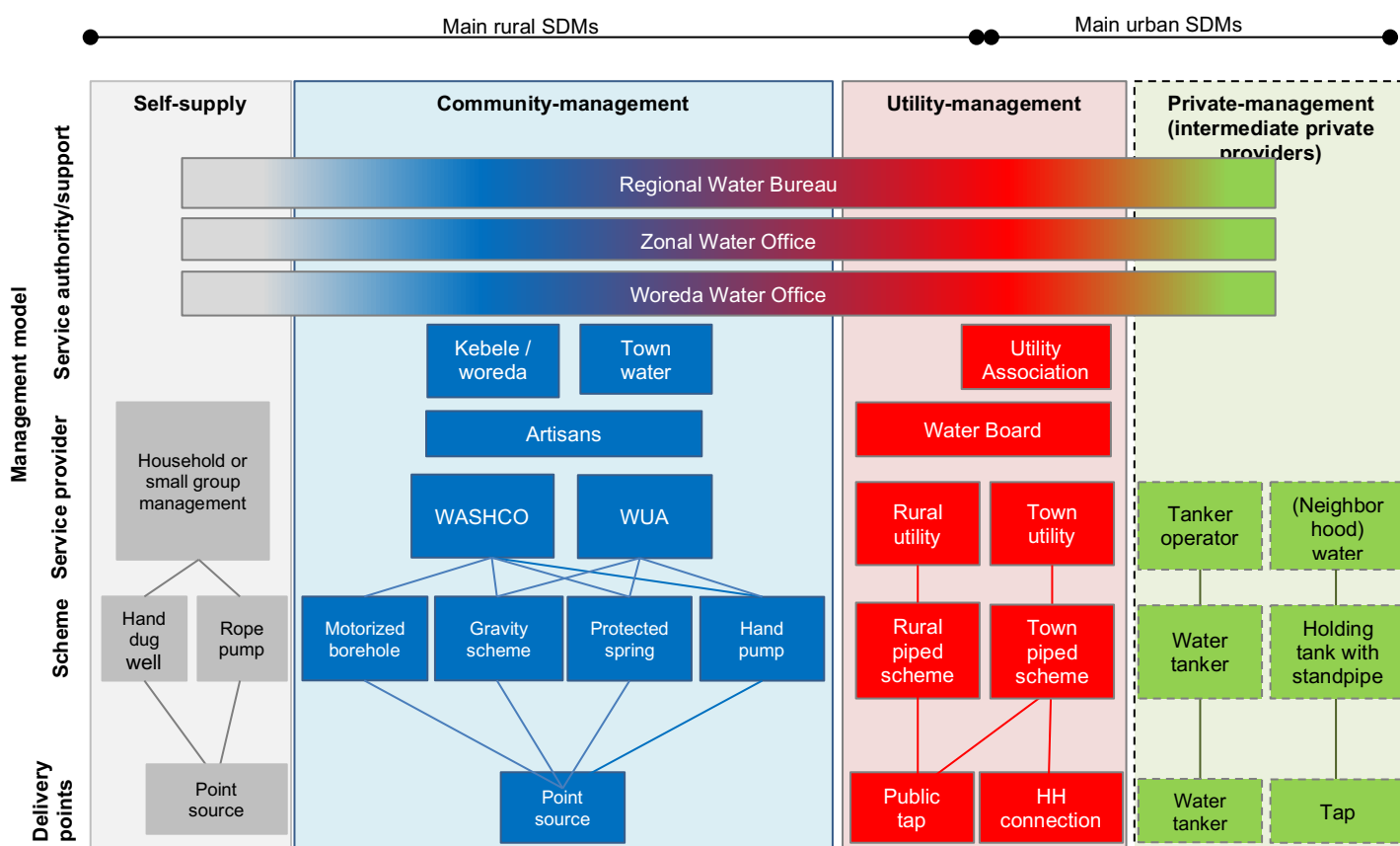
In some places, hand-pump maintenance service responsibilities have been outsourced to town utilities. This includes the rural areas around Harar, where the Harar Water and Sewerage Company provides hand-pump maintenance services, and the rural areas around the town of Gobesa, where the Town Water Utility provides similar services and is linked to water sources sharing in rural areas.

Another innovative arrangement is the *Wahis Mai* Maintenance Program<sup>16</sup>, implemented by the Relief Society of Tigray with support from NGO charity: water. Both organizations work closely with the Tigray Region, Water Resources, Mines and Energy Bureau. This pilot includes monitoring innovations and additional capacities set up at the cluster level to handle the repairs beyond the capacity of government staff at the kebele or district levels. Also, in Tigray, SNV is supporting the establishment of private sector maintenance outfits that can respond to the demands of WASHCOs.

In addition to maintenance support, arrangements should be made for:

- Spare part supply chains
- Household water treatment and safe storage/communal treatment
- Water quality surveillance

**Figure 2: Service delivery model overview**





## Models for Infrastructure Development

According to national policy in Ethiopia, rural communities are supported by government, NGOs and other partners' infrastructure development efforts to access improved water supply facilities. Facilities are built underneath four different modalities<sup>17</sup>.

- **District-managed projects** are conventional forms of community-managed water supply (and the only one supported by the Consolidated WASH Account). Here, projects are developed through district water offices with partners and then “handed-over” to WASHCOs who are responsible for operation and maintenance.
- **Community-managed projects** are developed through routing of finance via micro-finance institutions (MFIs). Following a community contracting model, these communities build their own schemes under the close supervision and support of the district water office<sup>18</sup>.
- **NGO projects** are more varied in their development and often include high levels of community mobilization. Eventually schemes are handed-over to WASHCOs as district-managed projects.
- **Self-supply projects** include two scheme types:
  - Group-led, self-supply which involves small groups (at least 10 households) and can include a subsidy of up-to 50%. This is similar to the common form of community water supply but with higher community contributions, smaller schemes and less formalized management arrangements.
  - Household-led, self-supply which involves households investing in and developing their own water supplies. This is typically achieved through hand-dug or manually drilled wells and rainwater harvesting ponds.










These four modalities are described in national policy as “service delivery models” (See Figure 2 for more detail). However, with their focus on infrastructure development, they are more aptly described as infrastructure or construction delivery models.

Obvious links occur between the implementation models presented here and the service delivery models presented above. For example, household access developed through a self-supply model also generally falls under the self-supply, service-delivery model, with households providing ongoing management. Similarly, schemes developed under district, community or NGO leadership are typically managed — or should be managed — by a WASHCO under the community-management service-delivery model. In reality, these are not always present, legalized, or active.

# Recommendations.

The challenge of sustaining reliable access to safe water while moving up the service-delivery ladder to achieve the SDGs leads MWA to the following recommendations:

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-  Distinguish between infrastructure development and infrastructure management in the context of sustainable water services delivery – while strengthening both.
-  Promote integrated implementation of different infrastructure development models such as district operated, community-managed, NGO managed and self-supply in an area.
-  Reinforce the relevance of asset management as part of water services delivery. Similarly, address the gap in ongoing and routine maintenance to meet targets and ensure financing.
-  Ensure water quality is emphasized in each service delivery model in order to meet standards and targets.
-  Find a role for the private sector in infrastructure development, water quality improvement and maintenance of water supply systems.
-  Innovate and test new models to improve ongoing maintenance and repairs. This will improve reliability and reduce the burden on communities to maintain their own water points.
-  Include support of water service providers from service authorities or other agencies as part of the service delivery model.
-  Ensure that human capacity and required resources are available to maintain and improve current access and implementation. Together, these will raise service-delivery levels.
-  Support stronger linkages between service authorities and service providers. Enhance their capacity to I) engage the private sector, II) clarify roles and responsibilities to avoid role confusion and redundancy, and III) institutionalize relationships and communication between the two.

# About.

The Millennium Water Alliance has created a coalition involving — CARE, World Vision, Helvetas, Food for the Hungry, WaterAid Ethiopia, Catholic Relief Services, IRC WASH, the Centers for Disease Control and Prevention and Splash – to support the Amhara National Regional State to achieve the WASH SDGs in three districts (woredas).

This position paper is the second in a series of related papers. Other papers address related issues, including: financing, monitoring, capacity development and long-term strategic planning. This paper aims to summarize the agreed thinking of the alliance on how Ethiopia can improve its water service delivery to achieve the SDGs. It was approved by the following members in March 2019 for publication: CARE, Catholic Relief Services, Food for the Hungry, IRC WASH, WaterAid, and World Vision.

The paper was drafted by John Butterworth, Marieke Adank and Lemessa Mekonta (IRC WASH). Comments on a draft of the paper were made by Tedla Mulatu and Laura Brunson (MWA). Additional input was provided by Genene Abera (Catholic Relief Services), Zewdu Kelbesa (WaterAid), Gardachew Tiruneh (CARE), Ashenafy Bekele (HELVETAS), Gashaw Kebede (WaterAid), Mussie Tezazu (MWA), Etsegenet Hailu (Food for the Hungry), Michael Abera (IRC WASH), and Mebratu Tsehaye (World Vision) during a meeting of MWA members held on August 24, 2018.

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## Appendix:

# References & Notes

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1. Federal Democratic Republic of Ethiopia. One WASH National Program: Program Document (2013).
2. In this paper, the term “water facilities” is used to refer to water infrastructure, while the term “water scheme” is used to describe the combination of water facilities and management (e.g., by a WASH committee or WASHCO). The term “system” describes the wider system of policy, institutions, financing and other capacities that are required to deliver water services.
3. Federal Democratic Republic of Ethiopia, Ministry of Water, Irrigation and Electricity Second Growth and Transformation Plan for the Water Supply and Sanitation Sub-Sector (2015).
4. Lpcd = liters per capita per day
5. Joint Monitoring Program Progress on Drinking Water, Sanitation and Hygiene (2017) (using data from 2015)
6. Ibid.
7. Central Statistics Agency and ICF. Ethiopia Demographic and Health Survey (2016).
8. National WASH Coordination Office (2017). One WASH National Program Annual Report (2008) Ethiopia Fiscal Year.
9. Central Statistics Agency and ICF. Ethiopia Demographic and Health Survey (2016).
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11. Government of Ethiopia. Climate Resilient Water Safety Plan Implementation (2015).
12. Butterworth, J., Sutton, S., Mekonta, L. Self-supply as a complementary water services delivery model in Ethiopia. *Water Alternatives*, (2013), 6(3): 405-423.
13. Water Global Practice. Policy Brief on Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-Country Review provides helpful information about the viability of various service-delivery models (2017).
14. A woreda in Ethiopia is considered a district in most places; while larger than a village, it is one of the smallest governing units in the country.
15. Federal Democratic Republic of Ethiopia. One WASH National Program: Program Document (2013).
16. WASH Systems research: <https://www.ircwash.org/blog/monitoring-and-messages-faster-maintenance>.
17. Federal Democratic Republic of Ethiopia. WASH Implementation Framework (2013).
18. Implementation of the CMP model is supported by the COWASH project and several regions (visit: [www.cmpethiopia.org](http://www.cmpethiopia.org)).

## Millennium Water Alliance

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