Strengthening the sustainability of multi-village water schemes through professionalising community management

A case study of Rural Water Boards supported by WaterAid Ethiopia

Community based management of rural water supplies faces common challenges that impact on service sustainability. These often include: poor technical expertise to maintain services; a lack of external support to service operators; weak commercial viability of services; and poor transparency and accountability leading to the misappropriation of funds. The sector in Ethiopia is increasingly constructing multi-village piped water schemes, in part to strengthen the climate resilience of point source water technologies. However the challenges of community management have fuelled a notion that communities cannot manage such larger or more technically complex water schemes (Owen & Michael, 2013).

Over the last twenty years, WaterAid Ethiopia has developed, demonstrated and helped to upscale a community based management model for multi-village piped water schemes, called 'Rural Water Boards'. This community-run utility model benefits from economies of scale in operations to employ a team of skilled professionals to operate schemes, under the leadership and governance of community-elected boards. These Rural Water Boards have proved highly effective at sustaining and expanding water supply services over many years.

This case study provides an overview of rural water supply service sustainability in Ethiopia, and describes how the Rural Water Board model has sought to address service sustainability challenges with the aim of achieving high service levels for users. This case study focuses on the Ticho multi-village water supply scheme, to highlight positive lessons and some of the remaining challenges in professionalising community management.

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National context

Ethiopia is the second largest country in sub-Saharan Africa with a population of over 100 million people, and a broad ethnically diversity, with over 80 different ethnic groups. The vast majority of the population live in rural areas (80%), but the rate of urbanization, at 3.8% per annum, is rapid. Although Ethiopia is one of the world's poorest countries, it has made substantial progress in social and human development over the past decade, and government policies have charted a course towards future middle-income status. However whilst the share of the population below the poverty line[1] has fallen from 38.7% in 2004/05 to 29.6% in 2010/11, because of high population growth, the absolute number of poor (approximately 25 million) has remained unchanged over the past 15 years. Ethiopia is vulnerable to sustained droughts and famines, severely affecting the rural population which is primarily reliant on rain-fed agriculture as their source of livelihood.

Decentralisation

Ethiopia is governed through a federal democratic government system, established in the early 1990s with 11 regions[2], and further divided into Woredas (districts) and rural Kebeles[3]. Each of the nine Regional States has its own parliamentary assembly, and budgeting and taxing powers. Over the years the government has achieved a significant degree of fiscal decentralisation to the regional and Woreda level.

Rural water supply coverage and service levels

Ethiopia achieved its Millennium Development Goal (MDG) water target to halve the proportion of people without access to safe water, however access is still low, with the JMP reporting only 49% of the rural population accessing safe water in 2015. Whilst the percentage without access has declined substantially, due to the considerable rates of population growth, the absolute number without access has remained similar over the last 25 years. Water quality is a key issue, with a nationwide survey in 2010 finding that only 55% of protected dug wells, 44% of protected springs, and 66% of boreholes were in compliance with government's standards. Functionality is also a challenge, with data suggesting only 74% or rural water supplies are functional nationwide, with some regions (Afar) being as low as 66% (NWI, 2013).

WaterAid Ethiopia: Programming focus past and present

WaterAid has been working in Ethiopia almost since the organisation was founded. The first projects began in 1983 when Ethiopia was experiencing severe drought, and a Country Programme office was set up in 1991. Its country programme strategy has evolved over the years: whilst maintaining a component of direct service delivery for the poorest and marginalised communities, there has been an increasing focus on sector support, advocacy and influencing. WaterAid Ethiopia is the only WASH-focussed INGO in the country, and has a well-earned reputation for its technical expertise, its use of evidence to inform policy development, and its support to establishing the Sector-Wide Approach called 'One WASH'. Some of WaterAid Ethiopia's core areas of work over the last decade have been around improving sector performance and accountability through monitoring and learning; building capacity for service delivery; and research, demonstration and dissemination.

The One WASH National Programme of the Government of Ethiopia includes (but is not limited to) the following key components, each of which WaterAid Ethiopia contributes to in its work: creating an enabling environment and good governance; maximizing availability and efficient use of financial

[1] Using a poverty line of US$0.6/day
[2] Of which nine are national regional states and two are city administrations
[3] A Kebele is a rural area with multiple villages, with an average population of 5,000

resources; creating demand for better WASH services, and; capacity development for improved delivery of WASH services.

Whilst supporting the ONE WASH programme, WaterAid Ethiopia has the following objectives in its current Country Strategy (2016-2021):

- Climate resilience is mainstreamed in WASH programmes and in other sectors
- Marginalised and vulnerable groups are effectively included in WASH programming
- Effective and efficient WASH systems are in place at local government level, and national sector processes are strengthened, for improved service delivery.
- WASH systems are integrated with other sectors

WaterAid Ethiopia is increasingly placing sustainability at the centre of its programming agenda, with the 'Sustainability for Transformation (S4T)' rural WASH programme launched in 2016. The S4T focusses on building effective systems and capacity at local government level. It aims to implement a 'district-wide approach' in targeted districts, to demonstrate to the wider sector an effective model for achieving and sustaining universal access to WASH services.
Since 2011 WaterAid Ethiopia has undertaken 50 WASH 'projects' reaching 1.2 million people for water supply, and around 500,000 people for sanitation.

Institutional arrangements

The WASH sector in Ethiopia has made much progress in terms of setting out institutional, policy and strategic frameworks for more coordinated and harmonised sector investments. This has included the establishment of a common sector wide approach, known as the One WASH National Program, or OWNP. Launched in 2013, the OWNP has engaged strong development partner support and there is a high political profile for supporting the sector on the part of federal government. The OWNP programme document outlines the roles of the four main ministries involved, which include the Ministry of Water Irrigation and Energy (MoWIE), the Ministry or Health (MoH), the Ministry of Education (MoEd) and the Ministry of Finance and Economic Cooperation (MoFEC). These roles are shown in Table 1 below.

Table 1: Roles of Ministries in OWNP

Ministry	Role in OWNP regarding Rural Water Supply
MoWIE	Responsible for water policy, coordination and monitoring
MoFEC	Responsible to ensure the disbursement of funds based on approved planning and to support the regional and Woreda authorities in financial planning, budgeting and oversight.
MoE	Responsible for policy promotion of WASH-related education and strengthening sector capacity through technical and vocational training.
MoH	Responsible for water quality monitoring, hygiene promotion and community-led approaches.

Each ministry is represented at the regional level through ministerial Bureaus, which provide support to the Woredas which are the local government entity mandated with ensuring the delivery of services. The MoWIE is present in each of the regional states through the 'Water Bureaus', and at the Zonal (sub-regional) level through the Zonal Water Offices. Each Woreda (is supposed to) have a Woreda WASH Team, responsible for planning and decision-making on new investments, and supporting on-going operations in rural water supply through the Woreda water office. However such WASH Teams are not established in all Woredas, and

often are established only when there is funding through the Consolidated WASH Account[4] to that Woreda. At the community level, rural water supplies such as piped water systems and handpumps are generally managed by community WASH Committees ('WASHCOs).

Policy, strategy and financing arrangements

The OWNP includes a WASH Implementation Framework to guide its delivery, and the Consolidated WASH Account for the pooling of development partner and government resources. The OWNP is an ambitious program with a total envelop of some USD 4 billion of investment over a seven-year period, implemented in two phases; Phase I from July 2013 to June 2015 and Phase II from July 2015 to June 2020. The OWNP targets universal 'basic' water access by 2020, and in line with the SDGs, universal access to 'safely managed' WASH services by 2030. The Government's Second Growth and Transformation Plan (GTP II) has set targets for improving service levels by 2020, with targets including: reducing non-functionality rates to 7%; increasing per capita water availability to 25l/cap/day; reducing the distance definition for 'access' from 1.5km to 1km; and increasing the proportion of the population accessing water from piped water systems to 20%.

Major threats to sustainability of rural water supply services

The key threats to sustainable rural water supply service delivery are highlighted below.

- Institutional and Technical: Probably the greatest threat to sustainability is the weak capacity at the Woreda and Kebele levels both in terms of financial and human resources (staff numbers and qualifications)[5]. Despite all regions having issued proclamations related to WASHCO legalisation, most WASHCOs are not yet legally recognised. This affects their ability to establish bank accounts, access credit services, contract out assets, be formally contracted for services, or be a legally accountable entity that can sue or be sued. Studies have shown that many WASHCOs are underperforming, and that quality of the services they provide is low (Ripple 2013, SIT 2014). There is no independent regulator of water supply services, and Woreda governments typically do not have sufficient capacity to take on this function. As a result there are no reliable accountability mechanisms for consumers. The technical capacity of the WASHCOs to maintain the systems are limited, and Woredas, who are mandated to support WASHCOs are also restricted in their capacity to operate. Efforts are being made to improve the capacity of local government to monitor services, including the development of a national monitoring system, but this is still under development.
- Financial: A major focus of the OWNP is on construction, with limited budget allocation for ongoing post construction support. As at 2013, of the $1.13 billion USD OWNP budget, 61% was on new construction, 7% was on rehabilitation, and less than 2% was on post construction support to service providers (OWNP, 2013). There are issues in the service provider's ability to set tariffs themselves for the larger water supply schemes, and tariffs for smaller schemes (such as handpumps) are set by communities (WASHCOs) without guidance as to what levels they should be set at to ensure their capacity to maintain the system.

[4] A financing mechanism of the OWNP

[5] The Government estimates that the shortfall of approximately 47,000 people including 4,500 engineers, 1,600 hydrogeologists, and many more artisans and technicians.

- Environmental: A rapidly increasing population, coupled with land use changes, deforestation, over grazing and catchment degradation is posing considerable pressures on the water resources in rural areas. In addition, climate change is expected to lead to more uncertainty and extremes in weather patterns, as well as increased rainfall variability (ODI 2015).

Service delivery models for rural water supply services

Whilst the WASH Implementation Framework of OWNP identifies various methods of implementing the initial capital construction/rehabilitation works for rural water supplies[6], with the exception of Self Supply, there has been only one model for ongoing service delivery in rural areas: that of the community WASH Committees (WASHCOs). In towns, public water utilities may be appointed to run the urban networks, and for multi-village schemes Rural Water Boards are increasingly being applied as management models.

Table 2: Service Delivery Models for Rural Water Supplies in Ethiopia

Service Delivery Model	Population Size / Context	Type of Water Technology
Self Supply	Generally rural, small and scattered communities, and individual households	Variable, can include spring protection, well upgrading, rainwater harvesting, small dams etc.
WASHCOs	Rural communities and sometimes small towns	Variable, often handpumps and piped systems
Rural Water Boards	Larger multi-village schemes	Generally piped systems fed by gravity and/or pumped.
Public Water Utilities	Urban centres of various sizes	Generally piped water systems.

As indicated in Table 2, there does not seem to be clear and fixed distinctions in terms of population size thresholds that define the management model to be applied[7].

The WASHCOs are voluntary in nature, often not legally registered and suffer from widespread capacity gaps both in terms of the skills of their members, and also in the organisations that are supposed to provide post construction monitoring and support (the Woredas).

In the towns the predominant model is that of a public urban utility, one per town, each with a 'Water Board' committee which oversees the utility's operations and strategic planning. The utilities in Ethiopia are 'graded' by the government, based on their service population, performance and other factors. The grading runs from Grade 1 (top) down to Grade 6 (bottom). The basis for grading of the utility includes a mixture of factors, and does not only relate to population sizes[8]. In some regions there have been efforts by the Zonal and Regional Water

[6] Such as 'Woreda managed projects', Community Managed Projects (CMP), NGO projects, and or smaller/remote communities also considering Self Supply (subsidized up to 50% by external support)
[7] The One WASH National Programme document provides examples of design population numbers per rural water supply technology type, but such technologies are not linked with specific management models. The ONE WASH National Programme document also describes three categories of towns; with utilities but no board; with utilities managed by a board; with no utility, managed by WASHCOs – although this latter example was linked with towns without piped water systems.
[8] Grading is done by the Regional Water Bureaus with considerations on population size, scheme performance, the 'importance' of the town, utility capacity and utility revenues.

Bureaus to monitor the utilities' performance, and organise learning and exchanges between the utilities.

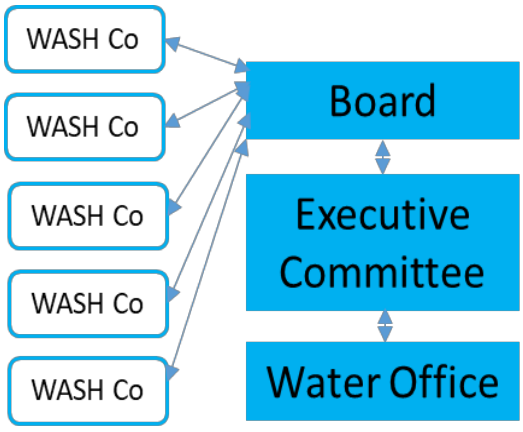
The role of the private sector in managing rural water supplies is virtually non-existent in Ethiopia, due in part to restrictions on leasing government assets to the private sector, and also due to the relatively marginal profits they would expect to receive from entering this market space. The private sector is however active in aspects such as material supply chains, consulting, and construction services.

The Rural Water Board model

In an effort to raise service levels and increase the resilience of rural water supplies, the Government of Ethiopia is increasingly focussing on piped water schemes serving multiple villages. It is a common perception in the sector (in Ethiopia and elsewhere) that community management is not appropriate for larger or more technically complex schemes. There are various ideas in the sector in Ethiopia around the most effective service delivery model for such multi-village schemes, with some stakeholders looking into a rural public utility model, and/or extending the service area of the existing urban utilities into peripheral rural areas to also manage such schemes.

As far back as 1994, WaterAid Ethiopia was one of the pioneering organisations already developing such multi-village water schemes (mainly spring-fed, relying on gravity flow, but also including boreholes and motorised pump-fed schemes). The management model which WaterAid Ethiopia developed to ensure ongoing service delivery of such schemes was termed the '**Rural Water Board**' (and also referred to as 'the Board'). In this model each individual community that the water scheme serves has a WASHCO, and one representative from each WASHCO is a member of the overall Board, which has oversight over the entire water supply system. The Board, sometimes through an executive committee, appoints a full-time salaried manager for the water system, who in turns appoints and runs the (paid) team of the 'Water Office' who manage the system on a day-day basis.

Figure 1: A generic structure of the Rural Water Board model



Each WASH Co in each community has a representative in the Board. The Board meets periodically for governance and strategic oversight of the Water Office.

For systems with many WASH Co's (e.g. a large Board), a smaller Executive Committee is established from the Board members who undertake more frequent (e.g. monthly) operational support and monitoring to the Water Office.

The Board appoints a (salaried) Water Office Manager, who in turn appoints staff to run the water supply system (e.g. Technicians, Administrators, Accountants, Meter Readers, etc.).

The members of the WASHCOs are elected by the community, and these in turn elect the representatives to serve on the board. Whilst the Woreda and Zonal Water Office can provide advice and technical support to the Boards and Water Office, there is no appointment of representatives by such external bodies, making the Rural Water Board a community-based management model. However this community-based model benefits from economies of scale to take a more professionalised approach to managing their water services.

WaterAid Ethiopia was a pioneer of the Rural Water Board model in Ethiopia, implementing this approach in the multi-village schemes it supported in Oromia Region from 1994, and has since scaled the model to the Benishangul-Gumuz Region. WaterAid Ethiopia has used the multi-village schemes in these regions as example projects to demonstrate the Rural Water Board model to the wider sector, supporting numerous cross-zonal and cross-regional learning visits. WaterAid Ethiopia has also produced numerous learning documents on the Rural Water Board model, which it has circulated and presented to the sector[9]. As a result of the learning exchanges and documentation activities, together with involving Regional Water Bureaus throughout the process, WaterAid Ethiopia has helped to build the platform for scaling-up of the model within regions, and across the country. With WaterAid Ethiopia's support over the last two decades, Oromia Region, Ethiopia's most populous and second largest region of the country, has fully institutionalised the Rural Water Board model, enacted legislation for the legalisation of Rural Water Boards, and has taken the approach to scale. Other Regions are also at various stages of testing and scaling the Rural Water Board model. WaterAid is widely credited in the sector for introducing the model, and as a Senior WASH Consultant at the World Bank (Ethiopia Office) remarked, "*when you think of rural water boards, you think of WaterAid*".

The examples of the Rural Water Board model implemented by WaterAid Ethiopia since 1994 have challenged the notion that communities are unable to manage larger and more complex schemes. Key examples of such WaterAid Ethiopia supported schemes are summarised in the table and narrative below:

Table 3: Examples of Rural Water Boards Supported by WaterAid Ethiopia

Rural Water Board Scheme	No. tapstands	Private connections	Water Users
Tereta	83	2,155	63,105
Gonde-Iteya	106	1,022	110,000
Robe-Meliyu	79	3,911	139,150
Hitosa	84	5,000	132,772
Ticho	48	440	26,000

Source: Bi annual Board meeting in Oromia, 2015

Figure 2: A map showing the locations of the Rural Water Board examples

- Hitosa, Oromia Region: The gravity flow scheme in Hitosa was originally constructed in 1994 with around 143km of pipeline. Twenty years on, the scheme is functioning relatively well, and the Rural Water Board through their own investments from revenues has expanded the system adding 88km of pipeline, and an additional 43 public taps. There are around 500 new domestic connections to the scheme per year[10]. The scheme currently has 107 permanent staff, 4.6 million Ethiopian Birr of savings

[9] These include a series of briefs on financial sustainability in Rural Water Boards (2001, updates 2010) and an article published in 2011 titled 'The Rural WASH Board – the Power from Within the Community.

[10] Whilst the expansion is positive in terms of number of users that are 'covered' by the scheme, it does raise concerns over whether such expansions are being undertaken in a planned manner considering the current and likely future water source yields. This issue is not limited to Hitosa, and is further discussed later in this report.

(approximately US$200,000), and serves 24 rural Kebeles and two towns, with a population of 132,772. The scheme has been operating now for over twenty years.

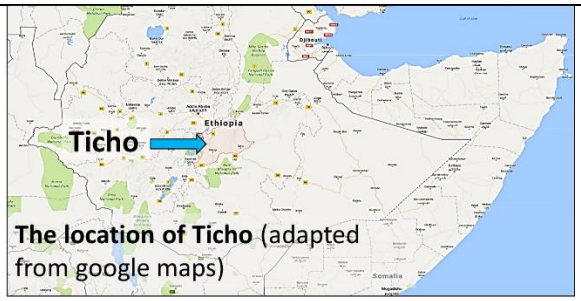
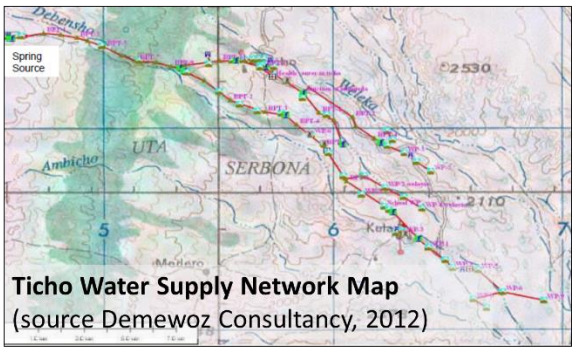
- Robe-Melliyu, Oromia Region: The scheme was constructed in 1996 with 80 public taps and 143 km of pipeline. The scheme currently serves 13 villages, with nearly 4000 domestic connections, and accumulated savings of ETB 3.8m (approximately US$160,000). The Robe-Melliyu Rural Water Board has received a national award from the MoWIE for its good management.

WaterAid Ethiopia undertakes Post Implementation Monitoring (PIMS) in schemes it has supported in the past. An (unpublished) 2014 PIMS survey identified that 10-20 years after construction, functionality rates of these systems are still very high. The data suggests 100% of the water points of the water supply schemes in Robe Meliyu were functioning, while schemes in Gonde Iteya and Terreta were at 85% and 95% functionality, respectively.

The sustainability of the Water Board model – the example of Ticho Rural Water Board

The remainder of this document focusses on the case study of the 'Ticho' Rural Water Board, and identifies a number of success factors which can be built on to address the broader challenges facing the rural water sub-sector in Ethiopia. Ticho's spring-fed gravity water scheme is located in Arsi Zone, Oromia Region, serving two towns and four rural Kebeles within one Woreda, covering a population of around 33,000 people.

Table 4: overview of the Ticho Water Supply Scheme

Quick Facts on the Ticho water supply scheme	
 **The location of Ticho** (adapted from google maps)  **Ticho Water Supply Network Map** (source Demewoz Consultancy, 2012)	• Constructed in phases between 2006-2012 • WaterAid Ethiopia total project expenditure was around ETB 19m (around US$800,000) • 6 springs, 16.6 litres per second total yield • 80.4 km pipe network, 8 reservoirs totalling 325m^3 storage capacity • 4 Kebeles, 2 towns, and a total scheme coverage of 33,000 people • 55 public tap stands; 1,231 domestic connections; 36 institutional connections • 2 public shower blocks; 2 laundry washing facilities; 3 cattle drinking troughs • 20 full time staff (11 men, 9 women), 51 contract workers (tap stand operators and shower attendants – all women)

Ticho's relatively high yielding spring sources have allowed the Rural Water Board to extend the network to new customers and areas, so far reportedly without supply shortfalls. Since construction in 2012 the Rural Water Board has added 5.4km of pipeline and 8 new public tap

stands[11], and increased the number of private connections from 200 in 2012, to 1,267 in 2017. In terms of scheme performance, the Ticho Water Office (of the Rural Water Board) reports 100% functionality of the 55 public tap stands; the duration of system breakdowns averaging less than 1 day, with a maximum of 3 days for major failures; private connection customers receive a 24/7 service in terms of water availability; and the public taps are operated for six hours per day.

Financial sustainability

At the time of system design, WaterAid Ethiopia commissioned a consulting firm to develop a full business plan, projecting demand (and subsequent revenues), supply and likely expenditures over a 20-year period. This formed a basis for guiding community decisions on the initial tariff to be set. Since the initial business plan, the Board's Water Office Manager produces annual statements of income and expenditures, and proposes a financial plan for the coming year, which the Board reviews and approves.

Figure 3: Annual Total Income of Ticho's Rural Water Supply Scheme (Note – the dip in 2015 was due to a large component failure which the RWB addressed within that year, at their cost)

Whilst WaterAid Ethiopia subsidised the initial running cost of the Board's Water Office for the first year (in 2012), since then there has been no external financial subsidy from WaterAid Ethiopia or government[12]. Annual revenues have increased steadily each year as the system is expended and more customers connect to the network. Using their own funds, the Rural Water Board has constructed an additional spring protection to increase supply to the scheme, extended the pipe network by 5.4km, and added an additional three public taps. In these expansion works they have been able to lever significant community contributions in terms of labour, materials and cash, amounting to around 50% of the total capital costs.

In addition to scheme expansion, the Water Office is investing on average around ETB 68,000 (around US$3,500) on capital maintenance works, to ensure the continuity of supplies. They are in the process of developing proposals to the Woreda for them to cost-share further expansion works, and thanks to the legal status of the Rural Water Board, they are theoretically able to access repayable finance (loans) if needed in future[13]. The Rural Water Board's legal status also helps it to have greater independence and autonomy in

Maximising financial viability and financial viability by catering for multiple uses

The Ticho water supply scheme has been designed to include public shower blocks, cattle watering stations, and public laundry washing facilities. These facilities were constructed at the time of the water system construction, are run by the Board's Water Office, and provide an affordable, well-appreciated service to the local population. They also provide additional revenue streams for the running of the water system: over the last five years these facilities have raised around ETB 117,000 (approximately US$ 5000).

[11] Of which three were financed by the Rural Water Board, and 5 by the Woreda administration
[12] Aside from the Woreda-funded construction of 5 public taps as part of a system expansion initiative
[13] For example from microfinance institutions, or potentially through the government-administered Water Resources Fund

financial matters, and helps them to ring-fence revenues generated for the use of the water system. This is in contrast to WASHCOs which commonly have pressure from Kebele officials to re-divert saved funds for other community development activities. As at July 2017, the Ticho Rural Water Board had accumulated savings of over ETB 890,000 (around US$38,000). They have already invested some of their funds in a Government Bond[14].

The water supply system in Ticho is fully metered, which facilitates accountable and accurate billing, with public taps operated by attendants who sell water to customers at a fixed rate (ETB 0.2 per 25 litre container – around US$ 0.01). The pricing is similar to other rural water points in the area, which charge ETB 0.15-0.30 (US$ 0.007-0.015) per 25 litre container. The tap stand attendants pay the Water Office for the bulk water they consume at the tap stand on a monthly basis, and keep 30% of the sales revenue as their own commission. For domestic and commercial metered connections, the tariff is based on a minimal fixed monthly rate, together with a volumetric rising block tariff, which ranges from ETB 8-13 (US$0.35-0.55) per cubic meter. The Board's Water Office reports that payment rates are an impressive 98%. This is because tap stand operators collect revenues at the point of collection, and there is also a financial penalty applied for late payments from tap stand attendants and households with private connections. The Zonal administration undertakes a tariff review every three years for the scheme, and proposes tariff amendment options to the Ticho Rural Water Board, which the Board decides on. Since its construction in 2012, and as recommended in the aforementioned Ticho Business Plan, there has been two such tariff increases, increasing from ETB 0.1 (US$ 0.005) per 25 litre container initially, to ETB 0.2 (US$ 0.01), which is the current rate, and is comparable as a tariff to other water supply systems in the area.

Increasing Domestic Connections through Revolving Funds

A series of studies by WaterAid Ethiopia on other water supply schemes using the Rural Water Board management model identified that low domestic water consumption was a hindrance to the commercial viability of the schemes. In Ticho, WaterAid Ethiopia promoted domestic connections as one way to increase service levels to users, and to increase water consumption (and hence commercial viability). However the costs of domestic connections are borne by the households, and the ETB 1,300 (around US$55) up-front connection cost proved prohibitively expensive for some poorer households. To address this, WaterAid Ethiopia provided ETB 20,000 (around US$1000) in seed funding into a Ticho Water Office-administered revolving fund for domestic connections. In this, households are able to apply for a loan from this fund, which they can pay back at a minimal interest rate over 12 months. Household applications are prioritised using the vulnerability criteria of the Board's Water Office, in consultation with the Kebele administration. To date around 175 households have benefitted from the revolving fund, and there has been a 100% loan repayment rate. The fund continues to revolve each year with the same seed money that WaterAid Ethiopia provided, helping around 20 poor households per year to connect.

WaterAid Ethiopia provided training to the Board's Water Office on financial management and billing, and Finance and Procurement Department of the Ticho Water Office employs ten staff (see Figure 4). The Board's Water Office purchases standard leger books for cash receipts, stock management and accounting, which all help to provide a robust paper trail of

[14] This is seen by the Board as a good investment for its accumulated savings, as there are hopes this mode of savings will yield high rates of return in future, helping the Rural Water Board to increase their financial base for future operations and investments.

transactions. The Woreda administration undertakes an annual audit of the Ticho Water Office on behalf of the Board, which complements the frequent internal audits done by the Board's Executive Committee.

Institutional sustainability

The phrase 'big is beautiful' is certainly applicable to Ticho, and to the Rural Water Board model generally. The size of Ticho's scheme (and therefore its revenue stream) allows it to employ skilled personnel to manage the scheme, and its size and legal registration also allows it to receive the same level of monitoring and support from the Zonal authorities as the urban utilities receive.

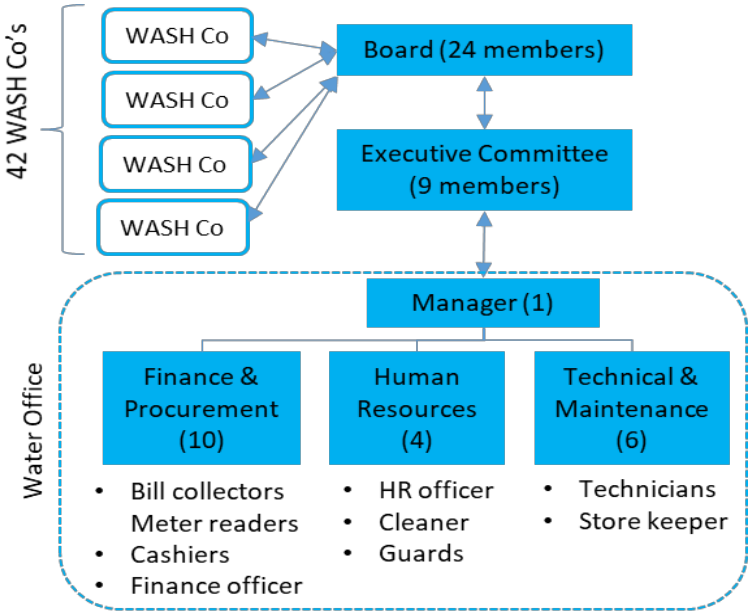


Figure 4: Organisational Chart for Ticho Rural Water Board

WaterAid Ethiopia has provided considerable sector support at the Ministerial and Regional levels for the legal establishment of Rural Water Boards, and has produced documented learnings on the process[15]. As part of the process, WaterAid Ethiopia supported a gaps analysis of existing legislation. This found that there was no clear proclamation that provided for the powers and functions of rural domestic water supply users associations, despite sector policy at the time stating the management of rural water supplies should be devolved to the lowest possible level. Following this analysis, WaterAid Ethiopia advocated to the regional authorities to develop legal proclamations, and provided technical assistance to do so. To date five regions have adopted such legislation[16]. WaterAid Ethiopia has further provided considerable support to two Regions (Oromia and Beneshangul Gumuuz) to enact and operationalise the legislation, and has encouraged all of its supported Rural Water Boards to legally register themselves. The legal status means the Rural Water Boards/Water Office can be audited and held legally accountable for their actions, they can legally own acquire and sell assets, they can delegate the management of their assets, and

[15] Decentralization WASHCO Legalization Documentation the case of Benishangul Gumuz Region (WaterAid, March 2015); WASHCO Legalization experience sharing documenting Tigray Regional Water Resources Bureau visit to Benishangul Gumuz Region (WaterAid , 2015)
Policy brief Legalization helps WASHCO achieve more, (CCRDA Water & Sanitation Forum November,2012)

[16] As an example of content of the legislation, the proclamation in Southern Nations Nationalities and People's Regional State (SNNP) includes legal clarifications on: the membership and function of the associations, their mandates, the process of legal registration, the basis of forming federations of associations, modes of revenue generation, provisions for auditing, clarification on asset ownership, and the protocol for dissolution of the associations.

they can access repayable finance – all aspects that the smaller WASHCOs struggle to achieve.

The number of staff in Ticho's Water Office has grown from six in 2012 to 20 in 2017, and adequate remuneration (which follows civil service protocols, including pension provision) helps to retain skilled staff. Many of the staff have been involved in the system construction and management since the system was constructed, and have been internally promoted as their capacity increases. WaterAid Ethiopia constructed the Ticho scheme in phases, operating from a project sub-office in Ticho for a number of years. This has allowed not only technical training to the Board and Water Office Staff[17], but also provided sustained on-the job learning, mentoring and technical assistance. WaterAid Ethiopia has also supported post-project learning and refresher trainings, as described in the text box below. WaterAid Ethiopia helped the Ticho Board's Water Office to develop internal processes such as stock and financial management, and in some of the larger Rural Water Board managed schemes such as Hitosa, WaterAid Ethiopia also provided customer billing IT software. The Ticho Water Office Manager remarked that "*The relationship (between the Rural Water Board and WaterAid Ethiopia) is like a family – they (WaterAid Ethiopia) are the parent and we are one of its children*". Whilst this shows the commitment that WaterAid Ethiopia had to provide long-term mentoring and support, it does pose a challenge for scaling of the model within the sector, where others (particularly government) may not always be in a position to provide such intensive and sustained support. Ongoing support may be available to a certain extent from Regional and Zonal administrations, however they often struggle to support rural water supply service providers to the extent which has been provided by WaterAid Ethiopia to date, due to limited resources.

Establishing peer-peer learning and competition between the Rural Water Boards

WaterAid Ethiopia supported Annual meetings of all Boards and Zonal and Regional Water Bureaus in Oromia over a period of 10 years. They also supported learning exchange visits to well performing boards (within and between regions), allowing peer-peer learning, and demonstrating 'model' water boards which other new or poorly performing Rural Water Boards could aspire to. The Rural Water Board's legal status allowed them to be included within the wider support and monitoring that Government Water Bureaus/Offices provide to the urban utilities. Even after the WaterAid Ethiopia support had wound-down, the Arsi Zone in Oromia (in which Ticho is located) continues to conduct quarterly meetings of all utilities and Rural Water Boards in the Zone, reviewing common challenges and progress, sharing experiences and best practice, and even organising inter-board performance competitions. This strengthens the linkage between the Rural Water Board/Water Office and the Water Bureaus in case of need for future support, allows Zonal oversight to ensure performance of the Rural Water Boards, and also strengthens informal 'peer' support networks between the various utilities and Rural Water Boards.

Whilst much of the operational challenges of managing Ticho's water system are handled by the Board's Water Office, and support provided by the Board (e.g. in terms of community

[17] Board members were trained for 3 to 4 days on governance of water supply services, whilst the Water Office staff received numerous trainings, covering financial management, financial planning, billing, stock management, operation and maintenance, water quality, sanitation and hygiene, Integrated Water Resources Management, Early warning and disaster prevention, and community participation. WaterAid Ethiopia also provided guidance manuals on the various topics for the Board and Water Office to retain for future use, which are particularly useful for orienting new staff or Board Members.

mobilisation and decision making), the Zonal Water Office provides Ticho with additional technical support where needed, and also undertakes performance monitoring[18]. The size and capacity of the Rural Water Board and Water Office in Ticho means that they arguably have stronger capacity than the Woreda in terms of water services management. As the Ticho Chief Technician remarked, "*We have enough skills to maintain our system, we can even give skills to the Woreda*".

Unlike the WASHCO model, the Rural Water Board approach includes clear incentives for performance. The Water Office Manager is appointed and managed by the Board, and can also be replaced in the case of poor performance. With the utility grading structure of the Government (which the Rural Water Board is also part of), there is an incentive to grow and improve performance as a Rural Water Board, as this allows the grade ranking of the utility/Rural Water Board to increase (e.g. from a Grade 6 to a Grade 5). With the increasing grade comes higher pay scales for the Board's Water Office Manager. The inter-utility (and Rural Water Board) competitions organised by the Zone and Region are also incentives for the Rural Water Boards to excel.

The Rural Water Board model separates roles of service provision (the Water Office) and service governance (the Board), and provides a good basis for downward accountability to the users. Each individual WASHCO member is elected by the community, who then elect representatives to serve on the Board. Unlike the urban utilities, there is no appointment of Rural Water Board members by the Government, meaning that accountability of service provision continues to be focussed on its users[19]. Whilst this can reduce (external) political interference in the running of the water schemes, there may still be local political influences in the Board. The Board members are elected every two years, and have a maximum four-year term. In Ticho there have been ten examples since 2012 when Board members were replaced due to poor performance, showing that they are indeed accountable for their activities.

Environmental and technical sustainability

Water scarcity is an increasing challenge in Ethiopia. In Ticho WaterAid Ethiopia undertook spring yield measurements at the time of construction, and the Zonal Water Office has been undertaking yield monitoring periodically since then. WaterAid Ethiopia has promoted catchment protection measures such as fencing, afforestation and land-use management around Ticho's springs, and the Rural Water Board has commenced the process with the Woreda to legally acquire the land around the springs, to help in their efforts on catchment protection. As the Board members are based across all communities served by the scheme, they form a good base for community consultations and efforts for catchment management measures. They also facilitate rapid reporting of leaks by customers to the Board's Water Office. As all domestic connections and public taps in the Ticho scheme are metered, users tend not to waste water. The system is metered at the source and at distribution points, enabling the Water Office to monitor leakage throughout the water system[20].

[18] However as further discussed in this report, the Zonal Offices often have limited resources to support the Boards to the extent that WaterAid has been doing, posing some challenges for future scaling by the Government alone.

[19] Although as stated previously, the Woreda and Zonal authorities do have some activities of monitoring and regulation of the service provision, meaning the Rural Water Board is accountable 'upwards and downwards'.

[20] Such as through water balance audits, balancing meter readings from bulk flow meters at the sources with metered consumption, and identifying irregularities. However this leakage investigation is not yet

The Water Office has considerable in-house technical capacity, with a team of five technicians, who were trained and equipped with tools by WaterAid Ethiopia. Most of this team were employed as labourers during the construction phase of the project, and hence have good knowledge of the construction and layout of the scheme. The 2012 external evaluation of the Ticho project praised WaterAid Ethiopia for the good technical standard of the water supply infrastructure.




Photos (left to right): An example of a customer bill; payment of the bill in the Water Office by a customer; maintenance activities; an example of a public tap stand meter.

The Water Office maintains a stock of spare parts, and the Store Keeper monitors stock levels and replenishes when running low, to ensure there are always parts available in case of any breakdown. This avoids long system down-times while purchasing repair materials from the market. The Water Office projects its anticipated maintenance and likely repair works for the coming year, and makes annual competitive procurements. In addition to increasing cost efficiency, such consolidated procurements help the Water Office to access larger suppliers to obtain materials which are not readily available in local markets.

Social sustainability

The arrangement of Board members located across the water system means that each individual community can be informed of the 'bigger picture' of the overall water supply scheme, and therefore understand how this impacts on the services provided or costs in their respective community. This is important for a model which focuses on centralised management of the service.

WaterAid Ethiopia promoted transparency and accountability in its trainings, and emphasised the importance of annual audits of the Water Office's accounts. The presence of WASHCOs and Board Members in each community allows clear communication channels from users upwards to the Board and Water Office, and downwards back to the communities. To further stimulate feedback from users, as suggested by WaterAid Ethiopia, the Water Office has also established feedback and complaints boxes in both of its branch offices.

The community management arrangements of the Rural Water Board, together with an extended period of community mobilisation by WaterAid Ethiopia in the project, and the considerable community contributions made towards the cost of infrastructure[21] mean there is

practiced, in part because the spring yields continue to exceed demand. However such water auditing is likely to be done in future as the network is progressively expanded and demands start to meet or exceed dry-season yields.

[21] Community contributions (in kind and in cash) was around 10% of the total cost of the initial construction of the scheme, around 50% of the total cost for the scheme expansion, and individual

a high sense of ownership by the community of the water scheme. Since construction, a number of community by-laws have been established, covering issues such as infrastructure vandalism and illegal connections.

Photos (left to right): Collecting water at one Ticho's the public tap stands; one of the six protected springs; The public shower operator in one of Ticho's shower facilities; a domestic water connection, Ticho town.

In terms of social inclusion, the Ticho scheme provides two levels of service (domestic connections or public taps) allowing customers to select the level they can afford, and the revolving fund established by WaterAid Ethiopia helps low-income households to connect to the water system. The Ticho Rural Water Board also strives for female empowerment and inclusion, with 50% of Board steering committee members, 45% of the Water Office staff, and 100% of the tap stand operators being female. This is impressive in a country ranked 121 of 134 countries in a 2010 global study on gender disparity (UN Women 2013).

Conclusions and future perspectives

The Rural Water Board model, innovated in Ethiopia by WaterAid, helps to challenge the conventional notion that communities are not able to manage large or complex water supply schemes. The model benefits from economies of scale to employ a skilled team of staff to effectively run the water scheme, and the Board ensures governance and accountability of the Water Office-led service provision. WaterAid Ethiopia has strengthened the links with the Woreda, Zonal and Regional authorities, allowing them to undertake external monitoring, and to provide ongoing support to the Rural Water Boards. The increased scale of the Rural Water Board helps it to avoid many of the institutional, technical, financial and social issues commonly faced by the smaller WASHCOs. The particular case of Ticho provides concrete evidence for a number of success factors which can be built on to address the broader challenges facing the rural water sub-sector in Ethiopia, whilst recognising that the example will not be applicable to all water resource or demographic contexts in the country. Key aspects or ingredients for success in Ticho have included:

- Lack of direct political interference (no external appointments of Board members) and public accountability of board members
- Legal registration
- Performance based incentives (through inter-Board or Utility competitions organised by the Zonal Office)
- Metering for all household connections and public taps
- Clustering of management and economies of scale

households pay the full cost of their domestic connections and water meters. Connection fees are charged as a percentage of the material cost required for the connection of the line

- Staff skills and retention
- Ongoing monitoring, training and peer-peer learning between Rural Water Boards/utilities

WaterAid Ethiopia has been instrumental at introducing, demonstrating and scaling the Rural Water Board model in Ethiopia, and is currently in the process of advocating for its inclusion as one of the range of service delivery models recognised in the national Integrated Water Resources Management Policy and Strategy, which is currently being updated.

However no service delivery model is without its flaws, and there are certainly opportunities to continue to refine and strengthen the Rural Water Board model as it is progressively scaled. In future there will be need to strengthen aspects such as:

- The autonomy of the Rural Water Board from the Zonal administration, especially on tariff related matters;
- The strengthened focus on water resources management, for example: at design stage to fully understand recharge and the features of the source catchment areas, and to factor in environmental flows; and during scheme operation to monitor (and keep records of) yields, environmental flows and recharge; and to ensure ongoing efforts on catchment protection;
- The focus on the issue of leakage management; and
- Establishing performance management arrangements between the Board and their Water Office.

There is also the common challenge of local residents and politicians pressuring the Rural Water Boards and their Water Offices to continue to extend their pipe networks into new communities, sometimes regardless of the current and projected yields of the available water sources, and the potential impact on financial viability. Given local stakeholder dynamics, it is not always possible to resist such demands. The expansion of the schemes, both into new areas and communities, or through increasing the number of individual connections, puts pressure on the existing (limited) source yields, and can result in reduced service quality in areas that are already served by the scheme. Such expansions are not always strategically and systematically planned for, and such strategic planning should be an increasing component for support to the Rural Water Boards in future.

However, possibly the greatest challenge in terms of scaling up the successes of the Rural Water Board model for multi-village schemes is in the role of WaterAid as an external driver and catalyst. Over many years WaterAid Ethiopia has provided intensive and sustained capacity building, together with providing support and mentoring following project completion. As other organisations take on the Rural Water Board model in their programmes, they may not be able to provide such extensive or sustained capacity support.

The challenge going forward is therefore to learn from and take up the most successful aspects of the WaterAid Ethiopia-supported approaches, and to fully institutionalise these elements of long-term support within permanent institutions. In a context where the ONE WASH programme has allocated just 2% of spending on post construction support for rural water supply, there will need to be considerable advocacy for this allocation to be increased in the coming years.