

Managing sustainable rural water supply in Ethiopia

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Introduction

General

Ethiopia is a country with a current population of 63.5 million and with a 3% population growth rate. In rural Ethiopia, which comprises 85% of the total population, water supply and sanitation coverage are limited to 23 and 7%, respectively (MoWR 2002). In a country where rural settlement is dominantly rural, a lot of effort is required to change the low profile as indicated in Table 1 below.

Table 1. Comparison of selected indicators.

Selected indicators	Ethiopia	Low income countries
GNP per capita	US\$ 91.5	US\$ 360
Life expectancy (LE)	49 years	56 years
Adult illiteracy	65%	46%

Source: World Bank (1996).

Figure 1 shows the trend of water supply coverage of selected African countries as compared with Ethiopia. The gross national product (GNP) increase to more than US\$ 300 to cross the 50% coverage line set to be the global target for the poor.

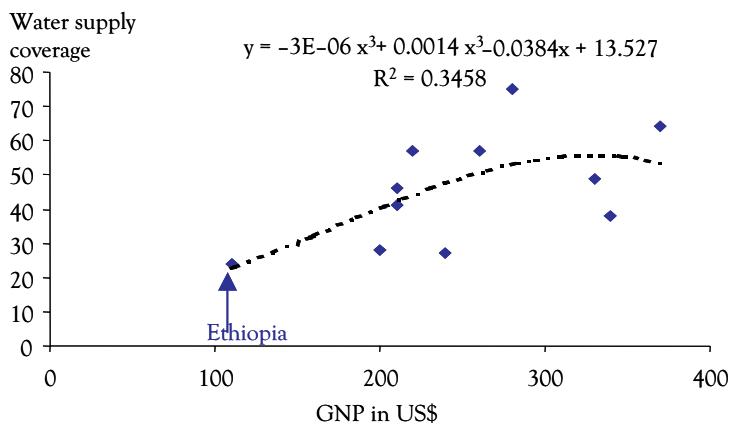


Figure 1. Trend of water supply coverage for selected African countries.

Background

CSA (1998) reported that in rural areas, less than 15% of the people had access to safe water. The difficulty in finding appropriate water sources coupled with scattered settlement patterns and nomadic lifestyles significantly influence the opportunity to increase and sustain access to water for the rural population.

This study is aimed at finding solutions to the anticipated problems that were hindering sustainability in four pilot regions, i.e. Amhara, Benshangul, Oromiya and Southern regions where access to water supply has declined as per the Central Statistical Authority's (CSA) 1998 data.

Physical resources base

Water resources potential

The annual runoff from 12 river basins is estimated at 123 billion m³ whereas the ground water potential is about 2.6 billion m³. Ethiopia contributes >85% of the Nile River water (MoWR 2000).

Water quality

Turbidity, fluoride and nitrate are the major problems.

Issues

The major issues in the Ethiopian rural water supply intervention are the following:

- sustainability (more than 30% of the schemes are not functional)
- ability to pay
- stakeholder participation
- capacity building
- technology choice
- livestock watering.

Problems

The study based on the actual conditions of the 40 typical schemes surveyed in the four sample regions has proved that the problems of rural water supply reliability fall under:

- lack of finance
- lack of skilled manpower
- inadequate stakeholders participation
- lack of co-ordination amongst stakeholders

- lack of well institutionalised set up and appropriate regulatory framework and
- poor infrastructure.

The study further indicates that the software and hardware aspects of rural water supply are not treated in a balanced manner. This has an adverse effect as population is increasing at 3% while sanitation is at a virtually non-existent level. The study also highlights that social work incorporating sanitation awareness, birth control, gender, community ownership and management that addresses these problems to the grassroots level shall soon be launched thereby ensuring the reliability of access to safe water sources. Neglecting software aspects is putting a snare that thwarts the relentless effort of some regions that have partially succeeded in constructing a relatively larger number of schemes (Getachew 2002).

Objectives of the study

The initial objective of this study is the building of community management models that could contribute to the strengthening of management at scheme level thereby ensuring improved reliability of water supply service in the four selected regions.

The ultimate objective is the replication of findings to other regions to improve access to water supply through community management at a national level.

Accordingly, three-fold partnership amongst the community, as owners of the schemes, the government as the creator of enabling environment, Environmental Site Assessments (ESAs) and non-governmental organisations (NGOs) and donors as support organisations is presupposed to achieve sustainability.

Methodology

The methodology of the study included the following:

- problem identification using the problem tree
- setting of objective using the objective tree
- survey on performances in relation to sustainability and coverage
- literature review on reliable community managed schemes, stakeholder participation and appropriate technology
- sustainability assessment in the four pilot regions using spread sheet and SWOT analysis
- spread sheet and Multivariate analysis of the collected data for confirming correlation. Use of SPSS version 8
- building scheme level management models and determination of resource requirement.

Analysis of sustainability performance

The analysis has shown that emphasis on:

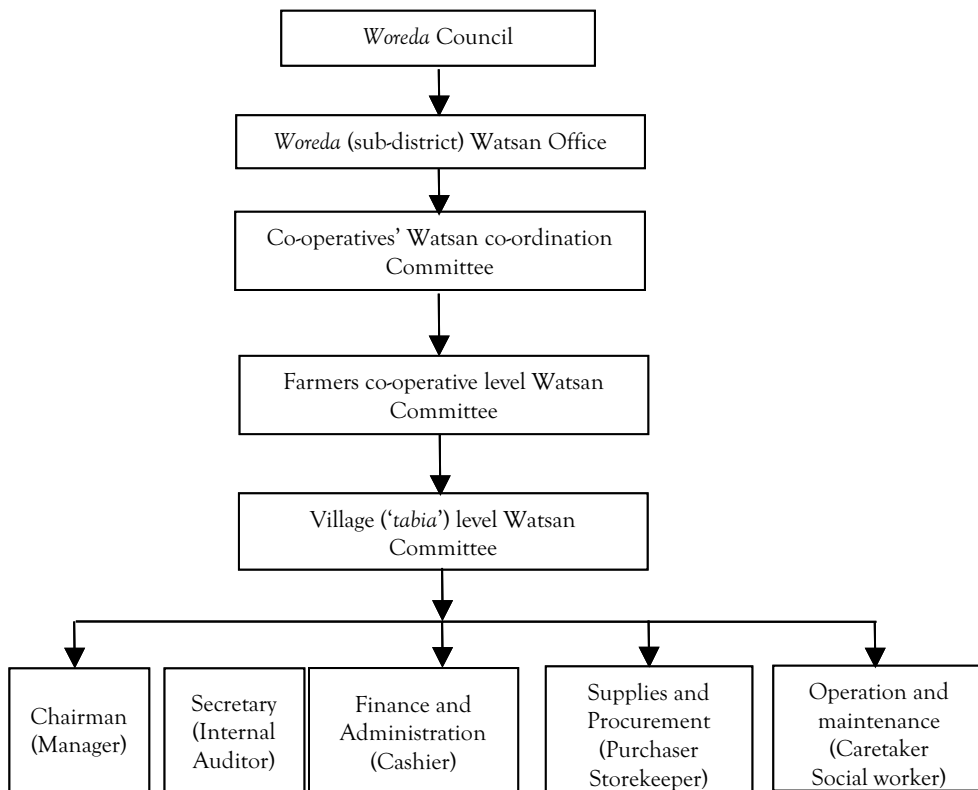
- community management supported by three-fold partnership

- cost recovery
- software (social) aspects
- technology choice and
- research and development is required.

Sustainability performances of the typical schemes in Amhara, Oromiya, Benshangul and Southern regions have displayed a correlation of high order. Therefore, more or less similar scheme level management models can be prepared for the four sample regions.

Management models

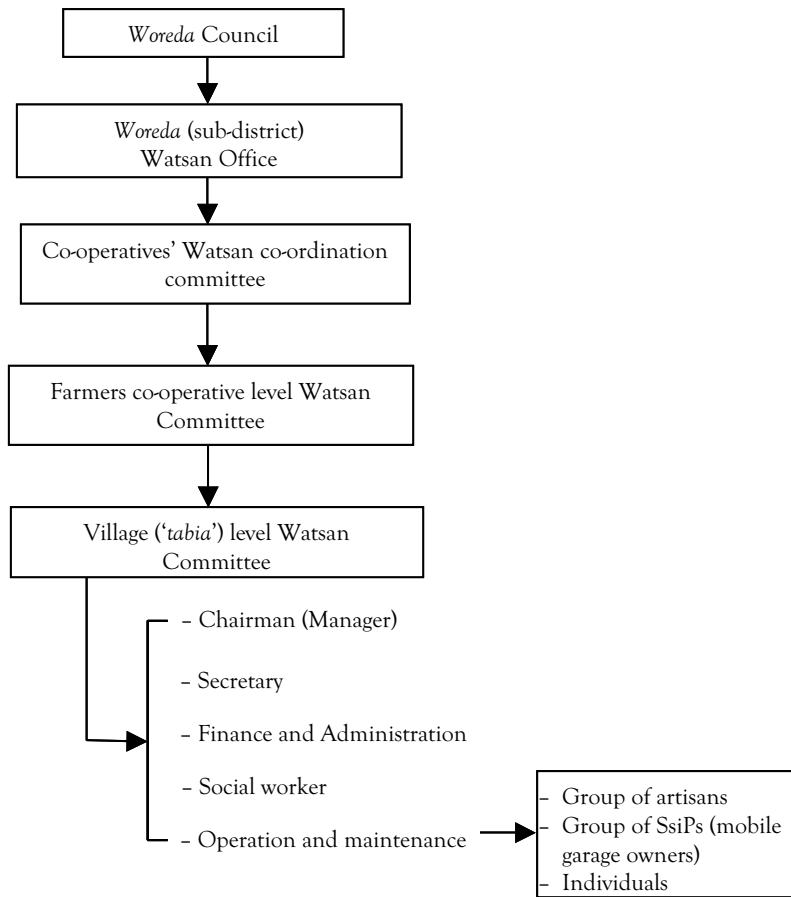
In harmony to the findings, community management models that can address the software and hardware aspects in a balanced manner are developed as shown in the two options below. Option 1 (Figure 2) makes use of *woreda* council, co-operative Watsan committee and village water committees among others.



Source: Getachew (2002).

Figure 2. Watsan committee structure (Option 1).

Option 2 (Figure 3) encourages public-private partnership by involving artisans, small-scale independent providers (SsiPs), individuals, garage owners etc.



Source: Getachew (2002).

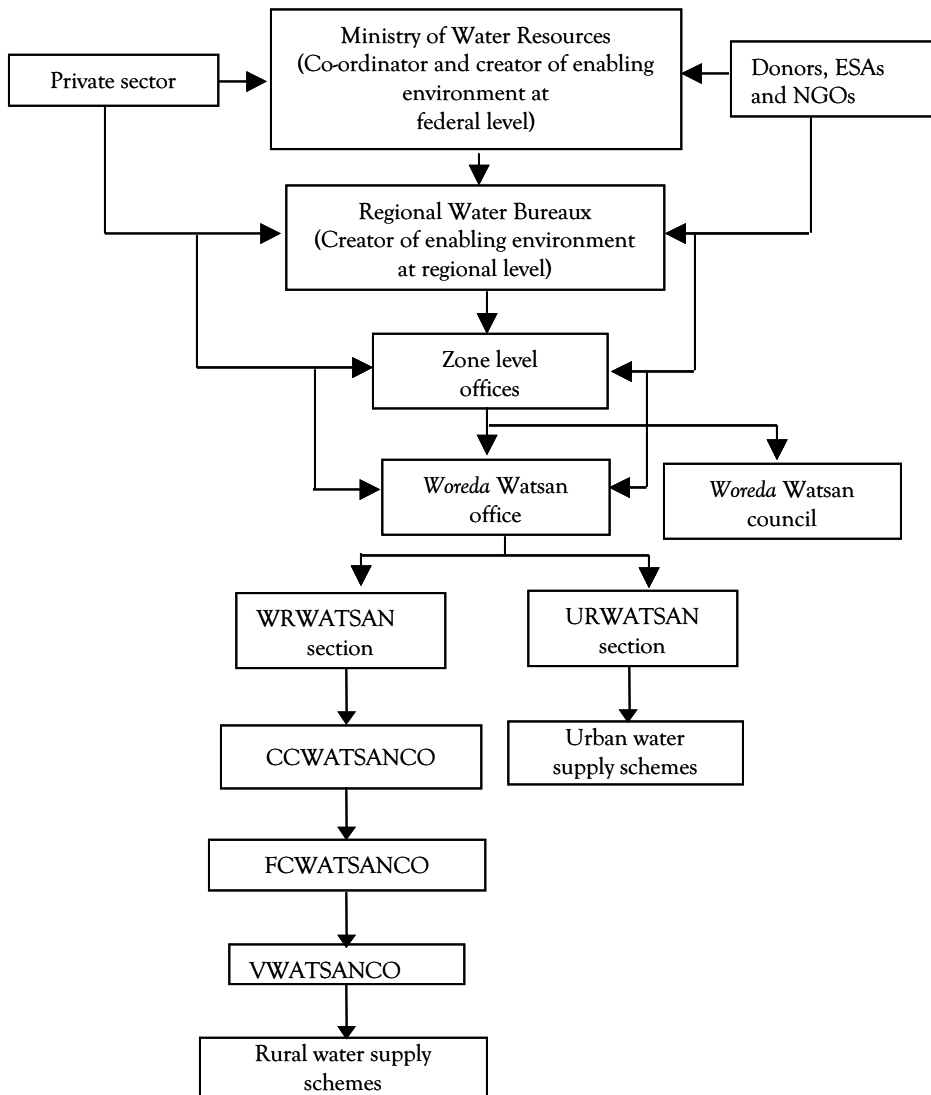
Figure 3. Watsan committee structure (Option 2).

Moreover, it would be worthwhile to introduce an organisational structure that looks as the one shown in Figure 4 below to have good co-ordination at all levels.

Resource requirements

As a supporting exercise, manpower that are required to provide safe water to 71% of the rural population by the year 2015 were estimated and shown in Figure 5.

The financial requirement as per the Water Sector Development Program is more than US\$ 2 billion ascertaining the need for cost sharing mechanisms as shown in Figure 6.



Source: Getachew (2002).

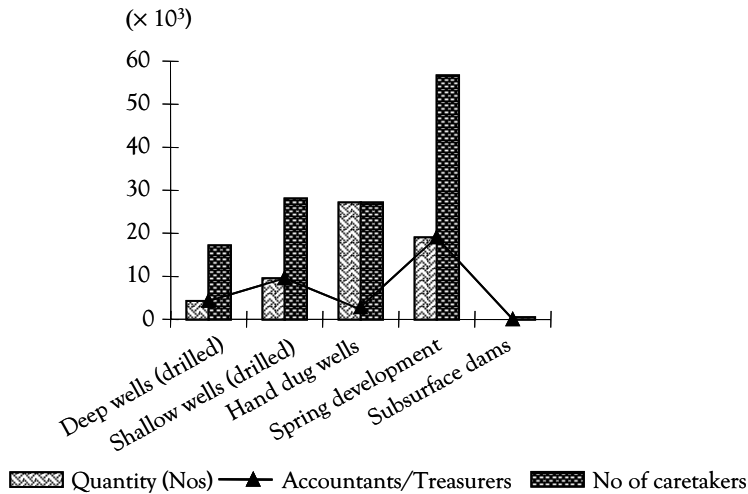
Figure 4. Proposed organisational chart.

Appropriate technology and use of renewable energy

The huge resource requirement to develop sustainable water supply calls for the use of appropriate technology and renewable energy that focuses on shallow wells, springs, Village Level Operation and Maintenance (VLOM) hand pumps, windmills, solar pumps etc.

Rural water supply (RWS) fund model

In early 2002, the water resources fund designed for urban water supply and irrigation was established in Ethiopia. Rural water supply that is put aside for government investment would require a fund model as shown in Figure 7 if a considerable improvement is required (Getachew 2002).



Source: HoWR (2002).

Figure 5. Scheme and manpower requirement to increase coverage from 23–71% by the year 2015.

Source: MoWR (2002).

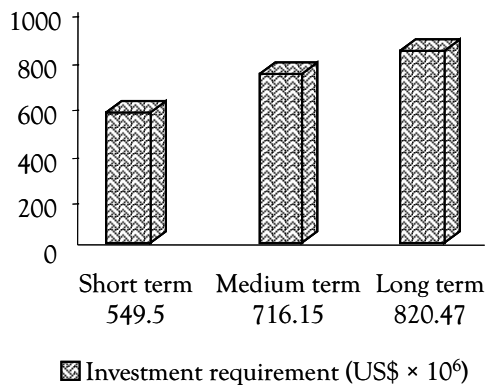


Figure 6. Investment requirement in (US\$ × 10⁶) up to the year 2015 to increase coverage from 23–71%.

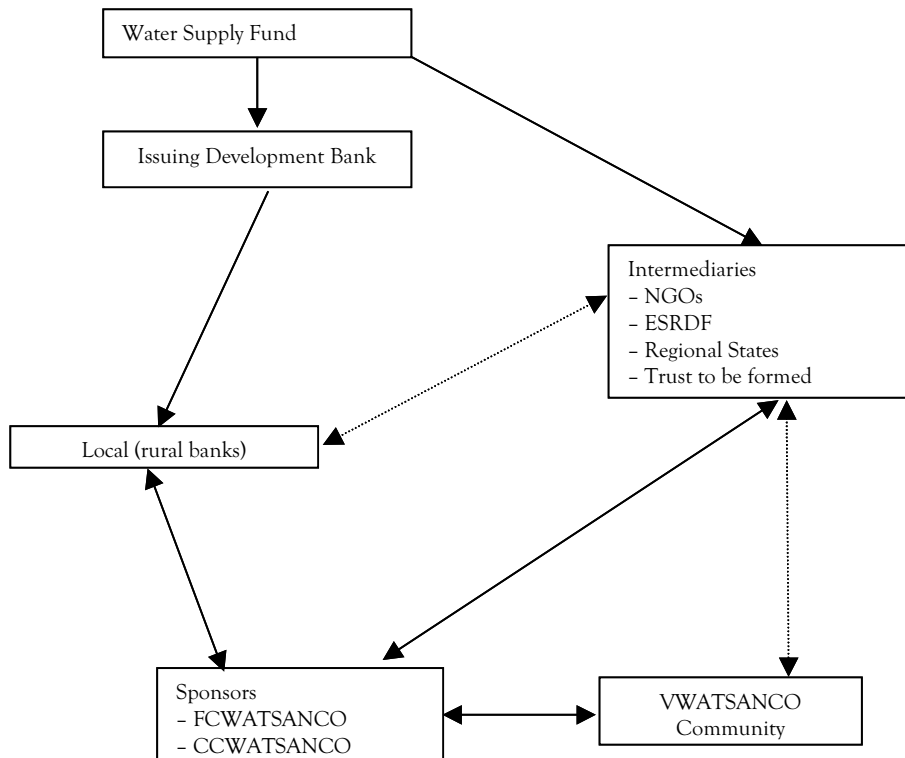


Figure 7. Rural water supply (RWS) fund model.

Sustainability process

Figure 8 summarises how sustainability could be achieved in Ethiopia. The figure considers sustainability as a continuous cyclical process. The more the cyclical process the better the sustainable and reliable water supply services would become (Getachew 2002).

Conclusion

Building financial capacity requires a three-fold partnership amongst the regional states as the creators of enabling environment, the community as owners of the schemes and ESAs and NGOs as support organisations as highlighted by the National Water Sector Development Program once the models are introduced. A well-organised and equipped *woreda* office that can play a leading and productive role in tackling the problems shall replace remote follow-up from the regional and zonal offices. A water supply and sanitation fund that will have its branches at least at regional level shall be established to build its own financial capacity. International donors are also expected to support the effort by providing soft loans and grants possibly through the Nile Initiative Programme, donor conferences and poverty alleviation programmes. Technically, the launching of adaptive research and

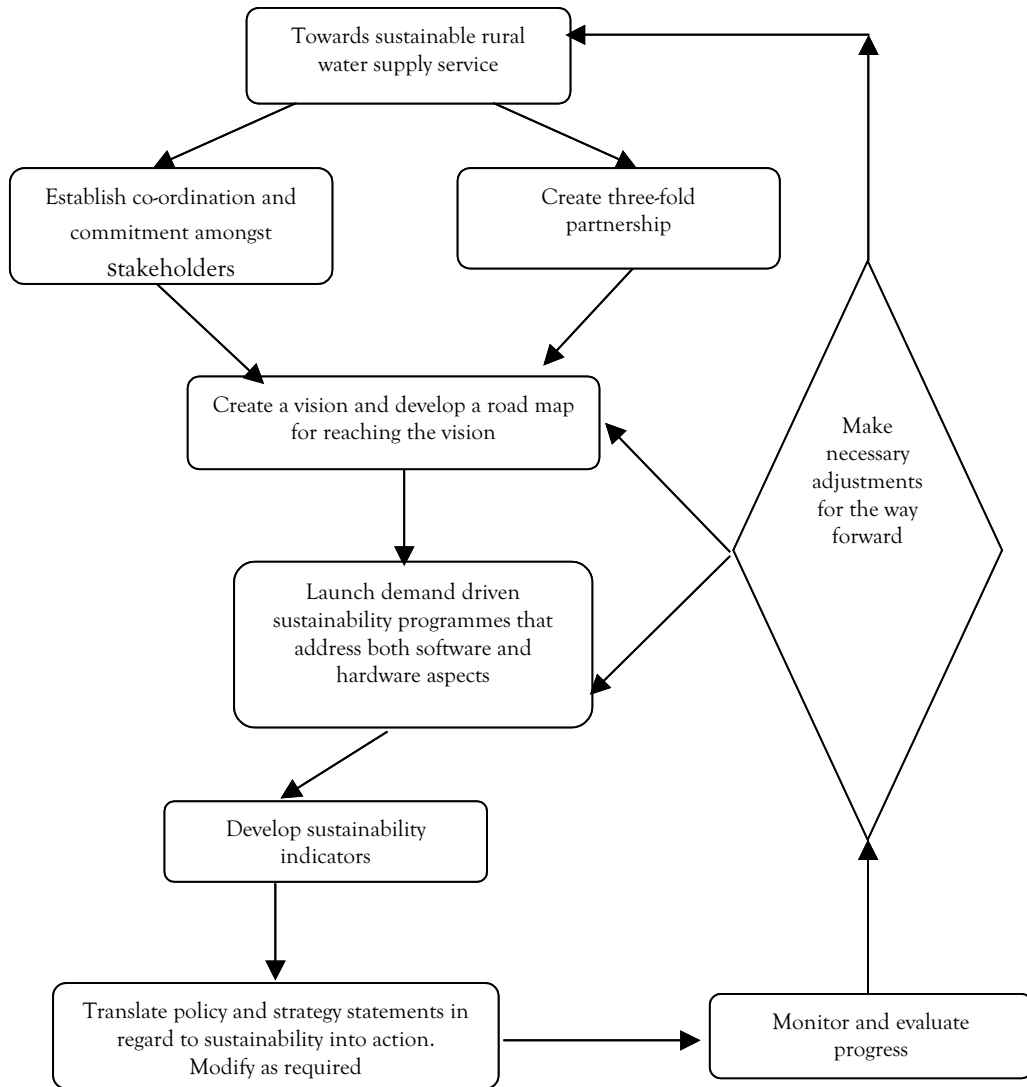


Figure 8. Sustainability process.

development in the water sector that enables the use and provision of appropriate technology, VLOM pumps and spare parts at an affordable rate is required.

In conclusion, a dedicated effort that involves community empowerment, full-scale community participation and the mobilisation of all stakeholders in integrated development with water as a focal point is required to improve access to reliable rural water supply services in Ethiopia.

The way forward

For success in the improvement of sustainable water supply coverage, the country needs to give attention to the following major actions:

- accelerated and integrated development of sustainable and reliable rural water supply services
- formation of co-operatives or water user's association
- balanced action on software and hardware aspects
- replacement of supply driven approach with demand responsive approach that could start with affordable cost sharing initiative
- implementation of the models and the above-mentioned prerequisite activities for achieving reliable service
- replication of the findings to other regions based on consultative process
- integrated development to boost up the economy
- promote public-private partnership that will eventually lead to privatisation
- establish three-fold partnership amongst the community, government and support organisations and
- special consideration for the drought affected and nomadic community.

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