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Mission Report

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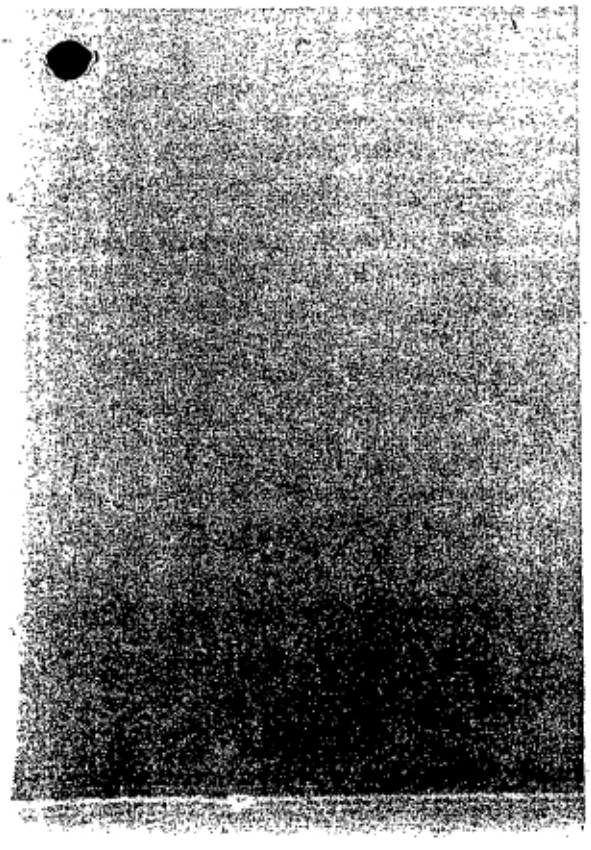
Domestic Water Supply Programme
Morogoro Region

Enhancing Sustainability of Piped Water Supply in Rural Tanzania



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ABBREVIATIONS AND ACRONYMS

AGM	Annual General Meeting
ARI	Agriculture Research Institute
BOD	Board of Directors
BC	Business Connection
CDO	Community Development Officer
CWC	Central Water Committee
DANIDA	Danish Development Aid
DAWASA	Dar es Salaam Water Supply Authority
DC	1. District Commissioner; 2. District Council
DED	District Executive Director
DfID	Department for International Development (UK)
DLDO	District Land Development Officer
DPM	District Program Manager
DWE	District Water Engineer
DWP	Domestic Water Point
DWSP	Domestic Water Supply Program
ESA	External Support Agencies
FDR	Fixed Deposit Reserve
GoT	Government of Tanzania
GPS	Global Positioning System
GTZ	German Technical Development Agency
HC	House Connection
HESAWA	Health through Sanitation and Water (a Sida-supported Aid Program in Mwanza, Kagera, and Mara Regions)
HRD	Human Resources Development
HTM	Handeni Trunk Main (Project)
IRC	IRC International Water and Sanitation Centre, The Netherlands
KfW	German Development Fund Agency
KIA	Kilimanjaro International Airport
KSC	Kilombero Sugar Company
LG	Local Government
Ltd.	Limited
MATI	Mlingano Agriculture Training Institute
MLGRA	Ministry of Local Government and Regional Administration
MoU	Memorandum of Understanding
MoW	Ministry of Water
MP	Member of Parliament
mth	Month
NETWAS	Network for Water and Sanitation International
NGO	Non Governmental Organization
NRWP	National Rural Water Policy
O&M	Operation and Maintenance
RBWO	Rufiji Basin Water Office
RC	1. Regional Commissioner; 2. Roman Catholic
RNE	Royal Netherlands Embassy
RSC	Regional Steering Committee
RWAB	Regional Water Advisory Board
RWE	Regional Water Engineer

RWSE	Rural Water Supply Engineer
SIDA	Swedish International Development Aid
SW	Shallow Well
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TADDO	Tanga Diocesan Development Office
TANESCO	Tanzania Electric Supply Company Ltd.
TOR	Terms of Reference
TShs.	Tanzania Shillings
TWSSC	Tanzania Wells Service & Supply Company Ltd.
UBWS	Uroki-Bomang'ombe Water Supply
UCLAS	University College for Lands and Architectural Studies
ULOM	User Group Level Operation and Maintenance
VAT	Value Added Tax
VEO	Village Executive Officer
VETA	Vocational Education Training Authority
VG	Village Government
VWC	Village Water Committee
WAMMA	WAwezeshaji Maji, Maendeleo ya jamii, Afya
WEDECO	Water and Environmental Development Company Ltd.
WEO	Ward Executive Officer
WRI	Rwegarulila Water Resources Institute
WSC	Water Supply Company
WUA	Water User Association
WUG	Water User Group

1. INTRODUCTION

The District Domestic Water Supply Programme in Morogoro and Shinyanga Regions (DWSP) is a joint programme of the governments of Tanzania and the Netherlands. The programme started on March 1, 1993, and aims at improving living conditions of people in the two regions by providing adequate (sufficient and safe) water supply within reasonable distance of their homes and in a sustainable way.

The Prime Minister's Office is appointed as the Tanzanian Executive Authority in charge of implementation of the programme. For day-to-day matters the programme is implemented under guidance of and in co-operation with regional and district governments. The Royal Netherlands Embassy in Dar es Salaam is the Executive Authority of the Netherlands for the programme. DHV Consultants BV has been appointed for the actual execution of the Programme. The DHV team-leaders are representing the Embassy as far as the daily operations under the programme are concerned.

DWSP was initially to last for a period of five years and end in 1998. However, the programme has been extended three times after the five year period was elapsed on the basis of annual work plans. The present work plans cover the activities of the programme in the Morogoro and Shinyanga regions in the year 2000.

On basis of the Annual Work Plan 2000 for the Morogoro Region, the direct involvement of the programme with the four districts of the region was terminated. Also since April 1, 2000, the programme does not pay specific attention anymore to the operation, management, and maintenance of shallow wells in the region that are fitted with hand pumps. The programme has engaged a private company, WEDECO Ltd., to store, distribute, and sell spare parts in the region, in particular for hand pumps but also for piped water supply systems and in-house installations. In the year 2000, WEDECO operates on behalf of the programme and is supported financially to set-up its operations. It is envisaged that WEDECO should become a self-sufficient operation soon after.

Since April 1, 2000, DWSP in the Morogoro Region focuses on support to about twenty autonomous water supply companies (WSCs) that have been established in the last few years for the management of rural water supply schemes rehabilitated with assistance of the programme. It concerns gravity and pumped schemes, where water is distributed to public taps (domestic water points, DWPs) and private connections by means of a pipe network. Some schemes are extremely small, for instance at Lukenge, a pumped system with only five DWPs serving some 250 households. Others are more reasonably sized with private connections exceeding 200 in addition to a few dozen DWPs (Ikela, Kimamba, Mikumi, and Ruaha).

In 1999 the programme initiated a study on the sustainability of a selection of the WSCs supported by DWSP through analyses of SWOT (Strength, Weaknesses, Opportunities, Threats) and sustainability risks. In the present year, the study has been continued by the programme to cover some more of the companies established. The general conclusion of all these studies was that most of the companies were not sustainable. A number of issues needed to be addressed to ensure long-term sustainability.

In other regions of Tanzania different types of entities have been instituted with respect to the management of piped water supply schemes in rural areas. It would be very useful to compare the alternative arrangements for rural water supply in terms of functionality, financial viability, and sustainability.

In this regard, DWSP proposed a short-term mission of a water supply institutional development expert to explore, substantiate, and document (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organisations in rural areas of Tanzania. Jo Smet of the IRC International Water and Sanitation Centre in Delft, The Netherlands, was requested to carry out the mission. During his mission, Mr. Smet has worked closely together with the regular full-time consultants of DWSP. Consequently this report may be regarded as a joint effort.

Within the framework of the mission DWSP organised and facilitated a national consultative workshop on sustainability of piped water supply in rural areas of Tanzania. Representatives of rural water supply organisations all over the country as well as of related central, regional, and district government institutions participated in the workshop. The papers presented, proceedings, conclusions, and recommendations of this consultative workshop are compiled in a separate report[1], but have constituted important inputs for the final mission report.

In order to be able to closely examine institutional alternatives for the management of piped water supply schemes in rural areas of Tanzania and their performance, DWSP has paid field visits to Mbeya, Iringa, Tanga, and Kilimanjaro regions[2]. Also in preparation of the national consultative workshop, DWSP has discussed alternative institutional arrangements and options for internal strengthening and external support with local government officials and chairpersons of WSCs in the Morogoro region as part of a regional workshop[3] aimed to create an enabling environment for the WSCs at local level.

The outcomes and conclusions of all these efforts of DWSP are combined in this report on ***Enhancing Sustainability of Piped Water Supply in Rural Tanzania***.

[1] Domestic Water Supply Programme – Morogoro Region, 2000. Workshop Report, National Consultative Workshop, Sustainability of Piped Water Supply in Rural Areas, Morogoro, September 25 and 26, 2000.

[2] Field visit reports annexed to this report as Appendices III, IV and V.

[3] Domestic Water Supply Programme – Morogoro Region, 2000. Workshop Report, Enabling Environment for Rural Water Supply Companies, Morogoro, July 25 and 26, 2000.

2. OBJECTIVES OF THE MISSION

The overall objective of the short-term mission of Jo Smet, Water Supply Institutional Development Expert, is defined in the Terms of Reference (TOR) for the mission:

> ***To explore, substantiate, and document (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organisations in rural areas of Tanzania.***

The focus is not just on DWSP in Morogoro region. Also institutional, management and operational experiences from other regions of Tanzania are to be considered. A strong institution and management structure is thought to be the foundation for sustainable piped water supply. Thus a comparison between different legal institutional options and management arrangements used in different regions in Tanzania will be made. As the main conclusion of the SWOT studies carried out by DWSP in 1999[4] and earlier this year was that sustainability is at risk for most companies in the Morogoro region, the present mission should come up with strategies for enhancing sustainability. Options to consider are internal strengthening of rural water supply organisations, strengthening by more intensive co-operation between organisations – possibly culminating in mergers or take-overs, or support by an external organisation, whether private, governmental, or federational.

The main tasks of the consultant as per TOR are:

- Evaluate the functionality, financial viability and sustainability of alternative institutional arrangements for piped water supply in rural areas of Tanzania.
- Organise and facilitate a consultative workshop to explore, substantiate, and document (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organisations in rural areas.
- Draft a mission report on (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organisations in rural areas.

The full Terms of Reference have been added as **Appendix I**.

[4] Domestic Water Supply Programme – Morogoro Region, 1999. Mission Report, SWOT Methodology Report on Sustainability of Water Supply Companies.

3. METHODOLOGY

The methodology of this mission included the following components:

- Review reports from SWOT and sustainability risks analysis carried out on the five additional WSCs in Morogoro region in 2000.
- Review the records of discussions and recommendations of local government officials and WSC chairmen of the Morogoro region during their July 25 and 26, 2000, workshop on Enabling Environment for WSCs.
- Review reports on visits made by the DWSP to Water User Associations in Mbeya and Iringa regions.
- Visit specific selected piped water supply schemes in Tanga and Kilimanjaro regions and analyse their institutional set-up and management arrangements.
- Organise a two-day national consultative workshop on ***Sustainability of Piped Water Supply in Rural Areas***.
- Analysis of the workshop papers, workshop deliberations, and group work results.
- Intensive internal discussions within the team of DWSP consultants.

The two-day national consultative workshop was organised in Morogoro on 25 and 26 September 2000. The programme and timetable has been attached for reference (**Appendix II**). A comprehensive workshop report has been produced separately by DWSP with all papers presented and including the results of the working group deliberations.

The workshop had specific themes for each day. On day 1 the workshop focused on institutional and management options and issues. Ten papers including the keynote were presented in plenary during the day and in an evening session. Five working groups discussed the themes of the day using key questions and a structured reporting format. On day 2 the emphasis was on strategies to strengthen, need for external support and possible providers of such support. Six papers were presented. The five working groups followed the same methodology is on day 1. Day 2 ended with a discussion on the way forward (recommendations) and scenarios for development.

The workshop concentrated on five main questions:

- What are the most suitable legal institutional options for rural piped water supply considering a set of key criteria?
- What are the best management arrangements in rural piped water supply considering a set of key criteria?
- What are common or specific operational successes, what are the factors contributing to these successes and how to enhance and secure success; and what are common or specific operational areas needing improvement, what are the factors contributing to these problems and what measures to take to improve these operational areas?
- What are the advantages and disadvantages of different identified strategies for strengthening the sustainability of institutions responsible for rural piped water service?
- What is the demand for external support for selected technical, environmental, organisation/management, financial/accounting, HRD and general issues, which institution can best provide that support, and would there be need for facilitation by a *'Federation' of (Rural) Water Supply Organisations*?

4. COMPARATIVE ANALYSIS OF INSTITUTIONAL OPTIONS

Eight institutional options being used in rural piped water supply schemes will be discussed and analysed in this chapter. They are:

- Water Supply Company Limited by Guarantee as used in Morogoro region,
- Water Supply Company Limited by Shares as used in Kiliwater Ltd.,
- Water User Association as used in Iringa and Mbeya regions,
- Trust as used in Hai district, Kilimanjaro region,
- Central Scheme and Village Water Committees as used in Tanga region in TADDO-supported schemes,
- District-operated water supply schemes,
- Central Government operated water supply schemes as in Handeni Trunk Main scheme,
- Conventional Village Water Committees, used all over Tanzania.

In the Consultative Workshop on Sustainability of Piped Water Supply in Rural Tanzania held at Morogoro on September 25 and 26, 2000, the option of a WSC privately owned[5] was included. This option is not further included in the analysis, it is not seen to be a realistic option to be applicable on a large scale in rural water supply settings. The private sector is not expected to invest in rural water supply in a way that it becomes majority owner. Investments are too large and profits are too small to attract the private sector at large. Although the private sector (or 'private' individuals) may be interested to run the system against a management fee, it is generally not likely to provide the funds needed for construction of a system. There may be exceptional cases, like a sugar estate funding water supply in neighbouring villages in order to create goodwill. In many of those cases, water supply will not be the core business of the private sector that will invests in it.

The analysis is also based on discussions held in Iringa, Mbeya, Tanga and Kilimanjaro regions with government and village officials and management, governors, directors, committee members and users of different rural water supply institutions. Field reports of these discussions are attached to this report (**Appendices III, IV, and V**). Use is also made of the case studies presented at the consultative workshop in Morogoro.

The comparative analysis uses the following parameters:

- Being a legal entity,
- Allowing legal ownership,
- Autonomy and independence,
- Democratic and facilitating user participation,
- Facilitating internal communication, reporting and transparency,
- Facilitating external communication and reporting,
- Guarantees for efficient cost recovery,
- Facilitating acquiring external funds,
- Risk of using funds/profits for non-water purposes,
- Facilitating accountability.

[5] Here privately owned means that all the assets are fully owned by the private person or company because (s)he invested only own capital and no public funds in the implementation of the water supply scheme.

4.1 Water Supply Company Limited by Guarantee, the Morogoro Case

The institutional option of a Water Supply Company (WSC) Limited by Guarantee has been chosen in Morogoro region. The lawyer, who collected the information on the different legal institutional options for the DWSP in 1994/95, showed comparatively most advantages for this option[6]. The other options had some disadvantages (see paper on ***Institutional Options, Water Rights and Fees, and Ownership of Piped Water Supply in Rural Areas*, Appendix VI**). A WSC limited by shares requires an actual payment from the members, while a WSC limited by guarantee does not. The Water User Association (WUA) was interpreted as a non-corporate body having no similar legal status as the WSC Ltd. It was also indicated by the lawyer that the Minister, hence the government, has vast powers in determining the continued existence of associations. Other legal options can also be deleted from the Register if the rules are not followed. The Principal State Attorney of the Ministry of Water (Morogoro, September 25 and 26, 2000) does not support both arguments raised against a WUA, i.e. not being a corporate body and not being independent of the government. The lawyer advising DWSP did not favour the Trust option, because the law under which it has to be registered is restrictive.

In the consultative workshop some Ministry staff including the Principal State Attorney showed to be not in favour of the WSC option. This may be due to the fact that WUAs can be registered in the Ministry of Water under their Law of 1997. The WSC Ltd. is *entirely independent of any government office*; it is only registered with the Registrar of the Ministry of Industry and Trade.

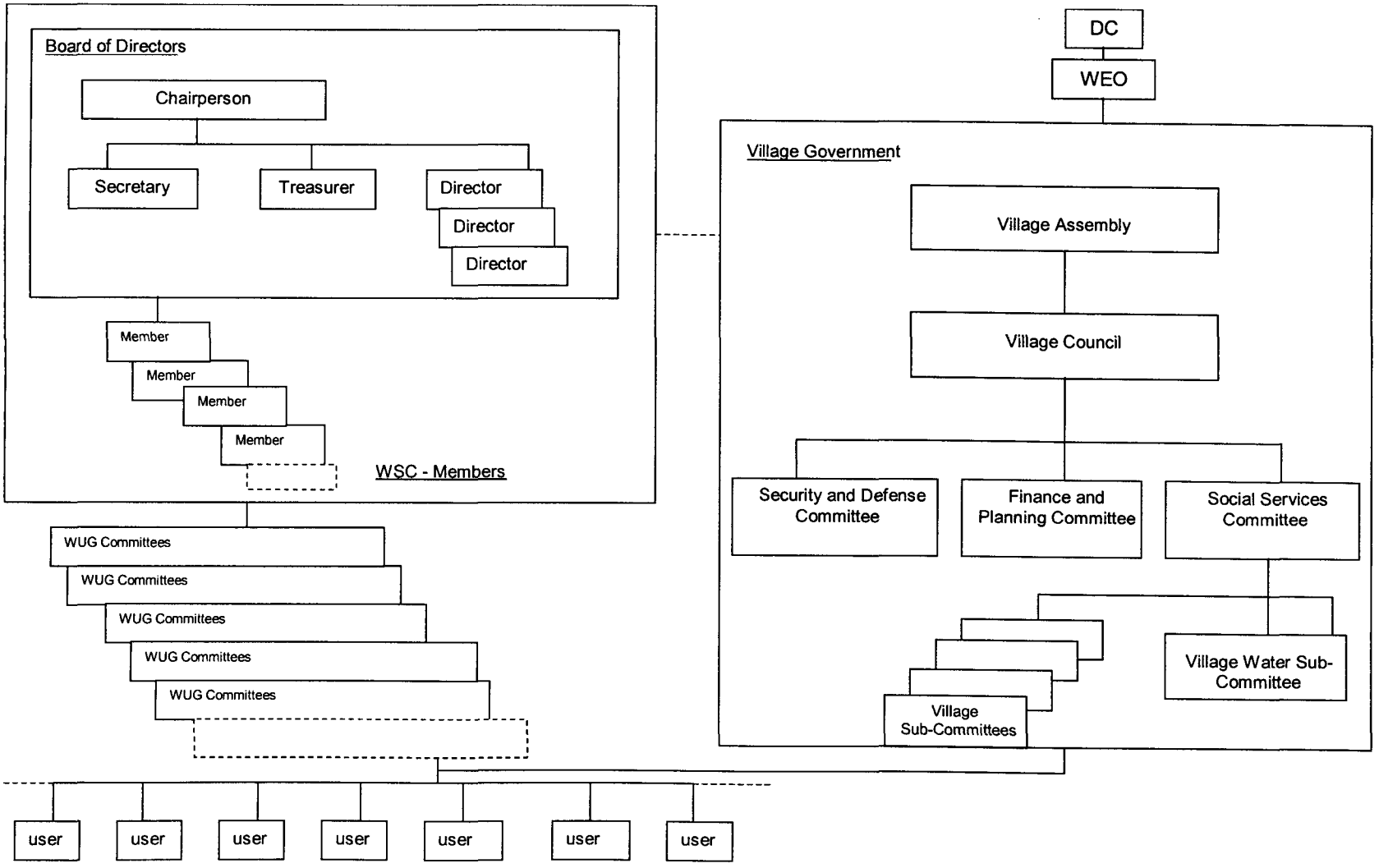
Also local government staff have wrong perceptions of the WSC Ltd. The option of the private WSC is the most realistic company option for small community-based and -owned rural water supply organisations. The option of public WSC Ltd.(as Kiliwater) is more suitable for larger companies or those resulting from a merger of several WSCs. 'Private' here indicates that only a limited number of people can become member (2-50), that transfer of shares/guarantees is restricted and the general public can not buy shares. Kiliwater has several thousands shareholders, of whom several are not consumers and live outside the supply area. 'Private' companies are often *wrongly* interpreted. Private companies can also do social 'business' and not only commercial business. They can also aim at cost covering (no-profit, no loss) and not only aiming at the largest profit possible. They can also have a social object such as water supply to rural communities and not only commercial goods. They can also be run and owned by community-based entities in rural areas and not only by private business people in towns and cities.

The Memorandum and Articles of Association as developed for the WSCs in Morogoro region stipulate all the rules and regulations of the company. These include that the company can not do anything else than pursuing the objectives stated in the Memorandum, in this case rural water supply services.

The users at DWP level elect members of the company; the members elect the directors in the board, who elect a chairman, secretary and treasurer amongst themselves. The present term of office of one year for all these cadres is too short and does not allow for development of corporate experience. The term should be increased to at least three years and re-election of competent governors should be encouraged to maintain corporate knowledge and expertise.

[6] Massati, 1995. A Protocol on Alternative Ways by which People can Associate in order to Manage, Promote and Protect their Economic and Social Interests, Morogoro.

Diagram 1 Organisational Structure of Water Supply Company Limited by Guarantee as in Morogoro Region



The organisational structure of the WSC Ltd. is given in **Diagram 1**. The diagram also includes the relationship with local government, i.e. Village Government, Ward Executive Officer and the District Council. In the case of the WSCs in Morogoro region this relationship is of an advisory, consultative and supportive nature. Water users have experienced misappropriation of funds by the VG. For reasons of sustainability, the users do not want the rural water supply organisation under the VG but as an independent institution (at least in Morogoro region users are clear on this issue).

On the other hand, according to Section 142(1) of Local Government (District Authorities) Act No. 7 of 1982, '*a village council is the organ in which is vested all executive powers in respect of all the affairs and businesses of a village*' and according to Section 5(2) of Local Government (Finances) Act No. 9 of 1982, '*all water works and other properties of the kind situated in the respective district are vested in the district council*'. It means that the VG has the responsibility to handle all water affairs in the village, and the district council is the legal owner of all water works in the district. In case of the Morogoro WSCs a clearer relationship with local government is needed to use the comparative strengths of these institutions. They can facilitate, support and counsel in issues as user participation in physical labour, and motivation and pressing of users to pay for water. Also good relationships with local and district politicians are needed for similar reasons. In the districts of Morogoro region the link between some of the WSC Ltd. and local government has been weak but recently there have been some positive developments[7].

Significant persons from the village and/or the district could be asked to become a patron of the rural water supply organisation on personal title. This patronage is more common in other institutional options, not as much in the WSCs. Patrons are selected because of their authority, influence and/or their specific capacities. They may facilitate support and applications for loans or grants. Actually they are common in clubs and NGOs. The risk is that they institutionalise a system of favouring the organisations being patronised with free support, while on the other hand certain returns may be expected. It is a common phenomenon in a politicised environment. The model Constitution of the WUA proposes the District Executive Director and the District Commissioner as Patrons to be '*Guardians and Principal Advisers*'.

There must be a separation of responsibilities within the company between Board of Directors responsible for policy, major decision-making and control, and the executives engaged and responsible for day-to-day management. A professional manager should be appointed for the management of the scheme assisted by an accountant and scheme attendant. This may be difficult for small companies serving less than 8,000 to 10,000 people as in Morogoro region. Therefore strategic partnerships between companies, possibly leading to a merger of several companies into one larger company should be seriously considered for increased economy-of-scale resulting in improved performance efficiency and achieving sustainability of service and organisation.

[7] This results from the Workshop on Enabling Environment, held by DWSP on July 25 and 26, 2000, and attended by local government officials and chairmen of the Boards of WSCs.

4.2 Public Water Supply Company Limited by Shares, the Kiliwater Ltd. Case

A field visit by DWSP consultants to Kiliwater Ltd. and other water supply organisations in Kilimanjaro Region was made from October 4 to 8, 2000. A detailed report of this field visit is attached as **Appendix III**. Reference is also made to the case presentation in the September 2000 Consultative Workshop papers.

There are peculiar differences between a public WSC limited by shares and a private WSC limited by guarantee. In the first case the liability of a member to contribute to the assets of the company is limited to the amount paid on his share. For the one by guarantee, the liability of a member is limited to the amount that he has committed to contribute in the event of the company being wound up. The number of members in a public company limited by shares can range from seven to an unlimited number, while in a private company the maximum is 50. An overview of the characteristics of the different water supply company options is given in **Table 1**.

Kiliwater Ltd. covers 60 villages with about 50,000 households (about 300,000 people) (September 2000). 12,711 Households are registered as shareholders, each having a share of TShs 1,000.

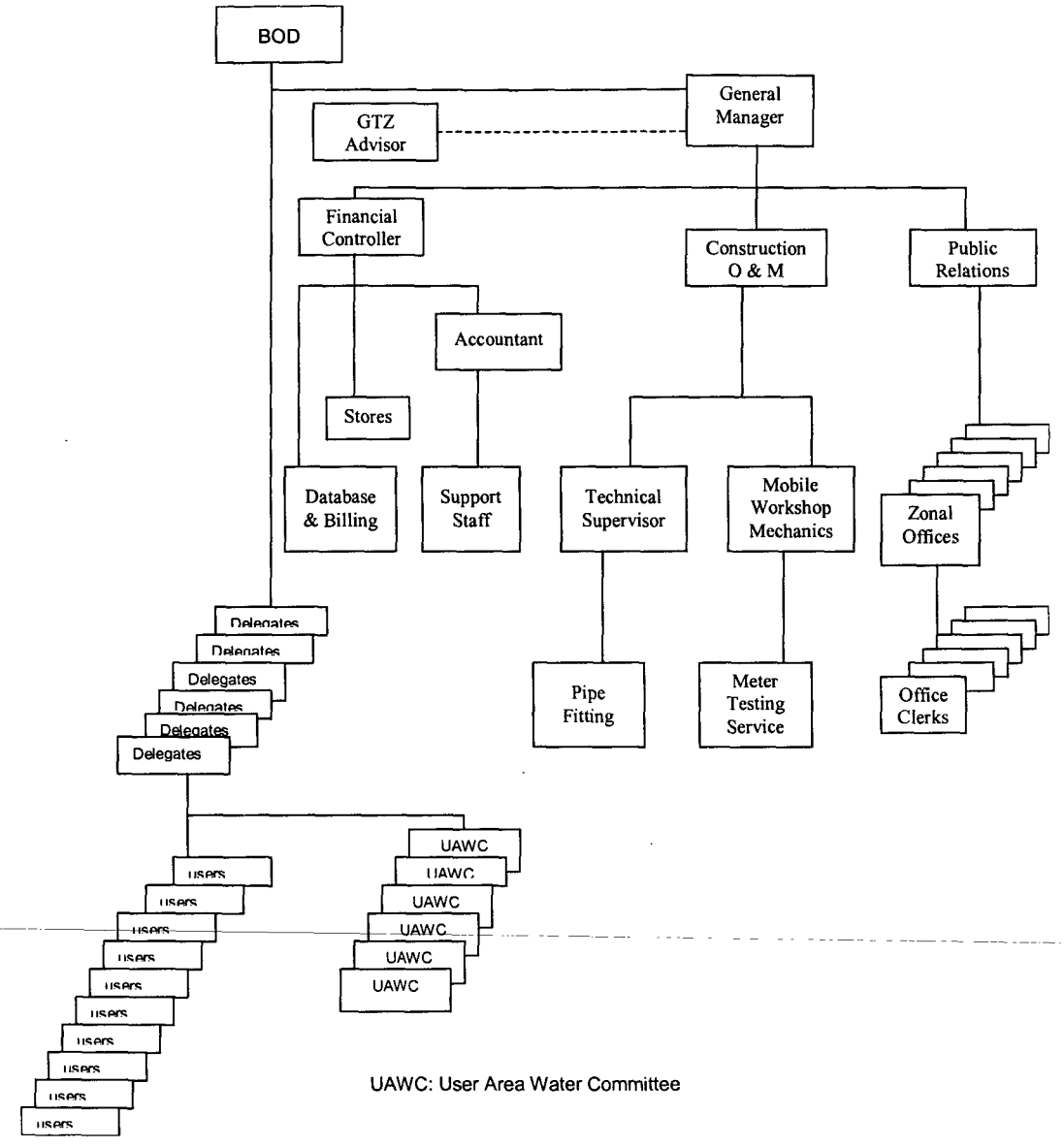
The supply area is divided in six zones. The shareholders and users in each zone elect -er re-elect every three years a director for the Board from amongst themselves (on average: one director for every 50,000 people). An interview panel of government staff and politicians from the supply area selected the first Board. Of these first six Directors four are still in position after two more elections by the shareholders. There is a real campaign by candidates in their constituency, and most Directors have a very high track record as civil servants, politicians or businessmen. The two DWEs (Rombo and Moshi Rural) are not elected but invited to become Directors for their technical expertise. They are also shareholder of the WSC, actually they must be shareholder to become a Director. Although the DWEs are in the Board *à titre personel*, some may interpret this as an influence from the Government while they are more technical advisors. Kiliwater Ltd. is not fully self-supporting yet: it is still getting significant support from GTZ because the collection efficiency of around 70% (October 2000) is not sufficient to cover all costs. Due to metering, the collection efficiency is increasing, while at the same time GTZ support is decreasing.

Diagram 2 gives the organisational structure of the Kiliwater Ltd.

Because of the present size of Kiliwater Ltd., strategic collaboration with neighbouring water utilities or even merging will not likely add much to the efficiency of the company. In principle the advantage of economy-of-scale should already be present in Kiliwater Ltd. as it is right now. Nevertheless, strategic partnerships or merging could enhance the performance of smaller neighbouring water supply schemes.

In 1995 the District Councils of Moshi Rural and Rombo officially handed-over the responsibility on the operation and maintenance of the rural water supply works to Kiliwater Ltd. through a Handing-over Agreement. It is unclear what the effective period of this responsibility is. Through this agreement Kiliwater Ltd. has obtained the user-ownership but not the full ownership of the assets.

Diagram 2 Organisational Structure of Kilimanjaro Water Supply Company Ltd.



UAWC: User Area Water Committee

Table 1 Summary of Characteristics of Different Water Supply Company Options

No.	Option	Range of Members	Possibility to transfer shares or guarantees	Liability	Board Composition and Annual General Meeting	Where most suitable?
1.	Private WSC Limited by Guarantee	2 - 50	Transfer of guarantees is restricted and the general public can not buy shares (i.e. available at the stock market).	Liability of a member is limited to the amount, which he has committed to contribute in the event the company is wound up. No minimum capital needed for registration.	Board elected by and from elected members (user representatives); AGM for members.	Relatively small, community-based and user-owned water supply organisation.
2.	Public WSC Limited by Guarantee		Guarantees can not be transferred so this option is not feasible.			Not an option
3.	Private WSC Limited by Shares	2 - 50	As for option 1, but then for shares.	Liability of a member to contribute to the company's assets is limited to the amount, if any, unpaid on his share; minimum capital needed for registration	Board elected by and from elected members (user representatives); AGM for members.	Larger, community-based and user-owned water supply organisation, or where elected members would not want to guarantee.
4.	Public WSC Limited by shares	7 - unlimited	Anybody can buy shares; transfer is not restricted.	As for option 3.	Board elected by users or by shareholders; AGM for shareholders only.	Large rural water supply organisation, not necessarily user-owned; and large company after merging.

The ownership of all water supply works are with the District Council according to Section 5(2) of Local Government (Finances) Act No. 9 of 1982 quoted in the previous section. The Principal State Attorney of the Ministry of Water indicated during the Consultative Workshop that the Central Government has the ownership in case investments in rural water supply were made through national development funds. His remark conflicts with the report[8] prepared by himself in 1998 that confirms the ownership by the district council. Handing-over to the village, as was done by many donor-supported projects on basis of an agreement between the Government and a donor conflicts with the Local Government (Finances) Act No. 9 of 1982. The ownership mentioned in the draft Rural Water Policy (July 1999) that is to be vested at the user level apparently refers only to user ownership[9], or ownership with the responsibility for operation and maintenance.

There is no clear directive from the Ministry that defines this user ownership and the related responsibilities of the parties. In view of the finalisation of the Rural Water Policy, the issue of ownership of water supply assets and/or its use needs to be addressed with priority.

4.3 Water User Association, the Iringa and Mbeya Case

A field visit by DWSP consultants to Mbeya and Iringa regions was made from July 30 to August 3, 2000. A detailed report of this visit is attached as **Appendix IV**. Reference is also made to the case presentation in the September 2000 Consultative Workshop papers.

The Water User Association (WUA) option is structured on the co-operative societies model. It differs in the fact that it is autonomous and has no direct interference from the government. But because WUAs are encouraged to register under the Ministry of Water, this Ministry has vast powers in determining their existence. The WUA is rather democratic; members of the Association are elected from the Middle Level Committee. They have a voting power in the annual general meeting (AGM). The Memorandum and Articles of Association need to be formulated carefully, as these include all the conditions of the Association. There is a difference in interpretation of the WUA's independence of the government. Massati states in his protocol (see footnote 2) that '*... The government has vast powers in determining their continued existence...*', while Kanshahu (DWSP Morogoro – personal communication) argues that unless the Articles of Association stipulate a role for the government, the WUA is totally independent of the government.

Some lawyers (a/o Massati) and others including Kanshahu (DWSP Morogoro) indicate that a WUA is not a corporate body[10], so it would not have the same legal status as a company. This issue is that important that it needs a final conclusion.

If it is true that the legal status of the WUA is not of the same level as that of the WSC Ltd. and Trust, then it will be just impossible for WUAs to get access to the commercial loan opportunities.

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[8] Swai, 1998. Report on Different Legal Options on Management of Rural Water Schemes. Government of Tanzania and Government of Denmark, Dar es Salaam.

[9] Sayi, 2000. Communication in the National Consultative Workshop Morogoro, September 2000.

[10] Kanshahu: in the law, the definition of a corporate body excludes organisations such as associations and NGOs.

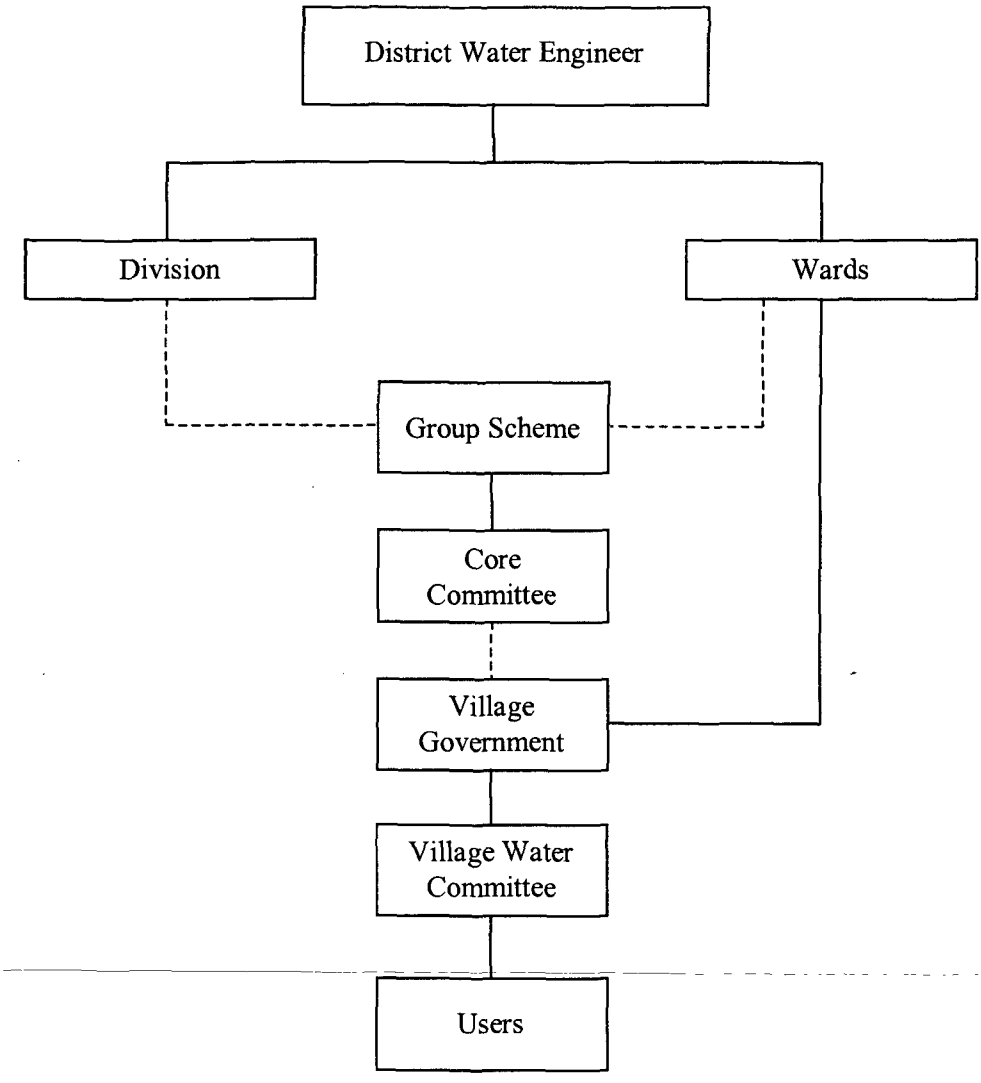
WUAs can be registered in the Ministry of Home Affairs (under Society Ordinance Cap. 337 and it then becomes an NGO) or in the Ministry of Water – Water Laws (Miscellaneous Amendments) Act No. 8 of 1997 (under Water Works Ordinance Cap. 281). This may be the reason that the Ministry of Water favours this institutional option. Because of this registration, the Ministry of Water can influence the WUA establishment and has some control over them. This control can not be interpreted as the required regulatory function needed for rural water supply. The Ministry's control includes that it can revoke the registration. A life example of such control is the issuing of the Certificate of Association to Ngamanga (Mbeya region). It seems that the MoW refuses to release this Certificate to Ngamanga WUA although the registration as association has been gazetted. The reason given by the MoW (according to the WUA) is that the WUA does not perform well. But the village government does not want to transfer power to the WUA. Consequently, the WUA is not allowed to collect money and perform its tasks.

The experiences with WUAs in rural piped water supply are mainly based in Iringa, Mbeya and Ruvuma regions (supported by DANIDA up to 1999). Some of these schemes where visited by the DWSP team and two more cases were presented during the workshop. The level of success varies, depending on size, type of system, management capacities and maturity at the time the external support ceased. The larger gravity schemes perform better, as could be expected, because they need less attention, for instance the Ismani scheme. This does not mean that there is no room for management improvement. More complicated systems, particularly the pumped schemes do perform less. Some later formed WUAs face serious problems. For instance, in the case of Ngamanga (Mbeya Region) the institutional and management operations of some WUAs have not even started after one year because of unwillingness of local government to co-operate; actually they are blocking all operations in a power play. The DANIDA-supported programme handed over all assets to the village government. The role of VG in the new WUA is unclear, an issue that in general needs to be addressed. There is no authority that interferes or moderates in these conflicts at present!

The organisational structure of the Ismani Water User Association is given in **Diagram 3.**

There appears a gradual decrease in efficient and effective performance of the WUAs in Iringa and Mbeya. Also it seems that no efforts are taken to solve problems as in Ngamanga scheme. The departure of the DANIDA-supported programme from the regions has left a vacuum in support and monitoring of the WUAs. There is not any organisation in the regions, which has effectively taken over that role.

Diagram 3 Organisation Structure of Ismani Water User Association



--------- Line of Communication Only
———— Line of Command and Authority

4.4 Trust, the Uroki Bomang'ombe Case

A field visit by a DWSP team of consultants to Uroki Bomang'ombe Trust and other water supply organisations in Kilimanjaro Region was made from October 4 to 8, 2000. A detailed report of this field visit is attached as **Appendix III**. Reference is also made to the case presentation in the September 2000 National Consultative Workshop papers.

The Trust is a legal option in which the beneficiaries give the governance (and management) of the water supply scheme to a group of people they trust, the *trustees*. In the case of Uroki Bomang'ombe Water Supply (UBWS) eight of ten trustees have been democratically elected by the members of the village water committees (VWCs) of each of the eight villages in the supply area. Issues as professional knowledge and experience, honesty and wisdom are being emphasised in the awareness raising to the VWC prior to the election of the trustee. The elected trustees decide who the additional two or more trustees will be, considering competencies additionally required and issues as respectability, authority, expertise, and trustfulness. In UBWS, the bishop and the District Commissioner (DC) have been appointed as the extra trustees. The office term of both VWC and Board of Trustees is three years. After the election of a new VWC, also a new Board is elected. In UBWS the second elected Board is exactly the same as the previous one, showing the trust the people have in their Board. The Board meets once a year, a kind of AGM as this is also the supreme decision-making body. The Board elects an Executive Committee of four persons from the Board. They meet quarterly and discuss management issues and make proposals to the Board meeting. One meeting per year with the full Board seems to be insufficient if the budget has to be discussed and approved around November and the annual report around March.

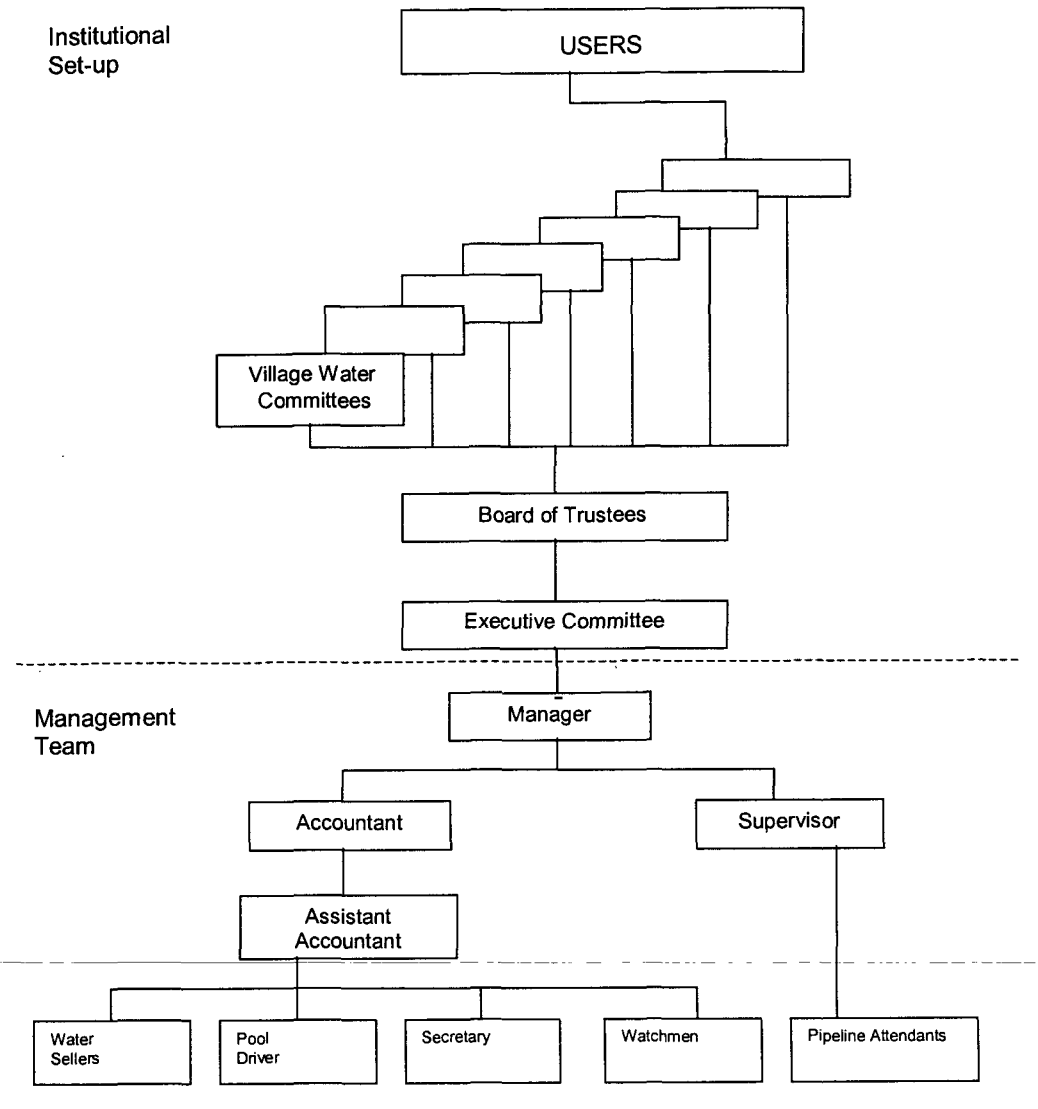
The UBWS institutional structure appears to function efficiently and effectively. The argument for a small Executive Committee is that decisions can be taken quickly by the committee (in ad-hoc meetings) if needed. Also the annual meeting has limited participants making it very efficient. The number of people receiving allowances is limited.

The management of UBWS consists (at present) of four office staff (manager, accountant, assistant accountant and secretary) and 10 pipeline attendants (plus watchmen). The organisational structure is given in **Diagram 4**. At present, UBWS supplies water to 47,000 people through a distribution network of 105 km with 185 public taps and 860 house connections.

The other Trust in Kilimanjaro region presently being established, is Losaa KIA Water Supply that is supplying water to 16 villages and Kilimanjaro International Airport (KIA). The VWCs will elect each a representative for the Board of Representatives and also KIA will appoint one representative to this Board; they will meet twice a year. The Board of Representatives will elect seven Trustees for the Board of Trustees and the DWE will be appointed as the eighth Trustee; they will meet four times a year.

Although it is sometimes claimed that trusts are not democratic and do not allow for participation of the users, the process of election of trustees is rather democratic and participatory. Still, in the case of Losaa KIA the representatives of the Village Water Committees (in the Board of Representatives) have only an advisory role and all decision-making power is in the hands of trustees elected from the Board of Representatives. Communication from the trustees to the users is less structured and uncertain or at least delayed under these conditions.

Diagram 4 Organisation Structure of Uroki Bomang'ombe Water Supply Trust



Trusts are constituted by deed with the approval of the Administrator General under the Trustee's Incorporation Ordinance (Cap 375).

Also in case of Trusts, the formulation of the Trust Deed is very important as this stipulates the conditions of governance, the processes of reporting, etc.

As for the WSC Ltd. and the WUA, acquiring of loans from commercial banks will be difficult, as the Trusts have no collateral. Even if a Trust, WSC or WUA would eventually own the water supply assets, it is unlikely that commercial banks will accept these as valid collateral. Water works are not "current" assets that can be bought and sold easily on the market.

4.5 Central Scheme Committee and Village Water Committees, the Mlingano and Lukozi Cases

A field visit by a DWSP team of consultants to Tanga Region was made from September 15 to 19, 2000. A detailed report of this field visit is attached as **Appendix V**. Reference is also made to the case presentations on Mlingano WS and Lukozi WS in the September 2000 Consultative Workshop papers.

Both the Mlingano and the Lukozi scheme have been built by TADDO[11] in the 1990s with mainly external funds. The institutional structure used, i.e. the Central Water Committee, does not have a legal status. The constitution developed for the Mlingano scheme has been sent to the District Commissioner of Muheza district for endorsement. No certificate of registration has been issued. It is unknown whether the reason is an article stating that defaulters can be taken to court, or it is just for bureaucratic reasons, or that they do not know how to handle the matter.

The Central Water Committee (CWC) consists of the chairmen of the Village Water Committees (VWC). The members of the VWC are elected at a village assembly (*baraza*). The VWC is a sub-committee under the Village Government. Therefore the VWCs and so the CWC are not independent of local government. This could and most probably will influence the autonomy of the Central Water Committee. The VWC is kept under the VG to indicate its role in water supply matters. Establishing an autonomous village-based committee would push the VG out of the arena of water supply. There are examples of trust-related problems in several VWCs and also of funds that have been misused.

In the Mlingano Water Supply Organisation, the chairmen of the six VWCs and elected representatives of the two institutes in the supply area form the members of the Central Water Committee for a five-year term. Apart from these eight elected people, the 36 members of the CWC include key people such as project patron (RC priest), TADDO director, MATI and ARI directors, MP, councillors, VG chairmen, WEO, Divisional Secretary and the DWE. Four representative of TADDO and two women representatives are also member of the CWC. The MP, the Divisional Secretary and the WEO cannot vote. The CWC has quarterly meetings. There is not a clear feedback system to the VWCs and users.

[11] TADDO: Tanga Diocesan Development Office run by the Roman Catholic Church.

In the case of the Lukozi scheme, each of the seven sub-villages has a VWC formed by elected persons, two from each hamlet. From each of the six villages, the VWC chairmen, secretaries and treasurers, one elected villager, the chairmen of the VG, and the WEO form the Steering Committee. This Committee has the same status as the CWC in the Mlingano scheme. The core executive group of the Steering Committee, that consists of three people, meets every three months while the full Central Steering Committee meets twice a year to discuss the financial and progress reports.

Chamavita, the NGO implementing and supporting the Lukozi scheme, has proposed to the Steering Committee that the institution could best be transformed into a WSC. The main purpose is to establish an (independent) legal body.

The organisation structure of Mlingano Water Supply Scheme is presented in **Diagram 5**.

4.6 Central Government Operated Water Supply Scheme, the Handeni Trunk Main Project

In **Diagram 6** the organisational structure of the Handeni Trunk Main Project is depicted. This is an example of a large, Central Government-operated, water supply scheme. The scheme supplies sixty villages and serves a population of 180,000. A report of the field visit of a DWSP team to Tanga region including HTM project is attached as **Appendix V**.

The management of the HTM project is directly responsible to the Ministry of Water. In addition the project has an Advisory Board appointed by the Handeni District Council. Sixty percent of the Advisory Board are users.

The HTM project has a staff of some 170 engineers, technicians, sales officers, administrators and labourers. Fee collecting agents at Domestic Water Points are proposed by the Village Water Committees, approved by Village Governments, and confirmed by the HTM management. They are not part of the regular project staff.

There are plans to transfer the ownership of the scheme to a separate institution in which the Handeni District Council will have a 25% say, the Handeni Development Association (HADEA) also 25%, and Haji Associates Ltd. – a private company that is involved in lobbying for funds from donors to rehabilitate the scheme – the remaining 50%.

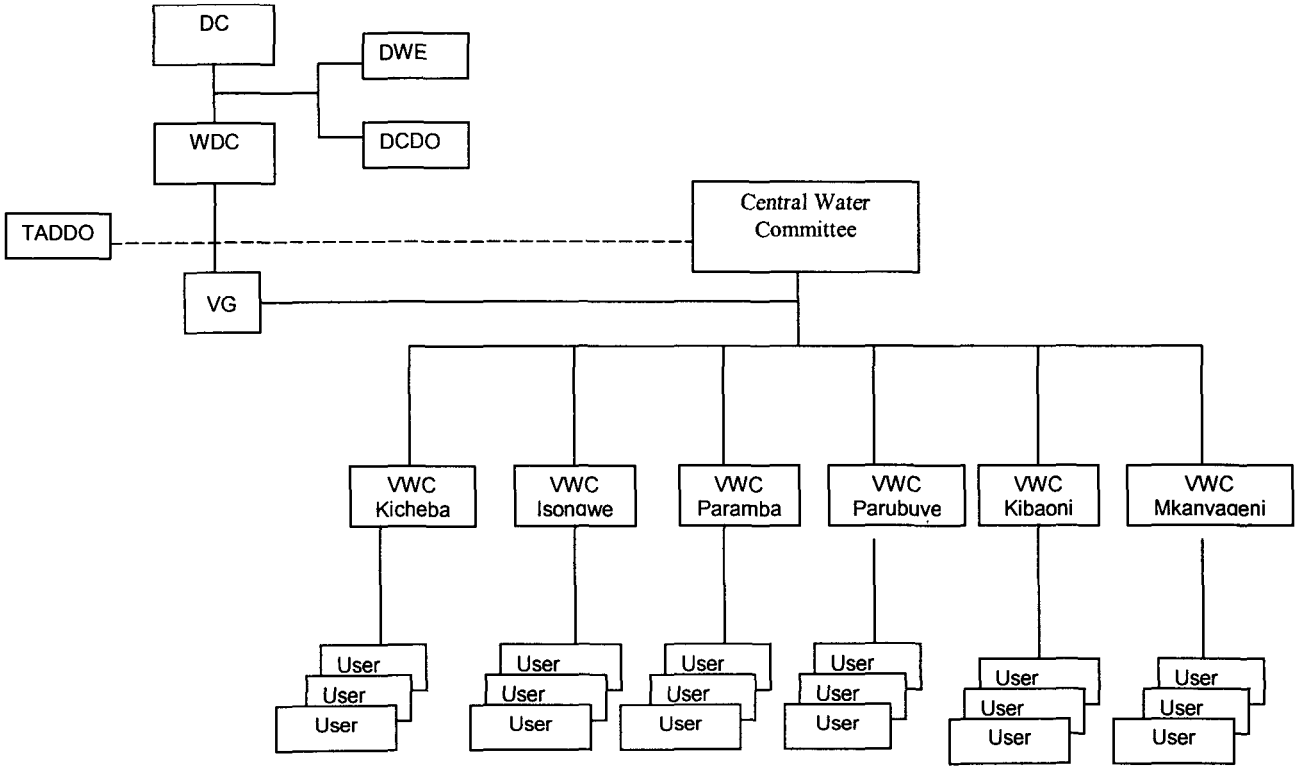
In its present condition the system is not sustainable. Monthly, the Government is losing millions of Shillings to keep the system running at a minimum level of service. The treatment plant is basically by-passed. Leakage amounts to 60 to 70% of the distributed water. Metering of villages, domestic water points and private connections is incomplete.

The inability and general inefficiency of the Government to run a water supply system in a business-like manner is more or less proven by the present state of the Handeni Trunk Main water supply scheme.

4.7 District-operated Water Supply Schemes

Diagram 7 gives the organisational structure of a district-run water supply scheme. For operational details one is referred to **Section 5.1**.

Diagram 5 Organisation Structure of Mlingano Water Supply Scheme



VG : Village Government
VWC : Village Water Committee
WDC : Ward Development Committee
DC : District Council
TADDO : Tanga Diocesan Development office
DWE : District Water Engineer
DCDO : District Community Development Officer

Diagram 6 Organisation Structure of Handeni Trunk Main Project, a Central Government Operated Water Supply Scheme

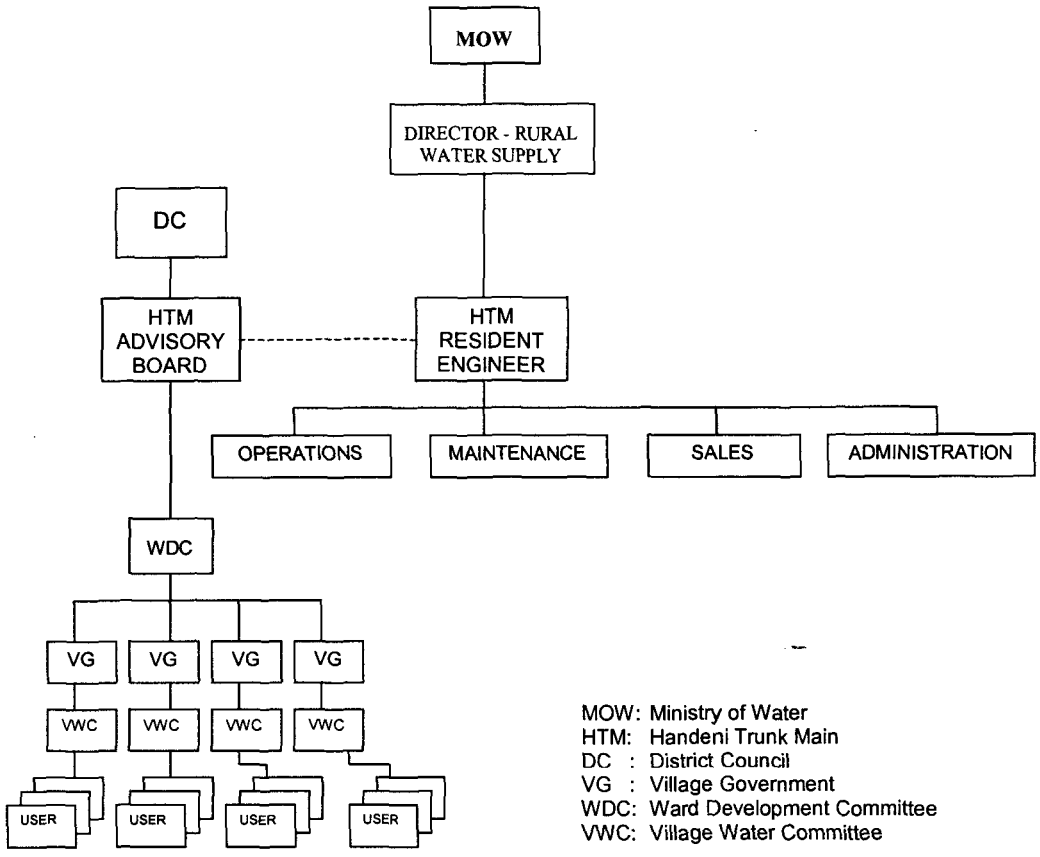
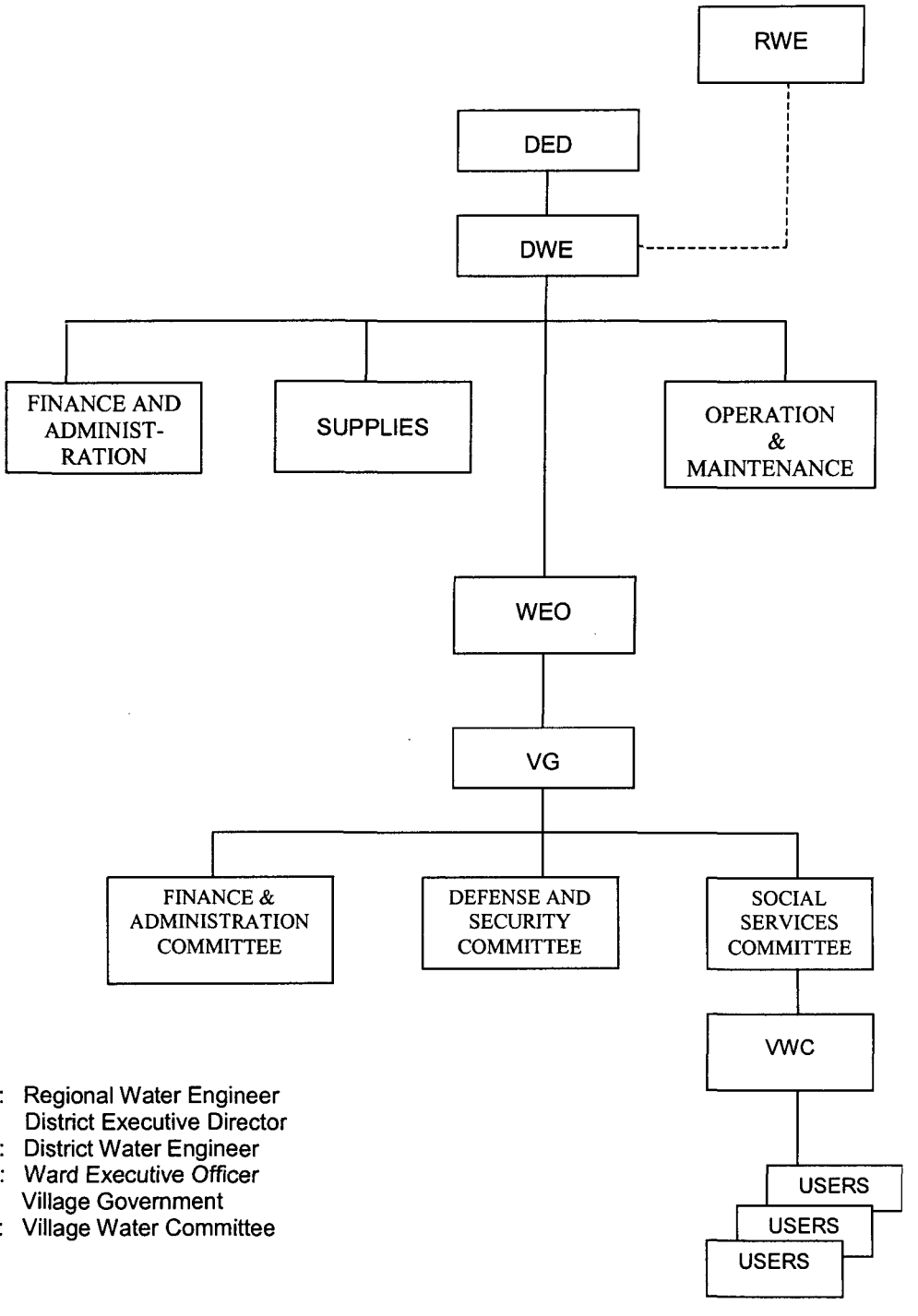
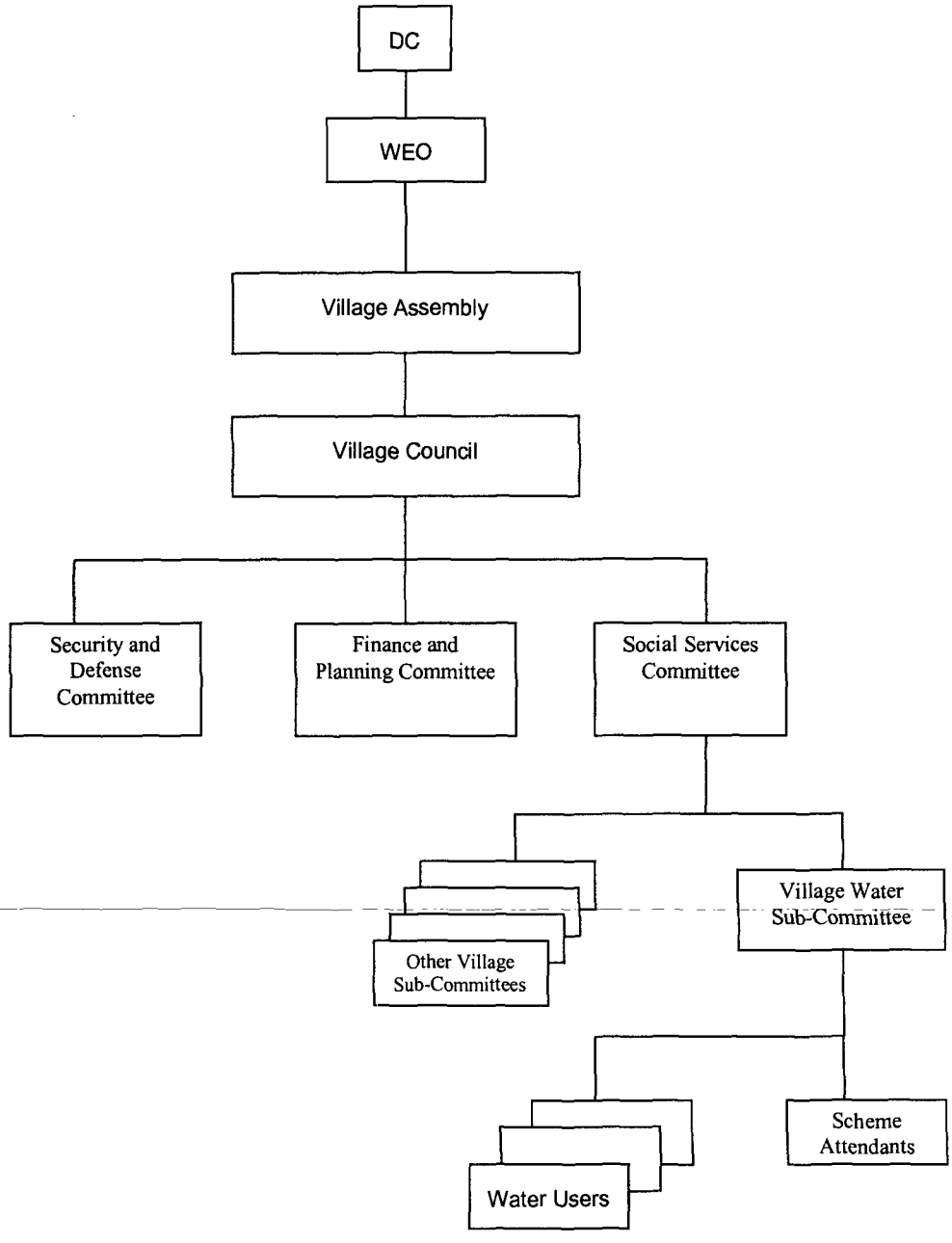


Diagram 7 Organisation Structure of District-operated Water Supply Scheme



RWE: Regional Water Engineer
DED: District Executive Director
DWE: District Water Engineer
WEO: Ward Executive Officer
VG: Village Government
VWC: Village Water Committee

Diagram 8 Organisation Structure of Village-operated Water Supply Scheme



4.8 Conventional Village Water Committees

A field visit by DWSP consultants to Mbeya and Iringa regions was made from July 30 to August 3, 2000. A detailed report of this visit is attached as **Appendix IV**. During the tour, visits were paid to the villages of Nsongwi Juu in Mbeya, and Ifunda and Kiponzelo in Iringa region, where conventional village water committees ran the water supply facilities. In Nsongwi Juu the water supply system was exceptionally well run by the village, but the impression is that it is the exception that confirms the rule (that usually village water committees do not run their water schemes properly). An overview of the organisational structure of a conventional village water committee is given in **Diagram 8.**

A general village meeting elects the members of conventional Village Water Committees out of a number of candidates. The VWC is fully dependent of the VG, and therefore not autonomous. The VWC is not a legal entity but a sub-committee within the Social Services and Welfare Committee. Usually the VWC runs a separate Village Water Account, which has been a condition from the investor (donor or government) to deposit the initial contributions from the users to the investment costs of the scheme. Also payments for O&M collected by the VWC are deposited on that account. In some districts it is common that the DWE is one of the signatories of this water account with the aim to have a control mechanism on the spending of the money. This creates dependency on local government. Moreover, it complicates the management and operation of the water supply facilities.

Collection of fees is generally very inefficient, but there are clear exceptions, for instance Nsongwi Juu in Mbeya region. In theory, if one has a good village government – or a coherent village – there does not need to be a problem with this type of management of a water supply village, in particular when it concerns a one-village system only. The practice in Tanzania shows a different picture.

4.9 Overall Analysis and Conclusions on Institutional Options

In this section conclusions are drawn regarding institutional options for rural water supply schemes using the comparative analysis made applying the selected parameters mentioned in the introductory section of this chapter. The analysis incorporates issues raised in the papers presented during the consultative workshop of September 2000, as well as the results of this workshop; see **Table 2** – results of working groups on institutional options. For more details one is referred to the report of the consultative workshop. Furthermore, the findings from the field visits to Mbeya, Iringa, Tanga and Kilimanjaro regions are used.

- ***Being a Legal Entity***
  Four options have a legal status and are being registered: Water Supply Company limited by shares, Water Supply Company limited by guarantee, Water User Association, and Trust. Whether the WUA has a lower legal status than the other three because it would not be a corporate body, needs still to be clarified by the Ministry of Water.

Table 2 Comparison of Different Institutional Options for Rural Piped Water Supply

Institutional Options	*Examples*	Allowing legal ownership	Autonomy and independence	Democratic and participatory	Facilitating internal communication, reporting and transparency	Facilitating external communication, reporting	Guarantees for efficient cost recovery	Facilitating acquiring external funds	Risk of using funds or profits for non-water purposes	Facilitating accountability	Security (one group added)	Legal entity (one group added)
Water Supply Company Ltd by Guarantee	*WSCs in Morogoro*	+++++	+++++	+++++ 1*	++++	++	++++	++	++	++++ 2*	+	+
Water Supply Company Ltd by Shares	*Kiliwater Ltd.*	+++++	+++++	+++	+++	++	+++	+++	-	++++	+	+
Water User Association	*WUAs in Iringa and Mbeya*	+++	+++++	+++++	+++	0	0	+	+++	+++		
Trustee	*Uroki Bomang'ombe*	+++++	+++++	0 3*	++	+++	+++	+++++	-	0 4*	++	+
Village and Central Water Committee	*Mlingano and Lukozi Schemes in Tanga*	---	-----	+++			----	--	++			
WSC privately owned (one group added)	*Sengerema Berege, Dodoma*	+	+	-	+	-	+	- 5*	- 6*	-	+	+

1 = Difficulties to direct to funds confined to objectives*

2 = Audit foreseen*

3 = Board of trustee owns assets – no general assembly*

4 = Management responsible to Board not to users*

5 = Depending on the sources of funds and conditions of the financing institution*

6 = Management dependent*

- ***Allowing Legal Ownership***
  All four legal entities can legally be the owner of assets. For a Central Water Committee and conventional Village Water Committees, it is the Village Government and the District Council which has the ownership, or Central Government when the scheme was constructed with Central Government development funds. Donor-supported programmes used to issue certificates of handing-over the assets to user groups or VWCs. However, such certificates do not have any legal status. Consequently, it is the Village Government and/or District Council, which is the legal owner in these cases. Actually, the ownership of any water works in the district is vested in the District Council, according to the Local Government Act of 1982. The interpretation of the Principal State Attorney of the Ministry of Water of this Act is that the Central Government owns all water works since 1982. The draft Rural Water Policy speaks about ownership by the users. The Director of Rural Water Supply indicated during the consultative workshop that by ownership is meant ownership to use[12], that is to operate and maintain the facilities but not ownership of the actual assets. So, it implies a kind of leasehold agreement between Local Government (or Central Government according to officials of the Ministry of Water) and the users (represented by the legal water supply entity). Kiliwater Ltd. has signed such an agreement. In UBWS the agreement is between Central Government and the Trust. The duration of a leasehold agreement is not clear. The issues of real ownership and/or leasehold need an unambiguous formulation in the (final) Rural Water Policy.
  A major problem with use-ownership is related to the investments for expansions, extensions and replacements rural water supply organisations implement and fund themselves. Who will be the owner of these additional assets?

- ***Autonomy and Independence***
  It is evident that the (conventional) Village Water Committees and Central Water Committees have a direct relationship with the Village Government and to a lesser extent with the District Council. A Central Water Committee is more autonomous but not fully, and interference from the village and district authorities may be expected. The Water Supply Company options and the Trust are fully autonomous and independent, although village and district leaders or council staff, if present in the Board of Directors or Board of Trustees, can use their influence. If in future, district towns would join a WSC Limited by Shares, then they have influence through the shares they own. To avoid that they overrule the Board and AGM, they should always be a minority in these bodies. Some reviewers[13] doubt the independence of the Water User Association as registration under the Society Act or within the Ministry of Water may create loopholes for interference in operations by the government. The ministry that registers can revoke the registration.

- ***Democratic and Facilitating User Participation***
  Members of conventional VWCs and a Central Water Committee may be elected democratically with participation of users. In the two cases of a Trust, the Board of Trustees is elected by the members of the respective VWCs (Uroki Bomang'ombe) or from a Board of Representatives (Losaa KIA). The highest decision-making body is the Central Water Committee, and for the Trust the Board of Trustees. The democratic influence is therefore very indirect. A good option for this criterion is the

[12] 'Ownership to use' is actually *misguiding* terminology: there is no actual ownership at all. It is better to use the term 'lease' of facilities.

[13] Including Masati, who analysed the institutional options for DWSP Morogoro, and Business Care Consultants Ltd., which reviewed the options for Hai Rural Water Supply Project.

private Water Supply Company Limited by Guarantee as in Morogoro region because of the specific Articles of Association with its Members structure. Here the users in the Water User Groups directly elect Members. The larger the supply area, the larger the number of users that will elect one representative, as in a private company the maximum number of members is 50. In the Kiliwater case, a large (300,000 users) public WSC, limited by shares, the directors in the Board are elected by the users/shareholders. One director originates from each of the six divisions, which have each some 9,000 households. So the 'distance' from user to director is quite large. In principle all shareholders have a vote in the AGM, but in practice each shareholder in the AGM presently represents 25 to 100 shareholders depending on the number of shareholders in the district. So, the larger the company, the further the directors are away from the users. The Water User Association is probably the most democratic as in principle all users can become members with voting power in the AGM. In practice, this would not work for larger supply areas (compare the Kiliwater case).

- ***Facilitating Internal Communication, Reporting and Transparency***
  In the case of the conventional VWC and the Central Water Committee communication to and from the Committees is not facilitated by any formal structure apart from the Village Annual General Meeting (that has many agenda points and does not have a transparent reporting system). Also the two visited Trusts have a weaker reporting back system but transparency is regulated in the constitution: detailed budgets and quarterly monitoring on expenditures (and possible budget adjustments) are presented and discussed in the quarterly meetings with Executive Committee of Board. The Water Supply Companies (only those in Morogoro) and the Water User Association have the best channels for reporting and communication to and from the users, as well as facilitating transparency. This is all due to detailed and clear Memorandum and Articles of Association. These also demand external annual audits and annual reporting by the management. This does not imply that communication and transparency is a strong characteristic in many existing WSCs and WUAs! Practice and theory differ still a lot.

- ***Facilitating External Communication and Reporting***
  WSCs Limited by Shares have to make their annual report available to the Registrar of Companies. For the smaller WSCs limited by guarantee (e.g. in Morogoro) this is not yet done. WUAs and Trusts do not have that obligation. The WSC Kiliwater Ltd. has in its Memorandum of Association that it will liaise with government authorities on matters of water disposal, and plans related to expansion of the water supply system.

- ***Guarantees for Efficient Cost Recovery***
  These guarantees very much depend on the management but also on the trust that the users have in their organisation and management. This trust is dependent on user participation in governance, transparency and communication. But trust depends also on the institution's autonomy and independence, particularly of the local government institutions, this latter point for historical reasons including inefficiency, misappropriation of funds, poor product quality and intermittent product delivery. In principle – as per constitution (Memorandum and Articles of Association, or Trust Deed) – WSCs, WUAs and Trusts provide these guarantees. The workshop concluded that WUAs do not guarantee efficient cost recovery but that judgement may be based on the poor performance of the WUA cases presented. That poor performance was mainly a result of intervening of the Village Government.

- ***Facilitating Acquiring External Funds***
  The water institutions with a legal status may have access to grants and loans depending on the specific qualification conditions[14]. International NGOs and multi- and bi-lateral donors may give grants to any legal or non-legal rural water supply organisations provided these fulfil the criteria of the donor, which vary per donor. World Bank and other development banks' loans may be on-lent to local government (districts, possible village governments and organisations) as long as Central Government guarantees repayment of the principal loan. Performance measured by several parameters like collection efficiency is usually a criterion whether one will get a loan or grant; having a suitable, acceptable collateral is not a requirement. Private banks would require a collateral but development banks do not necessarily. Because WSCs and Trusts are corporate bodies, they may qualify for a 'commercial bank' loan, while this seems not possible for a WUA (not a corporate body according to some lawyers). On the other hand, for rural water supply organisations it may not be attractive or even feasible to get loans from commercial banks because of the high interest rates. It needs further investigation whether these commercial banks would be willing for reasons of social responsibility to provide funds on soft conditions, but this is not likely. Another question to be answered is whether rural development banks in Tanzania are prepared to provide loans to rural water supply organisations. For the time-being, there is a need to establish a country-wide fund (with regional chapters) to give rural and small town water supply organisations access to loans for expansions/extensions and major repairs under low interest conditions and requiring strict management performance qualifications.

- ***Risk of Using Funds and Profits for Non-water Purposes***
  This risk will be high if water schemes are run by a conventional Village Water Committee, Central Water Committee, or Steering Committee. In principle, the WSC, WUA and Trust options have more safeguards. These last three are supposed to formulate in their constitution that the object of their existence is the provision of water supply to their constituency and that any profit or other money obtained can only be utilised only for specific purposes indicated. However, in practice, also in WSCs, WUAs, and Trusts the risk of misappropriation of funds or spending of funds for improper purposes (exceptional high allowances, entertainment, etc.) is considerable. Realistic budgeting, annual reporting, communication and provision of information to consumer, checks and balances and transparency in general are required. Financial audits are a must that goes beyond checking whether books have been kept accurately.

- ***Facilitating Accountability***
  The accountability depends on the reporting to the members and users. This is particularly structured – but not always practised – in the constitutions of the WSCs and WUAs. The management of Trusts has only to report to the Board of Trustees which does not have to report to the users.

One group in the workshop added another legal institutional option, the privately owned WSC. This option has the structure to be strong in autonomy, independence and cost recovery but to be weak in being democratic and allowing participation, communication, reporting, transparency and accountability. Profit making is usually the main incentive of a privately owned company. If there is no strong regulator in place like in Tanzania,

[14] Such loan conditions include usually: legal status of entity (corporate body); management capacity shown in financial performance; feasibility of proposed project; presence of collateral(s).

involvement of the private sector has definite risks. Private sector involvement is attractive for the Government if the private sector brings along money to invest that the Government does not have itself or can not easily acquire. The private sector will only be interested to invest if it can make money (adequate return on investment). In principle the private sector will make as much money/profit as it can. It is not realistic to assume that the private sector has social considerations. Therefore, close control and monitoring is necessary. At present, Tanzania applies a *'laisser faire'* practice on privately-owned water supply organisations. There is no regulator in place to control excesses.

In exceptional cases the private sector may be willing to invest in rural water supply schemes, but it will do so only if it is in its own interest. Mining companies and sugar estates, for example, may want to invest in water supply (and other public services) in the villages where its employees live. Private companies will be willing to create goodwill in their own interest, and not for any other reason. Similarly, fortunate citizens of a village (traders, big farmers, etc.) may extend services they like for themselves to their neighbour citizens. These cases are just exceptions. One cannot build a national policy on them.

It has been noticed that after many years of support to the rural water supply, donors decided to cease their support without having ensured that the institutional and management arrangements for rural water supply in the districts they have been active in are strongly established. Thus they are leaving behind an unsustainable structure that puts rehabilitated and new schemes at high risk. This can not have been the intention after having invested billions of Tanzanian shillings, and therefore needs serious and urgent countrywide attention as the same may happen to other regions. Nevertheless, the main responsible actor in this regard is the Ministry of Water. The main sustainability issues to be addressed can be grouped under the headings of coaching, facilitation and regulation. This is not just a role of the Government but also of the rural water supply organisations themselves and the private sector.

Based on the arguments given in the preceding sections and on conditions as being a legal entity, having autonomy and independence, risk for using funds for non-water purposes, the following ***overall conclusion*** is drawn:

- The four legal institutional options are feasible options: public WSC limited by shares, private WSC limited by guarantee, Water User Association, and Trust. The WUA is the least desirable because of possible ministerial influence in registration and as it may not be a corporate body (as some lawyers indicate). The Trust option demands for knowledgeable, trustful and acceptable trustees, who may not be found easily in all cases. The public WSC limited by shares is a very good option for larger water supply schemes, while the private WSC limited by guarantee is a very good option for smaller rural water supply schemes.

5. COMPARATIVE ANALYSIS OF MANAGEMENT OPTIONS

In this chapter six management arrangements are discussed:

1. Management by the District Council,
2. Management by a Village Water Committee,
3. Management by a Central Water Committee,
4. Management by an Executive Committee of the Board of Directors (in WSCs) or a Scheme Management Committee (in WUAs),
5. Management by a professional team,
6. Management outsourced to a private management team.

The analysis is centred on a set of key criteria for efficient and effective management:

- Effective business oriented management,
- Competency and confidence of the management,
- Guarantees for high technical service level,
- Guarantee for efficient cost recovery,
- Facilitative to in- and external communication, reporting and transparency,
- Facilitative to acquiring external funds,
- Risk of using funds/profits for non-water purposes.

During the workshop one group added a criterion, i.e. realistic budget and expenditure.

5.1 Management by the District Council

As part of the decentralisation process, Central Government transferred the responsibility of the management of rural piped water supplies to local government, i.e. the District Councils. The schemes were often in a dilapidated condition meaning that the system was functioning poorly, or even not at all. District Councils were not in a position to cover the cost of even the minimal O&M. Central Government agreed to support by payment of salaries of staff and the power costs (electricity or diesel). Central and local governments usually share the cost of major repairs and rehabilitation.

The management of the scheme is done by the district water engineer supported by technicians, and at village level the VWC. The management focus of the water engineers is usually on technical issues, but he/she may be supported by district staff competent in general and financial management. District Council staff do not have a business orientation at all, but more so a social and political interest. The internal and external communication is usually limited. Reporting follows traditional lines and transparency is usually limited. Cost recovery is done for house connections only but usually even not sufficient to cover the full O&M costs. The monthly water charges collected in the rural schemes are deposited into the general district account, which is not only used for water. The monthly water charges from the house connections in the district town are paid to the Central Government. Therefore revenues from water charges are not directly available for O&M. At Central Government and district level the priorities to allocate revenues are often not in operation and maintenance of rural and district town water supplies. The management of water schemes by district council is usually characterised by crisis management without structural O&M procedures including preventive maintenance.

A serious management problem in the central and local government is the low salary and the existing allowance structure. These do not provide any incentive and actually paralyse all activities. This applies also to the management of rural water supply systems by district council staff.

From the above it can be easily concluded that management by district councils is not a sustainable option. The Ministry of Water has suggested to the districts to make preparations for establishment of an autonomous Water Authority for their main town water supply. However, the suggested Board of these Water Authorities will not be independent. Suggested Board members are the representative of the Ministry, representatives of the regional and district administrations, municipal director or DED, local councillor, etc. If this Town Water Authority is not independent, it is not likely to be a viable option for efficient and effective management. It has been proposed that a executive director will be in charge of daily management of the Authority, who will be evaluated on performance.

The management structure of a District-operated water supply organisation is indicated in **Diagram 7** (page 23).

5.2 Management by a Village Water Committee

In most older rural gravity schemes and where no external support programme has rehabilitated the schemes, Village Water Committees are in charge of the management. The VWC is a sub-committee of the Social Services and Welfare Committee in the VG. Pumped schemes remained usually under the district council with support of the Central Government because of high running costs.

The management structure of a village-operated water supply scheme is included in **Diagram 8** (page 23) on the institutional structure.

In case of rural gravity schemes it means that elected village people make efforts to run the scheme. Their management competencies are usually very low particularly when the aims are efficiency and business orientation. In a village setting social objectives and not business objectives determine the management direction of a VWC. A reliable and adequate service level is usually not achieved because that requires adequate O&M and therefore funds for spares and technical inputs from village-based or external technicians. For obvious reasons, their internal and external communication, reporting and transparency is low to very low, and sometimes even absent. Reporting is usually done at general village meetings. Although the Village Water Account is supposed to be used exclusively for village water supply, for reasons of hierarchical relationship, use of funds from this account for non-water activities, may and does occur often.

The workshop gave a very negative score on all criteria for this management arrangement of rural water supply (see **Table 3**, page 36).

5.3 Management by a Central Water Committee

The Central Water Committee in Mlingano scheme has established five special executive committees, including one for planning and finance, and one for technical and transport affairs. From the case presentation and the visit, it became clear that the executives have been chosen for reasons of their authority and respectfulness but that their actual competency and confidence in management issues are quite low. The capacities of members of the executive committees are more in governance than in management. There is no business orientation in management, no longer-term planning, etc. The adviser to the CWC with most vision and management skills is the director of TADDO, the implementing agency/NGO of the Diocese.

The management committee members (as in the Mlingano scheme) have been elected from the members of the CWC. Usually these CWC members do not have a business orientation in management, and hence not a high management competency. This management option suffers from the same '*sole social*' orientation as the previous VWC-option. This results in inefficient cost recovery and subsequently in inadequate O&M. Therefore this option does not guarantee a high service level.

If the CWC management has established financial procedures with adequate checks and balances, the risks for using funds for non-water supply purposes may be limited. But as governors and managers are the same people, there remains some risk.

The Articles in the Constitution can regulate the procedures for communication, reporting and transparency. The management structure is included in **Diagram 5** (page 21).

5.4 Management by an Executive Committee of the Board of Directors (in WSCs) or a Scheme Management Committee (in WUAs)

Most WSCs and some of the smaller (if any) WUAs have an Executive Committee made up of a chairman, secretary and treasurer of the Board of Directors (in the case of WSCs) or of the Scheme Management Committee (in the case of WUAs). These Executive Committees manage the schemes. The members of these Committees generally lack the capacities to run the WSC/WUA as a business. Board and Scheme Management Committee members are not necessarily elected because of their management capacities. Furthermore, as the office period of most Board and Management Committee members is usually rather short (1-3 years), they do not build up adequate experience and corporate knowledge. Because of these shortcomings they can not build up sufficient confidence in company/association management and as a result they may just make wrong decisions or recommendations to the Board.

In principle, procedures for communication, reporting and transparency is stipulated in the Articles of Association. But the practice of communication and reporting is usually not strong. But there are some exceptions in Morogoro region resulting from good coaching by DWSP. If checks and balances are introduced as safeguards for better financial management then better transparency may be expected. The risk of misuse remains as long as the managing directors (the executives) are 'controlled' by the other directors.

The management structure is included in **Diagram 3** (page 16). Workshop participants were not in favour of this option; it was scored negatively on almost all criteria.

5.5 Management by a Professional Team

One of the larger WSCs in Morogoro Region and the larger WUAs in Iringa/Mbeya Regions have professional management teams. The management teams of the two Trusts in Hai district and Kiliwater Ltd. have managerial, financial and technical capacities. The management capacities in Hai district are at a much higher level than in Morogoro, Iringa, and Mbeya regions. Most likely this is due to the capacity-of-scale: the schemes are larger and cover more consumers (UBWS supplies to more than 45,000 people, and Kiliwater supplies to about 300,000 people). Consequently, there can be more professionality in the management. Another aspect is the general level of development in Kilimanjaro region compared to other regions including Morogoro, Iringa, and Mbeya.

The management team members need to have sufficient knowledge and experience to be able to run water supply schemes properly. A professional team costs a lot of money (for rural water supply organisations supplying by gravity it may add up to 50% of total income or more!). On the other hand they can make the operations including the financial affairs more efficient and effective. Their major task is to deliver a good service at the lowest cost controlled by the Board. For instance, a manager may increase the collection efficiency gradually to close to 100%. By doing so (s)he earns back his own remuneration!

The manager is made accountable for communication and reporting to the Board and consumers as stipulated in the Articles of Association. The Board will demand this. The accountant can improve the level of accountability and transparency resulting in more trust from the users. The Board can introduce several checks and balances, while an external audit is required according to the Articles of Association. Good technicians may reduce the leakage substantially reducing the pumping costs.

Smaller WSCs, WUAs, and Trusts can not employ a professional management team because the involved costs are beyond their capacities. They could consider collaboration or merging to enable efficient and effective management. There is a minimum number of users of some 8 to 10 thousand people (assuming 100% cost recovery) or some 15 thousand (assuming an overall cost recovery of 60-70%) required to be able to afford a professional management team[15].

Water supply organisations outside the government should not follow government salary and allowances structure. They should pay realistic and reasonable salaries to the executives and the staff. Remuneration based on a basic salary with attractive bonuses for good management performance will provide the right incentives to executives, leading to better service for the consumers.

The management structure is included in **Diagrams 1 and 2** (pages 9 and 12) on the institutional structures.

The workshop participants evaluated this management option very positively. This option ranked overall best.

[15] Assumed to have a professional management team of four with their respective income in brackets: manager (TShs. 60,000), accountant (TShs. 50,000) and two technicians (TShs. 40,000 each), plus some extra office cost (TShs. 60,000).

5.6 Management Contract

For rural areas management contracts are not very common yet. There are a few experiences in Tanzania: Sengerema district town and Berege village (and some neighbouring villages) in Dodoma. The information on the Sengerema case is limited. The Berege case[16] has on two boreholes providing water to about 3,000 people.

The rural water supply organisation gives the entire management for a longer period of some years to a private company (one person) that is fully responsible for the operations following agreed terms of reference of the contract. The Terms of Reference (TOR) may include details such as minimum hours of service, minimum quantity of water to be supplied, maximum tariffs, etc. The Board or Water Committee has no control over the water supply operations unless the private manager does not meet the contractual terms. The Board or Water Committee reviews progress and annual reports. Therefore, Board or Committee members should have capacities to review these reports adequately, and take measures where and when needed to adjust the contractor.

This management option scored generally quite positively in the analysis during the workshop, except for the following criteria: (i) facilitating in- and external communication, reporting and transparency, (ii) facilitating acquiring external funds and (iii) the risk of using profits for non-water purposes.

5.7 Overall Analysis and Conclusions on Management Options

Below conclusions are drawn regarding the different management options discussed above. The workshop also analysed the different management arrangements. The conclusions of the five working groups have been aggregated in **Table 3**.

- ***Effective Business-oriented Management***
  Community-based management arrangements miss the business orientation in their management capacities required for rural piped water supply. Their primary goal is usually the social aspect of water supply. Professional management teams and management under contract are much stronger with respect to business orientation and management capabilities as they have been hired to do a job effectively and efficiently. The 'governors' who hired them, will take care that the social aspects are not marginalised.

  There should be a separation of roles and responsibilities in governance and management of rural piped water supply. The Board of Directors should set policies, directions and strategies, and approve business plans, budgets and accounts. The management team does the daily operations of the Company, Association or Trust, prepares business plans, budgets, monthly financial overviews, and water bills, collects water charges, monitors the proper functioning of the scheme, repairs leaks, etc.

[16] Lwakabare, 2000. Small-Scale Private Sector Management and Financing of Rural Water Supply. Case Study – Berege Village, Dodoma. In *Water and Sanitation News*. Vol. 7, No. 1, pages.6-7. Nairobi .

Table 3 Comparison of Different Management Options for Rural Piped Water Supply

Management Options	*Examples*	Effective business-oriented management	Competency and confidence of management	Guarantees technical service level	Guarantees for efficient cost-recovery	Facilitating in- & external communication, reporting and transparency	Facilitating acquiring external funds	Risk of using funds/profits for non-water purposes	Realistic Budget and expenditure (one group)
Management by Village Water Committee under Village Government	*Most older schemes*	-----	-----	-----	-----	--	-----	+	-
Management by Special Committees within Central Water Committee	*Mlingano scheme (Tanga region)* 1*	-	0	0	---	-	0	+	
Management by Executive Committee of Board or Central or Scheme Water Committee	*WSCs (usually in Morogoro), WUAs and Mlingano & Lukozi* 2*	--	-	+	--	-	-	-	
Professional Management Team	*Kiliwater and some WSCs and some WUAs*	+++++	+++++	+++++	++	+++++	++++	-	+
Management Contract (outsourced management)	*Sengerema Berege*	+++	+++	+++	+++	+	++	+	

1 = Organisational set up not backed by legal procedures.*
Any bush lawyer can bring them into trouble.
Water right not registered.

2 = Important condition that management (executive level) is separated from Board (Policy and control level).*

- ***Competency and Confidence of Management***
  Board Directors and Scheme Management Committee members are usually not elected because of their management capacities but more because they are trusted by their constituency. They have usually limited or no knowledge and experience in managing a 'social/economic business' of this size. Furthermore, as they are being elected their office duration may be limited to one to three years, which is too short to build up corporate knowledge, experience and management confidence. Most managers have been trained in technical and engineering issues more than in management. Because of their exposure and experience over a number of years several of the managers seem competent and confident. Accountants and technicians are supposed to be trained for their specific tasks. Specific training or refreshers will be needed to keep them up with the new management, accounting and technical developments.

- ***Guarantees for High Technical Service Level***
  The service level depends among others on the availability of funds (through the collection system), managerial professionality and working procedures. In most management options these conditions are not met. Only a trained management and technical team can guarantee that the supply will have a high reliability with adequate water of good quality. For instance, a manager will insist on proper repairs of leaking pipes while a community-based management may accept provisional repairs for financial reasons, and this may then result in unnoticed leakage and less water for the people.

- ***Guarantee for Efficient Cost Recovery***
  Community-based management particularly VWC under the Village Government may to be less strict and consequent on the collection of water charges. They may emphasise the social aspect of community water supply, perhaps also for political reasons. Such practice may result in gradual decrease of cost recovery. Professional management must be strict and follow policy guidelines and procedures approved by the governors. The AGM can decide to exempt certain categories of villagers for social reasons. To enhance the efficiency, the remuneration of the professional managers can be set at a basic level with a bonus payment related to the management performance including collection efficiency and cost recovery. **Table 4** gives an overview of collection efficiencies of different management arrangements in selected rural water supply organisations.

- ***Facilitative to In- and External Communication, Reporting and Transparency***
  Experience from WSCs and WUAs has shown that this is a weak aspect of the management by Executive Committees (of governors). In (traditional) village structures transparent reporting is usually not very common for different reasons including hierarchical aspects. Professional managers will be required to report regularly on progress and accounts. The experiences in the UBWS[17] and Kiliwater Ltd. have been positive in this respect. This Trust has also introduced some checks and balances. Such checks and balances would also be possible in any management option but adherence to such systems is much easier in case of a professional management unit. In the case of management by contract, the manager does not have to report that regularly or to be fully transparent on progress and finances as long as he fulfils the terms of the contract. WSCs, WUAs and Trusts require according to the Articles of Association annual external accounts.

[17] UBWS: Uroki Bomang'ombe Water Supply in Hai District, Kilimanjaro region.

Table 4 Collection Efficiency Realised under Different Management Options

Management Option	Rural Water Supply Organisation	Collection efficiency
District Council	No information	No information
Village Water Committee	Nsongwi Juu (Mbeya region)	About 100%
Village Water Committee	Ngamanga (Mbeya region) supposed to be a WUA	0%
Village Water Committee	In Dodoma's WAMMA project	No data; only balance VWA
Central Water Committee	Mlingano Water Supply	About 43%
Central Water Committee	Lukozi Water Supply	About 50%
Resident Engineer	Handeni Trunk Main	About 15%
Resident Engineer	Makonde Plateau	About 9%
Executive Committee of the Board of Directors	Kimamba WSC (Morogoro region)	96% (April – June 2000)
Executive Committee of the Board of Directors	Ruaha WSC (Morogoro region)	86% (April – June 2000)
Executive Committee of the Board of Directors	Ichonde WSC (Morogoro region)	41% (April – June 2000)
Scheme Management Committee (in WUAs)	No information	No information
Professional team	Kiliwater Ltd.	61% (1999)
Professional team	Uroki Bomang'ombe Trust	98% (1999)
Professional team (just started)	Ikela WSC (Morogoro region)	50% (April – June 2000)
Professional team	Nyaugenge WUA (Mbeya region)	About 40%
Professional team	Ismani WUA (Iringa region)	About 25%
Outsourced to a private management team	No information	No information

- ***Facilitative to Acquiring External Funds***
  Acquiring external funds will be very hard for all rural water supply organisations. For the lending institution, management performance is an important evaluation criterion for approving a loan. The chances to achieve satisfactory performance in the eyes of lending institutions are much higher for a professionally managed water supply organisation than for an organisation run by elected individuals, who are usually not sufficiently knowledgeable with respect to water supply management and accounting. Management contracts may face constraints depending on the duration of the contract and uncertainty of continuation. In general, it may be difficult for rural water supply organisations to obtain loans from commercial banks.

- ***Risk of Using Funds and Profits for Non-water Purposes***
  History has shown that funds managed under the Village Government are often used for other purposes than originally meant. The Village Government may have ad-hoc priorities and any funds available may then be used for such purposes. The inclusion of the DWE as a signatory of the Village Water Account could take away some of

these type of concerns. On the other hand it reduces the autonomy and creates a dependency on higher authorities. Also in case of management by contract, the private contractor has as main objective to make a profit to be used for his/her own purposes. Management by a professional team and controlled by a Board of Directors (or Board of Representatives, Trustees, etc.) gives the least risk of misuse. It is up to the governors and the AGM to decide how to use any profit from the operation of the water supply scheme. The Articles of Association must indicate the objective of the Association (i.e. provision of adequate water supply) and the purposes for utilisation of any profit (this is commonly for the same objective). Nevertheless, misappropriation of funds is also common in case of management by an executive committee of the Board or a scheme management committee (i.e. where there is no separation of policy making and executive tasks). The separation creates a means of control in itself. One actor monitors, the other executes. There are checks and balances. Power is divided.

The overall conclusion is that management by a professional team is the best option for rural water supply organisations. But clear procedures, checks and balances, performance-related remuneration, etc., are needed to keep management controlled and in line with the objectives of the organisation.

6. STRATEGIC OPTIONS FOR INSTITUTIONAL STRENGTHENING OF RURAL PIPED WATER SUPPLY ORGANISATIONS

Small rural water supply organisations face serious problems in their efforts to achieve long-term sustainability. The main problems are weak governance, weak management, inability to recruit competent management, financial and technical staff, unaffordable high costs for necessary activities such as external audits, etc. One of the reasons for these problems is the fact that small rural water supply organisations have to get their governors from a small community of consumers. A basically rural community may not have sufficient people with the wisdom and competence for membership of the Board or Scheme Management Committee. Furthermore, the size of many rural schemes is too small and the related income from water sales too limited to enable the establishment of a management unit with sufficient managerial, financial and technical capacities. A professional management team is very much needed for reliable service delivery and acceptable performance in management efficiency and effectiveness, which is the basis for sustainability.

Out of the 21 WSCs in Morogoro Region only six to eight companies have a sufficient large supply area (number of people and subsequent income) that they have a good chance to survive in the long term. A few more may prove sustainable because the demand for water is sufficiently high that people will make all efforts to have some kind of water supply. This would mean that more than half of the present number of WSCs in Morogoro Region might prove too weak to be sustainable.

The following 'strengthening' options to enhance the sustainability of the rural water supply organisations are analysed and compared:

- Strengthening through intensive collaboration with neighbouring water supply organisations,
- Strengthening through merging into larger rural water supply entities,
- Strengthening through establishment of District Water Supply Companies,
- Other options for strengthening.

On July 25 and 26, 2000, DWSP organised a regional workshop on ***Enabling Environment for Rural Water Supply Companies.*** During this workshop participants of local government and boards of water supply companies discussed different options for strengthening of rural water organisations, more specifically the WSCs in Morogoro Region. The options and their characteristics were introduced and described in a DWSP policy paper (**Appendix VII**). The conclusions of this regional workshop are presented in **Table 5**: the higher the (weighted) score, the more preferred the option indicated.

In the national consultative workshop of September 2000, participants discussed the pros and cons of these options. The main features of these options and the aggregated working group results are compiled in **Table 6**.

Table 5 Evaluation of Options for Internal Strengthening and External Support of WSCs (Regional Workshop Morogoro, July 25 and 26, 2000)

Alternatives	Score	Weighted Score
Clustering (i.e. merging) of WSCs	6	13
Private sector involvement (management contract)	3	8
WSCs: status quo	3	8
District Water Supply Company	2	3
Co-operation, association, or federation of WSCs	1	4
Direct involvement in O&M of the District	0	0

Maps have been prepared for each of the four districts of Morogoro Region showing the locations of the present WSCs and other schemes, further categorised in functioning and non-functioning schemes. The maps also indicate type of scheme (gravity, electrically-pumped, and diesel-pumped) and size of the supply area (number of consumers). The maps facilitate the visualisation of possible grouping of WSCs within one or more districts. However, a district border should not prohibit collaboration between WSCs in neighbouring districts. The maps can be found in **Appendix VIII**. An overview of the information supporting these maps is included in **Appendix IX**.

6.1 Strengthening through Intensive Collaboration

Most potential areas of collaboration between rural water supply organisations would be:

- Sharing of the professional management unit (with managerial, financial and technical capacities),
- Sharing of other resources (e.g. special tools, equipment, transport),
- Central purchasing and storing of spares,
- Contracting of external support such as external auditor, consultants, contractors, and training.

Each rural water supply organisation would keep its autonomy and independence and have its own Board, while a small 'Central Steering Committee' with one representative from each Board would oversee the collaboration. As accounting would be done centrally using a standard system and format, the external audit could be done as for one company saving much money. The costs of the shared resources and services have to be divided, for instance based on the number of water consumers (using DWPs, HCs and BCs) and also the intensity of use of the specific resource (e.g. tools, equipment, transport). The main advantage is economies-of-scale.

Table 6 Possible Strategies for Strengthening of Rural Water Supply Organisations and Management Entities *Page 1*

No.	Strategy	Features	Pros	Cons
1.	**Clustering by proximity**	▪ Opportunity is proximity: easy to reach ▪ WSCs keep their own independence ▪ Each WSC has its own Board ▪ Central Steering Committee with representatives from all WSCs ▪ Shared management and other executives (close-by), organised by central management unit ▪ Larger WSCs have own manager and other executives ▪ Central purchasing of spares etc. ▪ If enough critical mass: central organisation of external support, consultants, contractors, audits, loans etc. ▪ See **Diagram 9** and **Appendix VIII**	▪ Sharing costs ▪ Autonomy ▪ Shared services will minimise expenditure costs ▪ It is easy to co-ordinate ▪ Logistic support systems could be shared ▪ Expertise and staff could be shared ▪ Ability to share experiences learn from each other ▪ Ability to share resources ▪ Collaborate with each other ▪ Ability to share management few staff e.g. animation staff ▪ Ability to merge & form a bigger company ▪ Competition = incentive for performance ▪ Facilitate co-ordination ▪ Easy logistics ▪ Savings on shared resources ▪ Exchange experience and build capacity for smaller companies ▪ Enhance co-operation on a wider area	▪ Conflicts on how to share costs between different types of schemes ▪ Decision making will be slow ▪ Difficult to attain uniform tariffs ▪ Central committee will not be strong ▪ There could be emergence of legal conflicts within the cluster ▪ There could be conflicts in sharing costs for the cluster ▪ In case of differences in performance of different schemes there could be conflicts esp. with the origin of the shared staff ▪ Difficult to manage (different types of schemes) ▪ Type of technical staff different ▪ Different schemes – different types of spares ▪ Conflicts in trying to interfere with other companies ▪ Appex organ is an additional cost burden.
2.	**Clustering by scheme type**	▪ As in ***clustering by proximity*** ▪ ***But*** main opportunity in collaboration because same technology applied (electric pumping, diesel pumping or gravity)	▪ Specialisation of attendant (easy training) ▪ Possible to attain uniform tariff ▪ Easy to co-ordinate ▪ Shared services will minimise expenses ▪ Possible to standardise spares ▪ Easy to stock spares as require same type of spares ▪ Tariff setting is easy ▪ Same management ▪ Ability to share experiences ▪ Same type of expertise ▪ Streamline procurement ▪ Avoid duplication of manpower and tools	▪ Schemes may be distant therefore high operation costs increase ▪ Decision making will be slow ▪ Difficult to attain uniform tariffs ▪ Central committee will not be strong ▪ Easy for one project to depend on each other ▪ Logistics difficult ▪ Monitoring difficult ▪ Organisation different especially when they need to meet ▪ Can compromise spirit of good neighbourliness

Table 6 Possible Strategies for Strengthening of Rural Water Supply Organisations and Management Entities *Page 2*

No.	Strategy	Features	Pros	Cons
3.	**Clustering around larger district town WSC**	▪ Same as above ▪ District WSC houses central management unit, etc.	▪ Economy of scale ▪ Easy to get support from District Council ▪ Shared services will minimise exp. Costs ▪ Easy to co-ordinate ▪ Same as clustering by proximity ▪ Management can be optimised ▪ Benefit from available expertise and equipment	▪ Less participation ▪ Distance from decision makers to users ▪ Against policy ▪ Internal communications will be difficult ▪ Political interference is a threat ▪ Clustering has no legal status ▪ Same as clustering by proximity ▪ Smaller companies can be marginalised
4.	**Merging by proximity**	▪ Opportunity is proximity: easy to reach ▪ Village WSCs merge into larger one larger company ▪ WUG Committees elect representatives for (Central) Board ▪ Management and other executives (close-by) are based in central management unit ▪ Larger schemes may have own local manager and other executives ▪ Centralised purchasing of spares, etc. ▪ If enough critical mass: central organisation of external support, consultants, contractors, audits, loans etc. ▪ See **Diagram 10** and **Appendix VIII**	▪ Sharing of costs ▪ Attracts investment ▪ Ownership by users ▪ Legal backing ▪ Minimum operational costs (staff, etc.) ▪ There could be possibilities of legal institution ▪ The performance and efficiency of individual schemes could improve ▪ There could be a saving on overhead costs ▪ Share experiences learn from each other ▪ Performance easy as close to each other ▪ It is cost-effective ▪ Easier to secure external funds or loans & cover entire area ▪ Centralised purchasing of spares ▪ Logistics easier ▪ Cost effective ▪ Cross-subsidisation on tariff costlier ▪ Professional management affordable	▪ Centralisation ▪ Increased costs ▪ Decision making will be too remote for beneficiaries (may kill the sense of ownership) ▪ Outreach costs can be higher ▪ Individual village might not be willing to release powers ▪ Less motivation of personnel due to distance of staff from the @ scheme beneficiaries ▪ Bureaucracy could emerge ▪ Management less accountable to either of group schemes ▪ Difficult to manage as different types of schemes ▪ Redundancy (staff in some companies may need to be reduced) ▪ Tariff setting difficult ▪ Difficult in stocking different types of spares ▪ Decreased source of ownership ▪ Redundancy of staff ▪ Tariff rationalisation difficult ▪ Loss of identity (for small companies) Trust, Association etc.

Table 6 Possible Strategies for Strengthening of Rural Water Supply Organisations and Management Entities *Page 3*

No.	Strategy	Features	Pros	Cons
5.	**Merging by scheme type**	▪ As for 4: but focus is on similar type of technology (expertise, skills, spares, etc)	▪ Expertise (easy training ▪ Technical standardisation ▪ Share same expenses ▪ Easy to set tariff ▪ Easy to stock spares ▪ Same type of technical skills and expertise ▪ Facilitate standardisation ▪ Cost effective	▪ Less participation (distance) ▪ High costs ▪ Distance ▪ Older schemes (companies) will be a burden to new scheme ▪ Manage far from users ▪ Difficult in logistics ▪ Redundancy
6.	**Merging around larger district town WSC**	▪ As for 3 combined with 4	▪ Easy to attract expertise ▪ Technical standardisation ▪ Easy to get support from District Council ▪ Easy to access different services/facilities e.g. spares ▪ Share experiences learn from each other ▪ Performance easy as close to each other ▪ It is cost-effective ▪ Easier to secure external funds/loans & cover entire area ▪ Central purchasing of spares ▪ Logistics easier ▪ Cost effective ▪ Utilise professional management	▪ Less participation ▪ Distance increase costs ▪ Political interference ▪ Difficult internal communication ▪ Difficult to manage as different types of schemes ▪ Redundancy (staff in some companies may need to be reduced) ▪ Tariff setting difficult ▪ Difficult in stocking different types of spares ▪ Redundancy ▪ Marginal areas could be neglected
7.	**District Water Supply Company run by District Council**	▪ See **Diagram 11** and **Appendix VIII**	▪ Technical expertise ▪ There could be saving in the overhead costs ▪ Accessibility to external funds / Government funds will be easier	▪ No financial capacity ▪ Highly centralisation ▪ Does not conform with sector policy ▪ It may advocate free water syndrome ▪ Bureaucracy could emerge ▪ Top-bottom mentality ▪ Different people, different needs produces conflicts ▪ Large management distance ▪ Revenue could be diverted to be used by district council ▪ Allow for non-water exp. ▪ Less accountability
8.	**Co-operatives**		▪ Strong ownership by users	▪ Low response of users
9.	**Village Government**		▪ Misappropriation of funds	▪ Lack of skills

Rural water supply organisations will exchange experiences and learn from each other in management performance and in the activities in the Board. There will be a healthy competition among the organisations to perform better, which will result in cost efficiency and a high level of service delivery.

Intensive collaboration could be based on two main issues: (i) proximity or (ii) type of technology used in the scheme. Collaboration could also be with the larger district town as the core entity that houses also the central management unit.

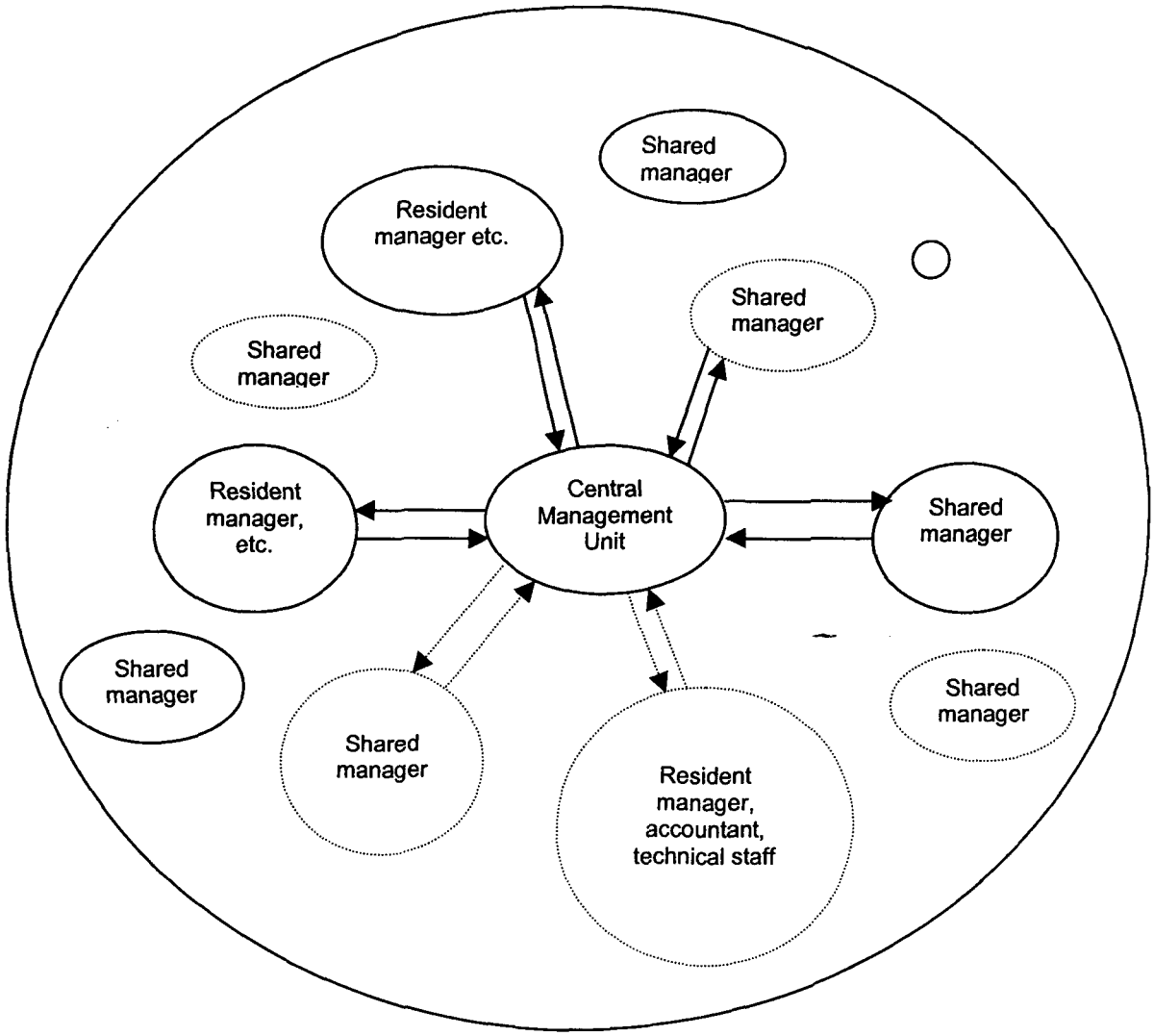
For the collaboration with neighbouring rural water supply organisations the advantage is that for the shared staff travelling from one place to the other is easy, can be done by 'simple' and cheap means of transport and would not take much time. If the management unit is based in the district town, technical support could easily be provided by the DWE.

For collaboration with rural water supply organisations having the same type of scheme (for instance electrically pumped schemes), the specific advantage is that the central management unit is familiar with the specific requirements in operation and maintenance and has staff specifically trained for this technology. Special tools become affordable and spares can be centrally purchased and stocked. This will result in higher efficiency of utilisation of staff, equipment, tools and spares. And the eventual effect is better service delivery because of less breakdowns, shorter downtimes, higher appreciation of the service and increased willingness-to-pay.

The risks are particularly in the formula to share the costs of the central/shared management unit, the functioning of the 'Central Steering Committee', and the potential conflicts in the allocation of resources (staff, equipment, tools and spares). The largest organisation where the central management unit is most likely based, might be favoured in support while others might feel marginalised. When neighbouring entities collaborate and they have different scheme technologies then the technical and the management requirements become a problem, unless the group of collaborating organisations is large enough to justify specialised technicians for each scheme technology (on for instance electro-mechanical matters: pumps, generators, switch-boards, etc. and for gravity systems source protection knowledge (geohydrology, environmental protection, etc)). Particularly if the district town is the core entity, the risk for preferential treatment of the town water supply is big. Also political interference may be a serious threat.

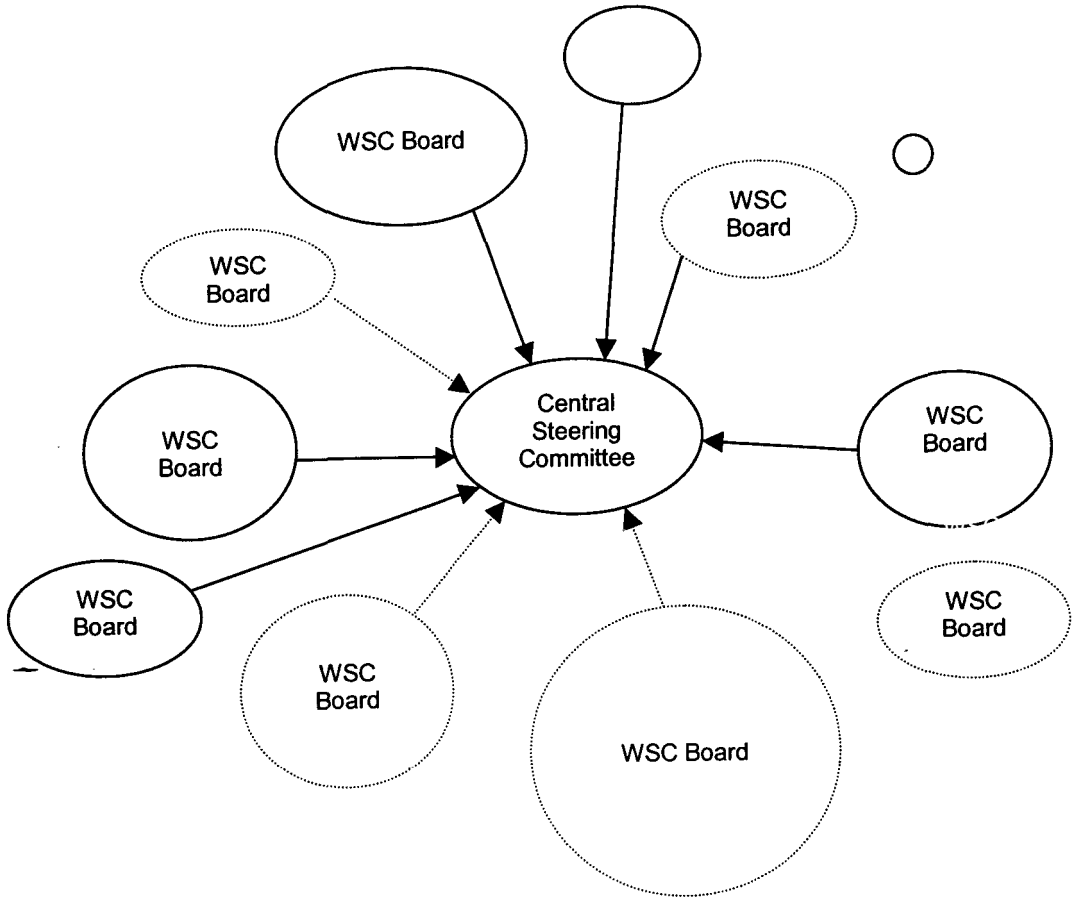
Collaboration may not have a legal status but clear terms of collaboration have to be formulated and binding agreements have to be signed by all participating organisations.

Diagram 9a Collaboration between Rural Water Supply Organisations: Management Structure



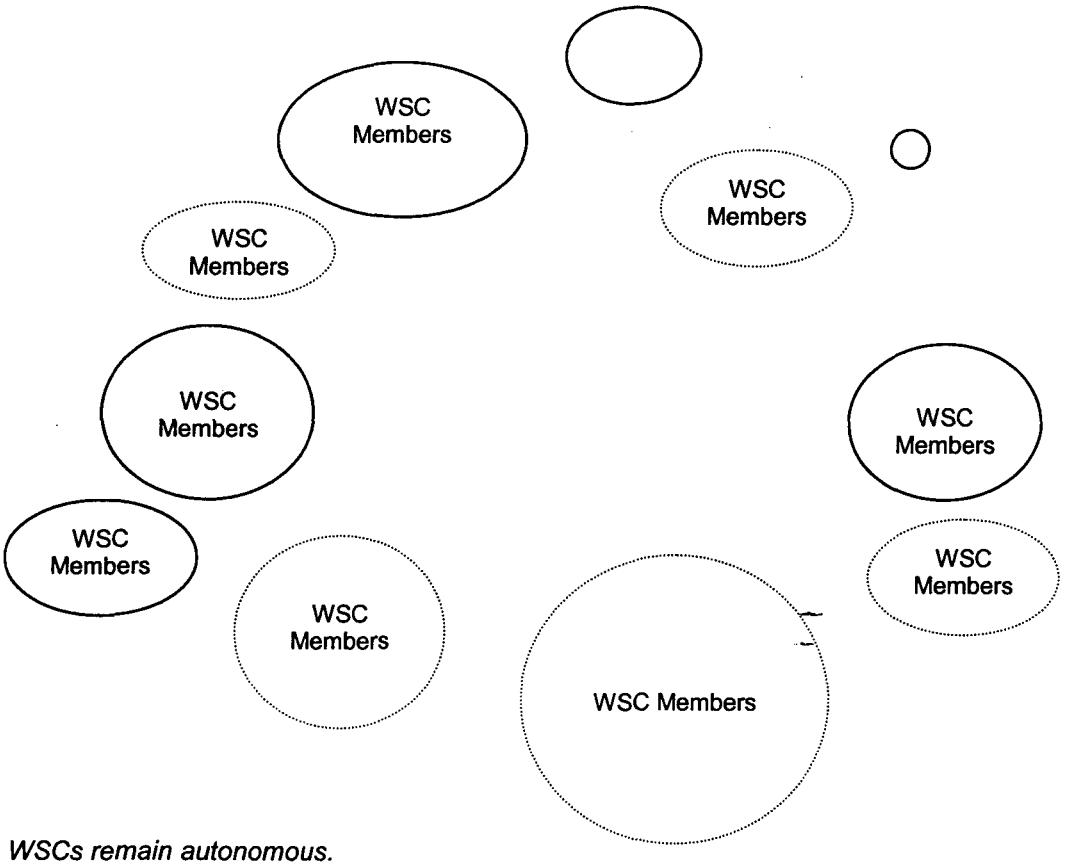
Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 9b Collaboration between Rural Water Supply Organisations: Governance



Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 9c Collaboration between Rural Water Supply Organisations: Ownership



WSCs remain autonomous.

Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

6.2 Strengthening through Merging into Larger Entities

Merging is a possible next step after intensive collaboration. But a merger can also be agreed upon without having had first intensive collaboration. A merger can be agreed on logical grounds after some due-diligence investigations and getting to know each other (cultural compatibility). The main difference is that the separate entities stop to exist and one large(r) rural water supply organisation is established. That means that there will be only one Board. The representation by and communication to the users needs special attention as the organisation becomes big. On the other hand the Board should remain small (less than 10 people) and the policy making body should allow easy and transparent decision-making. Sufficient participation of the users through democratic election of members should be guaranteed. On the other hand, the efficiency of the new organisation should become substantially higher because of the merger. The risk of political interference from local politicians and government will be less because of the larger body and the more strict management rules to be adhered to. The Board needs also to have capable members with adequate knowledge in the rural water supply organisation's fields of working such as technology, finance and human resources. This will prevent a knowledge imbalance between the Board and the management. The more capable people in the Board, the more logical thinking will be to counterbalance management if necessary. The larger the supply area, the more likely that better candidates will make it to the Board (as in Uroki Bomang'ombe and Kiliwater), but this is not a certainty. The primary knowledge should be in the management.

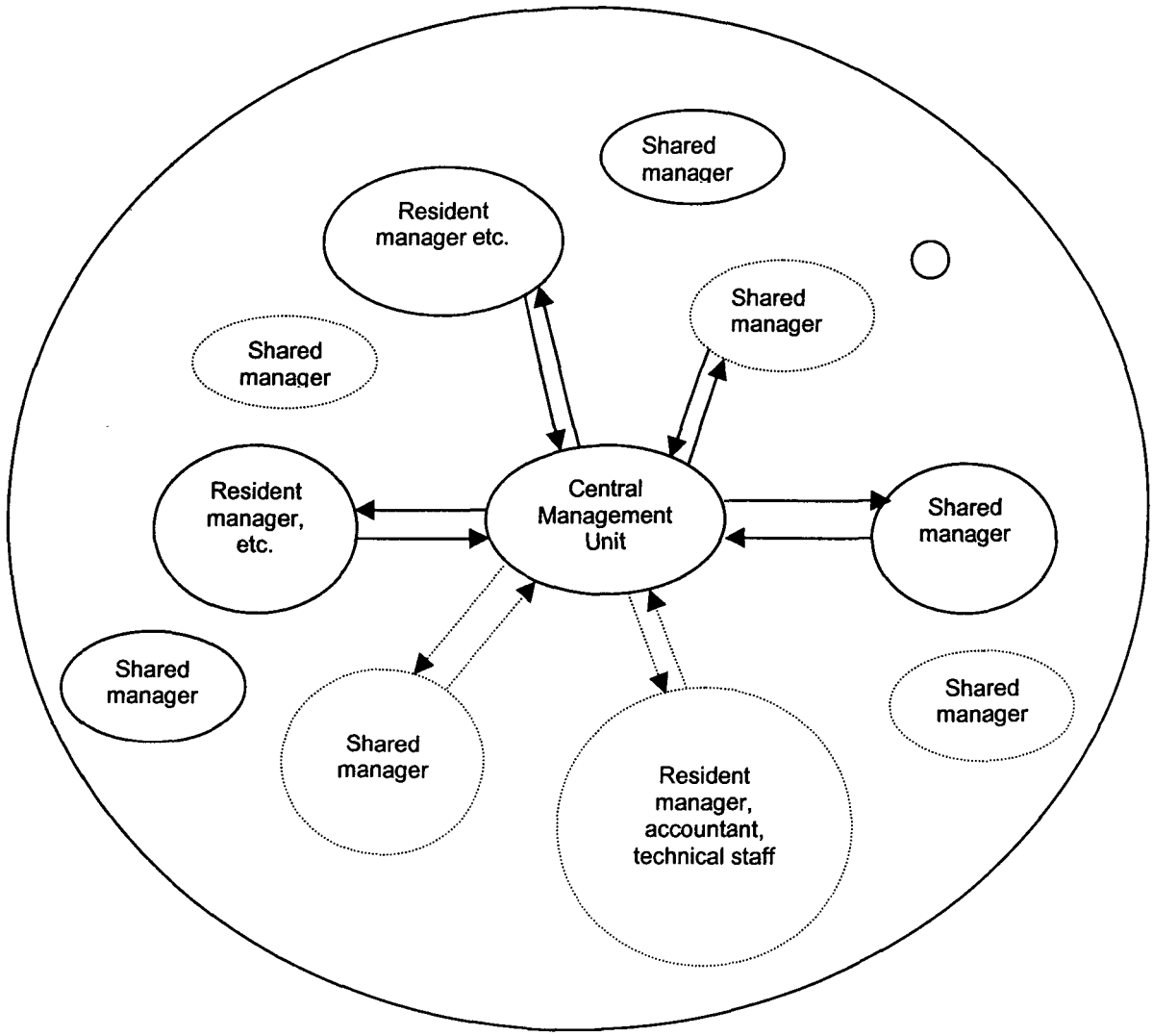
Merging can be based on proximity, type of scheme technology or with the district town as core. Merging can only be achieved if there is full trust from each partner in the new organisation after the merger. The basic condition for merging is that all the entities must gain. They all loose their independence and must be assured that none of them would be marginalised on the account of the larger entities.

A risk is that the decision-making process is too far from the users. On the other hand the users may appreciate the higher service level or a lower tariff resulting from increased efficiencies. Centralisation may result in an inefficient, expensive and slow-moving bureaucracy. This could result in operational problems particularly in the outer schemes.

Actually the arguments supporting merging of smaller water organisations are similar as those for intensive collaboration. The added advantages are that the principle of economy-of-scale now also applies in the Board and the decision-making body. Quite a number of potential conflicts in a Central Steering Committee can be prevented be having a combined Board. Also in other organisational and managerial areas higher cost-efficiencies can be achieved, leading to an improvement in management performance. Theoretically this should result in lower tariffs and/or higher service delivery levels. Contracting out of services becomes relatively cheaper the larger the number of consumers, e.g. annual external audits, training, special services, etc. Also, one central computerised billing system may further increase the efficiency. Because of the distance between the merged water entities, larger schemes may need a local management team that is answerable to, and supported by the central management unit.

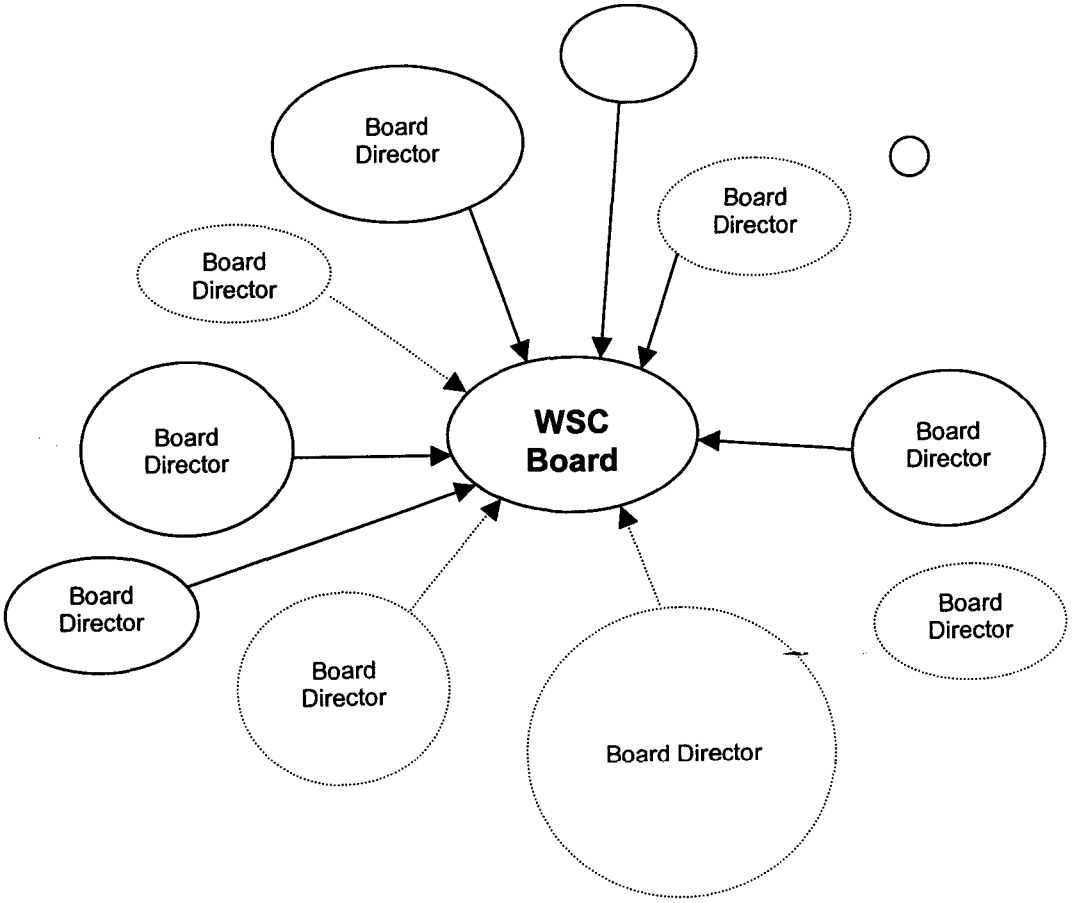
Diagram 10 depicts management structure, governance and ownership of a merger of rural water supply organisations.

Diagram 10a Merging of Rural Water Supply Organisations: Management Structure



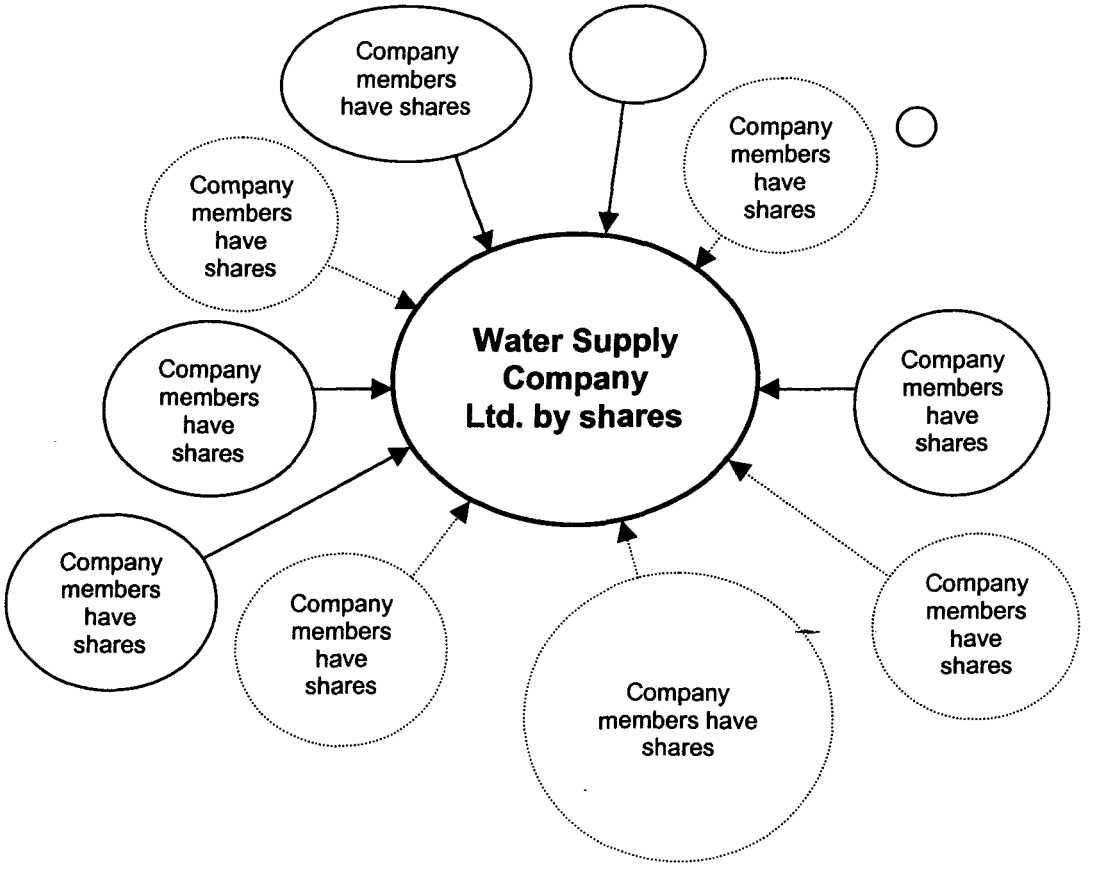
Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 10b Merging of Rural Water Supply Organisations: Governance



Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 10b Merging of Rural Water Supply Organisations: Ownership



Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

If WSC Ltd by guarantee, then elected representatives have 'ownership' of the Company.

6.3 Strengthening through Establishment of District Water Supply Companies

This option is a next step in gaining the advantages of economies-of-scale. **Diagram 11** illustrates management structure, governance and ownership in case of a District Water Supply Company.

6.4 Other Options for Strengthening

Other strengthening options discussed in the workshop include:

- District Water Supply Company run by the District Council,
- Larger companies run by co-operative societies,
- Larger companies run by Village Governments or united management overseen by Village Governments.

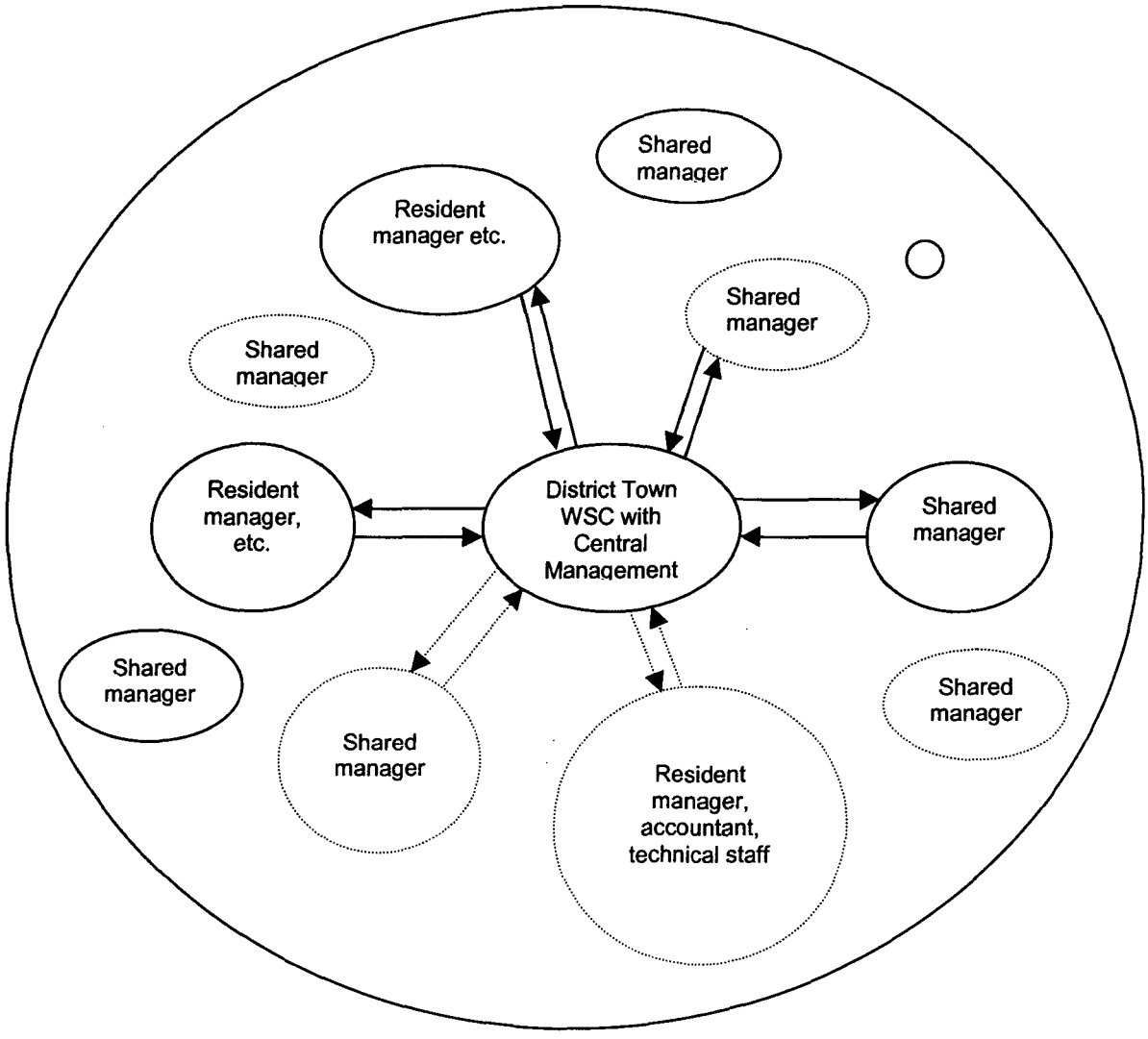
Only the first option triggered some comments during the consultative workshop (Morogoro, September 2000). Particularly disadvantages were ventilated such as not being conform the sector policy, no management capacity, no financial capacity, high bureaucracy, inadequate salary and allowances policies, low accountability, income may be diverted for other purposes and risk for advocating free water.

The other options are not feasible at all because of arguments given in the earlier analysis and conclusions on institutional and management options in this report.

6.5 Conclusions on Most Viable Strategic Option for Institutional Strengthening

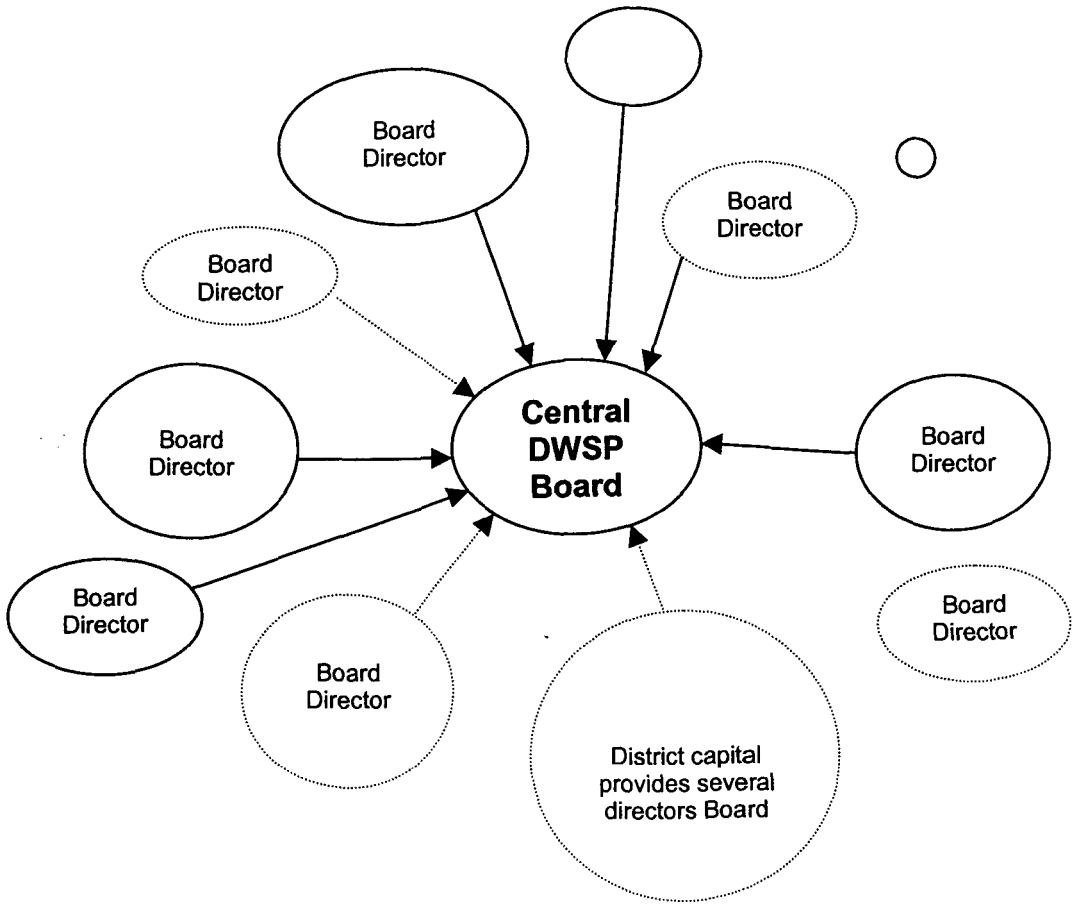
The most viable strategy for institutional strengthening will be the gradual development of partnership with as a first step intensive collaboration based on proximity (and alternatively scheme type), depending on the specific opportunities. If this collaboration has shown positive effects for all parties in terms of cost-efficiency and higher service delivery through improved management performance and a sufficient level of trust has been established, then a next step can be considered, that is the merge of all collaborating organisations and possibly other organisations. Local and Central Government, and others including those rural water supply organisations themselves can be pro-active in pursuing such a merger by explaining and convincing the users about the benefits. Whether the gradual process towards a merger will be most opportune with a district capital as its core and eventually resulting in a district water supply company is still open for discussion. It should however not prevent merging across administrative borders if such would lead to apparent and easily gained economies-of-scale. Transparency of the process of enhanced co-operation and merging in to larger and more economically viable units, eventually possible into District Water Supply Companies, is a must. The users will have to keep the feeling that their interests are sufficiently guarded. Gradually they will exchange 'say' in the company for better and cheaper services.

Diagram 11a District Water Supply Company: Management Structure



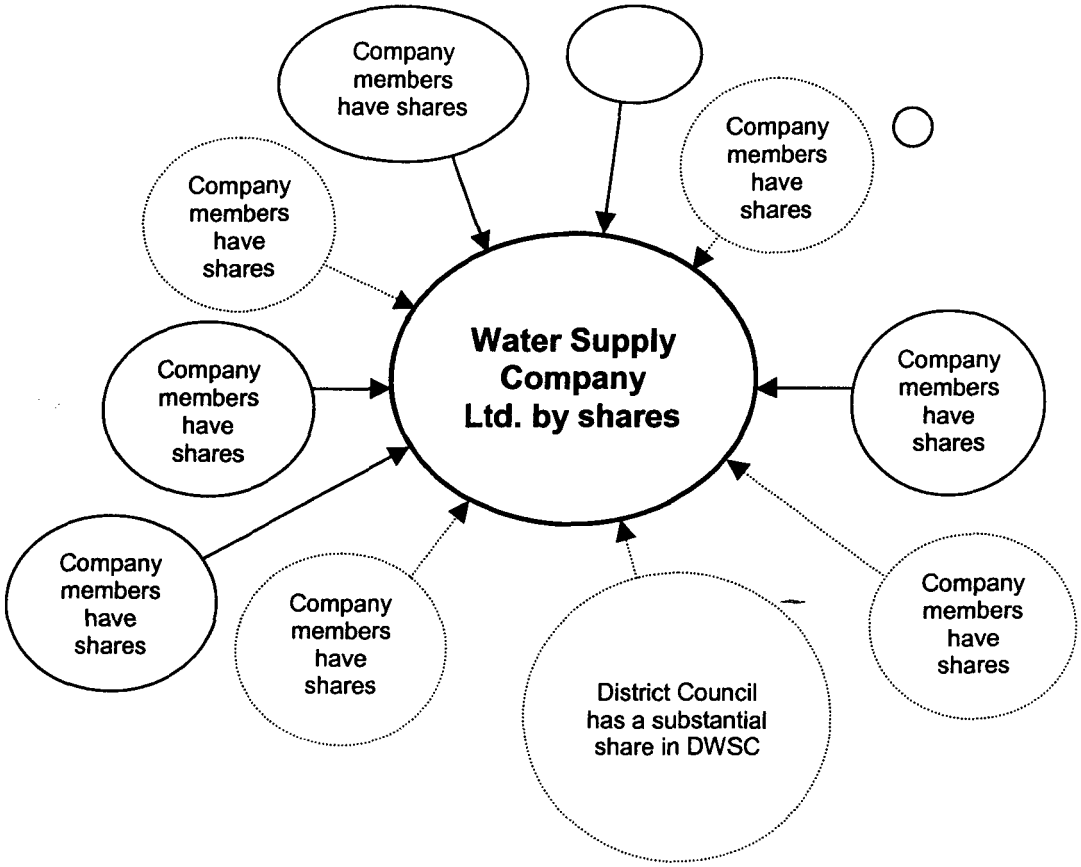
Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 11b District Water Supply Company: Governance



Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

Diagram 11c District Water Supply Company: Ownership



Fully lined circles: existing rural water supply organisation
Dotted lined circles: schemes to be rehabilitated and 'institutionalised'

7. DEMAND AND POTENTIAL SOURCES OF EXTERNAL SUPPORT FOR RURAL PIPED WATER SUPPLY ORGANISATIONS

None of the present autonomous rural water supply organisations is running fully independent of external support. The most independent are probably the WUAs in Iringa and Mbeya. After the DANIDA-supported project stopped mid 1999, they can only call upon support from the district and the region. As indicated before, this support is minimal because of lack of resources of the districts and the regions to visit the WUAs (resources meant are travel allowances required in the Government structure and operational means of transport). The results of this lack of support are clearly visible in the general decrease of (management) performance and in the organisational and technical difficulties the WUAs are facing. The next most independent rural water supply organisation is probably the UBWS in Hai district (Kilimanjaro Region). UBWS has a strong institutional and management set-up. But also it gains from the presence of the KfW-supported rural water supply project in Hai district. That project provides also some coaching or just sounding-board function to UBWS and supplies some hardware (computer; water meters) and software against payment in local currency.

Other rural water supply organisations receive substantial support still. Kiliwater Ltd. receives O&M financing (at present 25% of current expenditures), material and management support from the German Government through GTZ. Mlingano Scheme in Tanga receives financial, technical and management support from TADDO. Handeni Trunk Main Water Supply runs only because of huge subsidy from Central Government. The WSCs in Morogoro Region receive coaching, advice and some training support from the Netherlands-supported DWSP.

For all directly involved with rural piped water supply in rural Tanzania, it is evident that there remains a need for several types of support, even if water supply organisations have become financially sustainable. The demand for different types of external support as required by the rural water supply organisations and where this support should come from has been one of the key issues in the Consultative Workshop held in Morogoro in September 2000. The potential role of a professional association ('Federation') of rural water supply organisations has also been discussed in the workshop. The results of the discussion in five working groups have been compiled in one matrix (**Table 7**). An analysis, as well as conclusions and recommendations are given in the following sections.

7.1 Demand for External Support of Rural Water Supply Organisations

During the visits to the several rural water supply organisations in Iringa, Mbeya, Tanga and Kilimanjaro regions, but also during regional workshops organised by DWSP, managers and board members have expressed several demands. These demands include facilitation and organisation of different types of training for management unit staff, governors and consumers; technical support for expansion, etc.; financial support; special services such as external audits and on legal matters; monitoring and coaching; and interest protection and lobbying at different government levels.

The areas and types of support that rural water supply organisations may request for are listed in **Table 7** as well as the score workshop participants gave to each of the items mentioned. The higher the score, the higher the demand for support.

Table 7 **Demand for Further External Support to Rural Water Supply Organisations** *Page 1*

- Will this strengthening of water institutions (the strengthening, we just discussed, through collaboration, merging or establishment of District WSC) solve all the problems and needs/demands those water institutions may have?
- Or is there still external support needed to facilitate or implement activities that are beyond the capacities of the water institutions?
  For instance, what about training pump operators, or having an annual external audit done?

Please address in you group the following:

- Below some of the areas that may need external support are listed, please add some from your own experience
- Indicate the degree of demand from the water institutions for such areas (from your own experience or expectation) see scoring at the bottom of this page)
- Which of the indicated support organisations (listed below) could assist in these activities?
- Would it be possible for smaller or even clustered or larger water institutions to directly contract this type of support? Or is facilitation through a national Federation of water institutions (with regional branches) needed?

Institutions that might assist water institutions in specific activities. Suffixes in table indicate by how many discussion groups the user code was mentioned.

		User Code
1.	*No need, they can do it themselves*	*Self*
2.	*Departments of District Council (including Water Department)*	*DC*
3.	*Consultancy unit in Regional Water Engineer's office*	*CU-RWE*
4.	*Other consultancy units at regional level*	*CU-R*
5.	*Ministries at the Central Government level*	*Min*
6.	*Private sector at district level*	*PS-D*
7.	*Private sector at regional level*	*PS-R*
8.	*Private sector at national level*	*PS-N*
9.	*Rweguralila Water Resources Institute – DSM*	*WRI*
10.	*Sector supporting resource centres e.g. NETWAS TZ*	*NETWAS*
11.	*Federation of water institutions (Umbrella organisation)*	*FED*
12.	*External Supporting Agency*	*ESAs*
13.	*Non-Government Organisations*	*NGOs*
14.	*Community Based Organisations*	*CBOs*

Degree of demand from water institutions for the listed types of support:

0 = no demand (none of the water institutions will demand this support)
1 = low demand(only a few water institutions will demand this support)
2 = fair demand (several water institutions will demand this support)
3 = high demand (all or nearly all water institutions will demand this support)

Table 7 **Demand for Further External Support to Rural Water Supply Organisations** *Page 2*

No.	Type of Support Required	Demand for this Support	Support by ... (more institutions possible)	Facilitation by Federation? (yes; maybe; no)
Technical				
	Design and implementation of new technical works	3.0	DC[5], PSD[3], PSR[3], Cu-RWE[4], C-R[1],	No
	Spare parts for any pumping or distribution system	2.6	DC[2], SELF[1]; PS[4], Min[2], ESAs[2], CU-RWE[1], CU-R[1]	No
	Major repairs electrical installations (motor), diesel engines, pumps and boreholes	3.0	DC[2], Min[3], SELF[1]; PSD[4], ESAs[2],	No
Environment				
	Water source protection and water shed management measures	2.8	Min[4], Cu-RWE[3]; Self[4]; DC[4], Cu-R[2], PSR[2], NETWAS[2], FED[2], ESAs[2], NGOs[2], CBOs[2]	No
	Water quality surveillance	3.0	Min[4], Cu-RWE[4]; Self[3]; DC[2], Cu-R[2], PS[2], NETWAS[2], FED[2], ESAs[2], NGOs[2], CBOs[2]	No
Organisation and Management				
	Coaching and regular follow-up, including monitoring and advising on efficiency and performance	3.0	Min[1], Cu-RWE[2]; DC[5], Cu-R[3], PS[2], WRI[2], NETWAS[2], FED[2], ESAs[2], NGOs[2], CBOs[2] —	Yes
	Business plan development	2.4	DC[4], CU-RWE[2], PSD[5], PSR[3], NGOs[2], CBOs[2]	Maybe
	Legal issues: drafting and/or amendment of constitutions (e.g. Articles of Association)	2.8	Self[2], DC[4], CU-RWE[2], CU-R[2], Min[3], PSR[3], WRI[2], NETWAS[1], FED[1], NGOs[1], CBOs[1]	Yes
	Assistance in recruitment personnel, labour conditions etc.	2.0	SELF[1], PC,-0[1], DC[4], Min[2], CU-RWE[2], PS[2], NGOs[1], CBOs[1]	No
	Methods for development and/or improvement consumer relationship	2.4	SELF[2], DC[2], PSD[4], PSR[3] NGOs[1], CBOs[2]	Maybe
	Methods and tools for monitoring for effectiveness, and follow-up support	3.0	Self[2], CU-RWE[2], CU-R[2], WRI[2], FED[2], ESAs[2], DC[3], PS-D,[3] PS-R[3], Min[4], NETWAS[3], NGOs[2], CBOs[2]	Yes
Finance and Accounting				
	Annual external audit	3.0	PSD[4], PSR[4], DC[1],	Yes
	Advice on realistic budgeting, tariff setting and revenue collection	3.0	DC[3]; CU-RWE[1], CU-R[1], Min[1], PSD[4], PSR[1], SELF[2]	Yes
Human Resources Development				
	Training mechanics, pump operators/attendants	2.8	DC[2]; WRI[3], PS[3], CU-R[1], CU-RWE[1] NETWAS[1], ESAs[1] NGOs[1], CBOs[1]	Yes
	Training managers and accountants	2.5	PC[1]; PSD[4], PSR[2], Min[1] ,FED[2], NETWAS[2], WRI[2], ESAs[1], NGOs[1], CBOs[1]	Yes
	Orientation/training Members, Directors, WUG Committee	2.5	PSR[3]; PSD[1], DC[4]; FED[1], NETWAS[1], Min[1], NGOs[1]	Yes
General Issues				
	Counselling in conflicts, advisor / observer in Annual General Meeting	2.3	DC[4], MIN[1], PC[1], CU-RWE[2], FED[1], CU-R[1], FED[1]	Yes
	Lobbying WSC/WUAs interests at governments and ESAs levels	2.8	MIN[2], DC[2], Self[1], CU-RWE[1], PSD[1], PSR[1]	No
	Lobbying with banks for loan schemes	2.0	Self[3], CU-R[2], DC[3], MIN[2], PSD[1], PSR[1]	Maybe
	Facilitation on water-related hygiene, water uses and water practices	2.3	Self[2], DC[3], CU-RWE[2], CU-R[1], Min[2], PS[1], NGOs[1], CBOs[1] FED[1]	Yes

The overall conclusion is that the rural water supply organisations should be pro-active in expressing their demand for assistance to their present supporters, usually bi- and multi-lateral donors and international NGOs, and to the Tanzanian government.

7.2 Potential Sources for Providing External Support

The sources for support identified by the workshop can be arranged in several categories:

- Local and Central Government departments,
- Private sector at district, regional and national level,
- Tanzanian sector training and capacity building institutes,
- 'Federation' of water supply organisations,
- International NGOs and donors.

Potential supporters mentioned by the workshop participants are indicated in **Table 7**.

An overall conclusion from the consultative workshop results (it should be taken into account that 50% of the participants was government staff) and from discussions with government staff during the field visits is that government staff identify themselves as primary supporters for rural water supply organisations. The government staff is at one hand too optimistic on their support role while they have very limited resources available. On the other hand, such support (apart from monitoring) is not in line with the draft Rural Water Policy. It appears that Government officials can not see themselves yet in the very important role of monitoring and facilitators, but want to maintain a stronghold on their present (poorly performed) roles. The role of the private sector and other independent sector supporters (WRI, NETWAS Tanzania) is not so strongly indicated. The young status and existence of such institutes may have contributed to this outcome.

7.3 Assessment of Feasibility of Support Structures

The feasibility of the support structures can be divided in technical, financial and organisational feasibility. Also the institutional feasibility is to be looked into, i.e. is the support role in line of the mandate of that institution according to the new Rural Water Policy.

7.3.1 Local and Central Government Departments

Actually, according to the new Rural Water Policy, the local and Central Government departments are not supposed to provide general, technical, organisational, financial support to rural water supply organisations. Their role is that of facilitation and monitoring.

7.3.2 Private Sector at District, Regional and National Level

In Tanzania, the private sector companies that could support the rural water supply organisations are still very limited in number and do not cover the entire need/demand areas of the rural water supply. On the other hand, the demand for certain services creates opportunities for the private sector to start providing such services. Eventually, the private sector is the sector that has to provide most of the services needed. In the interim period other agencies and organisations have to fulfil that support role but that should not discourage the private sector to take up their role. Actually, these interim organisations should encourage the private sector to start providing that service and even facilitate training and start-up.

But in the absence of competition and because of the lack of experience to work with the private sector, there are also several risks in involving the private sector. For instance, monopoly may lead to uncontrollable price setting and poor workmanship. Particularly smaller rural water supply organisations can become the victim of such practices because of inexperience. This may lead to financial and technical catastrophes. Therefore, the rural water supply organisations need to be assisted in their contacts with the private sector.

There are a few consultancy firms in Tanzania – for instance WEDECO with branches in Shinyanga and Morogoro – that have experience with many aspects of rural water supply, although the professional level may be too high for the smaller rural water supply organisations. Also their tariff setting will be beyond a level affordable for a rural organisation.

7.3.3 Tanzanian Sector Training and Capacity Building Institutes

There are some training and capacity building institutes that can be of great support to the rural water supply organisations. These include the Water Resources Institute (WRI) and NETWAS Tanzania. There is a huge present and continuing future need for training of staff, governors and community groups in several areas. The number of trainees from one rural water supply organisation is too small for a cost-efficient training course; so joining of organisations, that require training support, is needed. That could be done by an umbrella organisation. Also, as for the private sector firms, facilitation in contracting and quality control is needed to make these affordable and effective training interventions.

These sector-supporting institutes do not have the institutional mandate to be an overall supporting organisation for the rural water supply organisations.

7.3.4 'Federation' of Water Supply Organisations

The rural water supply organisations need an organisation that protects their interests, is genuinely honest and acts as a facilitator in the contacts wit private consultants, contractors and training institutes. A Federation could be such a professional organisation that would provide coaching to its members. However, a Federation must have competent staff to carry out this fulfil this type of tasks. The level needs to be practically oriented, not necessarily academic.

A Federation of Water Supply Organisation has to be careful not to take over tasks that can well be done by the private sector.

To become cost-efficient, the Federation must be organised at national/zonal level, i.e. covering several regions. Within a region, there could be a branch office that can make use of certain special capacities at the national/zonal level. It has been stated several times in this report that the unrealistic government allowance system is not to be used for this type of organisations as clients or members as the water supply organisations can just not afford that. The same applies to the mode of transport: cars are probably not affordable for many of the existing rural water supply organisations. Consequently the staff of the Federation should use public transport or motorbikes.

The basic idea is that the Federation becomes a members-owned organisation, with water supply organisations in the rural areas and small towns being the members. In the start-up phase, it is not likely that many water supply organisations will become member. They have to see the benefits for them against the payment of the membership fee. Therefore, it is critical to create awareness among rural water supply organisations on the usefulness of a Federation.

The principle that water supply organisations have to pay for the service provided by the Federation is to be maintained. The Federation will start with working on the basis of demand expressed by the individual organisations. The Federation has to prove its added value for the organisations. This support of the Federation should result in better water supply service and cost savings through improved operational and financial performance. When the organisations are convinced that they get value for their money, they will join the Federation as a member. Against the membership, a number of free basic services or discounts on Federation's services may be offered.

Although the services will be offered against a certain fee, this will not likely be sufficient to cover the cost, particularly not in the first 10 years. General overhead/administrative costs have to be financed from outside. This subsidy may be provided by national/local government and by External Support Agencies that have been supporting the rural and small town water supply sector in Tanzania for the last two to three decades and have an interest in the long-term sustainability of their investments.

7.3.5 International NGOs and Donors

International NGOs and donors could assist support rural water supply organisations in several respects, directly and indirectly. Direct assistance can not provide a permanent and sustainable solution. International NGOs and donors, however, can very much assist the establishment of a permanent support institution as a Federation of Water Supply Organisations in Tanzania.

8. OPERATIONAL ISSUES IN RURAL PIPED WATER SUPPLY

From the deliberations during the consultative workshop, the workshop papers, the field visits and the general experiences of DWSP staff, a list of operational successes (**Table 8**) and areas for improvement (**Table 9**) is drawn up. Indications are given how to secure and strengthen the successes, and also what measures to take to solve problems that are hindering progress.

Table 8 Operational Successes and How to Secure Successes

Operational Success in Rural Water Supply Organisations	Actions to Strengthen or to Secure Success
Reliability of water service	Effective management (including cost recovery and alert O&M)
Good quality of water	Protection of drinking water sources in collaboration with local authorities (village, ward and district), Good operation and maintenance of intake works, Extra treatment if needed (filtration or disinfection)
Adequate quantity of water	Water shed and source protection
Efficient operation and maintenance (lower O&M costs)	Adequate O&M funds, Adequate number of O&M staff, Well-skilled and motivated O&M staff, Correct tools, equipment and spares, Readily available spares (some in stock)
Affordable tariffs	Keep technology and service level in line with economic status, Efficient management (keeps costs low)
Fair water charges through metering all connections	Properly functioning water meters, All connections and DWPs have meters
Efficient billing system	Timely distribution of water bills
Efficient cost recovery	Clear information on sanctions for non- or late payers of water bills, Good communication on finances to consumers Creates willingness-to-pay
Effective sanctioning of defaulters	Implement sanctions on non- or late payers immediately
Good communication between users and organisation (governors and management)	Regular financial and performance reporting to consumers, Provide opportunity for consumers to ventilate their appreciation, complaints and problems
Cohesion among Directors	Joint orientation and training for Directors, Good chairmanship
Knowledgeable Directors	Training and exposure for Directors

Continued at next page.

Table 8 **Operational Successes and How to Secure Successes** *Continuation*

Operational Success in Rural Water Supply Organisations	Actions to Strengthen or to Secure Success
Trustful and honest Directors	Good reporting on performance of organisation to consumers, Fair elections of members and directors of organisation
Good transparency	Monitoring, control systems (checks and balances) and reporting, Good financial management procedures, Regular financial reporting
Good accountability	Annual business plans, Good plans and budgets, Good financial management procedures
Realistic budget and expenditures	Internal and external control and audits
Close monitoring own performance (institutional, managerial, financial, technical, and community/user relationship)	Introduction of self-monitoring for effectiveness, Adequate training and coaching support
Competent and efficient management and management unit staff	Good selection procedures and criteria during recruitment of staff, Business-orientation of management, Training and exposure of management unit staff
Good governance	Trustful and honest Directors, Knowledgeable directors, Good mission and vision, Good control and steering of management
Access to good support structures	presence of affordable and effective support structures (Federation)
Good communication with Village Government, Ward and District authorities	Establish good rapport with local authorities and politicians (inform them sufficiently); Involve these authorities and politicians in certain activities not leading to their interference
Extension to new supply areas	Invest profits/surplus or loans in extensions
Expansion of system to increase service level	Invest profits/surplus or loans in increased service levels if the consumers demand this, can afford it and also the water resources are adequate

The list is not exhaustive and does not give the areas in order of importance.

Table 9 Operational Areas Needing Improvement

Operational Area Needing Improvement in Rural Water Supply Organisations	Measures Needed to Improve on Problematic Operational Areas
Separation of executive roles and governance	Create a separate professional management unit
Poor governance	Trustful and honest Directors, Knowledgeable directors, Good mission and vision, Good control and steering of management
Availability of a business plan	Prepare business plan
Poor cost recovery	Clear communication in planning phase on realistically expected O&M costs, Clear information on sanctions for non- or late payers of water bills; Good communication on finances to consumers Create willingness-to-pay
Protection of water sources	Effectuate water laws and catchment protection laws
Enforcement of environmental protection	Formulate bylaws and have them approved
Interference on water issues by politicians and local authorities	Clear and well-communicated policy (awareness raising – information and documentation)
Enabling environment at local government	Capacities and resources at local government for effective implementation of their tasks

9. CONCLUSIONS

9.1 Policy and Government

- Although the Water Works Ordinance (Cap. 281) and the Water Utilisation (Control and Regulation) Act 1974, have made provisions for the regulatory role in water supply services, there is no clear regulatory framework for rural water supply. Although the draft Rural Water Policy (1999) states the Government will be the Regulator, it is very unclear by whom exactly this regulation will be done (central, regional, district, ward or even village). The terms and conditions of this regulation must be carefully formulated and be communicated (information and documentation) to the rural water supply organisations. The mandate should definitely not allow for interference in general management and operation of the rural water supply organisation. However, the regulator should be able to act if the water supply organisation makes a total mess of its task: i.e. for instance no service, corrupt, enormous debts with TANESCO and others, etc.

- Current awareness of the Rural Water Policy (1991) including the payment for water, is insufficient in rural areas. When the new Rural Water Policy – supported by Acts, Rules and Regulations– will be made official and effective, an awareness and information campaign is needed aiming politicians at all levels, Local Government at all levels and the general public via the LG and rural water supply organisations. An abridged popular version of the Rural Water Policy – and relevant Acts, Rules and Regulations – is needed.

- Some policies regarding rural water of different ministries may be conflicting. This refers particularly to the Local Government Acts and the draft Rural Water Policy statements. Clarification is needed, for instance the fact that the VG is to control all community activities (including water) while at present rural water supply organisations have taken over that responsibility on water supply.

- There is no absolute clarity on who at present owns or in future will own the rural water supply assets, and if not owned by the rural water supply organisations under what conditions they can use them.

- Ownership of water supply schemes is an area that needs urgent clarification. The Local Government Act of 1982 is conflicting with the draft Rural Water Policy (July 1999). The first states that all water works in a district are vested in the district council while the Ministry of Water claims the ownership to be with Central Government. The terminology 'ownership' in the draft Rural Water Supply Policy being user ownership (lease ownership with responsibility for management and O&M) or full ownership of all assets is interpreted differently by different government bodies (Ministry of Water, Ministry of Regional Administration and Local Government). This creates general confusion at all levels and makes even the ownership of investments in rehabilitation and expansions/extensions of the systems by the rural water supply organisations themselves uncertain. If this issue is not resolved soon rural water supply organisations may be reluctant to continue with the present trend of investing in the improvement and extension of their schemes.

- Memoranda and Articles of Associations have been developed for WSCs in Morogoro (and perhaps also for other rural water supply organisations) assuming full ownership to be transferred to them. These documents must reflect the actual situation and should not be based on expectations or false promises. If the Law does only allow for leasing of water supply assets or vesting the 'user' ownership in rural water supply organisations, then the Government must formulate the terms and conditions (including duration) for such lease ownership agreement.

- Monitoring of rural water supply performance is different than regulation. As for the regulatory framework, it is unclear what the strategies will be for monitoring of water supply services by the government (VG, DC and central). Monitoring for effectiveness is an activity not taken up sufficiently by the rural water organisations as a crucial management tool; if any monitoring is being done then it appears more initiated and carried out by the support agencies (such as DWSP, TADDO and GTZ).

- The Ministry of Water has initiated a database on performance of water supply organisations (presently only for urban schemes but to be extended to the rural schemes as well) through a six-month performance form to be filled out by the organisations themselves. This is a good first step but insufficient to have a reliable overall picture of the performance of water supply in the country. The experience has shown that people tend to give a too positive picture of the performance of the systems they are responsible for.

9.2 Institutional Options

- The number of rural piped water schemes in Tanzania with a relatively successful performance is very limited still. Most piped water supply schemes become non-operational or technically (very) poorly functioning within a relatively short period after construction. Particularly the local and Central Government-run schemes perform generally financially and organisationally at a very low efficiency and effectiveness level. A positive exception is Nsongwi Juu in Mbeya. If they manage to supply water, then only because central and local government continue to spend huge amounts of money to operate and maintain the systems.

- There are three viable legal institutional options for rural piped water supply: Water Supply Company, Water User Association and Trust. The WSC must be a 'private'[18] community-based and user-owned company if limited by guarantee. But if the Company is limited by shares, as in case of Kiliwater Ltd, the Company must be a public company to allow more than 50 members (shareholders). The public WSC by shares option is probably the best for larger or merged entities. All three options are claimed to be legal entities and corporate bodies, although some lawyers indicate that a WUA is not a corporate body.

[18] 'Private' means here that (i) the Articles restrict the right to transfer shares/guarantees, (ii) the number of members is limited to 50, and (iii) the public is not invited to subscribe for its shares/guarantees.

- Which legal institutional option will be the best depends very much on the local conditions and situations. For example, the Trusts in Kilimanjaro region seem to be successful because their trustees are knowledgeable and generally well accepted. This legal option may not be suitable in other areas where less confidence and trust is given to *trustees*, or where knowledgeable trustees are not easily found among the user community.

- A drawback in a Trust may be the communication to and from the users; this option seems also less democratic as it does not require an annual general meeting (AGM) of a larger group of representatives. It is the Board of Trustees that is the supreme decision-making body.

- Institutional options that have no legal status such as the Village and Central Water Committee[19] outside the Local Government structures but under a bylaw of the Local Government (such as in Mlingano and Lukozi schemes in Tanga region) are not favoured. These options do not guarantee autonomy and independence of other institutions such as Local Government and the funder (in this case the RC Diocese) which may jeopardise the 'ownership' perception and therefore the willingness-to-pay. Although they may perform well under good and sincere governance and as long as religious or other non-government organisations create trust among the users, the institutional structure has a high risk to fail eventually.

- Institutional and management arrangements of rural water supply, commonly called Village Water Committee with a Village Water Account, under the control of the local government institutions (Village Government, District Council) perform usually poorly. This is due to political interference, conflicts of interests (politics versus business), opinion that water is a social good commodity only and not also an economic good, lack of competency and business orientation, poor cost recovery, high risk of use of water revenues for other purposes, etc. If the district council is responsible for the management, poor performance is to large extent the result of government's dysfunctional salary and allowances policies. Insufficient budgets for travel expenses, including allowances, prohibit that district staff get out to the schemes for necessary operational activities, maintenance, and performance monitoring. If the office of the DWE is to do a serious monitoring job, it should, next to engineering, also have capacities for monitoring on managerial, consumer relations, and financial matters.

- Representatives from the Ministry of Water gave the impression that the Water User Association is the only institutional option that can be registered in the Ministry of Water under Water Laws (Miscellaneous Amendments) Act no. 8 of 1997. That could not be confirmed from reading the Act. The Ministry of Water can give the right to manage the water supply of a certain area to an autonomous body that can be a public or private company, a WUA, a co-operative society, an NGO or any other body as approved by the Minister (according to the Declaration of a Water Authority (The Waterworks Regulations, 1997) (Part II, 2)). Because the Ministry of Water claims this legal registration of WUA, the Ministry of Water favours the WUA option. In practice there may be loopholes for government interference. Several lawyers doubt whether a WUA is a corporate body. This needs a final clarification.

[19] Usually a Village Water Committee is under the Village Government. Here is meant a VWC independent of the VG.

- Programmes in different regions have chosen for specific institutional options for different reasons. There is no guidance from the Central Government as yet regarding which institutional options are most suitable for rural piped water supply considering critical conditions including population and area size, number of communities, presence and acceptance of knowledgeable trustees, risk of external interference. The formulation of the Memorandum and Articles of Association appears to be the key for the mandate and activities of the rural water supply organisation. Rural communities need to be informed without any bias on the options and their characteristics, and be facilitated to make a well-considered choice.

- On the institutional options, it has to be resolved which legal option is able to secure loans from commercial and development banks.

- Several WSCs and probably also WUAs and Trusts spend too high a percentage of their income on allowances for Committee members, Company members and Board Directors. The effectiveness of the high number of these members (up to 50) is questionable except for reasons of democratic representation.

- The factors for successful institutional and management performance in rural piped water supply are trust, good service, affordable tariffs based upon realistic budgets, fair cost recovery system (metered systems), accountability, transparency, clear communication to users, awareness of consumers on their roles and responsibilities, and support from and an enabling environment created by Village Government and local leaders. This demands for professional approaches.

9.3 Management Options

- Small rural water supply organisations, particularly the more complex pumped schemes, have serious difficulties to manage their services efficiently and effectively. There are some positive exceptions if there is a very high demand for water supply. This weakness is caused by lack of capacities to manage, low service level, low willingness-to-pay, political interference, etc. If there are no alternative water sources and the demand for water is high, then good service provision by the water provider is very much appreciated. Solutions are based on strategic partnership with intensive collaboration that may (or should) result in the creation of larger rural water supply organisations with a higher viability through professional teams performing at a higher efficiency level.

- Management of rural piped water schemes, particularly the pumped schemes serving more than 5,000 people, needs to be done by a professional team (of two or more people) having managerial, financial and technical capacities. But such a team is only feasible for a supply area of more than 8 to 10 thousand people. For rural water supply organisations serving around 10,000, a team of two people may suffice (one manager/accountant and one scheme attendant). Small water organisations need to search for strategic strengthening alternatives to overcome the problem that they can not employ a full professional team for them alone. This may particularly be the case for pumped schemes. The Board should set clear policies to be executed by the management. Management activities need to be separated from the 'governance' done by the Boards.

- Already the limited experience of today shows clearly that the management of the rural piped water supply by government or arrangements for management by 'governors' is much less efficient and effective than when done by a team of professionals with managerial, financial and technical capacities.

- Several rural schemes in Tanzania have a sufficiently large size (number of users) that allows financially for staffing of a professional team. Particularly in Morogoro region, most of the rural schemes are too small to afford such staffing. Most likely this is also the case in Mbeya, Iringa, and Ruvuma Regions, where only the largest schemes have been converted in WUAs. The remaining schemes are probably still run by village government and too small to afford a management team on their own.

- WUAs have mostly Scheme Management Committees elected by and from the user community. This does not result in a competent management. Only the larger WUAs have a professional management team that could form the basis for good management of the scheme (e.g. Ismani and Nyaugenge scheme, each ±35,000 people). The professional capacity of these management teams is not that high (conclusion DWSP field visit).

- Smaller rural water supply organisations are weak in management, accounting and technical capacities. These entities use elected Directors of the Board or Scheme Management Committee as executives who have no qualifications, experience and skills to perform the required tasks efficiently and effectively. They usually lack a business orientation. This is likely to result in poor management performance followed by deterioration of services and subsequent low collection efficiencies and eventually crumbling down of the entire scheme. Donors who invested in these water schemes and organisations want to achieve a high effectiveness and impact (institutional, health and social rate-of-return) and hence sustainability.

9.4 Strengthening Small Rural Water Supply Organisations

- Smaller and therefore weaker rural water supply organisations need strengthening on institutional and management issues. Strengthening could follow a route of development with gradual increase in intensity of collaboration with other rural water supply organisations. In this gradual increase of collaboration, the building of mutual trust is an important condition, but also the improvement in service delivery and management performance. Stages in institutional and management strengthening for small rural water supply organisations are (i) pooling resources through intensive collaboration (manager, accountant and technicians) and central purchasing and stocking of spares; (ii) merging of small entities in larger more viable and economic entities. This scale-enlargement could result in rural water supply organisations eventually possibly covering an entire district or even larger areas. The borders of a district do not need to coincide with the boundaries of the organisation's service area; even not if the asset-ownership is vested in the district council. Different district councils can become share or stakeholder of the rural water supply organisation. Quite a number of people, who know the water sector well, fear the political interference of the district council (again) which, they say, will lead to the collapse of the rural water supply organisation. However this fear does not need to be justified if proper arrangements and guarantees are provided in the Memorandum and Articles of Association strengthening for increased institutional sustainability could start off

with collaboration or merging based upon the opportunity of proximity or the opportunity of similar scheme types (requiring same technical expertise and spares).

- An overview of scheme types and their functionality was obtained for Morogoro (**Appendix IX**). The percentage of (well and poorly) functioning rural water supply schemes is between 50 and 60%. Twenty percent of the total population of towns and villages with piped water supply schemes in Morogoro region are affected by non-functionality of the scheme. The water supply schemes that are not operational, are generally the relatively smaller systems. It is expected that countrywide a similar percentage of the rural water supply schemes is not functioning. That implies that the government of Tanzania, the private sector and the donor community have a huge task ahead to start rehabilitation of these schemes using the institutional and management experiences from the heralds. More rural water schemes will create the opportunity to increase the critical mass in rural water supply organisations. Therefore, projects should create awareness among the population that merging with existing rural water supply organisations is the best path towards sustainability. This may even become a condition for support. The modality that rehabilitation of old schemes can only be undertaken by well-performing rural water supply organisations, may be the most promising approach.

9.5 Support Structures

- Rural water supply organisations demand external support on organisational, management, technical, financial and legal issues. Government organisations will probably not be able to provide in an efficient way that required support. A government unit with adequate technical capacities is the regional water consultancy unit. However the unit is not effective in the present conditions; this is among others due to the paralysing allowance policy of the government. Privatisation is recommended. Feasible support alternatives are needed to ensure sustainability of present water service provision and future expansion.

- For the long-term sustainability of the rural water supply organisations the issues of support, coaching and regulation are probably more important than the choice of the legal institutional option. All three possible institutional options seem to give good results provided the organisations have access to an effective support structure that gives them a coaching and facilitating environment. That is what the present programmes in Morogoro and Kilimanjaro provide and that used to be provided in Iringa, Mbeya and Ruvuma until the DANIDA-supported programme stopped in 1999. The results of this DANIDA's untimely ceasing of support are becoming visible in the poorer performance of the WUAs in Iringa and Mbeya.

- Many rural water supply projects that have been supported by external donors (including NGOs) have not managed to consolidate their institutional and management structure at the time the donor stopped support. These projects lacked clear exit strategies leading to a situation where all institutions involved had reached a state of sufficient sustainability. Indications from Iringa and Mbeya (earlier DANIDA-supported regions) show that their schemes have a very high chance of failure. This has resulted or may soon result into non-functioning of systems (for diesel and electricity-powered schemes) or a gradual deterioration of the service and the condition of the technical infrastructure (for gravity schemes).

- Good performance of several schemes in Morogoro is much due to committed and professional backstopping by DWSP in technical, institutional, management, financial and community aspects.

- The good performance of Kiliwater Ltd. and Uroki Bomang'ombe Water Supply (UBWS) Trust, both in Kilimanjaro region, can be attributed to good management and management practices, good institutional arrangements, knowledgeable governors and the relatively large critical size of supply area. And also the continuing but reducing support to Kiliwater from GTZ. For UBWS management and material support from the KfW consultant is at some distance.

- During the consultative workshop of September 2000 and during visits of DWSP teams to water supply schemes in other regions than Morogoro, the high need and demand for external support was strongly expressed. Government staff tends to indicate that nearly all required support can be obtained from district and regional departments. Even financial support is expected to come forward from national level through the districts. This continuing wishful thinking blocks creativity in the search for realistic and effective solutions. The draft Rural Water Policy clearly indicates the role for the private sector. Managers and Board members from rural water supply organisations do not count on the support from governmental institutions but may still try to get their support in the absence of other alternatives.

- The private sector has to work against affordable and realistic consultancy fees and allowances, also to be competitive towards other private consultant or contractors. Often, however, the private sector will manoeuvre itself in a monopoly position and misuse the lack of specialist knowledge of WSCs in an effort to make the highest profit possible.

- Support to rural water supply organisations and their management from district and regional government staff (including those from the regional consultancy unit at the Regional Water Engineer's office) may not be very attractive because these staff has to be paid unrealistically high government-regulated allowances. Another constraint is that Government's staff generally wants a 'decent' means of transport (vehicle) which is usually not available at district, and if so, there may be no funds for fuel. Furthermore, the authoritarian attitude of government staff in giving advice may not be what WSCs and their management will appreciate.

- Rural water supply organisations such as the Trusts in Hai district, Kiliwater Ltd. in Kilimanjaro region, and WSCs in Morogoro region will sooner or later be confronted with the fact that their present backstopper, trainer and co-financier will stop its support. Then a vacuum is created that needs to be filled by institutions at different levels including the private sector, NGOs, public and private training institutes, development banks and funds, and also government institutions. It is uncertain to which extent these institutions are ready to take up this support role.

- As even larger rural water organisations will find access to private sector or contracting consultants, contractors or trainers not an easy exercise, they will demand facilitation in the contracting such services. There may be several feasible alternatives to facilitate these services, including a professional organisation (e.g. an NGO) protecting and handling the interest of rural water supply organisations

(*Federation of Water Supply Organisations*). The establishment of such a supporting institution on behalf of and meant for the rural water supply organisations will be seen as imposing an institution to rural water supply organisations. This is not likely to result in a viable and sustainable solution. It is needed to raise the awareness of the rural water supply organisations in this regard.

- Financiers and supporters (external donors and national/local governments) in rural water supply aim for sustainability and good impact of their investments. Therefore they can be expected to be interested in the establishment and running of such a professional support organisation contributing to the sustainability of rural water supply services. But the long-term sustainability of such a support organisation will only be achievable if there is a substantial demand and if membership fees and extra service costs are properly paid for. This may be achieved if independence is secured and the institution is not seen as an 'extended' post of the governmental organisations but as a genuine professional association defending the interests of the members.

- Rural water supply organisations should not built up big reserves for future expansions/extensions, major repairs, etc. This seems not efficient from an accounting point of view (risks of high inflation) and it may invite inappropriate utilisation of the reserves. Ruaha WSC (Morogoro region) has been successful in securing sufficient capital for a small expansion (new trunk line) by requesting advance payments from house and business connections. In general, it should be made possible that rural water supply organisations can get loans at soft conditions from a development bank or a Rural Water Development Fund. Such a fund could be established nationally with regional branches. Multi- and bilateral donors and development partners could provide start-up capital, loans and grants for the fund.

9.6 Private Sector

- The potential of private sector participation in rural water supply is limited. Nevertheless, there are a few isolated examples and the experiences are relatively successful but not generally replicable. The interest of the private sector is very limited. Moreover, small rural water supply organisations may not be able to handle the private sector participation efficiently: the risk of rip-offs is evident. The private sector is mainly interested in its own profits. Nevertheless, private sector participation is generally being encouraged but the terms and conditions under which this can take place are unclear. Because of expected higher efficiency if managed by the private sector, the price of water may remain the same while the service level could be higher. In any case, a clear regulatory framework should protect the consumers for excessively high tariffs.

- Attracting private capital for system expansion (coverage) or service improvement (e.g. water treatment, service hours) and consequently private shareholders may help in boosting rehabilitation of non- and poorly functioning rural water supply schemes. The involvement of the private sector in Boards will most likely improve the effectiveness and efficiency of the rural water supply organisations. For the time being, however, rural water supply may not be an attractive investment sector for private investors as the financial rate-of-return is rather low!

10. RECOMMENDATIONS

10.1 Water Policy

- The Government of Tanzania (GoT) should finalise the Rural Water Policy as soon as possible. This Policy should provide clarity on regulatory framework and regulators, monitoring roles, and type of ownership – i.e. real ownership of assets or only permission to use water supply facilities.

- External support agencies and development partners active in the rural water supply sector should assist the GoT to develop strategies and guidelines based upon the new Rural Water Policy. Strategies and guidelines to assist the user communities to make an informed choice on the best institutional and management arrangement for sustainable rural piped water supply must be included.

- The strategies and guidelines should also indicate that 'the lowest appropriate level' for the management of rural water supply is not necessarily the community-based management. Particularly for piped water schemes, and definitely for pumped schemes, larger institutional entities are needed to reach adequate performance and so sustainability of the service.

- The new Rural Water Policy and its strategies and guidelines must be effectively communicated to all levels of society and government. Politicians are a special target group to be included to prevent wrong messages on payment-for-water to be ventilated by them, as has happened frequently in the past and even during the election campaign of September/October 2000. The awareness and information campaign must include the production of a short popular version of the policy to be disseminated to the general public, and publicity through common media as newspapers, radio and TV.

- The need for a strong *regulatory framework* is high. The GoT, again supported by its development partners, must develop a clear and strong regulatory framework for rural water supply. The new Rural Water Policy should create the basis for this regulatory framework. The terms and conditions must be carefully formulated, particularly the exact mandate and roles of the regulator must not give room for personal interpretation. This to avoid that the regulator can interfere and intervene in general policy and management of any rural water supply institution. The present national regulator for social services focuses on urban utilities for water, electricity etc. and not on rural community-based, user-owned water supply systems.

- It is recommended that the regulator has also the responsibility to monitor certain critical performance areas. These include the adherence to the Memorandum and Articles of Association, overall service, and managerial, financial and technical performance. This monitoring gives the critical performance data on which the regulator can act if rural water supply organisations fail completely even after some facilitation and warnings. The monitoring forms the basis for actions, intervention and further measures from regulator's side.

10.2 Institutional Options

- GoT supported by external support agencies and development partners, should further evaluate the three legal institutional options (Water Supply Company, Water User Association and Trust), and the local conditions under which they would be most suitable. This report and the results from the consultative workshop give valuable information for this process. Based upon this evaluation it should also develop modular approaches for the establishment of legal rural water supply organisations by a sufficiently informed user community.

- These approaches for establishment of legal rural water supply institutions should adequately take into account the strong need for strategic strengthening of smaller entities through intensive collaboration between rural water supply organisations or by forming larger entities (merging option) to increase the sustainability of the rural water service. Strengthening may follow a phased process: first collaboration and that is successful the merging (see also below the second bullet under **Section 9.3, Management Arrangements**).

- Existing rural water supply organisations with a non-legal status should be informed that they should convert into a legal institution most suitable for their conditions. This is needed to ensure the long-term sustainability of the public water supply service.

- The Ministry of Water (MoW) supported by its development partners has to develop an effective systematic approach for the establishment of a legal rural water supply organisation prior to rehabilitation of a rural piped water scheme. This systematic approach would include information packages for the user community, effective communication strategies and systematic decision-making on best legal institutional set-up and management arrangements for the new or to-be-rehabilitated rural piped water supply schemes considering location-specific key conditions.

- MoW has to develop also a systematic approach for the strengthening of smaller rural water supply organisations through intensive collaboration or merging with other smaller or larger water supply organisations.

10.3 Management Options

- Organisations responsible for rural piped water services must be informed that efficient and effective management can only be achieved when this management is done by a professional team having managerial, financial and technical capacities. The Board must restrict itself to policy matters and steering the management.

- Central and Local Government, as well as external development partners with an interest in the rural water supply sector should review the present management performance of small rural piped water supply organisations. Options should be evaluated for strengthening of smaller entities through intensive collaboration in the management with neighbouring rural water supply organisations and eventually merging of the entities into a larger and more sustainable entity with a central management unit. A larger entity could be based on proximity or technology used depending on the circumstances and opportunities; eventually the entity could be covering an area even larger than one district.

10.4 Support Structures

- From the studies, analytical field visits and the consultative workshop it has become very clear that there is need and demand for an independent organisation, a Federation of Water Supply Organisations. This Federation should have the mandate to support (urban and) rural water supply organisations, including facilitation of capacity building and contracting the private sector. Although the technical departments in the districts could provide some support, the experience shows that capacities are limited and existing government allowance requirements make actual support very difficult. Furthermore, the Rural Water Policy places this responsibility in the private sector. Although it would be most desirable if the rural water supply organisations take the initiative here to get a demand-based development, it can at this moment not be expected from them because of their low level of inter-communication. Therefore, it is recommended that the Ministry of Water with support from the Netherlands Government and other external sector donors supports the establishment and operations of such an independent non-governmental organisation for a substantial period (>10 years). Actual support and facilitation of rural water supply organisations by the Federation should be provided on request only. Moreover, the rural water supply organisations should cover to large extent the costs of support and facilitation by the independent organisation.

- To strengthen the sustainability of the present WUAs in Iringa, Mbeya and Ruvuma (which are much at risk), and to further assure the sustainability of the WSCs in Morogoro, the Federation should start off with a focus on these four regions. The Federation may be organically expanded to regions as Kilimanjaro, Tanga and others depending on where new autonomous rural water supply organisations are being established. Eventually, it could cover the whole of Tanzania with regional Chapters.

- It is recommended that the Federation will deal particularly with facilitation of the process of establishment of legal water supply institutions, the strengthening scenarios for small water supply entities, the training of management units' staff and governors, and contracting technical and other services provided by the private sector. Furthermore, the Federation should provide general coaching and lobby on behalf of the water supply organisations with government institutions, donors and development banks.

- The Federation of Water Supply Companies will not be fully cover its costs, particularly not during the first ten years; it is expected that for a long time to come, it will need certain core-funding for activities that will be beyond the financing capacity of the members. It is therefore recommended that Central Government (MoW) and external donors that are and were supporting the development of (rural) piped water supply in Tanzania will financially support this organisation. Some external donors of rural water supply, for instance DANIDA in Iringa, Mbeya and Ruvuma regions, left too early leaving the rural water supply schemes in a non-sustainable state. DANIDA has an obligation here to fulfil. Development partners to approach for support would include the Netherlands Government, DANIDA, SIDA, DfID, Irish Government, UNICEF, and the African Development Bank. The SIDA-supported HESAWA Programme in the Lake Regions[20] has recently started to facilitate the establishment of legal water supply institutions for piped water supply schemes that HESAWA had supported to build or rehabilitate during earlier programme phases.

[20] The Lake regions include Kagera, Mwanza and Mara regions around Lake Victoria.

10.5 Rehabilitation of Existing Poorly and Non-functioning Rural Piped Water Schemes

- In Morogoro region, many of the rural piped water supply schemes have no legal institutional status and effective management is absent. This has resulted in poorly functioning or completely dilapidated schemes. It is recommended to gradually rehabilitate these schemes under the conditions that a demand-responsive process is followed, a legal water supply organisation is established and a strong management structure put in place. Similar or worse conditions of piped water supply exist in other regions.

- It is recommended that the proposed Federation of Water Supply Organisations will facilitate both the establishment of legal institutions and management arrangements, as well as the strengthening of the management through intensive collaboration or merging of rural water supply organisations. The Federation will use the proposed approaches for institutional establishment and the models for institutional strengthening still to be developed.

- It is recommended that the testing of this demand-responsive rehabilitation is done in Morogoro where regional and district staff is familiar with the establishment of legal rural water supply organisations.

- Substantial financing is needed for the rehabilitation of these schemes. It is recommended that a special Rural Water Supply Development Fund will be established from which rural water supply organisations and communities that want to rehabilitate their schemes can solicit for funding (proposed to be partly a grant and partly a soft loan). Central and local governments, external donors, and development and commercial banks should support the Fund. The Fund should have regional Chapters. A Committee in which all funding parties are represented, as well as the Federation should do the management of the Fund. This Committee should also set the conditions for rural water supply organisations and communities to qualify for the grant/loan. It is recommended that existing rural water supply organisations can also apply for loans from this Fund for substantial investments beyond their reserves for expansion, system improvements, and major repairs.

10.6 Operational Issues with respect to Enhanced Sustainability of Rural Piped Water Supply

- Good and reliable service of water provision, affordable tariffs, water charging based on actual consumption and transparent management with adequate communication on financial management and performance are key factors for success in water supply. A general key word is TRUST. It is recommended that these success factors are stressed in the follow-up with the rural water supply organisations and that these factors are included in the monitoring by the management and the supporters of these organisations.

11. SPECIFIC RECOMMENDATIONS FOR CONTINUING SUPPORT IN RURAL PIPED WATER SUPPLY FROM THE NETHERLANDS GOVERNMENT

For many years, the Government of the Netherlands has been supporting rural piped water supply in Tanzania, particularly in Morogoro region. In general, results have been positive although long-term sustainability of most water supply companies (WSCs) that have been established in the past several years with assistance of the Dutch-funded Domestic Water Supply Programme (DWSP), is at risk. This is particularly due to the weak management structure and capacity of the companies, and the absence of external support once DWSP ends. The present size of the WSCs does not allow for professional management – or only to a limited extent - while the complexity of managing the water supply service technology and finance demands this. A separation (of responsibilities) between Board and management is needed for efficient and effective performance of the WSCs.

The policy of the Netherlands government is favouring sector-wide support. The Royal Netherlands Embassy had commissioned a study on the framework for partnership in support of the rural water and sanitation sector in Tanzania earlier this year. The report is owned by the Ministry of Water and shared with all external support agencies involved in the rural water supply and sanitation sector.

On the basis of the investigations and outcomes of the present study aimed at development of scenarios to achieve long-term sustainability of piped water supply schemes and organisations in rural areas of Tanzania, the following recommendations can be derived for the Government of the Netherlands:

- ***To assist the Ministry of Water with sector-wide development of effective approaches for the establishment of legal rural water supply institutions and with the development of models and approaches for strengthening of smaller rural water supply organisations in order to achieve sustainability.***

  The development of approaches for institutions to be established would include information packages, communication strategies and facilitation of systematic decision-making at local level with respect to legal institutional set-ups and management arrangements for new rural piped water supply systems, as well as those without well-functioning institutional arrangement. The approach must consider the location-specific key conditions influencing the choice of the institutional option.

  The strategic approaches and models for the strengthening of rural water supply organisations would include conditions for intensive collaboration or even merging with existing rural water supply organisations as prerequisites for organisational sustainability. The MoW would own the approaches for establishment and strengthening rural water institutions, based on the experiences from Morogoro and other regions. Through this ownership the use of these approaches in other regions is guaranteed.

- ***To support the MOW, within the sector-wide framework, the establishment of (a nucleus for) a Federation of Water Supply Organisations in Tanzania that will give demand-based support and facilitative support to rural water supply organisations.***

  The nucleus of the future Federation for Water Supply Organisations should start its support/facilitation activities at a multi-regional level (Morogoro, Iringa, Mbeya, Ruvuma) with regional chapters. The intention should be that this organisation becomes eventually a nation-wide Federation of Water Supply Organisations in Tanzania. The organisation must be organised as a professional organisation with the rural water supply organisations as its members. But these rural water supply organisations will only become members if they see added value and strong benefits coming from the Federation. Financial support for this Federation is needed for a substantially long period from the Government of Tanzania and its development partners in the water supply sector. Support linkages are needed from all levels of government, private sector and national sector-support agencies (such as WRI and NETWAS Tanzania).

  This organisation is needed to ensure the sustainability of (rural) water supply schemes that have been rehabilitated or newly constructed in previous decades but left without any support after the cease of donor-funded programmes.

- ***To contribute to the development and implementation of a sector-wide strategy and systematic approach for the revitalisation and rehabilitation of poorly functioning and non-functioning rural water supply schemes.***

  The strategy should be based on experiences to come from institutional strengthening of small or weak WSCs in Morogoro region, i.e. aiming at a critical supply population needed for institutional and organisational sustainability. The Tanzanian Government supported by the Netherlands Government should test this strategy and approach in Morogoro region where still a substantial part of the rural water supply schemes are poorly or not at all functioning. Furthermore, a Rural Water Development Fund with regional chapters should be established to support this revitalisation and rehabilitation process. The Fund should be supported by central and local governments, external donors and development and commercial banks. Management of the Fund is to be done by a Committee composed of representatives from the financiers and the *Federation*. This Committee should also set the conditions for loans.

  Collaboration with other donors such as World Bank (in Kilosa district) is obvious particularly as there should be a common approach.

APPENDICES

APPENDIX I

Terms of Reference
Mission Jo Smet, Water Supply Institutional Development Specialist

Development Scenario(s) to Achieve Long-term Sustainability of Piped Water Supply Schemes and Organizations in Rural Areas

September 2 to October 18, 2000

Domestic Water Supply Program – Morogoro Region

Terms of Reference

Mission
Development Scenario(s) to Achieve Long-term Sustainability of Piped Water Supply Schemes and Organizations in Rural Areas

Jo Smet
Water Supply Institutional Development Specialist
September 2 to October 18, 2000

1. Introduction

The Domestic Water Supply Program (DWSP) in the Morogoro Region started on March 1, 1993, and had in principle duration of five years. At the moment DWSP enjoys a budget neutral extension. A work plan has been prepared to define the program activities during the year 2000.

In 1999 the program fielded a SWOT (Strength, Weaknesses, Opportunities, Threats) mission to study and evaluate the performance of a selection of local water supply companies (WSCs) that have been established during the past five years in the Morogoro Region with assistance of DWSP.

The SWOT mission recommended further developing of the water supply companies and identified a need for an independent support organization, a Federation of WSCs. In the work plan for 2000, it has been proposed to conduct a feasibility study to ensure the viability of such an autonomous support organization for public water utilities.

2. Program Evaluation of Piped Water Supply Companies in Rural Areas

In preparation for the proposed study to investigate the possibility of a support organization for WSCs, the program has drafted a policy paper Strengthening and Enhanced Sustainability of Piped Water Supply in Rural Areas. Alternative institutional arrangements have been evaluated and compared, one of them being a (Cooperation, Association, or) Federation of WSCs. There are some doubts regarding the (financial) viability of such an organization. It is thought that donor support will be needed for a period of at least five years to build such an organization at national level, with chapters at regional (and district) level.

On basis of the evaluations made in the policy paper, options that seem worthwhile investigating are the establishment of District Water Supply Companies (DWSC) and stimulated clustering of WSCs, whether or not combined with the option of entering in a management contract.

3. (Similar) Developments at National Level

In other regions of Tanzania than Morogoro different types of entities have been instituted with respect to the management of piped water supply schemes in rural areas. It is recommended to compare these alternative arrangements for rural water supply with the WSCs in the Morogoro Region in terms of functionality, financial viability, and sustainability. The objective would be to determine which arrangement(s) seem(s) to work best. It should be realized that the preferred institutional arrangement could be different from one area to another due technical, socio-economic, and cultural reasons.

At the moment a study is being carried out at national level that should come up with a partnership framework for donor support to implementation of rural water supply and sanitation programs. The recommendations of this study, as far as related and relevant, should be taken into account.

4. Objective of the Mission

To explore, substantiate, and document (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organizations in rural areas of Tanzania.

5. Tasks of the Consultant

I Evaluate the functionality, financial viability, and sustainability of alternative institutional arrangements for piped water supply in rural areas.

- Collect and study relevant reports.
- Visit regions of Tanzania where piped water supply is a primary option for rural water supply and study the selected institutional arrangements.
- Refer to related experiences in other developing countries, in particular in Africa.
- Include proposed organizational structures and organograms in the functionality evaluation.

II Organize and facilitate a consultative workshop to explore, substantiate, and document (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organizations in rural areas.

- Organize the consultative workshop about a week before the end of the assignment.
- List detailed objectives and desired outputs of the workshop.
- Prepare an agenda and a time schedule for the workshop.
- Assemble specialists and representatives of public and private organizations involved in piped rural water supply.
- Secure the attendance of officials of the Ministry of Water and donor organizations involved in rural water supply.

III Draft a mission report on (a) development scenario(s) to achieve long-term sustainability of piped water supply schemes and organizations in rural areas.

- Complete the mission report before the end of the assignment.
- Include an evaluation of alternative institutional arrangements for piped water supply in rural areas.
- Provide the outcomes and recommendations of the consultative workshop.
- Make sure that the report and its evaluations are clear, specific, and as much as possible supported by (statistical and financial) data.

6. Program Support and Liaison

The long-term consultants and support staff of DWSP will provide information and assistance to the Specialist as much as possible but in fair balance with their regular activities and responsibilities.

The Specialist is requested to keep close liaison about the progress of the Mission through the usual program channels with concerned officials of the Government of Tanzania at national and regional levels and with the Tanzania Assistance Strategy (TAS) Task Force on Water via the Royal Netherlands Embassy.

Final responsibility for all activities of the Specialist is with the Regional Program Consultant of DWSP in the Morogoro Region.

7. Timing

The Mission is envisaged for the full month of September 2000. Tentatively, during the week from September 17 to 23, the planned national workshop will be organized. The final report of the Mission should be ready on September 30 before departure of the Specialist from Tanzania.

APPENDIX II

Timetable
National Consultative Workshop

Sustainability of Piped Water Supply in Rural Areas

Morogoro, September 25 and 26, 2000

WORKSHOP PROGRAMME
SUSTAINABILITY OF PIPED WATER SUPPLY SCHEMES IN RURAL TANZANIA

MOROGORO
September 25 and 26, 2000

Monday, September 25, 2000
Institutional and Management Options

08.00-09.00	Registration	
09.00-09.10	Welcome	DWSP Morogoro
09.10-09.30	Opening workshop	RAS Morogoro
09.30-10.00	Key note	PS Ministry of Water
10.00-10.20	Coffee/tea and snacks	
10.20-10.40	Case presentation on water user association: Ngamanga Case, Kyela district, Mbeya Region	RWE-DWE-manager WUA
10.40-11.00	Case presentation larger community-based independent water company: KILIWATER Ltd	Mr. H.M. Mrosso, Public Relation Officer
11.00-11.20	Case presentation small town water association: Mbulu town case	Mr. B. John, DWE-Mbulu
11.20-11.40	Case presentation small community-based independent water supply company: Kimamba case, Morogoro	Mr. Shoo (secretary WSC Kimamba), Mr. Madundo and Mr. Vallerian
11.40-12.00	Case presentation Central Water Committee: Mlingano case, Muheza district, Tanga Region	Father Leopold Nyandwi
12.00-12.20	Case presentation on rural water supply trustee: case Uroki Bomang'ombe, Hai district, Kilimanjaro region	Mr. P. Shoo, manager
12.20-12.30	Introduction group work on successes, problems and solutions	
12.30-14.00	Lunch	
14.00-16.00	Working in groups (tea/coffee being served)	
16.00-16.50	Plenary presentations of results from working groups	
16.50-18.00	General Plenary Discussion Closing day1	
19.00-20.00	Optional: presentations of extra cases	See extra overview
20.00-22.00	BBQ in Hotel Oasis	

WORKSHOP PROGRAMME
SUSTAINABILITY OF PIPED WATER SUPPLY SCHEMES IN RURAL TANZANIA

MOROGORO
September 25 and 26, 2000

Monday, September 25, 2000
Overview of Paper Presentations in Extra Evening Session

19.00-19:15	Trustee organisation: District town water supply in Karatu, Arusha region	Manager
19.15-19.30	Village-based water management organisation: experiences from Dodoma Region	Mr. Rugeiyamu, RWE
19.30-19.45	Larger rural piped water supply experiences from Makonde Plateau, Lindi region	Mr. Senkondo, Resident Engineer
19.45-20.00	Discussion	

WORKSHOP PROGRAMME
SUSTAINABILITY OF PIPED WATER SUPPLY SCHEMES IN RURAL TANZANIA

MOROGORO
September 25 and 26, 2000

Tuesday, September 26, 2000
Need for Support Structures and Scenarios for Development

08.20-08.40	Start day 2: summary of day 1	
08.40-09.00	Case presentation water user association: Tanangozi case, Iringa Rural	Mr. Mfugale (RWE), Mr. Haule (DWE) and manager
09.00-09.20	Case presentation rural water trustee: Losaa K.I.A. case Hai district, Kilimanjaro	Mr. Urassa, manager
09.20-09.40	Case presentation Central Water Committee: Lukozi case, Lushoto district	Mr. H. Manjela, technical consultant – Chamavita
09.40-10.00	Case presentation Handeni Trunk Main WSC Ltd after rehabilitation	Mr. Kisaka, Resident Engineer
10.00-10.20	Case presentation community-based water supply company: Ikela case, Kilombero district, Morogoro	Mr Malekia, manager Ikela WSC, Mr. Bwire and Mr. Kanshahu
10.20-10.35	Need for support: HESAWA experiences	Mr Gwimile, HESAWA
10.35-10.50	Coffee/tea	
10.50-11.00	Introduction group work	
11.00-13.00	Working in groups	
13.00 -14.00	Lunch	
14.00-14.50	Plenary presentations of results from working groups	
14.50-15.40	General Plenary discussion	
15.40-16.00	Tea and soft drinks	
16.00-16.40	Formulate way(s) forward and actions	
16.40-16.55	Winding-up	DWSP Morogoro
16.55-17.00	Closing of workshop	Director Rural Water Supply

APPENDIX III

Study Tour Report

Rural Water Supply Organisations in Kilimanjaro Region

October 4 to 9, 2000

STUDY TOUR REPORT

RURAL WATER SUPPLY ORGANISATIONS IN KILIMANJARO REGION

OCTOBER 4 TO 9, 2000

CONTENTS

ABBREVIATIONS AND ACRONYMS

AGM	Annual General Meeting
BC	Business Connection
BoD	Board of Directors
BoR	Board of Representatives
BoT	Board of Trustees
BPT	Break Pressure Tank
Co.	Company
DC	District Council
DI	Ductile Iron
DWE	District Water Engineer
DWP	Domestic Water Point
EC	Executive Committee
ELCT-ND	Evangelical Lutheran Church in Tanzania – Northern Diocese
g	gram
GS	Galvanised Steel
GTZ	German Technical Development Agency
HC	House Connection
HCT	House Connection Township
HCV	House Connection Village
HTM	Handeni Trunk Main
HYD	Hydrant
KIA	Kilimanjaro International Airport
kg	kilogram
km	kilometer
Ltd.	Limited
mg	milligram
m	meter
m^2	square meters
m^3	cubic meters
MoW	Ministry of Water
O&M	Operation and Maintenance
ppm	parts per million
PT	Public Tap
PTT	Public Tap Township
PTV	Public Tap Village
PVC	Polyvinyl Chloride
TShs.	Tanzanian Shillings
UAWC	User Area Water Committee
UBWS	Uroki Bomang'ombe Water Supply
VG	Village Government
VWC	Village Water Committee
VWUC	Village Water User Committee
WDC	Ward Development Committee
Ø	Diameter

PERSONS MET IN KILIMANJARO REGION

Mr. Michael Braash	Project Manager, Hai District Water Supply Project
Mr. Kidule	Technical Manager, Kiliwater Co. Ltd.
Mr. Beliamu Lema	Water User, Sawe Village, Hai
Mr. E.A. Lema	Scheme Attendant, Losaa KIA Water Supply Scheme
Mr. H. Mrosso	Public Relation Manager, Kiliwater Co. Ltd.
Mr. C.M. Ngainayo	General Manager, Kiliwater Co. Ltd.
Mr. Nyamongo	Accountant, Losaa KIA Water Supply Scheme
Mr. Prosper I.Z. Shoo	Chief Engineer and Manager, Uroki Bomang'ombe Water Supply Trust
Mr. Urassa	Manager, Losaa KIA Water Supply Scheme

1. LOSAA KIA WATER SUPPLY SCHEME

1.1 Background

Losaa KIA Water Supply Scheme is situated in Hai District, Kilimanjaro Region. This scheme provides water to a population of 65,000, disseminated in 16 villages and in the settlement surrounding Kilimanjaro International Airport (KIA). The project, which cost Deutsche Mark 10.01 million loaned by the Government of Germany through KfW, will be due for total handing over to the Community by the end of 2000.

1.2 Community and Social Issues

Demand-driven Project
Losaa KIA Water Supply Scheme was initiated by the GTZ, after having obtained a satisfactory involvement of the neighbouring community in Uroki Bomang'ombe where the German aid was active in Losaa KIA water Supply Phase 1.

Relation with Local Government
The organisation structure of Losaa KIA Water Supply Scheme is based on the structure of the Local Government itself. Specifically, the VWCs who are advisers to the Board of Trustees are confused with members elected by the villagers in the Village Government set-up. In fact the VWC reports directly to the Village Government.

The scheme has been working hand in hand with the District. For instance, a number of technicians or artisans have been working in the construction or maintenance of the scheme while receiving their salaries from Central Government.

Community Participation
The users were involved from the start of the project. They were mobilised and requested to indicate suitable sites for installation of DWPs. They have also hauled building materials, they dug and backfilled the trenches and they have agreed to pay for water.

Gender Specificity
No special role of women has been institutionalised, although a few women may be members of VWC or a Board of Trustees.

1.3 Institutional Issues

Legal Framework
Losaa KIA Water Supply Scheme is not yet a registered entity under any law of the Country. But the project has facilitated the preparation of the constitution of Losaa KIA Board of Trustee. A lawyer has been advising Losaa KIA Water Supply Project on how to register the organisation. The scheme has a structure, which has been used without having any legal registration.

Organization Structure

The organisational structure of Losaa KIA Water Supply Scheme is as follows:

- At the village level, the Village Government facilitates election of a Village Water User Committee. The VWUC mobilises villagers to carry on self-help activities, educate users on water source protection and represents the community.
- The Village Water User Committee elects one representative and one deputy representative. The representatives form a Board of 'representative which has an advisory role towards the Board of Trustees.. There are 16 Village Water User Groups and 17 representatives (the 17th member represents KIA settlement).
- The representatives from different villages elect 8 Board members of Trustees. To be elected as a member of the Board of Trustees, the candidate must have a certain level of education, must be trusted by the people and free of employment.

Roles and Responsibilities

The role of the VWUC is to represent the committees in the User Group when discussing water affairs. The VWUC elects a representative who can be part of the Board of Trustees.

The Board of Trustees is the supreme decision making body of Losaa KIA Water Supply Scheme. It is also responsible for directing, managing and supervision. It contracts managers for O & M, billing, accounting and administration. The users role is to buy water from the Domestic Water Point and to elect the VWC.

Personnel

Each public tap is supervised by an agent whose role is to sell water to users following agreed timetable. The Trust employs technicians, scheme attendants, artisans and watchmen and pays their salaries.

The scheme employs at present 27 people including a scheme manager.

Frequency of Meetings

The VWC has no special timetable for meetings. It meets only when there is a problem for discussion.

The Board of Trustees must meet at least every quarter. In practice it does not hold meetings regularly.

Back-up and Monitoring

Losaa KIA Water Supply Scheme is now monitored by the GTZ. The project prepares bills and keeps accounts and records. Allowance is also paid through German assistance.

1.4 Financial Issues

Tariff Structure

The water is sold at public tap at TShs. 3 per 20 litres container. At KIA, the rate is TShs. 5 per 20 litres container. This corresponds to TShs. 150 per cubic meter. A house connection pays according to the metered consumed volume of water. The metered tariff is TShs. 250 per cubic meter. House Connections and the Hydrants, the rate is TShs. 250 per cubic meter. The connection fee is TShs. 85,000 per connection. This fee is supposed to meet the real cost of connection including materials and labour.

Budgeting

Budgeting is not done at Board level. The project is still budgeting for all the operations of the scheme. Bookkeeping and accounting is also done by the project.

Collection Efficiency and Willingness-to-pay

The collection efficiency is high and reaches about 95% in most of the points and house connection. Pipeline attendants read the water monthly. Bills are issued by the 5th of each month. Users must pay two weeks after water billing to avoid disconnection. There are few committees, which are not willing to pay because of interference with some politicians, but these are rather rare cases. Willingness to pay is high because of example received from Uroki Bomang'ombe where buying water has been practised previously. The problem reported is that the public tap are still distant (800 m) and the house connection fee is high.

Dealing with Defaulters.

Generally, water is disconnected if no payment is made after the computerised bill is made. Generally when the scheme attendant threatens to disconnect, users pay instantly.

1.5 Technical Issues

Type of the Scheme

Losaa-Kia Water Supply is gravity fed from four rivers/streams sources. These sources are Namwi, Uwau, Udishi and Kinahundwa. These originate from the western Kilimanjaro protected forest reserve. Water from sources is connected at different parts of the scheme. The scheme serves 16 villages and KIA (Kilimanjaro International Airport).

Map of the Distribution System

The maps are available in the manager/Chief Engineer of Losaa-Kia office. Layout maps extracted from the top sheet and a well-drawn map showing various project sections directed for all scheme attendants (16).

Size of the System

The system has 4 sources, 20 storage tanks, 175 km of pipeline (ranging from ∅ 200 to 32 mm) of Ductile Iron (DI), PVC and GS. Also the scheme has several BPTs, wash outs and air valves. The scheme has 207 PT (or DWP) 205 are operating and 234 House connection.

Population Served

The population served is estimated at 70,000 by the year 2010.

Water Consumption

The design consumption at Public Taps (PT) or DWP is 16 litres per capita per day and at Private Connection or House Connection is 80 litres per capita per day. The actual figure for Public Tap (PT) currently they are about 7 litres per capita per day and at House Connection is around 50 litres per capita per day. Some people at DWP prefer to go to furrows/streams to escape to pay TShs. 3 per bucket.

Water Meters

The scheme has a water meter at each PT or DWP, HC and 83 water meters for zoning purpose (e.g. from storage tanks, to storage tanks to several customers using one branch etc). These water meters were bought from Germany by the project at an average price of TShs. 18,000 (without tax, even VAT because the project is exempted from all taxes). The meters for HCs are installed at a branch to the HC or in the water column of a PT or DWP. Often meter glasses are fuzzy due to dirt and fungi. However meters with this problem are replaced. The Project Manager informed that the life span of these meters is 10 years. Each billing contain TShs. 300 for upkeep of a meter.

Level of Service

The scheme has three levels of services. These are public tap, House connection and bulk water supply to KIA.

Quality of Water Infrastructure

The whole scheme has been and is still under rehabilitation till December 2000. All infrastructures are in good condition. KfW is financing the project.

Leakage

Several cases of vandalism have taken place by people piercing pipe in order to get water into their furrows. In the old scheme, HC were connected with class A pipes. After rehabilitation, these pipes burst and create leakage. These are controlled by closing the broken pipe and water user forced to replace with a new one at a cost of TShs. 35,000 if he is not more than 150 m from the branch to his/her new connections. New connections are charged TShs. 85,400. As per the Project Manager loses are about 10% due to unidentified leakage and wastage.

Treatment of Water

Water from intake passes through silt settling tank to remove some grit particles and at storage tank they are dosed with chlorine at a rate of 27mg/litre.

Cleanliness of DWPs

All DWPs are clean and no spill water was found. The construction is of special type for DWP where the concrete column has a hollow inside for installation and housing of water meter and closed at top by steel cover. This steel cover is opened by scheme attendant who has a special key. During opening the water meter readings is taken.

The slopes of the slab are inward and then through a gutter beneath the slab spill water is directed.

Disconnection of DWPs, HC, BC

Since the metering exercise started, the disconnection takes place after two weeks of billing the customer.

Operation and Maintenance
The scheme has 27 staff. 16 of them are scheme attendants. Others include the manager (Chief Engineer), Accountant and Assistant Accountant, Watchmen and other supporting staff. The scheme attendants are responsible for cutting grass along the pipeline and repair leaks.

Each scheme attendant is paid TShs. 30,000 per month & bonus of TShs 10,000 monthly if found that his area had no problem or all problems that occurred were solved by him.

Availability of Spare Parts
All spare parts are currently available with the project. In future, it is expected that this spare can be bought from MAJI-KURASINI Central Store.

Conclusion
In order to realise the money from water produced, water metering is the best option.

1.6 Lessons Learned, Conclusions and Recommendations

- The donors are generally interested in the support of a community, which is ready to participate fully in a programme
- A Village Water Committee is effective only when the community has a high demand for water, and if skills to manage the scheme are available.
- Use of water reading meters and billing increase collection efficiency
- Disconnection of water is an effective sanction to defaulters provided a water meter is used and bills are sent timely
- Economy of scale is a positive factor, which can bring about sustainability of a water supply scheme.

2. KILIMANJARO WATER SUPPLY COMPANY LTD. (KILIWATER)

2.1 Background

Kilimanjaro Water Supply Company Ltd. (Kiliwater) was registered in 1995 and became operational in 1996. It operates a water supply scheme, which serves 300,000 people who are disseminated in 70 villages of Rombo and Rural Moshi districts.

2.2 Community and Social Issues

Demand Driven Project
Evaluation of existing water supply projects in East Kilimanjaro area revealed a shortage of water in the area. This prompted GTZ to rehabilitate the scheme and to initiate community management of the scheme whereby the users participate in the administration of their scheme.

Relation with Local Government
Kiliwater is trying to avoid interference which, might come from Local Government. However, to create a good working environment and to involve the users, the Kiliwater Company Ltd uses the User Area Water committees.

At district level, the District Water Engineer is one of the Directors of the Company, and he participates in the Board which is the policy making organ of the company.

Community Participation
The users have been involved in the planning of the rehabilitation of the project. They dug and back-filled trenches and they indicated where DWPs are to be constructed. They also agreed to form User Area Water Committee and to pay for water.

Gender Specificity
According to the constitution, Kiliwater Water Supply Company Ltd, at least half the membership of the User Area Water Committee shall be made up of women. This clause has been fully implemented

2.3 Institutional Issues

Legal Framework
Kilimanjaro Water Supply Company Ltd or Kiliwater was registered on 4th October 1995 as a public company limited by shares. Being a public company, Kiliwater is not allowed to make any restriction on invitation issued to members of the public resident in the company's area of operations to subscribe for any shares, debentures or debenture stocks of the company. It means also that the right to transfer shares in the company shall not be restricted. Kiliwater was registered under the companies ordinance (CAP.212). Out of the estimated population of 50,000 households in the supply area, 12,711 have each paid at least one share valued at TShs. 1,000/=

Organisational Structure
The type of organization of Kiliwater is detailed in the Memorandum and Articles of Association of Kiliwater.

At village level, a User Area Water Committee is formed. A user area might comprise more than one village. The user area members are entitled to attend members meeting in the user area where they choose a User Area Water Committee from the body of members in their area.

The User Area Water Committee consists of six members of which at least half consists of women. The committee chooses a Chairman and a Secretary from among its members.

Kiliwater holds general meetings where two delegates who are elected by each User Area Water Committee are members.

To manage efficiently the Company, Kiliwater has divided the supplied area into six zones, which correspond to the administrative divisions.

The delegates of each zone have the right to elect one Director. Kiliwater therefore has six directors representing the users. The company has a provision for two more directors representing Government. These are the respecting District Water Engineers of Moshi rural and Rombo districts. The Directors form the company's Board and the Board is elected every three years. The Annual General Meeting elects a Chairman whose role is to preside over all general meeting of the company. The company is allowed to appoint a Secretary.

Role and Responsibility

The role and responsibility of the respective parties are spelt out in the Memorandum and Articles of Association of Kiliwater.

The Board of Directors, which is elected by the respective zones by users delegates, is allowed to appoint a Company General Manager from within or outside the Company. The General Manager has an executive role, which is delegated to him by the Board of Directors. According to the constitution, the business of the Company shall be managed by the Directors.

The User Area Water Committees have among others, the following responsibilities:

- To choose a Chairman and a Secretary of the User Area Water Committee,
- To supervise the distribution of water,
- To suggest new connection and distribution points,
- To set water tariff,
- To supervise revenue collection,
- To elect two delegates to the Company General Meetings,
- To take part in the nomination of the company's Board of Directors for the respective zones,
- To report any problem of water supply to the company zonal office.

The role and responsibilities of the Annual General Meeting include election of the Board of Directors every three years.

The Board of Directors has recruited a General Manager who is responsible for day to day activities of the company.

Personnel
At present the Company employs 44 people. At each zone, Kiliwater has recruited a zonal manager, a chief technician, an assistant technician and a zonal clerk.

Frequency of Meetings
According to the constitution of Kiliwater, the Board of Directors holds one meeting every quarter. But in principle, more meetings are held because of the need to solve emerging problems.

There is one Annual General meeting per year where the Board presents its progress report and where major company issues are discussed. Users from the same User Area meet as long as there is a need for discussion.

Back-up and Monitoring
Kiliwater has still support from GTZ. Every month, a subsidy of about TShs. 2.5 million is paid to Kiliwater. GTZ has also procured several computers, one photocopier and a set of audio-visual equipment to Kiliwater to be used in training, mobilisation, billing and accounting. GTZ has a plan to support Kiliwater by supplying water meters in the coming months. At the same time, rehabilitation and community management of the scheme is underway.

2.4 Financial Issues

Tariff Structure
Kiliwater uses both flat rates and progressive rates as follows:

- Private connections without meter TShs. 900 per month
- Public tap without meter TShs. 150 per month
- Metered customers TShs. 150 per m^3
- Metered public social institutions TShs. 75 per m^3
- Charges for a new private connection TShs. 35,400 + TShs. 500 per meter of pipe laid.

For metered public and social institutions, there is a maximum consumption limit beyond which the normal rate will be applicable.

Budgeting
Kiliwater prepares an annual budget showing the plans for income and expenditures. The budget is revised form time to time by the Board.

Bookkeeping and Accounting
Kiliwater has recruited an accountant who uses a computer and "quick book" software to budget, analyse and report on income and expenditure. His most important activity is billing customers monthly. The company is expected to bill every customer but bills are not sent to all customers.

Collection Efficiency and Willingness-to-pay
The trend of revenue collection in the last few years is as follows:

1996	TShs. 26 million
1997	TShs. 29 million
1998	TShs. 52 million
1999	TShs. 61 million
2000	TShs. 73 million

The revenue collection is estimated at 97% for metered customers and 67% for flat rates customers. Most users have the capacity and the willingness to pay, provided that water is continuously flowing in all taps.

Method of Revenue Collection
Revenue collection is done through agents identified by User Area Water Committees. A commission structure has been established by the company to provide an incentive to collectors. For any amount of fee collected, the commission is as follows:

Collectors commission	10%
Use Area Water Committee	10%
User Area Water Fund	10%
Company	70%
Total	**100%**

Dealing with Defaulters
Users who fail to pay the bills have their water disconnected after a period of 14 days. This sanction is however difficult for public tap users who have no meters.

Auditing
The Articles and Memorandum of Association of Kiliwater demand that auditors be invited yearly into the company to prepare an audit report. Kiliwater has appointed auditors from institution to audit its accounts.

2.5 Technical Issues

Type of the Scheme
Kiliwater is gravity fed system. The water sources are from eastern Kilimanjaro Mountain. These are mainly rivers, streams and springs. Water gravitates from intakes to storage tank and then to distribution network where it is collected from 7070 house connection and public taps.

Map of the Distribution System
Drawings for the whole system and update and layout plan of on topographical map are available with Kiliwater Company.

Size of the Scheme
The scheme has 27 intakes, 112 storage tanks of various sizes, 250 break pressure tanks and several hundred-valve chambers. The total pipeline length is 800 kilometers. The whole distribution network has 6000 house connections and 1070 public taps (DWP).

Population Served
The Company serves 70 villages. The 57 villages cover the whole Rombo district and the remaining one for Moshi Rural District. The present population served is around 300,000.

Water Consumption
The present supply (dry season) is 19000 m^3/day. This is an average of 63 litres per capita per day irrespective of the level of service. The design consumption was based on public tap: 25 l/c/d; yard connections: 70 l/c/d and house connection 120 l/c/d.

Metering
The company has installed 2000 water meters. They have requested assistance from KFW to install another 5000 meters. Currently some of the Public Taps, House Connection and Business Connections are not metered. It has been found that the collection efficiency for metered connections is 95% while for flat rate (unmetered) is 67%. It has been found that WITHOUT WATER METER, THE SENSE OF RESPONSIBILITY AND ECONOMIC WATER USE IS NOT THERE.

Level of Service
The company has three levels of service. These are Public Taps, yard and House connections.

Quality of Water Supply Infrastructure
The scheme has some pipes especially asbestos cement. These constitute 75 to 80% of East Kilimanjaro pipeline. These pipes are due for replacement as they were installed back in 1964. The cast iron pipes are now becoming weak. They also need replacement. Asbestos cement pipe is said to be carcinogenic and therefore harmful for human beings. Most of the intakes and storage tanks are in good conditions.

Leakage
Leakage is being minimised through repair and replacing old pipes. Also wastage is minimised through creation of awareness and metering. Still the company is operating with assumed leakage of 20% of supply.

Cleanliness of DWP
During the visit, no DWP was observed.

Disconnection of DWPs, HCs, and BCs
Users of water at metered DWPs, yard Connection and House Connections are disconnected if they do not pay in time.

Operation and Maintenance
Kiliwater has a total of 44 employed staff. It has six zones and each zone has four staff (Zonal Manager, Chief Technician, Assistant Technician and Office Clerk). Each zonal office has two motorbikes (for Zonal Manager & Chief Technician). The Zonal Officers are responsible for repair leaks and collect revenue within their zones. The HQ is responsible to support zonal offices by using their mobile unit.

Availability of Spare Parts
Spare parts are bought for the whole scheme by the technical department. Repair spare parts for asbestos cement pipes are not available. So in case of leak, another pipe has to be replaced.

Water Sources
The water sources are originating from the foots of Eastern Kilimanjaro Mountain. The company is using by-laws for protecting catchment areas where most of the streams originate.

2.6 Lessons Learned, Conclusions and Recommendations

- Billing water users and effective follow up of regulations increases collection efficiency.
- Support to established legal entities are essential since it has been found that ups and downs face those institutions during their growth.
- Good professional management to WSCs has chances of bringing positive changes towards making people pay for water.
- Large/Big Water Supply Companies if managed well, has high chances to sustain themselves.
- Conflicts between Local Government and Rural Water Supply organisations are still a major hindrance to implementation of the Rural National Water Policy as observed in Kiliwater where some politicians prevent users from paying water bills.
- Community involvement depends largely on the level of education of the users.
- To be registered as a legal entity gives a strong base for a clear definition of roles and responsibilities. The legal entity paves the way for resolution of conflicts.
- Autonomy of a Rural Water Supply organisation does not depend only on the type of legal framework, but it also depend on the skills, experience, competency, commitment and personality of the leaders of the organisation. Strong leadership has the ability to bring harmony between the rural water supply organisations and the local government.
- Connecting water meters and billing the consumer are advisable ways of controlling efficient use of water and showing transparency to users

3. UROKI BOMANG'OMBE WATER SUPPLY TRUST

3.1 Background

Uroki Bomang'ombe Water Supply Trust was initiated since the 80's when small holder farmers from Kilimanjaro Region requested a water supply scheme from Government. Farmers requested a water supply scheme because they were hit by water-borne diseases and health hazards resulting from residual agricultural fertilizers, pesticides and insecticides.

Uroki Bomang'ombe water supply scheme is expected to serve an estimated population of 35,000 in 8 villages and 58,000 people in Bomang'ombe township in the year 2001.

3.2 Community and Social Issues

Demand-driven Project
The scheme has been requested by the rural communities through their Village Governments. Farmers had experienced water-borne diseases. In addition, these farmers, who are holding small coffee and banana farms and who use small scale furrow irrigation with industrial chemicals had polluted their water. They wanted safe and clean drinking water. GTZ collaborated with Government to construct Uroki Bomang'ombe Water Supply Scheme.

Relation with Local Government
The organisation of Uroki Bomang'ombe is based on the Village Water Committee. The committee is a part of the Village Government. A part from electing a VWC at village level, no relations between the Trust and the Government is observed.

Community Participation
The community participated in the scheme since the design stage. At that time, project staff visited each village and organised meeting with the village authorities and the Village Water Committee members. In these meetings and visits, the people needs were expressed. During the construction stage, the village leaders, the district authorities and the Village Water Committees mobilised the community to give free labour. In this process, villagers participated in trenching, pipe transport, pipe laying, road improvement and back-filling. The project estimate of free labour amounted to about 44,200 working days. At present community participation is high as it can be proved by the effectiveness of the VWC in the maintenance of the public taps and in water fee collection.

Gender Specificity
During scheme construction, the Village Water Committees were formed stressing on gender balance. For this reason, at least 50% of committee members should be women. Many committee members are women and involvement of women in maintenance of public taps and fee collection in high.

Appreciation of Water Supply Service
No doubt that the users of Uroki Bomang'ombe Water Supply Trust appreciate water services. This is demonstrated by their involvement in O&M and their high collection efficiency.

Scheme Ownership

Uroki Bomang'ombe Water Supply Trust owns fully the structures of the scheme. This ownership was facilitated in 1997 when the Minister of Water handed over the scheme to the Trust on behalf of Government. According to the agreement for handing over of Hai District Water Supply Scheme named "Uroki-Bomang'ombe", the Government handed over "*the existing pipelines together with ancillary structures and installations as well as full responsibility for the operation and maintenance of the water system*".

3.3 Institutional Issues

Legal Framework

Uroki Bomang'ombe Water Supply Trust is a fully registered organisation. It was registered in November 1996 as a Trust under the Trustees Incorporation Ordinance (CAP.375) of the law of Tanzania. Therefore it is a recognised legal entity. One of the legal requirements of this Trust is to have a maximum of ten trustees.

Organisational Structure

The organisational structure of Uroki Bomang'ombe Water Supply Trust is based on the following hierarchy:

(a) Village Water Committees are constituted at Village Level. Each VWC elects a Chairman, a Secretary and a representative in the Board of Trustees. The VWC does not include a Treasurer. Uroki Bomang'ombe Water Supply covers eight villages. The eight villages have elected their Village Water User committees.

(b) All the eight VWC have elected one representative each. The VWC representatives form the Board of Trustees which is responsible for the overall management and administration of Uroki Bomang'ombe Water Supply Scheme for three years.

The first Board of Trustees included the Hon. Bishop Dr. Erasto Kweka of Moshi and the District Commissioner of Hai District who have spearheaded implementation of the scheme as a representatives of the Evangelical Lutheran Church in Tanzania – Northern Diocese (ELCT-ND) and the District respectively.

(c) The Trust has an Executive Committee of the Board of Trustees. This committee is constituted of three Trustees.

(d) The constitution of Uroki Bomang'ombe Water Supply Trust has given a role to a Manager who heads an Administrative and Finance Department and a Technical and Supervision Department.

Roles and Responsibilities

The Board of Trustee is a supreme decision making body entrusted with planning and policy making functions. It is also responsible for the management of the scheme. The Executive Committee of the Board of Trustee have the following roles and responsibilities:

- Reviewing quarterly financial reports,
- Running public awareness campaign,
- Proposing programmes and budgets to the Board,
- Carrying out ad-hoc assignments as determined by the Board,
- Recommending actions to the Board.

The management of the Trustee is composed of two divisions: finance and administration and O&M and meter reading. The first division is responsible for financial management, billing and administrative matters. The latter is responsible for daily operation and maintenance of the water supply, and meter reading.

The Village Water Committee is responsible for the following tasks:

- Mobilisation of users for self-help activities,
- Awareness raising on payment for water, protection of water sources, and efficient water use,
- Representation of the beneficiary communities in management at advisory level.

Personnel

The Trust is managed by 28 employees including a manager, an accountant, six pipeline attendants, one driver, two water sellers, two supervisers and 14 watchmen.

The employees receive a salary from the Trust, while the members of the Board of Trustees are paid allowance. No provision is made for payment to VWCs. However, non-significant allowance of TShs. 500 to TShs. 1,000 per day might be paid to VWC members, if the Board of Trustees requests them to carry out a specific activity.

Frequency of Meeting

The constitution of the Trust specifies the frequency of statutory meetings. The Trustees holds two advisory meetings, each year. A meeting of Trustees can be called any time by the Chairman or any three trustees. The Executive Committee meets at least once quarterly. The Village Water Committees meet at least once every year but can hold meetings whenever the need arises. During 1999 for instance, six meetings were held by the Executive Committee, and two meetings of the Board took place.

Transparency and Reporting

According to the Trust constitution, the Management shall liase with the VWCs, the EC and the Board of Trustees to ensure efficient operation of the three organs. Each member of the Board of Trustees is responsible for giving a feedback to the VWC, which has elected him. This is usually done by the Board members and such transparency justifies the re-election of most Board members.

Back-up and Monitoring

Uroki Bomang'ombe Water Supply Trust has no support so far, and has already reached a high degree of autonomy in management, financing, operation and maintenance. This justifies the many visits Uroki Bomang'ombe Water Supply Scheme and study tours done by local and foreign organisations dealing with water supply institutions to understand the working of Uroki Bomang'ombe.

3.4 Financial Issues

Tariff Structure

Water consumers served by Uroki Bomang'ombe Water Supply Trust are grouped into the five categories below:

- Public Taps Villages (PTV),
- Public Taps Townships (PTT),
- House Connection Villages (HCV),
- House Connection Townships (HCT),
- Hydrants.

The fee for new connections is based on the real cost of connection and is now set at TShs. 17,920 plus 20% of labour cost.

The tariff structure is based on the volume of water used. The volume of water consumed is determined by meter reading. Every user has therefore a water meter connected to his supply lines, and bills are sent every month to customers on the basis of the following rates per cubic meter:

PTV	TShs. 100
PTT	TShs. 200
HCV	TShs. 150
HCT	TShs. 250
Hydrants	TShs. 250

Collection Procedures

The collection procedures is based on the step described below:

- Pipeline attendants read all meter by using a reading record book,
- Pipeline attendants submit meter readings to the accountant who prepares the bills in the office,
- One of the two copies of the bills is sent to the customer by the pipeline attendants,
- Each area has a specific day when accountants visit to collect bills in sub-offices where customers pay their monthly water bills,
- The accountant or cashier collects cash, counts, and gives a receipt to the customers,
- Agents of Public Taps are paid 5% to 10% of the revenue brought as an incentive.

Collection Efficiency

During the year 1999, the collection efficiency was as follows:

PTV	108%
PTT	98%
HCV	93%
HCT	97%
HYD	100%

The average collection efficiency was 98% corresponding to a value of TShs. 50 million.

Dealing with Defaulters

Defaulters in paying for water bills are disconnected from the water supply system. For yard and house connection, a penalty of TShs. 5,000 is charged on top of the outstanding bills when they come to pay. If collecting agents and users of a particular public tap default to pay their bills in time, the management is not only bound to disconnect the service, but in addition, the defaulters will be sued in the court of law for having committed the offence of failing to contribute to O & M cost.

Bookkeeping and Consumers Accounting System

Bookkeeping is done by the Trust using a computer and "*quick-book*" software. This systems enables the Trust not only to budget and analyse the financial performance, but also gives to the Board the opportunity to obtain timely useful data such as water production, water consumption and collection efficiency.

Expenditure Behaviour

The Trust has a good financial control characterised by a high maintenance cost (21.6% in 1999) and low Board cost (5% in 1999). A depreciation of 6.1% is made. However, motor vehicle expense is high (40.5%).

Profitability

The Trust makes a reasonable surplus every year. For instance, it realised a surplus of TShs. 2.7 million in 1999. The actual accumulated cash and bank balance amounted to TShs. 13.0 million by end of September 2000. This includes a provision for depreciation of all assets having a life period of a maximum of ten years.

Auditing

According to the Trust constitution, it is compulsory to keep accounting records, to prepare annual statements of account for the Trust, and audit final accounts. Uroki – Bomang'ombe has nominated Moshi Auditors to comply with this legal requirement.

3.5 Technical Issues

Type of Scheme

Uroki Bomang'ombe Water Supply (UBWS) is a gravity scheme with its sources from the Western Kilimanjaro Mountain. These sources are Mahewa, Mavire, Saaki, Makaro and Nkwaro. The yield of these sources together as per design is 68.5 l/s (5918 m^3/day). Water is transmitted through Ductile Iron (DI), PVC and GS pipes to storage tanks and then to consumers who currently collect it through 185 public taps and 860 house connections.

Map of the Distribution System

The UBWS office has a topographical map showing the pipelines. Another drawing showing the number of public tap per village and demarcated area per scheme/pipeline attendant.

Size of the System

The scheme has five intakes transporting water through DI of ∅ 10", PVC class C and of ∅ 6" and GS ∅ 6" from intakes to storage tanks. Total pipeline ranging from 250mm to

50mm is 105 km (Diameters less than 50mm not included as they are regarded as service line). The scheme provides water to 7 villages and Bomang'ombe (Hai) township.

Population Served
The present population served is 47,000. The scheme has been designed to serve 90,000 people by year 2010.

Water Consumption
As per design, the water consumption at public tape (PT/DWP) has been estimated between 20 to 60 litres per capita per day and at House Connection 120 litres per capita per day. Actual consumption is less than estimated. The total consumption at present range between 18% to 20% of the total water granted.

Water Meters
The whole system is metered. Metering is done at sources to know the amount abstracted, at storage tank to know amount consumed, at zones to know and compare with the consumers meter reading and to investigate if there are loses. Meters used for this scheme have been ordered from Germany. For HC they are installed outside the fence and housed in a chamber. At DWP they are installed and housed inside the DWP stand column hollow and locked on top.

Level of Service
There are two levels of service i.e. at Public Tap and House Connection. In total there are 185 Public Taps and 860 House Connections. Also at kiosks water is sold in boozers (2 trucks) managed by BoD of Trustee.

Quality of Water Supply Infrastructure
The whole project was completed in 1996. All infrastructures are in good conditions.

Leakage
There is a high control of leakage. In case of pipe leak, it takes 3 hours to repair it.

Water Treatment
Physical treatment takes place at sources by means of silt settling tank. At storage tanks chlorine is dosed at 0.3 ppm. The annual consumption of chlorine per year is 250 kg. All tanks are cleaned at an interval of one to three months. After cleaning, they are disinfected with chlorine.

Water Sources
All the five sources in use are originating from the foots of Mountain Kilimanjaro. The biggest intake is Saaki where a total of 2570 m^3/day is abstracted.

Cleanliness of DWP
All DWPs visited are clean.

Disconnection of DWP and HC
The DWP and HC as a rule are supposed to pay their bills within 14 days. Failure to pay within those days, then their DWP/HC are disconnected. However, before disconnection after 14 days most people pay or they have genuine reasons of which made them not to pay in time.

Operation and maintenance

The management team comprises of a Manager/Chief Engineer, Accountant, assistant accountant, Secretary, watchmen and 10 pipeline attendants. The pipeline attendant sign contract with VWC for appointment and they are paid TShs. 40,000 per month and TShs. 10,000 performance allowance as bonus. The TShs. 10,000 is paid only if the area allocated to him/her for the whole month had operated and maintained well. Also effective leak repair, efficiency to send bills are also parameters considered in the performance allowance.

Availability of Spare Parts

Spare parts are bought in Moshi/Hai town. For large size pipes starting from ∅ 6" and above, spare parts are bought from KURASINI MoW store in Dar es Salaam. However, prices in KURASINI store are higher than those found in shops.

Extension of Pipeline

The trustee has increased two PT/DWP to serve its customers on its cost. Yearly they extend the pipeline for ∅ 110 to 50 mm to a length of 1.5 km.

3.6 Lessons Learned, Conclusions and Recommendations

- The education level of the users of Uroki Bomang'ombe is above the average in Tanzania. This makes awareness campaigns and mobilisation of users on easy task.
- The Board of Trustees is a small group of knowledgeable, committed and trusted representatives of the users.
- A relatively high education level of the people and availability of able managers are the basic factors responsible for success in Uroki Bomang'ombe region.
- Availability of water meter for every water consumer is a condition for optimum management of a water supply scheme:
- Without efficient billing, collection efficiency can drop; therefore billing should be used in addition to connection of water meters because it includes a control mechanism towards defaulters through specification of a deadline for payment and measures to be taken in case of default.
- A valuable investment has been put in the empowerment of users through field visit, awareness campaign, and participation in all the steps of the project cycle.
- The scheme is well maintained by committed and motivated pipeline/scheme attendant.
- Wastage of water is minimised due to metering.
- The water supply scheme has been successful due to reliable water service, realisation of water users that water is economic good and good and efficient O&M of the scheme.

APPENDIX IV

Study Tour Report

Rural Water Supply Organisations in Mbeya and Iringa Regions

July 30 to August 3, 2000

STUDY TOUR REPORT

RURAL WATER SUPPLY ORGANISATIONS IN MBEYA AND IRINGA REGIONS

JULY 30 TO AUGUST 3, 2000

CONTENTS

PERSONS MET IN MBEYA AND IRINGA REGIONS

1.	S.A. Mwaisaka	Regional Administrative Secretary Mbeya
2.	E. Urio	Head of construction section, Maji, Mbeya Region
3.	R.A. Materu	Zonal Chemist, Mbeya Region
4.	S.A. Komesha	Regional Hydrologist, Mbeya Region
5.	A. Mkungume	Technician, Works Department, Mbeya Region
6.	I. Abdallah	Hydrogeologist, Mbeya Region
7.	Eng. M.E. Kimambo	Mechanical Engineer, Mbeya Region
8.	Eng. Y.I. Makongwa	Managing Director, Mbeya Region
9.	K.S. Nkwera	Regional Planning Officer, Morogoro Region
10.	Eng. S.K. Babala	Regional Water Engineer, Mbeya Region
11.	E. Urio	Engineer Construction, Mbeya Region
12.	Mpanye B. Kassim	District Water Engineer, Marali
13.	Eng. J.P. Gwimile	Patron, Nyaugenge WUA
14.	Danford Mtemule	Manager, Nyaugenge WUA
15.	Jackson Mlelwa	Secretary, Nyaugenge WUA
16.	Tumaini Mpande	Treasurer, Nyaugenge WUA
17.	Godrey J. Mbwilo	Mechanic, Nyaugenge WUA
18.	Samwel Ngeve	Member, Executive Committee Nyaugenge WUA
19.	Karim H. Mhepize	Member, Executive Committee Nyaugenge WUA
20.	Kingazi William	Technician water supply / Trainer, Iringa Region
21.	Chiboko Simon	Technician Water Supply Design, Iringa Region
22.	M.O. Mfugale	Regional Water Engineer, Iringa Region
23.	Andrew Kisaro	Technician Training, Maji Iringa Region
24.	Aron Mussa	Technician Works, Maji Iringa Region
25.	Godlove Farasi	Community Development Officer, Iringa Region
26.	Mnyamoga	Ward Executive Officer, Kiponzero
27.	Barnabas Minga	Ward Executive Officer, Kiponzero
28.	Julias W. Msiku	Chairman, Kiponzero Village
29.	Melius Luhwavi	Chairman, Village Water Committee, Kiponzero
30.	Dismus Komoro	Member, Village Water Committee, Kiponzero
31.	Stephani Magavilo	Member, Village Water Committee, Kiponzero
32.	K. Farida	Member, Village Water Committee, Kiponzero
33.	A. Mbwelwa	Village Executive Officer, Ifunda
34.	I. Mdemu	Chairman, Village Government, Ifunda
35.	M. Makwata	Chairman, Village Water Committee, Ifunda
36.	E. Henjewele	Community Development Officer, Ifunda
37.	E. Kibinga	Member, Village Water Committee, Ifunda
38.	L. Mavika	Member, Village Water Committee, Ifunda
39.	A. Mnubi	Member, Village Water Committee, Ifunda
40.	John Mteve	Member, Village Water Committee, Ifunda
41.	Patrick Sanga	Chairman, Ismani WUA
42.	George Gongo	Secretary, Ismani WUA
43.	Salima Saidi	Treasurer, Ismani WUA
44.	Daudi Kombole	Member, Ismani WUA
45.	Kanisia Kihombo	Member, Ismani WUA
46.	Vumilia Kimbe	Member, Ismani WUA
47.	Alex Mhanga	Manager, Ismani WUA
48.	Anna Baraka	Advisor, Ismani WUA
49.	Rose Mtawa	Development Officer, Ismani WUA

1. NSONGWI JUU VILLAGE WATER SUPPLY SCHEME

1.1 Background

Nsongwi juu is a small village located at about 10 km from Mbeya town. It is one of these villages of Mbeya rural district (Mbeya region), which has been hit by an acute problem of water supply.

There was only one spring and one DWP at 5 km distance. Because of this indicate problem, villagers decided to unite their efforts to make sure that water is available. The village government played a central role in establishing a Village Water Committee, mobilising the population and meeting substantial financial contributions towards the construction of a water supply scheme. This situation stimulated villagers to build a water supply scheme with advice and material support from Mbeya Rural District Council.

1.2 Community and Social issues

Demand-driven Project
Nsongwi Juu Water Supply Scheme was initiated by villagers themselves. The village government played a role in village mobilisations without difficulty. In 1989, the villagers had only one distant spring, which was situated far from the majority of the 1943 villagers. DANIDA did not include Nsongwi village in its water supply programme, but built a DWP at 5 km distance. According to the users of Nsongwi Juu water supply scheme, the stimulus for initiating the construction of the system was due to too much inconvenience resulting from lack of water near homesteads.

Relations with Local Government.
The Village Water Committee took the lead in mobilising villagers for the construction and management of the scheme. Users asked the Village Government to seek assistance from the District Water Engineers' office. The District Water Engineer appreciated the initiatives of the village and decided to assist the villagers in the design and construction of the scheme. The DWE requested and obtained materials worth TShs. 8,350,000. The Village Government made also a contribution of TShs. 2,627,600 in the scheme construction.

Community Participation
The users contributed TShs. 3,116,000 in the construction of the water supply scheme. In addition, those who were unable to make a financial contribution provided free labour in digging trenches.

Those who failed to contribute paid a fee in terms of task to be done in the water scheme. The leaders of water committees have neither a salary nor allowance, but work on self-help basis.

Gender Specificity

Men and women are equally involved in Nsongwi Juu Water Supply Scheme. One surprising observation is that women lobbied to elect a woman as a chairperson, because they feel that a water committee chaired by a man would not see that water is a priority in the village. At present a lady is the chairperson of the Nsongwi Juu Water Supply Committee, and she commands respect. Monetary contribution during scheme construction was specially demanded irrespective of gender. A common rate of TShs. 4,500 per adult was set as a contribution towards scheme construction. Men as well as women managed to contribute.

Appreciation of Water Supply Services

Most users of Nsongwi Juu Water Scheme appreciated the services provided by the scheme. In the report read by the Village Executive Officer during our visit, the following benefits were mentioned:

- Hardship of women to fetch water is reduced,
- Many villagers have built houses in bricks, which were easily made after construction of the scheme,
- Health and hygiene improved in the village,
- The scheme made users more aware that unity is strength, and resulted in more cohesion of the users in the community,
- Construction of classrooms became easy
- Nutrition has improved as a result of irrigation of garden during the dry season.

1.3 Institution Issues

Legal Framework

Nsongwi Juu Water Supply Scheme is organised in a spontaneous way. The Village Water Committee is a part of the Village Government. Another Water Committee was formed to manage the scheme. The Committees do not form any legal entity, but they are recognized by the Village Government and the Nsongwi local community.

Organisation Structure

Users elect a Water Committee of 10 members including a Chairman, a Secretary, a Treasurer and 2 scheme attendants. Since the scheme has 12 DWPs, there are DWPs committees of five members who are responsible for operation and maintenance of DWPs. The DWP committee includes one Chairman, one Secretary and one Treasurer and two ordinary members. The Village Water Committee is within the Village Government structure, and can request a contribution from the Village Government to assist the Water Scheme. The Village Water Committee is the overall responsible for the running of the scheme.

Election of Committees

Every three years, the Village Government supervises the election of the Village Water Committee. Election is done by the general assembly of the users. The users elect then Nsongwi Village Scheme Committee, and the DWPs Committee.

Roles and Responsibilities

The Village Water Committee (VWC) is a liaison between the Village Government and the Village Scheme Committee. The VWC requests a budget for water supply from the Village Government and is the policy maker in the Village Water Supply Scheme.

The Village Water Scheme of 10 members is responsible for operation and maintenance of the intake, the tank and the main pipes, while the DWP Committee of 10 members responsible for collection of fee, cleaning and security the DWPs. The Village Government and the District Community Development officer have given awareness seminars to the committee leaders about their roles and responsibilities. So the tasks and jobs of the Chairman, the Secretary and the Treasurer are made clear.

Personnel

No one is paid a salary in Nsongwi Juu Water Supply Scheme. The Chairman, Secretary and Treasurer provide their services free of charge. They believe that working for the scheme is working for oneself, since everybody benefits from water. The scheme has two local scheme attendants who have attended some technical training. They are not paid any salary nor allowance, but they have recognition as important persons in the community. When the scheme attendants need to travel to Mbeya to buy spare parts, the VWC gives them a bus ticket and a small meal allowance.

Frequency of Meetings

The VWC meets regularly on the basis of Village Government time table. There is no planned meeting for other committees. However, the Secretary or Chairman of any Committee invites a meeting whenever there is a problem: e.g. when they need money for repair, the majority of invitees come to meetings when called.

Transparency and Reporting

The Village Water Committee gives a progress report in the meetings. Minutes are taken for every meeting held. When there is an emergency on the DWP, the DWP committee calls a meeting of users.

The VWC reads the progress reports including a report on collection of contribution and expenditures incurred for the maintenance of the DWP. The reports are kept safely by the Secretary of the DWPs committee.

Backup and Monitoring

There is no continuous backup or monitoring of the scheme. When a problem arises which cannot be solved by the community, the Village Water Committee usually request assistance from the district. Assistance often requested concerns design, costing, supervision and also contribution of funds. So far the response is good from the District Council. The users ignore totally what is happening in other villages. They are not exposed to other Water Supply Management experiences. But have had of DANIDA programme and were angry that DANIDA did not find a priority to include Nsongwi village in their programme.

Training

A few awareness seminars were organised by the District Community Development Officer. The scheme attendants were trained outside of the scheme arrangement. No formal training has ever been made to empower the community in the management of their scheme, and this appears to be a major problem.

1.4 Financial Issues

Tariff Structure

There is no uniform tariff in Nsongwi Juu Water Supply Scheme. Rates are agreed upon when there is a need. They are determined on the basis of real requirement. For instance, before the scheme was constructed, the users agreed that every adult must pay Tshs 4,500 in two instalments of TShs. 3,000 the first year, and TShs. 1500 the following year.

In case of problem of maintenance of the main line, the DWP committee must see to it that needs for repairs are reported to Nsongwi Water Supply Scheme Committee, which makes an estimate of the cost for repair or construction. The DWPs committee decides upon the required contribution for emergency repair of the DWP. In some committees, users may decide to, pay for instance, TShs.100 on spot. Generally the response is positive since all the 12 DWPs are functioning perfectly.

Budgeting

No annual budgeting is practised by the DWP's committee or the Village Water Supply Scheme Committee. A capital budget is established when the users want to make an expansion. Assistance in costing is often requested from the District.

Customer Accounting System

The secretary of every committee has a list of all the users. He records the contribution of every user.

Therefore, outstanding contributions are known. A report on financial contribution is read in all meetings. Nsongwi Juu Water Supply Committee meets monthly unless there is an urgent issue requiring more frequent meetings.

Bookkeeping

Apart from the list of users, a report on contributed amounts and outstanding contribution, no other bookkeeping or accounting is practised in Nsongwi Juu Water Supply Scheme.

Collection Procedures

Collections are initiated by Water Committees on the basis of real requirement. Information on the required contribution is agreed upon in public meetings or in users meeting on a DWP level. Once the rate is set, the treasurer is responsible for collection and follow-up of contribution. A receipt is given to the user for every payment made.

Collection Efficiency

According to Nsongwi Juu Village Water Supply Scheme Committee, collection efficiency is high, almost 100%. The few users who don't pay have a genuine reason.

Willingness-to-pay

Willingness to pay is high in Nsongwi Juu Village. The main reason is the high priority users put in water. Another reason is education and mobilisation initiated by the Village Government and supported by the District Community Development Officer.

Dealing with Defaulters

The few defaulters in paying contribution towards construction of scheme or scheme maintenance are followed up by various committees. On the DWP level, there is a strong social pressure and social cohesion, making defaulters accept to pay compensation in terms of labour. This arrangement is generally accepted by defaulters.

Remuneration of Personnel

No committee member is paid a salary or allowance. The Community has a tradition to work on self-help basis, with no payment, provided that the community agrees that the work performed responds to a priority need of the villagers. Even the two scheme attendants are not paid. The scheme attendants are excused for participating in other village activities carried out by villagers on self-help basis. In rare cases, the attendant is paid a small allowance when he is sent to Mbeya town to purchase spare parts.

Bank and Cash Balance

Nsongwi Juu Village Water Supply Scheme has no bank account. The local DWP's Committee may decide to open a bank account. Generally, there are not many savings which could need to be kept safely in a bank. In the few cases where a balance remains after repairing the scheme, the users can decide to invest it in communal agricultural activities supervised by the Village Agricultural Committee. Every local committee on a DWP is free to handle the money the way it thinks fit, provided that a common stand on this issue is reached by the users. The Village Government has a bank account and budgets sometimes for the Village Water Committee. The Village Government has revenues from levies on agricultural activities and local brew sold in village clubs.

Reserves and Depreciation

The concept of reserve and depreciation is not thought of by the users. It is true that the scheme is quite new and no major rehabilitation is expected soon. But it is obvious that the need for major maintenance will be real in the future. Given their procedures of emergency contribution, eventual requirement of major repair can be handled through ad-hoc mobilisation of contribution by users.

Expenditure Behaviour

Nothing can be feared about the expenditure behaviour of the various committees service. Almost all money collected is used directly on construction or repair. The Water Committee at scheme level meets monthly and discusses finance, among other things, thus looking also into expenditure trend. This implies some regular financial control, which help avoid misappropriation.

1.5 Technical Issues

Type of Scheme
Nsongwi village is served by a gravity water Supply system. The source of water is a spring. The spring emerged just after a big tree and is well constructed and covered on top by plastic sheet to prevent direct pollution. Then water from the spring tapping flows to collection chamber where it is connected to an outlet of GS ø 4" pipe towards the storage tank.

Map of Distribution System
The map is available at both village and district level for the whole scheme. At present, another map (drawing) is under preparation for extension of the service to Ilemi sub-village.

Size of the System
The transmission line from the collection chamber is reduced from GS ø 4" to GS pipe ø 2.5", and PVC ø 75 mm. The total length of the transmission line is 2.7 kilometres. Along the transmission line there are four air valves. Water flowing through it is 1.43 l/s. The storage tank capacity is 45 m^3 on ground. The number of Domestic Water Points in the whole scheme is 12 distributed in Nsongwi juu sub-village. There are no water meters to record flow for both transmission and distribution network.

Population Served
The total population of the village is 2671. Only 1943 inhabitants are served with water as per 1990 data. The project has been designed to serve 4216 inhabitants by year 2011. Presently around 25% of the total population are not accessible to water service.

Water Consumption
The water consumption for the scheme has been estimated at 30 litres per capita per day. There is no provision for yard and house connections.

Level of service
All people getting water from the system are served from Domestic Water Point (communal water point) basing on the Ministry of Water criteria of 250 people and radius of 400 m. Yard and house connections are expected to be connected after a new source to serve Ilemi sub-village has been in operations.

Quantity of Water Supply Infrastructure
The spring tapping and collection chamber are well constructed. However, the screen at the collection chamber has been removed and the overflow is not well fixed in concrete.
The transmission line is in good condition and all air valves and washouts are working.
The storage tank has been built with foundation in ground. Wall, roof, chambers, washout overflow and vent are functioning properly.

Leakage
No leakage was observed during the visit. Information from scheme attendant is that all leaks are repaired immediately whenever they are reported.

Disconnection of DWPs, HCs and BCs

No payment is made regularly to the scheme. Only when a problem occurs, then money is collected from village government or on spot contribution from the community. With the working procedure, nobody is disconnected from water supply service as the village government takes care of all issues pertaining to its people.

Operation and Maintenance

The village has two scheme attendants who are paid per piecework at a rate of TShs. 2,000 per day. The two scheme attendants alternate in operational activities such as inspection of the spring tapping, collection chamber, pipeline (transmission and distribution). They are also involved in cleaning air valves, opening washouts, repair of leaks and replacing bibcocks.

Availability of Spares

Spare parts are found in Mbeya Municipality for the scheme. In case fittings like sluice valve are not available the supplier purchases them from Dar es Salaam on order.

1.6 Lesson Learned, Conclusions and Recommendations

- Motivation to scheme attendant is not only cash paid but also respect which one gets from the society. This is justified by the fact that the scheme attendants are recognised and respected in the village on the basis of their skills on O & M of the scheme.
- There is a real demand of water in the village.
- Initiation of the project by users is likely to be well operated and maintained.
- Management options for water supply services depends also on cohesion within the community.
- Project initiated by the community have a lot of chances to become sustainable.
- Support from both the District and the Village Government can enable a community to manage sustainability a water supply organisation.
- The need for professional management is high in Nsongwi Juu Water Supply Scheme

2. NYAUGENGE WATER USERS ASSOCIATION

2.1 Background

Nyaugenge Water Users Association (WUA) serves 8 villages situated in two districts of Makete and Mbarali in Mbeya region. The population served was 30,600 in 1991. The association manages a water supply scheme, which was constructed by DANIDA in 1990, when a water survey resulted in the discovery of a surface water source. This source enabled the design of a gravity water scheme. Between 1970 and 1980, the villages enjoying water to day used to have water from a pumped water supply scheme. The scheme was managed by the Regional Water Engineer. Unfortunately the diesel engine was stolen in 1980, leaving the population of 8 villages without water for 24 years. Since 1994, the scheme is managed by Nyaugenge Water Users Association.

2.2 Community and Social Issues

Demand-driven Project

Nyaugenge Water Supply users believe that the water supply which used diesel pump in the 1980's collapsed because users were not involved in the design, contribution and management of the scheme. When the scheme collapsed in 1980's, outbreaks of diarrhoea, typhoid and cholera multiplied. Villagers experienced serious hardship and waste of time when fetching water from distant national springs or wells. The scheme presently run by Nyaugenge WUA is a demand driven project, which was obtained after pressure was made to government to bring water in the villages to reduce outbreaks of water related illnesses.

Relation with Local Government

During scheme construction, every village formed a Village Water Committee. The Village Government was asked to open a Village Water Account. The Village Committees were responsible for mobilisation of users to dig the pipe trenches, to contribute money and to collect building materials like stones, gravel and sand. The Village Government campaigned for the collection of TShs. 200 to TShs. 500 per adult per year. The contribution was put in a bank account.

At present Nyaugenge WUA is an independent legal entity and has little relationship with the Village Government. The Village Government is sometimes invited by WUA to mobilise and educate the users on payment of contributions, security of the water supply system and participation of users in maintenance. However, there are some frictions between the Nyaugenge WUA Executive Committee and Village Government. The WUA has now acquired the influence and powers previously detained by the Village Government.

Community Participation

Water users were involved since the design and construction of the scheme. They were required to contribute money and free labour. From 1990 to 1999, users were asked to contribute funds amounting to TShs. 50,000 per village. The collected funds were used in construction. The balance after construction of the scheme is used for maintenance of the main line and the water intake. Nyaugenge WUA made it clear in its regulations that the users are responsible for cleanliness of their DWPs including building a burnt brick fence around the DWP.

Gender Specificity
The Memorandum of Association and the administrative regulations of Nyaugenge WUA do not provide for any gender preference in their articles. In practice, no special involvement of women was seen in the various water committees. For instance, whom we visited the association, no lady came in our meeting as a member of the Executive Committee of Nyaugenge WUA.

Appreciation of Water Supply Services
There is a high appreciation of water supply services by all the users. This is caused by hardship experienced by users before construction of the scheme. This appreciation of services was responsible for raising awareness of the need to contribute funds to build the scheme.

2.3 Institutional issues

Legal Framework
Nyaugenge WUA is a legal entity registered under the society ordinance, (CAP 317).

Water users were given alternatives of legal framework and were asked to choose the most appropriate to run a community based water supply scheme. Alternatives given were company limited, users association, and public corporation or authority. Users assisted by lawyers choose for the users association.

Organisational Structure
The organisational structure of Nyaugenge Water User Association is based on the following three levels:

- DWP level : A group of users is organised around one DWP,
- Middle level: Association of users in one village,
- Top level : Association of users in several villages.

On the DWP level, users elect a Chairman, a Secretary and two members, who form a committee of users at the DWP level.

All committees of DWPs in one village form a Middle Level Water Committee, composed of the Chairman, Secretary of every DWP, and two house connection users.

A middle level executive committee of six members is elected by the middle level Water Committee. The Executive Committee meets and elects a Chairman and Secretary.

At the top level (association level), the general meeting of users elects an Executive Committee of the Association. The Executive Committee of Association comprises five members. This committee elects a Chairman and Secretary of the Association.

Whenever there is a middle level or association level meeting, a temporary Chairman is elected to chair the meeting.

At present the Association has a Committee of 67 members (8 per village).

Beside the various committees, the Executive committee is allowed to employ the executive officers:

- Association manager,
- Accountant,
- Association scheme attendants,
- Collection agents.

Elections of Committee

Nyaugenge Water Users Association has established strict rules to govern election. Important rules are as follows:

- Government officers and employees in institution can be members of Nyaugenge WUA but they have no right to be elected as leaders;
- The General Meeting elect supervisors of election at all levels;
- If a DWP is used only by an institution no leadership will be elected at the DWP level;
- Three people volunteers to be elected in one leadership position and a secret vote is cast;
- The winner of election should have more votes than the other competitors.

Roles and Responsibilities

In Nyaugenge WUA the roles and responsibilities are spelt out in the Memorandum and Articles of Association and the reputations of the association. There is a clear cut between the executives and the decision makers, and this demarcation helps avoid duplication of roles and authorities. Job descriptions are detailed in the regulations of the association.

Personnel

Nyaugenge WUA has recruited one Manager, one Treasurer, a Principal Scheme Attendant, an Assistant Mechanics and a number of technical helpers. However, it seems that recruitment was note based on strong selection criteria. This can be demonstrated by weak management towards the Association Executive Committee.

Frequency of Meetings

The regulations of Nyaugenge WUG puts it clear that there should be a timetable for meetings at all levels. A general meeting of users at the DWP should be held every quarter, while the middle level general meeting of users should be held twice per year. The ordinary general meeting of users of the Association is to be held twice annually. Members are keen in holding meetings. Usually, beside the constitutional directives on meetings, ad hoc meetings are held whenever there is emergency.

Transparency and Reporting

The management team prepares a monthly report on operation and finance of the association. Every three months there is a meeting of the Executive Committee. Nyaugenge Water Users meet also quarterly on the DWP level to discuss the progress reports including the income and expenditure.

Backup and Monitoring

When the general meeting of the Association takes place, Village leaders might be invited as advises in observers. Technical advice is generally sought from the District. In fact, Nyaugenge WUA has no efficient support organisation.

Training

Nyaugenge WuG leaders and manager attended a DANIDA short training in Management of WUA.

Between 1986 and 1996, DANIDA organised training called "Water Users Support" which consisted in three parts: the orientation course, the management course and the maintenance course. Many leaders and all executives of Nyaugenge WUA attended such training.

2.4 Financial Issues

Tariff Structure

The tariff structure of Nyaugenge WUA is as follows:

- DWP TShs. 600 per adult per year,
- HC TShs. 200 per adult per month if the connection is outside the house,
  TShs. 400 per adult per month if the connection is inside the house.
- Institutions
  - Secondary School TShs. 5 per student per year
  - Mosque TShs. 400 per month
  - Church TShs. 400 per month
- Business Connections
  - Restaurants TShs. 400 per month
  - Milling machines TShs. 700 per month (with water cooling system)
    TShs. 400 per month (with air cooling system).

Budgeting

The Manager of Nyaugenge WUA is responsible for preparation of annual budget. He is assisted in this task by the association's Treasurer. The draft budget prepared by the manager is submitted to the Executive Committee of the association for approval. Nyaugenge WUA prepares annually a comprehensive budget comprising income by categories of users, overhead costs, O & M costs and capital expenditure. However, implementation of the budget is weak, since collection of fee is low and expenditure remains as per budget.

Customer Accounting System

Nyaugenge WUA has established a consumers' accounting system whereby a record of the names of users, the amounts paid and the amount dues are made recorded. However, a number of collecting agents record poorly and do not collect water fee effectively.

Bookkeeping

The regulation of Nyaugenge WUA has a provision for carrying out accounting and bookkeeping of the association. According to the Management and Accounts Handbook prepared by DANIDA, the bookkeeping procedures include the use of cash receipts, payment vouchers and cash book. The association's treasurer must also maintain a petty cash book, a main cash book and a general ledger. Although most of books are kept (although not in an accurate and appropriate manner), the treasurer and the fee collection agents seem inefficient in keeping their accounts books: many mistakes are made, and forms are often irregularly filled.

Collection Procedures

Collection of water fee is carried out by collection agents. Collection agents are recruited on competitive basis and sign a contract with the association. The collection agents are paid 10% of the total fee collection. Funds are remitted to the association secretary. Receipts are always issued, whether by the collection agents or by the treasurer. The treasurer is paid TShs. 20,000/= as a monthly salary.

Collection Efficiency

Collection efficiency is now reaching 40% of the expected collections. Collection is low because the association has no problem of liquidity, so it can draw money from the account and solve emergency problem. The scheme is new and the requirement of maintenance is small. Therefore, the need to contribute financially is not strong.

Willingness-to-pay

Although collection efficiency is low, there is high willingness to pay. High willingness to pay is a result of a high demand for water in the village served by Nyaugenge WUA.

Dealing with Defaulters

The regulations of Nyaugenge WUA spells out that the scheme attendant should close the DWPs and the house connections where users have failed to pay fee or maintain the cleanliness of a water point. The scheme attendant should communicate with the manager before applying this sanction. Beside the sanction consisting of closing the water points or the house connections, state organisations including the Ward Executive Officer assist the association by counselling defaulters or taking them to court. In practice people pay when water is closed or when they are taken to the Ward Executive Office for action.

Bank and Cash Balances

Nyaugenye WSC has opened a bank account in Mbarali, one of the district headquarters of Mbeya region. This is a district town. The Treasurer requires a payment of transport allowance to go to Mbarali to bank any amount exceeding TShs. 50,000 as per regulations. The association has a balance of TShs. 2.6 million; but the whole part of this amount is a result of amounts collected by users during village mobilisation at the time of scheme construction. According to an agreement made before construction, every village should collect TShs. 50,000 as a contribution to Nyaugenge Water Supply Scheme. When the association was established, the rule was to transfer the contributions of users from the village account to the association's account. The actual bank balance is partly the collections which village contributed during construction.

Remuneration of Personnel
The executive officers are paid a monthly salary as follows:

- Manager TShs. 30,000
- Treasurer TShs. 20,000
- Senior Scheme Attendant TShs. 17,500
- Junior Scheme Attendant TShs. 17,500

The six scheme attendants who are not on the payroll receive an allowance of TShs. 5,000 per month.

Remuneration of Executive Committee
No salary is paid to committee members. However, a small allowance of TShs. 1,500 per member is paid to the members when they meet. At the middle level, only TShs. 200 is paid to a member attending a meeting. The philosophy of free labour is strongly implemented in Nyaugenge WUA.

Reserve and Depreciation
Nyaugenge WUA has been operating only for one year. The association is still waiting for the audit report from external auditors. The trend of income and expenditure does not seem to derive a surplus since the income is short of target (40%). The association does not budget for a provision for depreciation, but makes a capital budget. During its first financial year, a budget was estimated for tools, furniture, money, safe, bicycles and water supply expansion.

Expenditure Behaviour
The expenditure behaviour of Nyaugenye WUA leaves much to be desired. Management tends to spend as per expenditure budget, while collection efficiency is only 40% of the target. There is no culture to believe that if income decreases expenditure on salaries and allowance will be voluntarily reduced. The need to spend wisely is not obvious because the association has still a good balance at the bank.

Auditing
The co-operative officer of Mbarali District has offered to audit the accounts of Nyaugenye WUA. The accounts books were still in the co-operative officer's office when we visited the association.

2.5 Technical Issues

Type of Scheme

Nyaugenge is a gravity Water Supply Scheme serving 8 villages. These schemes serving more than one village in DANIDA/MAJI projects are termed Group Gravity Scheme (GGS). Water is abstracted from Kimani river and transmitted through Galvanized Steel (GS), Ductile Iron (DI) and PVC pipes of diameter 6 inches. Thereafter water gravitates from storage tank to distribution network and collected through domestic water points, yard connections and house connections.

Map of Distribution System

In the association office, there is a map and a layout plan of the scheme on the wall showing all villages served from the scheme. A detailed layout and longitudinal section of the scheme is kept by the District Water Engineer's office and the users association.

Size of the System

The intake for the scheme is a masonry weir across one distributary of river Kimani. The scheme transmission line is 58.4 kilometres and there are 20 break pressure tanks (BPTs) washouts and 16 air valves before the storage tanks. The total number of storage tanks is 11 distributed as follows:

Mbuyuni	2 tanks each 50 m^3,
Kimani	2 tanks – 75m^3 and 22.5 m^3,
Mfumbi	1 tank – 75 m^3,
Uturo	1 tank – 75 m^3,
Msesule	1 tank 22.5 m^3,
Itambu	1 tank 45 m^3,
Mabadaga	2 tanks each 50 m^3,
Ukwavila	1 tank 45 m^3.

The total length of distributions system is 67.2 kilometres. The whole distribution network is distributing water to 118 DWP and several yard and house connections.

Water Consumption

The water consumption per capita per day at DWP is 25 to 30 litres, yard connection is 75 litres and at house connection is 125 litres. The whole system is not metered.

Level of Service

Water is being served from DWP, which is the lowest level of service followed by yard connection, and the highest is house connections.

Quality of Water Supply Infrastructure

The intake is in a good condition. It is provided with inlet chamber, screen and valve chamber. The decision of constructing it on a tributary had an advantage of short span of the weir. Although in the dry season little water flows through the tributary, this problem is solved by directing water in the main tributary to the small one by using stones (riprap). Each pipe from the intake to a distance of about 200 m is supported by concrete support. The reason is to stabilise them against floods and water hammer. At steep hills, provision for diversion of storm water from the pipeline has been made by mitre drains to prevent erosion of soil.

All tanks are masonry and are constructed as per MAJI, design and are in good condition. The Break pressure tanks (BPT) have been provided with provision for treatment of water. The air valves observed are in good condition and are protected in a locked chamber.

The Domestic Water Points have circular slab and column of diameter 6" and connected to a drainage gutter of about 10 meters. This long gutter has an advantage of transporting spill water far from the DWP.

House Connections and Yard Connections have gate valve each at a connection point to the main distribution line and another closer to customer's outlet.

Leakage

Leaks on pipelines are repaired, but not in time; temporarily done by fastening the leak with bicycle tube rubber. But sometimes the proper spare part is not installed if no sign of further leakage is observed. However, this situation put the scheme in weak maintenance, which result in higher maintenance cost in future.

Cleanliness of DWP

All DWPs are clean.

Disconnection of DWPs, HCs, and BCs

The scheme management do not disconnect water at DWPs. Disconnection are being done to ones who have yard, house and business connections. If one do not pay, disconnection is first done at the outlet at his connection point, thereafter a three months period is offered for paying the debt. In case if payment is not effected in the stated duration, then another disconnection is made at the place where the service line has been connected to the main distribution.

Source Protections

There is a nice swimming pool upstream of the intake. Tourists prefer to go there and swim in it. Measurers have been put by fixing a gate towards the intake, but by the time of the visit, we found it broken by unknown people. This shows that pollution of water is likely being caused by human being upstream of the existing intake.

Operation and Maintenance

The scheme serves 8 villages. Each village has a scheme attendant. The senior scheme attendant is paid TShs. 17,000 per month and other seven scheme attendants are paid TShs. 8,000 monthly. The scheme attendants are responsible to repair leaks to the distribution system of the village and also transmission line leading to their villages' tanks. In case if a tap (bibcock) is out of order, their respective water users are responsible for replacement. Cleaning of tanks, washout and air valves are done at an interval of 3 months.

Cleaning of intake is done by the senior scheme attendant. Frequency of cleaning differs from the rainy season to dry season. In rainy season cleaning takes place at least weakly while in dry season it takes place monthly.

Availability of Spare Parts

Spare parts are bought from Mbeya Municipal. If a spare is not available in Mbeya Municipal, then, a supplier is contracted to purchase it from Dar es Salaam.

2.6 Lessons Learned, Conclusions and Recommendations

- The scheme is well designed and constructed.
- Maintenance schedule for air valves, washout and intake vary in accordance with seasons.
- Prolonged gutter has an influence of keeping the surrounding around the DWP clean.
- Non availability of stock of fast moving spares can lead to unprofessional repair of the scheme.
- Good design and constructions reduces O & M cost.
- Low collection efficiency seems to be a general constraint in all rural water supply organisations.
- Management and board should change their behaviour of spending more on allowance than on maintenance and repair.
- The budget is not realistic since it is based on unreachable collection efficiency.
- Sustainability is doubtful because of low willingness to pay, lack of management skills and capacity building.

3. ISMANI WATER USERS ASSOCIATION

3.1 Background

Ismani Water Supply Scheme is the largest group gravity scheme in Iringa District. This scheme is serving 22 villages of a total population of 38,600 people living in semi arid high plains with scattered hills covering 1600 km^2. Due to this topographic situation, availability of reliable water supply for both domestic and agricultural use is a major problem in the area.

Government and various donors took this problem as a priority since the 1960's SIDA, UNICEF and later DANIDA supported water supply schemes at different times. In 1984, DANIDA started to support Ismani scheme and continued till 1999 when Ismani Water Users Association was established.

3.2 Community and Social Issues

Demand-driven Project

Ismani Water Supply Scheme is basically a demand-driven project. Before DANIDA financing, water supply project in Ismani were initiated because the area was considered as a high potential area for agricultural production and development of animal husbandry. (Ismani population raises cattle, goats and sheep). Another reason was the need for water in this area especially during the dry season when people had to walk 5 to 10 kilometres to reach the nearest water sources.

When DANIDA prepared a social economic study and Iringa Water Master Plan, the communities of Ismani area singled out that lack of availability of reliable water supply is a priority problem. As a result, Ismani Water Supply was classified as a high priority project by DANIDA.

Relation with Local Government

The role of the Village Government is to make sure that all laws are implemented. The Village Government Chairman is informed about all meetings of users taking place in the village area. So far, there is no interference of Village Government leaders in the association's affairs.

Ismani Water user Association usually seeks advice from the DWE when problems arise. For instance the DWE is assisting Ismani WUA to secure the water right certificate after payment of the required fee of TSsh. 35,000. Conflicts can arise in the use of water between villages. The villages upstream sometime close the system downstream if the supply in their areas is found to decline against demand. Frequent closure of the valve has caused shortage of water in the downstream villages.

Another conflict is observed when water use for livestock competes with use for gardening and domestic purpose during the dry season. Such conflicts are resolved with assistance from the village government. Generally, users of Ismani Water User Association are very much aware of their autonomy and they try to solve their problems by using the procedures established by themselves and the Memorandum and Association of Ismani WUA.

Community Participation
Water users took part in decision making on the execution of construction works in their villages. In addition, users dug pipe trenches and backfilled them after pipe laying. Water users have also been involved in election of their water committees and participants in training programs. At the moment, community participation is high; users participate in water fee payment, committee meetings, maintenance and conflict resolutions at village level.

Gender Specificity
Women were involved in Ismani Water Supply Scheme, from project design to project construction, and even after project completion. There are women in committees. The association's treasurer, an important position, is a lady. Women like to participate in the management of the scheme because water is priority in their life.

Appreciation of Water Supply Services
There is a high appreciation of the services supplied by Ismani WUA. The conflicts between villages resulting from incompatible uses of water is a sign of high appreciation of water supply services by users.

3.3 Institutional Issues

Legal Framework
Ismani WUG is a legally registered association under the Societies Ordinance (CAP 337). This is a law establishing NGO's in Tanzania. This legal framework was chosen by the users themselves. It was chosen mainly because it allows the surplus of the organisation to be reinvested in the association.

Organisation Structure
Users (a person, an institution or, a private connection) utilising a domestic point, are designed as a User Group.

User groups connected to one tank or branchline form a user area. A user area can therefore be a village, a sub-village or several villages or sub-villages.

In this structure, every user in the user area is a member of Ismani WUA.

At the user area level, the Association is comprised of ordinary members, User Groups and a User Area Management Committee. There is a user area general meeting and a User Area Management Committee. The user area general meeting is the supreme decision making body at user area level.

The User Area Management Committee is constituted by a minimum of 5 members. The number of members of the Area Management Committee depends on the size of the user area.

This committee comprises of a Chairman, a Secretary, a Treasurer and two ordinary members. At least two of the members shall be women. The committee is elected at the annual general meeting.

At the Group Scheme Level, the association has representatives of user areas, associate and honorary members, a Group Scheme Management Committee, the Group Scheme Manager and his support staff.

This organisation has three levels of management:

- the Group Scheme General Meeting,
- the Group Scheme Management Committee,
- the Group Scheme Manager and support staff.

The Group Scheme General meeting has the final authority in all matters pertaining to the overall management of the association.

The Group Scheme Management Committee is constituted by a maximum of 8 members (at least 8 members per ward of which one is a women). These committee members are elected by the general meeting.

The Group Scheme Management Committee meets at least quarterly. The Chairman, the Treasurer and the Secretary are the office bearers of Ismani WUA.

Water users are already aware of the working of Ismani WUA.

In the Organisation structure of Ismani WUA, village leaders are prevented to hold position to avoid duplication of roles.

All committees have a three-year office term and have therefore time to learn by doing and to acquire management experience.

Election of Committee

Any ordinary member from a User Area is eligible to the committee at the Group Scheme level. The chairman is elected for two years period. The Treasurer, the Secretary and ordinary members are elected for a three-year period. At the User Area Management Committee, the term is one year for the chairman and two years for other members.

Roles and Responsibilities

The roles and responsibilities for each party are clearly spelt out in the memorandum and association. So the users, the various committees and officers know their tasks and job description. It is a useful arrangement that there is clear demarcation between the managers' role and the leaders' role, because the policy makers and the executive are not confused.

Personnel

Ismani WUA has engaged the following personnel. All employees are recruited in a transparent manner. It seems that the team is able to solve organisational and technical problems.

- a manager,
- an accountant,
- 22 scheme attendants,
- two watchmen.

Frequency of Meetings

The user Area General Meeting is held annually, and is a attended by each member. Each member is entitled to vote in such meeting.

The user Area Management Committee and the Group Scheme General Meeting are held annually.

In all association meetings, a quorum of 50% should be obtained. Votes are taken by secret ballot or by show of hands as the members may decide.

Transparency and Reporting
Ismani WUA has started to build up a culture of transparency and reporting. For example, the budget is prepared by the manager and approved by the General Meeting. In addition, regular meetings are held by the manager to discuss day-to-day operations. At quarterly meetings, progress reports of scheme activities and a financial report on income and expenditure is presented to members. Intricate problems are discussed in such meetings and a consensus is generally reached.

Backup and Monitoring
There is no direct back-up service organisation of Ismani WUA. When a technical problem arises, the users will seek advice from the DWE or the RWE. Generally, the service is free. Sometimes the Association covers engineers cost. There is a problem of absence of spare parts in the area. Few private suppliers are found far in Iringa town.

Training
DANIDA provided participatory users training to users and Management training to the Management Committees. Although this training was aimed to empower the community to own and manage their scheme, it seems that more training is required to enable that community to manage effectively their association.

3.4 Financial Issues

Tariff Structures

According to the Memorandum and Association of Ismani WUA, the Group Scheme Management Committee is responsible for recommendation of the tariff and fee to the General Meeting for approval. The water tariff for the year 2000 is as follows

- Domestic water points TShs. 1,200 per year,
- House connections TShs. 12,000 per year,
- Business connection TShs. 240,000 per year.

This tariff is set on the basis of the water requirement and the expected expenditure.

Budgeting
The user area management committee prepares annually a budget and forwards it to the Group Scheme Management Committee. During the Annual General meeting, the plans and budgets for the coming year are presented, discussed and approved.

Consumer Accounting System
There is a detailed consumer accounting system in Ismani WUA. The system allows the Group Scheme Treasurer to know exactly the customers to get the record of their payments of fees and their outstanding bills

Bookkeeping
One of the tasks of the Group Scheme treasurer is to make sure he has a list of consumers categorised by user area. He keeps also the records of payments and outstanding bills.

The Treasurer is trying to use the management and accounts handbook prepared by Danida for use by the water user association. However, to apply accurately the proposed manual has been proved difficult in Ismani Water Users' Association, mainly because of the low education level of most treasurers and collectors.

Collection Procedures
Collection agents are responsible for collection of water fee. A receipt is generally given by the collecting agent to a user when he receives money from a consumer. The collected fee is remitted to the Treasurer of the water user area for record. The Treasurer of the user area hands over the fee to the Group Scheme.

Collection Efficiency
The average collection efficiency is 25 %. This is a low collection efficiency. In few user areas, it reaches 75%.

Willingness-to-pay
Water users are generally willing to pay. They are willing to pay because water is a priority in their area. Water tariff, which is payable annually has been agreed upon by users and this agreement renders void the argument of insufficient purchasing power.

Dealing with Defaulters
One way of dealing with the defaulters is to close the water points. The practice is not easy to implement. Another way of dealing with defaulters is the use of counselling by the WEO. But the WEO has the discretion take even more drastic action towards defaulters, for instance, taking them to court.

Remuneration of Personnel
The following officers are paid a salary in the Ismani WUA:

- Group Scheme Manager TShs. 35,000 per month
- Group Scheme Accountant TShs. 27,000 per month

Others are paid as follows:

- Fee collectors 10% of fee collection
- Treasurers 20% of fee collection
- Scheme Attendants TShs. 5,000 per month (allowance)

The fee collection commission to the treasurers looks high, but it is a good intensive for treasurers to follow-up users. Members of the Executive Committee received allowance when they hold a meeting. The association has purchased one motorcycle for the Manager. Each scheme attendant has received a bicycle from Danida project.

Bank and Cash Balance
Ismani WUA has opened an account which has a balance of TShs. 500,000 in July 2000. The scheme accountant is bound to bank the money once the collected amount reaches TShs. 250,000. This is a large amount to keep in hands in Ismani environment.

Auditing
Ismani WUA has contacted the District Co-operative Officer to audit the association' accounts. The accountant could not prepare a professional audit report because of lack of proper accounts record. Judging from the audit report 1999, it seems that the co-operative officer has no experience in writing a standard audit report.

3.5 Technical Issues

Ismani is a group gravity scheme serving 22 villages in Iringa Rural district. The source of water is a stream in the Southern part of the area. Water is transmitted to users through ductile iron (DI), galvanized steel, (GS) asbestos concrete (AC) and polyvinyl chloride (PVC) pipes. Each village has a storage tank, which distributes water to users. From the storage tanks, water is collected through Domestic Water Points, Yard Connection and House Connection.

Population Served
Present total population being served is 38600. This population being sum of water users in the 22 villages.

Map of Distribution System
All drawings of the scheme are available with the Ismani Water Association, District Water Engineer and Regional Water Engineer.

Size of the Scheme
The scheme has one intake structure on Mgera Stream with a transmission line of 127.69 km and distribution network of 146.43 km. The designed capacity of the transmission line is 27.6 litres per second (100 m^3/hour). Also the scheme has 9 break pressure tanks (BPTs), 29 storage tanks, 238 Domestic Water Points, 68 House Connections, 1 Business Connections and 6 Cattle troughs.

Water Consumption
Water consumed at DWP ranges between 25 and 30 litres per capita per day. At House Connection, connection water consumed is estimated at 75 litres per capita per day, while at Business Connections consumption is more than 200 litres per day.

Level of Service
Three levels of service exist in the schemes. These are domestic water points (DWPs) yard connections and house connections.

Quality of Water Supply Infrastructure

The scheme was constructed in 1961. Structures constructed at that time are at their lifetime, these include transmission lines, distribution networks, storage reservoirs and intake. Presently several problems are with asbestos cement pipes (44.5km) which are leaking frequently particularly where pipes are under high pressure and worse still, they are radioactive material. Some of these asbestos cement pipes were replaced by PVC ones. Another problem is that asbestos cement pipes crack in clay soil (Black Cotton Soil). Some of storage tanks are leaking. One storage tank at Nyang'oro village was leaking and the floor slab tilted. The association decided to support the storage reservoir ($90m^3$) with side support to prevent it from leaking. Some of the DWPs are worn out. The intake has been recently rectified and is working well.

Leakage

The scheme faces leakage of transmission mains, distribution network, storage tanks and Domestic Water Points. Due to high skills and efforts and finance required to rectify leaks, it has not been possible to repair them in time.

Cleanliness of DWPs

Some of DWPs are clean as well as their surroundings. Some are dirty as well as their surroundings also.

Disconnection of DWPs, HC, BC

DWPs are never disconnected from the supply. In villages where there is shortage of water, House Connections are not allowed. If one has house connection and does not pay, he/she gets disconnected from the supply until he/she pays his/her dues.

Operation and Maintenance

At the intake, there is a scheme attendant who has to remove silt deposit after every 3 days. Each village has a scheme attendant who is responsible for repair works in the village and transmission line leading to the concerned village's tank. Each scheme attendant has a weakly schedule. There are 22 Scheme Attendants and each is paid TShs. 5,000 monthly. The association has employed a Chief Technician who is also the Manager of the scheme. He has a motorcycle to enable his movements. Scheme Attendants also do cleaning of storage tanks.

Availability of Spare Parts

The association has a number of asbestos cement pipes, which were replaced by PVC and other pipes left by DANIDA after completion of their assignment. Some of the fittings not available in the association are procured from Iringa and Dar es Salaam.

Water Rights

The association has paid the application fee for water right and subsequently they have been granted the right. They have not yet paid annual water user fee.

Water Source

The intake structure faces a lot of siltation. In dry season removal of silt has to be done after every 3 days. In rainy season it has to be done at least twice a day.

3.6 Lesson Learned, Conclusions and Recommendations

- The scheme has asbestos cement pipes, which are currently bursting and increases maintenance cost. However, these pipes are radio active and detrimental for the health of the ones involved in the repair activities.

- The association decided to repair the tank at Nyang'oro by supporting it with side supports. This is not a technical solution. It is clear that technical skills on O&M need to be improved

- The lifetime of many water supply infrastructure is around 40 years. That is the reason why most of them have frequent problem.

- The scheme will continue to suffer high O & M cost due to its age.

- Scheme attendant per village has the advantage of facilitation of communication for repair to the manager (chief technician) of the scheme.

- The scheme performance will continue to deteriorate if major rehabilitation is not implemented.

- Annual payment of water fee instead of monthly payment is a feasible arrangement because most users receive monetary revenue annually after harvest.

- Ismani WUA still requires strengthening in the areas of management, especially in relation to financial issues.

4. IFUNDA WATER SUPPLY

4.1 Background

Ifunda village has a population of 4,620 people. Villagers get water from 28 shallow wells. The shallow well used to be managed by a Village Water Committee under the Village Government. At present, the shallow wells are managed by users.

4.2 Community and Social Issues

Demand-driven Project
The project was requested by the villagers through the Village Government. Villagers wanted a gravity water supply scheme. Through DANIDA assistance, shallow wells were constructed. The idea of a gravity water supply scheme was dropped because of the high cost of gravity schemes.

Relation with Local Government
Before handing over the shallow well to the users, only the Village Water Committee was fully responsible for all water matters including supervision and maintenance of the shallow wells. The users are now the owners of the shallow wells and have formed Water User Committees at the shallow wells level in each sub-village. A Water Executive Committee was established to manage all the shallow wells in the village. This committee is responsible to the Village Government. So far, the DWE is approached by the users and requested to assist only in major repairs.

Community Participation
The villagers contributed labour during shallow well construction. They also transported sand, gravel and construction materials to the site. The role of the users is to pay a monthly water fee, to clean the surrounding of the well and to ensure its security. However community participation in water fee payment and cleaning wells is low. Users own the shallow wells. They have acquired a title of ownership of the well and the surrounding area.

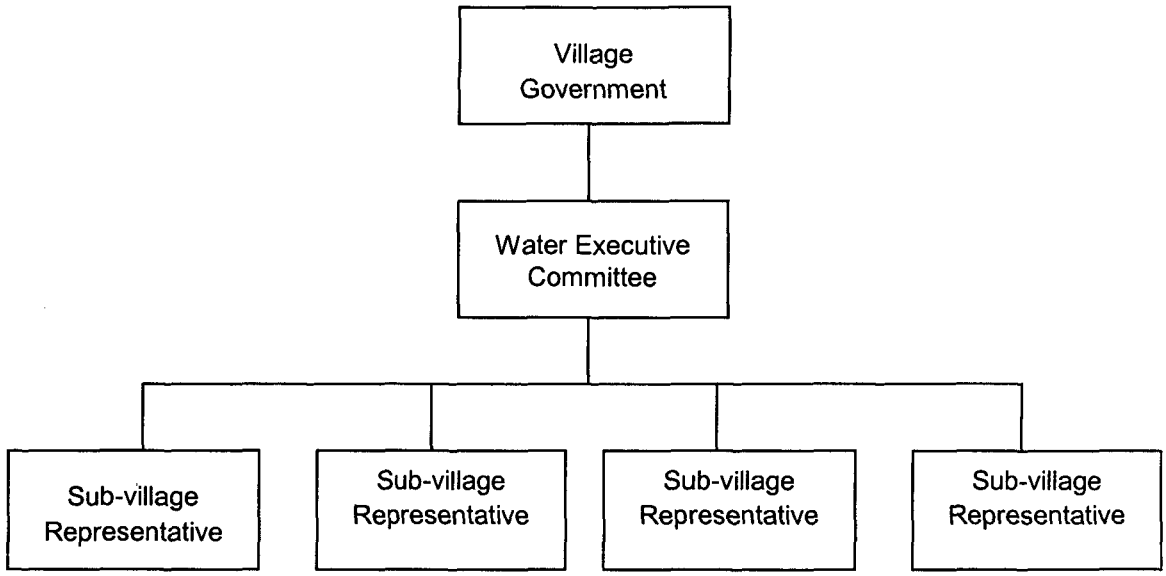
Gender Specificity
Apparently women participation in maintenance of shallow well is low. No evidence was given on women participation in decision making exercised by the various committees.

4.3 Institutional Issues

Legal Framework
Ifunda water supply has not acquired any registration as a legal entity. It is still operating under the supervision of the traditional Village Water Committees, and the Water Executive Committee, which are finally overseen by the Village Government.

Organisation Structure

A water Executive Committee of 12 people was formed to manage village shallow wells. Each member is elected from the residents of one sub-village. This committee report to the Village Government. Members of the Water Executive Committee should not be leaders in the Village Government.



Roles and Responsibilities

The main responsibility of users is to clean the shallow well surroundings, to ensure the safety of the well, to contribute water fee and to maintain the shallow well. They also must attend meetings where problems and plans related to the water supply scheme are discussed and decisions taken.

Personnel

Ifunda water supply scheme has the mechanics. The mechanics are not paid a salary. Sometimes, when funds are available, they are paid an allowance for the job done.

Frequency of Meetings

The water users around a shallow well hold one meeting per month to discuss about shallow well cleanliness. The Water Executive Committee meets once each quarter to discuss problems related to operation and maintenance.

Backup and Monitoring

Ifunda water supply scheme has no support and does not network with any organisation. The only known organisation is the District and DANIDA. Both are not involved now in the scheme, although the DWE can intervene if requested by the Water Executive Committee, specially when in need of design or major maintenance.

4.4 Financial Issues

Tariff Structure
Users contribute TShs. 100 per adult per month. Specific rates have been set for some activities: for example, every builder who makes earthen burnt bricks pays TShs. 3,000 per house. The collection started only six months ago and the budgeting procedures for fee collection is not very clear to all users.

Budgeting
No comprehensive budget is prepared by Ifunda Water Executive Committee. A provision for TShs. 300,000 is made in order to meet the cost of maintenance. However such amount is not obtainable at the moment because of poor collection efficiency.

Bookkeeping and accounting
There is no proper bookkeeping in Ifunda Water Scheme. The Village Government has the list of payers, and the list is used by the treasurer of the Water Executive Committee to collect water fee. The treasurer of the Water User Group Committee is paid 10% of the money collected while the treasurer of the Water Executive Committee is paid 20% of the total collection.

Collection Efficiency and Willingness-to-pay
Collection efficiency is very low (less than 5%). It seems that the willingness to pay is not a problem because water is a scarce commodity there. The problem is inefficient collection procedures and lack of follow-up.

Dealing with Defaulters
Defaulters in payment of water fee are taken to the Village Government for counselling. Sometimes they are told to pay a fine. The Village Government may opt to send the defaulters to count. In fact, few users have been taken to task so far.

Bank and Cash Balance
The scheme has a bank account operated by the Chairman, the Secretary and Treasurer of the Water Executive Committee. This scheme has little bank reserves because of low collection efficiency. When we visited the scheme, the bank balance was TShs. 40,000. This is not a significant amount for maintenance fund.

No auditing is done to check how financial management is implemented. Therefore misuse of funds and misappropriation is not checked.

4.5 Technical Issues

Ifunda village has 28 shallow wells fitted with the SWN 80 hand pump. The depth of shallow wells during construction ranged from 8.0 m to 19.0 m with discharges ranging from 60 l/h to 1300 l/h. During rectification the wells were rehabilitated/reconstructed with deepest one to a depth of 29 m. However, discharge was still low (0.5 to 2 m^3/h).

Map of the Distribution System
Neither at village nor at Regional level exists a map on the distribution of the wells in the village.

Size of the System
The system covers the whole village of Ifunda with design population of 7000 people. The criterion for distribution follows the MAJI guideline of 250 people at a distance of 400 meters.

Population Served
The current population getting service from the shallow wells is 4,620.

Water Consumption and Level of Service
The per capita consumption designed is 30 litres per capita per day. However, with the yield of wells, this per capita is rarely met as some wells for 12 hours yield 720 l. As all people are supplied with water from the shallow wells it is obvious that they are served with the lowest level of service.

Quality of Water Supply Infrastructure
The slabs are well constructed with long gutters. The SWN 80 pumps used had their cylinders changed to Grundfos stainless instead of PVC.

Operation and Maintenance
A committee is composed of 12 members each from a sub-villages as representative. The whole village has one trained scheme attendant who is paid per repair.

Cleanliness of Shallow Wells
Some of the shallow wells are dirty. All shallow wells have no fence around them. Surrounding are not well attended.

Spare Part Availability
Spare parts, which are frequently required, are rising mains, piston rubber (canvas and fabricate), rods (stainless steel), bolts, bushes and bearings.

Since completion of rectification in 1998, no spare parts have been bought.

Currently, two shallow wells are out of order. Currently 26 shallow wells are the ones providing water. Out of them 9 shallow wells have little or no yield in the dry season.

In case they would like to drill another shallow well, then they have to pay the full cost of investment.

Water Rights

The village has been advised to acquire water right for all 28 wells in the village. The options of each well acquiring its own water right was not favoured by the village since it could have cost them TShs. 35,000 x 28 = 989,000.

Alternative Spare Parts for Hand Pump

Due to unavailability of spare parts within the area, Village Government in collaboration with fitter turners have opted to fabricate wood bearings from Mlingoti Mwekundu.

4.6 Lessons Learned, Conclusions and Recommendations

- Deep shallow wells face additional frequent problem of riser threads being worn out.
- Alternative spares (wooden bearing) is an achievement. However, tests to its performance and advice from professionals can help to improve it.
- Availability of spare parts for shallow wells is still a problem affecting the functioning of the hand pumps installed.
- Wells constructed in Ifunda are from clay soil which have poor permeability and hence low yield.
- In ten year of operation, rectification of shallow wells is equivalent to 40% of the initial investment cost.
- The Iringa region should find an alternative to make spare parts availability closer to users.
- The need for safe and clean water is very apparent in Ifunda.
- The community is not aware that is can solve its water problems without government assistance.

5. KIPONZERO WATER SUPPLY SCHEME

5.1 Background

Kiponzero Village Water Supply scheme is situated in Maboga ward, in Maboga division, Iringa-rural District. It is a gravity scheme, which supplies water to a population of 2,850 people.

The village used to be supplied with water from a well fitted with a pump. The district paid diesel to run the pump. In 1983, Danida included Kiponzero in its gravity water supply master plan. From then, the village is getting water solely from a gravity water supply, since the diesel engine was stolen while on the way to the District for repair.

5.2 Community and Social Issues

Demand-driven Project
Kiponzero Water supply scheme was rather promoted by the Village Government than the villagers themselves, and this might justify why community participation is weak. This can be ascertained by the low collection efficiency and lack of meetings to discuss water issues .

Relations with Local Government
The Water scheme is organised under the Village Government. This arrangement causes the Water Supply Committee to miss autonomy and independence in running water affairs.

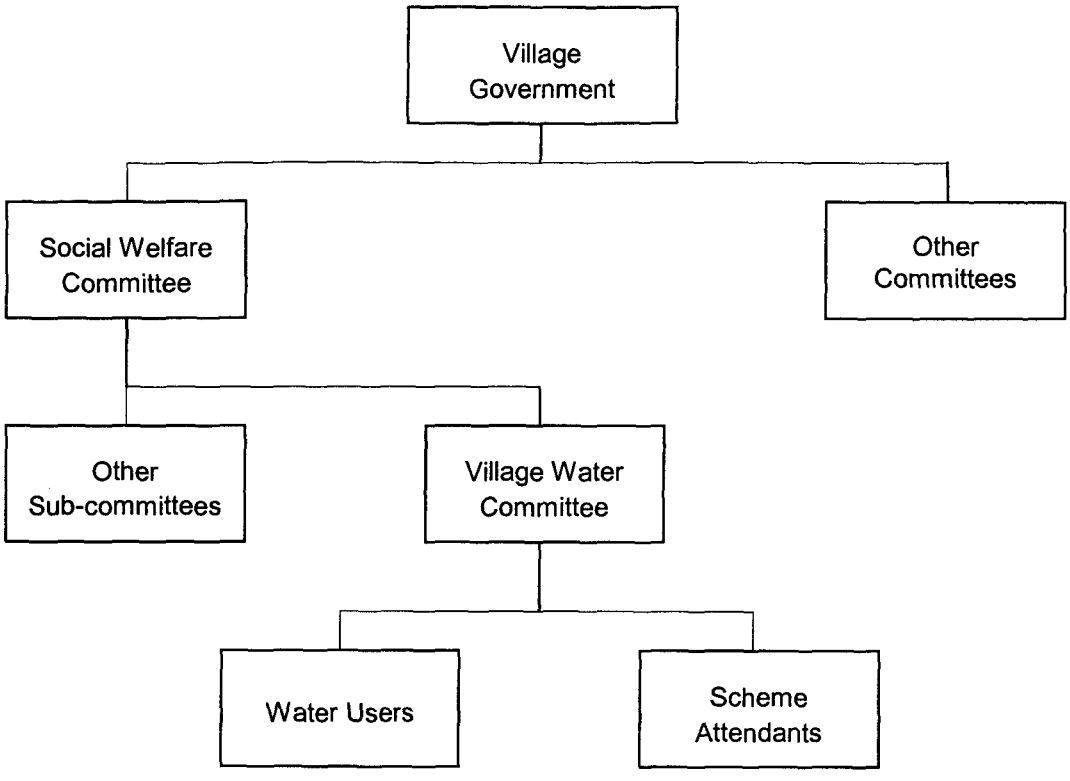
Community Participation
Although the villagers contributed their labour at the time of construction of the water scheme, community participation is poor. This is demonstrated by lack of meetings, low collection efficiency and poor maintenance of the DWPs.

5.3 Institutional Issues

Legal Framework
Kiponzero Water Supply Scheme is run by a sub-Committee of the Village Government Therefore it has not been registered as a legal entity.

Organisation Structure
The organisation structure of Kiponzero Water Supply Scheme is based on the organisation of the Village Government. The Village Government has various committees including the Social Welfare Committee under which is the Water Supply Sub-Committee. This sub- committee is comprised of 10 members (see chart below)

Organisation Chart of Kiponzero Water Supply Scheme



Roles and Responsibilities

The Roles and responsibilities of the Village Water Sub-Committee is to handle all water affairs including setting the tariff and follow- up of water payments and making sure that the DWPs are clean. It seems that the members of the Water Supply Committee do not understand their roles and responsibilities well.

Users role is to pay water fee, to clean the surroundings of the DWPs and to attend meetings when they are called. Few users and few committee members however understand well their roles and responsibilities.

Back-up and Monitoring

Kiponzero Water Supply Scheme has no backup at all. The Village Water committee does not know where to go in case of a problem. They think the DWE can help them but the DWE does not follow-up water issues in Kiponzero Village Water Supply scheme.

5.4 Financial Issues

Tariff Structure and Fee Collection

At present, there is no tariff system. The Village Water Committee plans to introduce a tariff of TShs. 500 per year. The village has TShs. 38,000 in the Village Water Account. There is no accounting system. At the time of the visit, no collection of water fee was being done.

5.5 Technical Issues

Kiponzelo is a single gravity scheme. The source of water is from two streams. Water is abstracted from the two streams by means of galvanised pipes and PVC pipes to a 75 m^3 storage tank. Thereafter, water gravitates to distribution network and is collected through 15 DWPs and 10 house connections.

Map of Distributions System
Both longitudinal and layout plan of the scheme were found at the village office. The same drawings are found at DWE's office.

Size of the System
The scheme consists of two separate intakes.
The Flow in the 9.0 kilometre transmission line is 1.2 litres per second. Before rectification in 1998, the length of transmission was 3.8 kilometres and the flow was 0.93 litres per second. The distribution system has total length of 2.81 kilometres.

Population Served
The scheme has been designed for a population of 3,200 people. At present 2,850 people are being served from the scheme.

Water Consumption and Level of Service
Water consumption per capita from Domestic Water Points is 25 to 30 litres. From yard and house connection consumption is 75 and 125 litres respectively.

Three levels of service exist. That is Communal Water Point (DWP), Yard Connection, and House Connection.

Quality of Water Supply Infrastructure
The intakes are well constructed. The transmission line is still in good condition. The tank is in good condition as well as distribution network.

The domestic water points are in poor condition.

Availability of Spare Parts
Most of spare parts are available in Iringa town, which is 60 km from the village. Some parts, which are not available in Iringa, are purchase in Dar es Salaam by suppliers.

Water Source
Water sources are from mountains. The yield from those two sources is very low in the dry season. On top human activities were taking place upstream and now have stopped.

5.6 Lessons Learned, Conclusions and Recommendations

- Small gravity scheme require little checking and maintenance.
- As in most cases, the Village government is not able to run properly a water supply scheme.
- A registration as a legal entity is a condition for better organisation and management of Water Supply Organisations.
- Capacity building is necessary before the community becomes able to manage a water supply scheme.

Ismani Water Supply Scheme: Profile

1	Name of scheme	Ismani Water Supply Scheme
2	Legal status	Registered Association
3	Region	Iringa
4	District	Iringa rural
5	Division	Mozombe & Ismani
6	Ward	Irole, Nduli, Kiborogota and Malengani
7	No. of villages	22
8	Location	45 km from Iringa region headquarters/ 45 km from Iringa district headquarters
9	Type of scheme	Group gravity scheme
10	Year completion	1997
11	Total no. of wells constructed	-
12	Population 1988	34,000
13	Design population per village	640 – 5,700
14	Well depth (m)	-
15	Well yield (l/h)	-
16	Length of transmission main (km)	129.35 km
17	Length of distribution main (km)	146.94 km
18	No. of water points	361
19	Design flow (l/s)	31
20	Type of source	Stream
21	Construction cost (DKK)	151,791,000 DKK (Danish Krone)
22	Rectification cost (DKK)	337,168 DKK
23	User payment to rectification (DKK)	20,000 DKK
24	Participatory rapid scheme assessment made	No.
25	No. of participants in Users Support Training	Nil
26	No. of participation in Basic Management Course	22
27	Recruitment of managers done	Yes
28	Financial management applied	Yes
29	Collection efficiency	25%
30	Management status	Good

Ifunda Water Supply Scheme: Profile

1	Name of scheme	Ifunda Water Supply Scheme
2	Legal status	No registration as a legal entity
3	Region	Iringa
4	District	Iringa
5	Division	Kiponzero
6	Ward	Ifunda
7	No. of villages	1
8	Location	60 km from Iringa region headquarters/ 60km from Iringa district headquarters
9	Type of scheme	Hand pumps
10	Year completion	1988
11	Total no. of wells constructed	28
12	Population 1988	4368
13	Design population	7000
14	Well depth (m)	8 – 26 m
15	Well yield (l/hour)	6.7 – 1120 l/h
16	Length of transmission main (km)	-
17	Length of distribution main (km)	-
18	No. of water points	-
19	Design flow (l/s)	-
20	Type of source	Underground water
21	Construction cost (DKK)	361,000 DKK
22	Rectification cost (DKK)	141,594 DKK
23	User payment to rectification (DKK)	15,000 DKK
24	Participatory rapid scheme assessment made	Yes
25	No. of participants in Users Support Training	250
26	No. of participation in Basic Management Course	Nil
27	Recruitment of managers done	No
28	Financial management applied	No
29	Collection efficiency	<5%
30	Management status	Poor

Kiponzero Water Supply Scheme: Profile

1	Name of scheme	Kiponzero Water Supply Scheme
2	Legal status	No registration as a legal entity
3	Region	Iringa
4	District	Iringa
5	Division	Kiponzero
6	Ward	Maboya
7	No. of villages	1
8	Location	60 km from Iringa region headquarters/ 60 km from Iringa district headquarters
9	Type of scheme	Single gravity Scheme
10	Year completion	1987
11	Total no. of wells constructed	-
12	Population 1988	2,590
13	Design population	3,200
14	Well depth (m)	-
15	Well yield (l/hour)	-
16	Length of transmission main (km)	9 km
17	Length of distribution main (km)	2.8 km
18	No. of water points	15
19	Design flow (l/s)	1.2 l/s
20	Type of source	Stream
21	Construction cost (DKK)	406,000 DKK
22	Rectification cost (DKK)	202,860 DKK
23	User payment to rectification (DKK)	2,000 DKK
24	Participatory rapid scheme assessment made	Yes
25	No. of participants in Users Support Training	350
26	No. of participation in Basic Management Course	Nil
27	Recruitment of managers done	No
28	Financial management applied	No
29	Collection efficiency	Nil
30	Management status	Poor

APPENDIX V

Study Tour Report

Rural Water Supply Organisations in Tanga Region

September 15 to 19, 2000

STUDY TOUR REPORT

RURAL WATER SUPPLY ORGANISATIONS IN TANGA REGION

SEPTEMBER 15 TO 19, 2000

CONTENTS

PERSONS MET IN TANGA REGION

Mr. Mbwmbwa	Acting Regional Water Engineer, Tanga
Mr. Fundi	Hydrologist, Tanga
Mr. Simon Bwambo	Senior Water Technician, Tanga
Mr. Fr.Leopold Nyandwi	Director TADDO, Tanga
Mr. Kaguo	Site Engineer, TADDO, Tanga
Mr. Victor Mkello	Chairman CWCs Mlingano Water Supply
Mr. Mzee John	User, Mlingano Water Supply
Mr. Mkwizu Kilua	Village Executive Officer, Lukozi
Mr. Omari Kilua	Village Executive Officer, Lukozi
Mr. Eng. G.J. Kisaka	Resident Engineer, HTM Project
Ms. Rosalyne Msuya	CHAMAVITA, Lushoto
Mr. Akida	Secretary General, CHAMAVITA
Mr. Hande Mwanjela	Technical Consultant, CHAMAVITA
Mr. Jabir Kigoda	Chairman, HADEA, Tanga

0. GENERAL OVERVIEW OF TANGA WATER SUPPLY SCHEMES

Tanga region has a population of 1.5 million. It has six districts and 55 villages. Handeni district is the most populated (339,000 inhabitants), although it has only 102 villages. Other districts are Korogwe, Lushoto, Muheza, Pangani and Tanga.

Only 63% of the population is served with shallow well or piped water. Effectively, only 52.5% of schemes are functioning. The region has 41 pumping schemes and 59 gravity schemes. Tanga municipal council has 179,000 people. The region has constructed about 100 schemes as follows.

Korogwe	18
Lushoto	34
Muheza	16
Pangani	13
Tanga	5
Handeni	14

Most schemes were constructed with support of donors including GTZ, World Vision International and Tanga R.C. Diocese through Dutch NGOs. Other schemes were constructed with funds from Government.

There is a determined effort of the District Councils to find a formula for the communities to own the schemes to implement the new Rural Water Supply policy. However most schemes are still working under the local government administration and have neither a legal framework, nor a skilled management team.

1. MLINGANO WATER SUPPLY SCHEME

1.1 Background

Mlingano Water Supply Scheme is one of the largest schemes in Tanga region. This Scheme was promoted by Tanga Roman Catholic Church with assistance from CEBEMO, a Dutch NGO. Construction of the scheme started in 1992. At present the scheme serves six villages with an estimated population of 35,000. The scheme implementation is still saving on in slow paces because of lack of external support following CEBEMO withdrawal.

1.2 Community and Social Issues

Demand-driven Project

In Muheza district, water is a scarce item. There are few water sources, and some of the available sources are dry up at the end of the dry season. Villagers have repeatedly requested the Government to bring water to the villages, without success. To help the people, the Roman Catholic diocese of Tanga decided to get involved in water supply. Tanga Bishop founded Tanga Diocese Development Office (TADDO), a department to deal with development activities, relief, women development and water supply. TADDO approached several donors and obtained a grant from CEBEMO.*

Relation with Local Government

The organisation structure of Mlingano Water Supply Organisation allows for involvement of local government leaders. For instance, the Councillors, the Ward Executive Officer, the Member of Parliament, the Divisional Secretary and the District Commissioner are all members of the Central Water committee. These members are advisers and observers and do not participate in voting. The role of the District Water Supply Department is to provide technical advice to the Central Water Committee if it is requested in writing. The leaders of the Village Water Committee include the Village Executive Officer.

Community Participation

Villagers participated in the construction of the schemes. They provided free labour in excavating the trenches, transporting the gravel, the sand and the materials to the site. Villagers pay TShs. 100 per household per month. Each household contributed TShs. 800 for the construction of the scheme. The external contribution was given by CEBEMO. The total project cost was about TShs. 400,000,000.

Gender Specificity

Women are active in cleaning the surrounding of the DWPs. The scheme organisation has tried to give priority to women participation. For instance, there should be two caretakers of a DWP, one being a woman.

* QUEBEC because CORDAID after merging with other Catholic NGOs

1.3 Institutional Issues

Legal Framework

Mlingano Water Supply Scheme is not registered as a legal entity under any of the country laws. This organisation is based only on a Memorandum of Understanding, which comprises the organisational structure, the roles and responsibilities of different parties involved and a number of rules to be followed by the users and the scheme leaders. The Memorandum of Understanding is signed by the District Council, the Chairman of the Central Water Committee (CWC) and the TADDO Director. This memorandum of understanding is temporal. A permanent constitution will be prepared at project completion.

Organisational Structure

The organisational structure of Mlingano Water Supply Scheme is as follows:

(a) At the Domestic Water Point, a caretaker is elected by the water users. The caretaker should be a permanent resident near the DWP. Although women have been encouraged to be caretakers, only few women have taken up the function when elected.

(b) At the village level, all the DWP caretakers elect seven people who become members of the Village Water Committee (VWC). This committee elects a Chairman, an Assistant Chairman, a Secretary, an Assistant Secretary and a Treasurer.

(c) At the central level, a Central Water Committee is formed every three years. The Central Water Committee comprises of the following advisory committees: a Constitutional Committee, a Planning and Finance Committee, a Technical and Transportation Committee, a Social Development Committee and a Mobilisation Committee. The Chairman from each Village Water Committee is qualified to be a member of the Central Water Committee. There are other members in the Central Water Committee. They become automatically members because of their rank in the society. They include the Mlingano Roman Catholic priest who is the Patron, TADDO Director, the MATI and ARI Directors, the Divisional Secretary, the Ward Executive Officer and the Councillors. The Central Water Committee has a total of 34 members. These have an advisory role and have no right to vote.

Roles and Responsibilities

The roles and responsibilities of many parties are spelt out in the Memorandum of Understanding.

The users' role is to pay a monthly water fee. In addition, the users clean the surroundings of the DWPs and the washing basins. They must participate in all water development activities.

The caretakers' role is to ensure the security of the DWP. They inform the VWC on the maintenance requirement and they ensure the cleanliness of DWP. The caretakers of the DWPs have also the role of educating the users on the need to keep the DWP clean.

The role of the VWC is to discuss water supply issue in the concerned village. The VWC reports to the Village Government on the progress of implementation water supply activities. The VWC oversees water supply development in the village and works hand in hand with the Village Government. Some VG tried to use the water account for non-water purposes which is not allowed!

The Scheme Director is the chief executive of the scheme. He is the link between the Tanga Roman Catholic Church and the Central Water Committee.

The parish priest of Mlingano Mission is the Patron, he is the advisor on all water supply activities. In case of serious management crises, the Patron will be a temporarily overseer until the situation improves.

The role and responsibilities of the Central Water Committees includes the following:

- Supervision of Village Water Committees,
- Taking care of intake and the main line,
- Custody of technicians,
- Making proposals of by-laws,
- Monitoring and evaluation of project activities,
- Supervision of scheme attendants,
- Setting water tariff,
- Collection of funds,
- Safety of scheme assets.

Personnel

Mlingano Water Supply Scheme has six scheme attendants (one for each village). The scheme attendant is paid an allowance of TShs. 15,000 per month. The treasurer has a full-time job on the financial management, which is much supported by the TADDO office.

Frequency of Meetings

According to the Memorandum of Understanding of Mlingano Water Supply Scheme, the Central Water Committee meets at least once every quarter. Meetings are held on DWPs if there is an emergency. An annual meeting is held to discuss the annual report and to fill empty leadership positions.

Backup and Monitoring

TADDO is monitoring the activities of the scheme. TADDO has a stock of water supply materials that was given as a grant when the scheme started.

1.4 Financial Issues

Tariff Structure

The water tariff is a flat rate of Tshs. 100/= per household per month. Users who make a connection to their houses pay Tshs. 15,000/= as connection fee, and pay a flat rate of Tshs.2,000/= per month. The VWC retains 10% and the caretaker (who collects the water fees) 5% of all the money collected. 85% of the revenue goes to the CWC account.

Budgeting

There is no detailed comprehensive annual budget. However, TADDO makes an estimate for revenue collection and for payment of allowance to six scheme attendants. The treasurer does not receive an allowance yet; it has been proposed to pay him Tshs. 15,000/= per month.

Bookkeeping and Accounting
TADDO keeps the accounts of the DWPs. The scheme itself has no accounting, nor bookkeeping. A receipt is written when the users pay water fee.

Collection Efficiency and Willingness-to-pay
The Director of TADDO estimates that the collection efficiency is about 35%. He is of the opinion that no serious campaign is being made to increase collection efficiency.

Dealing with Defaulters
Defaulters in payment of water fee are required to pay a fee in kind terms (chicken or duck). In a few cases, the culprit is taken to the Ward Executive Officer where the fee can go up to TShs. 5,000.

Bank Accounts
There is an account for the VWC and an account for the Central Water Committee. The Village Water Funds are made up by the retained 10% of all fees collected and fees paid by defaulters. The fund is used for paying the allowance to the village scheme attendants and to meet the recurrent expenditures (allowances, transport and stationery). The fund is deposited in the Village Water Account. The Central Water Committees' fund receives money from the Village Water Committees. The fund is used especially for purchase of water supply material and payment of allowances of central scheme attendants and treasurer.

Auditing
TADDO is assisting Mlingano Water Supply Scheme to make once a year a simple and non professional auditing. The audit report is presented in the December Annual Meeting.

1.5 Technical Issues

Type of Scheme
Mlingano is a gravity water supply scheme serving water to six villages and two institutions. The six villages are Kicheba, Kwalubuyo, Kibaoni, Mabungu, Palamba and Mkanyageni. While the two institutions are MATI and ARI (Agriculture Resource Institute).

Water Sources
Water for the scheme has been abstracted from two different streams. These are *Mluka* and *Mzizima*. Upstream of *Mluka*, There are people living there, and they have refused to shift downstream. The flow into the pipe from Mluka stream is 38 m^3/h and from Mzizima is 12 m3/h. The two intakes are situated in the Eastern Usambara (Magoroto). During the month of February (dry season) there is little water flowing from these sources. No treatment is done except passing water through silt settling tank.

Population Served
The population to be served as per 1988 census was 29,000. Presently the scheme is estimated to serve 35, 000 people.

Size of the Scheme
The scheme has two water sources. The total flow in the transmission main is 50 m3/h. Water from each source passes through silt-setting tank. Sources are connected together at Mlingoti village whereby flow through a 50 mm diameter PVC from Mzizima is connected to a 110 mm diameter PVC from Mluka. The total pipeline length (transmission and distribution) is 58 km as per design. The extension to the system presently makes a total of 64 km pipeline. The project is still under extension to one village (Mkanyageni). Hence, after completion, the total pipeline shall be longer than the present.

The scheme has storage tanks as follows:

Village	*Tank Capacity*
Kicheba	135 m^3,
Palemba	135 m^3,
Kibaoni	22.5 m^3,
Mlingano	90 m^3,
Mati	90 m^3.

The total number of DWPs constructed is 80. At each DWP, there are two washing tables (slab). The total cost of materials for the whole scheme is TShs. 360,000,000. Other costs like skilled labour transport and voluntary labour leads to a total value of TShs. 400,000,000.

Water Consumption
The per capita estimate is 40 litres at Domestic Water Points. No estimate of per capita has been made for provision of private connections.

Level of Service
The exception of two institutions (MATI and ARI) the rest are getting water from the lowest level of service, i.e. DWP (communal public tap). At MATI and ARI they have in house connection for staff and students.

Quality of Water Supplies Infrastructure
The infrastructure has been in use since 1996. Some DWPs' slabs have their screed spalled. The rest are in good condition.

Leakage
No leakage was observed during the field visit. In addition, if leakage occur, the village scheme attendants and the CWC scheme attendant collaborate to ensure that it is repaired in time.

Cleanliness of DWP
All visited DWPs were clean. The scheme has a competition on cleanliness of DWP. The one who becomes the best in cleanliness gets a prize (in 1999 the DWP users who won the prize were given a goat).

Disconnection of DWPs, HCs, BCs

If the water users refuse to pay for water, then the DWP get disconnected from the whole system.

Operation and Maintenance

Each village has a scheme attendant who is paid an allowance TShs. 15,000 monthly. Each scheme attendant has been provided with a bicycle. The scheme attendant in Misozo is responsible for cleaning the intake after every three days. The Mzizima intake is cleaned after every two days. The village scheme attendant is responsible for repair work of the distribution network in his village and transmission line leading to the village tank. Labour for repair or maintenance work is provided by water users on voluntary basis.

Spare parts required for repair are taken from the Central committee stock. In case spare part required is not in stock, then the CWC scheme attendant informs the Chairman of Central Committee, who then together with the Treasurer withdraws money from the account for purchase of spare. This process takes almost a day. In the Central Committee, there is a Technical Committee in which a foreman from TADDO is advisor. The scheme has one TOYOTA pickup, of which the fuel to run it is paid by Central Committee.

Water Rights

The water right for the whole system belongs to Mlingoti Sisal Estate. The Central Committee is planning to acquire it from the estate.

Availability of Spare Parts

Spare parts are available from the 25% stock of construction materials. They are kept in containers at TADDO.

1.6 Lessons Learned, Conclusions and Recommendations

- The integration of the VWC into the Local Government and lack of registration are factors against scheme sustainability.
- TADDO should emphasise capacity building and facilitate ownership and management of the scheme by the users.
- There is still a heavy input of TADDO in the management of the scheme.
- The users have trust in TADDO simply because it has emerged from trustful church organisations.
- The procedure to approve spare parts for repair is too long for emergency work.

2. LUKOZI WATER SUPPLY SCHEME

2.1 Background

Lukozi Water Supply Scheme is situated in Lushoto district, in Tanga region. This scheme which was constructed between 1989 and 1994 provides water to six villages inhabited by a population of 17,000. The villages covered are Viti, Lukozi, Mgwashi, Maringo, Mnadani and Malindi, all in Mlalo Division. The scheme was built with the support of CEBEMO, a Dutch NGO. Tanga Roman Catholic Church facilitated the contacts and implemented the project.

2.2 Community and Social Issues

Demand-driven Project

The scheme was requested by Reverend Fr. Thomas Hubbard, who was then a parish priest of Malindi Mission. Fr. Thomas Hubbard had observed the hardship due to the scarcity of water in the villages, which surrounded his mission. He contacted CEBEMO, an NGO supporting churches and requested support. CEBEMO financed the scheme and Tanga Diocesan Development Office implemented it.

Relation with Local Government

Lukozi Water Supply Scheme was constructed under the supervision of a District Water Engineer, who occupied the position of Project Manager. The District Community Development Officer was Assistant Project Manager.

The scheme was handed over by the Tanga Diocesan Development Office to the six villages. The handing over was endorsed by the signatures of the Regional Water Engineer, the Chairman of the Central Water Committee and the District Executive Director for Lushoto. The handing over certificate indicates clearly that the scheme structures and other assets have been handed over to the villages. The handing over document is not a legal document.

The Water Village Committee is a permanent committee, which is within the Village Government structure. The village chairmen of the villages under the scheme are members of the Central Water Committee, the supreme organ of Lukozi Water Supply Scheme.

Community Participation

During scheme construction, villagers contributed a cash amount of TShs. 1,308,820. They provided labour for digging trenches, collecting and transporting stones to build water tanks, water points and the dam wall of Kibohero. The total labour contributed is valued at TShs. 4,400,000.

At present the villagers pay water fee and clean the surroundings of the DWPs and the washing basin. According to the Memorandum of Understanding, the users should participate in all matters related to water issues.

Gender Specificity
In every sub-village under the scheme, two members are elected to be part of the Village Water Committee. According to the scheme guidelines, one of the members should be a woman. Women are responsible for cleaning the DWPs.

Appreciation of the Water Supply Services
Water from Lukozi Water Supply Scheme is considered as a miraculous thing by the Lukozi users, because water was very scarce before the scheme was built. Appreciation of the water supply is therefore high.

2.3 Institutional Issues

Legal Framework
Lukozi Water Supply Scheme is not a registered organisation. Therefore, it is not a legal entity. The scheme organisation is based on committees working directly under the Village Government. For instance the Chairmen of all the villages under the scheme are members of the Village Water Committees in virtue of their position.

Organisation Structure

The orgnisation structure of Lukozi Water Supply Scheme is as follows:

(a) At DWP level:
Every DWP has two caretakers, a man and a woman. The caretakers were elected by the users of the DWP at time of constructions.

(b) At village level:
The Village Water Committee, which was formed at the beginning of the scheme rehabilitation, has become now a permanent committee. The committee is a permanent committee within the Village Government. Members of the Village Water Committee are selected from every sub-village, where at least one woman and one man are elected. The committee works for a term of five years. The VWC elects a Chairman, or Secretary and a Treasurer.

(c) At scheme level:
At scheme level, there is a Central Water Committee. This committee of 36 members was elected after project completion.

Members of the Central Water Committee include the following:

- The Chairmen of the six VWCs,
- The Secretary of the six VWCs,
- The Treasurer of the VWCs,
- One elected member from each village,
- The Chairmen of the six Village Government,
- The Ward Executive Officer of the area,
- Observers and advisers.

Observers are the Ward Executive Officers, the Councillors of Shime and Mahindi ward, the Divisional Secretary of Mlalo and the Member of Parliament for Mlalo constituency.

The members of the CWC elects a Chairman, a Secretary and a Treasurer for an office period of five years.

Roles and Responsibilities

The roles and responsibilities of different parties to the scheme are spelt out in the Memorandum of Understanding of Lukozi Water Supply Scheme.

The caretakers of the DWPs are the supervisors of the activities undertaken at the DWPs. The main role is to inform the scheme attendant and the VWC on the maintenance requirement, to ensure that the DWP is clean and to prevent people from irrigating farms and watering the livestock using the water from the DWPs. The caretakers are also responsible for mobilisation of users at the DWPs. The VWC's role is, among other things, to oversee water supply activities in the village.

The CWC is the overall overseer of Lukozi Water Supply Scheme. Specifically, the CWC is responsible for the protection of the intake and the main line. It is also responsible for the custody of the scheme's assets.

Personnel

Lukozi Water Supply Scheme has employed two scheme attendants for each village. There are therefore 13 scheme attendants. One supervisors the scheme attendants. The scheme has also recruited one storekeeper.

Frequency of Meetings

The VWC meets monthly. The CWC hold a meeting once every quarter. A meeting may be called any time if there is emergency.

Transparency and Reporting

The treasurer of the CWC prepares the income and expenditure report every month to be discussed in the monthly meeting.

Training

Training was provided during construction of the scheme. During this training, the caretakers of the DWPs were elected. The training was about the roles and responsibility of the caretakers. Training was given to caretakers, primary school teachers, and leaders of VWCs, scheme attendants and the Village Government.

2.4 Financial Issues

Tariff Structure
The water tariff of Lukozi Water Supply Scheme is as follows:

- DWPs TShs. 60 per month per adult,
- HC TShs. 600 per month per connection,
- BC TShs. 1,200 per month per connection.

The Scheme leaders admit that this tariff is low and they are considering to convince the users to raise the tariff. The tariff is based on the purchasing powers of the users. It was kept low so that users learn the principle of cost sharing after a long period where water was given free of charge. In addition water vendors re-sell the water at a rate of TShs. 30 – 60 per bucket.

Budgeting and Bookkeeping
There is no structured budgeting or bookkeeping in Lukozi Water Supply Scheme. TADDO is keeping accounting record on the DWP's activities.

Collection Procedures
Every caretaker collects fee from the users each month, and gives the collected fee to the Treasurer of the VWC. Each village has a water fund which is used to keep money coming from the water fee at DWPs, the HCs and fines paid by defaulters in water fee payment. Each DWP pays TShs. 1,500 to the CWC.

This money is used for paying the scheme attendants allowance and buying materials for maintenance. The collection efficiency is estimated at 50%. (No accounts figures are expected income and real income were given).

Dealing with Defaulters
The non-payers are counselled by the VWC. In case counselling fails to convince the user to pay, then a property will be seized and sold to generate money to pay the water fee arrears.

Remuneration of Personnel
The scheme attendants are paid an allowance. The allowance of the CWC technicians is TShs. 7,000 per month. The VWC scheme attendant is paid an allowance of TShs. 3,500 per month. When the financial position of the scheme is good, an allowance of TShs. 500 is paid to committee members when they attend a meeting.

Bank and Cash Balance
Lukozi Water Supply Scheme had a balance of TShs. 535,000 by September 2000.

Auditing
A simple auditing of the accounts of Lukozi Water Supply Project is done by an auditor from the District Executive Director in Lushoto.

2.5 Technical Issues

Type of Scheme
Lukozi is a gravity scheme serving 6 villages. These villages are Lukozi, Viti, Maringo, Mnadani, Makundi and Mgwashi. The scheme has five sources. These are Kibohero and Hambala wells, which are connected together; Kwekangaga and Mbugushi sources (spring) serve Mbughuhi hamlet and Ngwashe source (spring) serves Mgushe village. Water is abstracted from these sources and transmitted through galvanized steel (GS) and PVC pipes to storage tanks. From storage tank, water gravitates to the distribution network and is collected by DWPs and House Connections. In the dry season, rationing of water is done because of low yield from the sources.

Map of the Scheme
The drawing of the whole scheme are kept by the Central Committee of the Scheme.

Size of the Scheme
Three sources that are Kibohero, Hambalawei and Kwekangaga are serving more than 80% of the users. Mbunghui is being served by one spring. Ngwashe is also serving one spring. The scheme has 7 storage tanks. There are four 4BPTs, 2 in Magamba forest and 2 in Malindi village. The total pipeline (distribution + transmission) is 40 km. 147 DWP and 78 house connections are currently used for water collection.

Population Served
The population served is estimated to be more than 17,000.

Water Consumption
Water consumption has been estimated at an average of 40 litres per capita per day.

Level of Service
The scheme has two levels of service. These are public stand posts (DWP) and yard connection.

Quality of Water Supply Infrastructure
One domestic water point was visited at Mbunghui. The Mbunghui scheme was constructed in 1999 and was in good condition.

Leakage
Leakage in the scheme occurs regularly. The village scheme attendants are responsible for repair works in their respective villages. In case spare parts need to be purchased, then it takes average three days to rectify a leak.

Cleanliness of DWPs
Some DWPs are clean and others are dirty.

Disconnection of DWPs, HCs, and BCs
Disconnection of DWPs is done when 75% of water users have not paid water fee.

Operation and Maintenance

Each village has two scheme attendants. At the village lever these scheme attendants are responsible for checking the pipelines (transmission + distribution) twice a week. One works at the central committee level. In case repairs require trench excavation, then this is being done on voluntary basis by water users.

Availability of Spare Parts

After commissioning the project, there were spare parts stocked by the Central Committee. However some of these spare parts have been used. Pipes of diameters from 160 mm (PVC) or GS ø 6" are not readily available. Since most of materials were brought from abroad, some of the sizes do not comply with spares available in Tanzania especially for ductile Iron, PVC and GS pipes.

2.6 Lessons Learned, Conclusions and Recommendations

- Lukozi Water Supply Scheme has a high degree of functionality. However, lack of registration as a legal entity and the integration of the water committees into Village Government structure are arrangements, which hinder developments towards sustainability.

- In addition, lack of financial procedures, budgeting and monitoring are factors which are against scheme sustainability.

- The scheme is still in good condition but O&M case is not very high; therefore the risk exists for gradual determination of the scheme.

- Future shortages of water are expected if there is no alternative source found and exploited.

- Procurement of pipes from abroad should take into account local availability of spares.

- At present, the scheme uses spare parts that were left behind by the project; for the future spares should be bought at the local market.

- Scheme attendants having a schedule of work improve preventive and corrective maintenance.

3. HANDENI TRUNK MAIN PROJECT

3.1 Background

Handeni Trunk Main Project is a large water supply scheme covering an area of 5,000 km^2. The scheme feeds 60 villages and serves a population estimated at 140,000. The project was constructed between 1974 and 1995. GTZ, Kabuku Mission , Amboni Group and HADEA provided support.

3.2 Community and Social issues

Demand-driven Project
Villages requested the Government to provide drinking water because water was scarce in the area. There are a number of shallow wells that produce salty water.

Relations with Local Government
The Village Water Committees are working under the Village Government. All communications regarding water affairs from H.T.M. pass through Village Government. The project is owned by the Government but the Government is trying to transfer progressively the project to the community.

Community Participation
The users participate in the project since they are involved in managing their O&M funds at village level. Users elect their Village Water Committee and buy water at the kiosks.

Gender Specificity

A special role is given to women in involving the community in the project. For instance, six to eight users are elected to form a VWC where half of them are women.

Appreciation of the Water Supply Services
Generally, users appreciate very much the water supply services including the supply of water and the repair and maintenance made at the intakes, pumping stations and at the main line. According to the resident engineer, users receiving water at their DWP appreciate more than those having DWPs without water because of leakage.

3.3 Institution Issues

Legal Framework
The HTM project is not a registered entity. It is a project integrated in the government systems whereby the Ministry of Water, the District and the users are directly involved.

Organisation Structure
The HTM project is operating directly under a technical management which is directly responsible to the Ministry of Water. In addition the project has an Advisory Board and a Village Board. Every village has a Village Water Committee of six to eight people.

The Government intends to transfer the ownership to the Handeni Local Authority. According to the proposal of ownership, 25% of shares will be allocated to Handeni District Council, 25% to Handeni Development Association (HADEA) and 50% to Haji Associates Ltd a private company which has been involved in lobbying for funds from donors to rehabilitate the project. The shareholders intent to establish Handeni Water Supply Company Ltd. (HAWASU).

HTM Advisory Board is appointed by Handeni District Council. Sixty per cent of the Advisory Board are users. The Village Water Committees are elected by the General Village Meeting The VWC proposes fee collecting agents who must be approved by the Village Government before confirmation by HTM Management team.

Roles and Responsibilities

The main role of the water users is to buy water from the kiosks, the revenues are used to pay for spare parts, lubricants and stationery, to maintain and to clean the Domestic Water points. In addition, they establish and manage a water fund for O&M at village level. At present, 55 villages water committees are already operating 45 water accounts.

The role and responsibility of the Ministry of Water include:

- Provision of a clear policy framework,
- Provision of an appropriate legislative basis,
- Meeting the expenses of electricity, major maintenance, salaries and chemicals,
- Involving minor actors,
- Regulatory services.

The role of the local government (District Councils and Villages) is to monitor and provide back-up support to the water committees. At same time, Local Government is responsible for mobilisations of the users through meetings.

HTM management team ensures implementation of the project activities through its four department of operations, maintenance, sales and administration. The role of HTM Advisory Board is mainly to advise the HTM management on operations and to enhance implementation of the Rural Water Supply Policy.

The agents' role is to sell water to users and to ensure proper cleanliness, hygiene and good drainage at the DWPs.

Personnel

HTM project is managed by a team of 171 staff including engineers, technicians, sales officers, administrators and 69 labourers. The total monthly salary bill is TShs. 6.0 million. Every 12 km is served by a pipe line attendant. The project employs 20 scheme attendants, who are trained after clearance by the Village Government. Accounting is the responsibility of the project accountant.

Frequency of Meetings, Transparency and Reporting

Meetings are organised by the agents on the DWPs level. The VWC meets when a problem arises. The Annual General Meeting discusses project matters including water issues. The village leaders inform the users on the discussion of the VG on water matters.

Training

Seminars were provided to users at ward level. The Village Chairmen, the Chairmen and Secretary of the Village Water Committee received training from the project.

Networking
HTM has had various relationships with a number of institutions. After the departure of GTZ, which financed the project, HTM has been contacting several institutions to undertake co-operation. Such institutions include Kabuku RC Mission which financed a part of the project in collaboration with Amboni Group (a private company), HADEA which was involved in repairing electric motors, and Haji Associates Ltd, a consultancy firm which is lobbying for financial assistance.

3.4 Financial Issues

Tariff Structure
The present tariff structure for main settlements such as Handeni town, Mkata, Kabuku, Michungwani, Kibaoni and Segera is as follows:

- Public connection TShs. 375 /m^3,
- Private connection TShs. 425 /m^3,
- Business areas TShs. 475 /m^3,
- Industrial areas: TShs. 525 /m^3.

For remaining settlements, there is a different tariff as shown below:

- Public connection TShs. 250 /m^3,
- Private connection TShs. 300 /m^3,
- Business areas TShs. 350 /m^3,
- Industrial areas: TShs. 400 /m^3.

The project services 315 private connections in Handeni town, and 269 in other areas. The minimum monthly rate is TShs. 5,000 per connection without a meter.

In Handeni, only 36% of connections have meters. In rural areas 70% of the HC are metered.

Budgeting and Bookkeeping
The project accountant prepares a budget, which is scrutinised by HTM management team and proposed to higher level for approval. Bookkeeping is ensured by the project accountant who is following the Government accounting procedures.

Collection Procedures
On the DWPs, the agent is selling water at TShs. 10 per 20 litres container. The agent who sells water pays the money to the project collector twice a month. The project collectors control the fee of one of the 3 zones by either using the meter reading or the water consumed (based on a 4-day physical observation). The revenue is shared as follows: 60% for the office to run the project, 10% for the village water account and 30% as a collection commission for the agent.

Collection efficiency is 75% to 80% for metered house connections, and about 15% for DWPs. Collection efficiency is low because some users get water from the river. Money

collected is deposited into a Ministry of Water's account and cannot be used without release by the Ministry of Water.

Dealing with Defaulters

If users don't pay, the WDC calls the defaulters and do counselling. In some cases, the culprits are taken to court. The same process is used in towns. A number of Government institutions do not pay the fee but no measures can be taken.

Remuneration for Personnel

The average running cost per month is as follows:

Electricity	TShs. 12,000,000
Salaries	TShs. 6,000,000
Chemicals	TShs. 4,000,000
Repairs	TShs. 2,000,000
Miscellaneous	TShs. 1,000,000
Total	***TShs. 25,000,000***

Auditing

Auditing is done by the Government appointed Auditor.

3.5 Technical Issues

Type of Scheme

HTM is a scheme of which water from intake flows to treatment plant by gravity. Flow to each village is obtained by pumping including booster pumps.

Water Source

The main source of water for the whole scheme is *Pangani River.* Another source, which has been put in use is *Segera.*

Population Served

The current estimated population served by HTM is 140,000. The scheme had been designed to serve 180,000 people.

Size of the Scheme

The scheme covers an area of 5000 km^2, has a trunk main length of 316 km, a distribution main of 100 km, and an estimated population to be served of 140,000 in 61 villages. The amount of treated water produced daily is 7,320 m^3/day distributed through 670 water points. Also there are 50 storage tanks and 5 pumping stations.

Water Consumption

Water consumption per capita at DWPs has been estimated as 30 litres per day.

Level of Service

The scheme has 670 DWPs, and 584 (269 rural + 315 Handeni Town) private connections (house connections).

Quality of Water Supplies Infrastructure

The scheme construction started in 1974 and was commissioned in 1985. Some extensions are still going on by World Vision International, an NGO.

The intake works are still in good condition. The treatment plant is still working, but all infrastructure which requires electricity is not operational. There is no electricity being generated, because the TANESCO wire leading to treatment plant has been stolen.

Most of the installed air valves have corroded and water is always leaking. Rubber rings for Ductile Iron and PVC often crack. Most of the pipes are leaking.

Leakage
Leakage in the whole HTM system accounts for 60 to 70% of the treated water.

Water Metering
In Handeni Town, 36% of the house connections are metered. In rural areas metering proportion is 70% of all house connections.

Cleanliness of DWP
One DWP was observed and it was not clean, poor drainage and bad condition of physical structure.

Disconnection of DWPs and HCs
For metered DWPs, one has to pay whenever he/she collects water. For non-metered DWPs, the ones who refuse to pay are sent to Ward Development Committee for disciplinary action. In general no DWPs are disconnected if users have failed to pay.

Operation and Maintenance
The HTM is managed by a Resident Engineer. The operation and maintenance of the trunk main is a responsibility of HTM whereby at every 12 km there is pipeline attendant. HTM also is responsible for O & M of the treatment plant whereby chemicals for treatment are purchased i.e. alum, Calcium hypo-chloride and magno floc. Salaries of HTM staff, electricity bill maintenance and chemicals are paid by the government. The Village Water Committee of each village is responsible for O&M of their distribution system.

Availability of Spare Parts
Most of spare parts required are purchased by the Ministry of Water.

3.6 Lessons Learned, Conclusions and Recommendations

- Poor maintenance has caused the scheme to perform poorly in delivering the water services. An extremely high percentage of the water is wasted.

- HTM project is a large scheme, which cannot be managed efficiently without a strong management team.

- It is questionable whether the technology used was appropriate since, for instance, the treatment plant operates at a very low efficiency level because of lack of power.

- To run the scheme on a commercial basis is the only guarantee to improve sustainability of the project.

- Lack of legal framework is one of the reasons for lack of ownership by users and insufficient involvement of users in the management of the scheme.

- The tariff is low compared to the need for maintenance and future replacement. Users lacked advice in price setting.

4. KIBERESHE WATER SUPPLY SCHEME

4.1 Background

Kibereshe Water Supply Scheme is situated in Handeni District, in Tanga region. This gravity water supply scheme feeds Kibereshe, Gombero and Kwamaligwa villages, with a total population of 9,000. The scheme was constructed by the Support Rural Water Sector (SRWS), a GTZ assisted project. The handing over of the project to the community was done in 1995.

4.2 Community and Social Issues

Demand-driven Project

Kibereshe Water Supply Scheme is a demand-driven project. According to the SRWS procedures for project development, the community must first bring an application to GTZ for scheme construction. Kibereshe community therefore requested the scheme from GTZ because the three beneficiary villages were badly in need of water.

Relations with Local Government

The scheme is integrated in the Local Government structure. There is a Village Water Committee, which is a part of the Local Government system. The District is doing major maintenance while the community is dealing with minor repair only. The District would like to obtain regularly reports on operation and maintenance, but such reports are not coming any more. According to the District Water Engineer, the District has still a monitoring and advising role in the scheme, but monitoring is very weak because of lack of resources to reach the field, such as fuel and allowance.

Community Participation

As in all GTZ Water Supply project the community participated during construction by contributing cash and free labour. At present, the users maintain their scheme, and participate in its management through election of VWC and setting of water tariff.

Gender Specificity

The Village Water Committee is composed of 12 members of whom six are women. Women are more responsible for cleaning the DWPs than men.

4.3 Institutional Issues

Legal Framework

Kibereshe Water Supply Scheme is not a legal entity as it has not been registered under any of the laws of the country. The scheme is totally running under the Local Government Administration since the Village Water Committees are part of the Village Government.

Organisation Structure
The organisation structure is based on the following arrangements:

- Each of the three villagers elects a Village Water Committee of six men and six women.
- The three Village Water Committees elect a United Village Water Committee whereby the Chairman comes from the first village, the Secretary from the second village and the Treasurer from the third village.
- These committees have a three year term of office. Councillors are advisers in the United Village Water Committees. Traditional leaders can be members of the VWC.

Roles and Responsibilities
The users' role is to pay water fee, to maintain the DWP, and to participate in users meetings.

The United Village Water Committee is responsible for guiding, directing and controlling the VWCs. The VWC reports to the Village Government. The Village Government is the supreme overseer of water issues in the villages. The District is monitoring and advising the VWC. It is also responsible for eventual major maintenance.

Personnel
The district has trained scheme attendant during scheme constructions. These scheme attendants are responsible for minor maintenance of the scheme.

Meetings, Transparency and Reporting
The village assembly meets every three months and discusses all the projects which are implemented all over the village area. These include Kibereshe Water Supply Scheme. During this meeting, financial issues are a permanent agenda.

4.4 Financial Issues

Tariff Structure
The Village Water Committee has set the tariff as follows:

- Domestic Water Point TShs. 100 per household per month
- House connection TShs. 5,600 per month

According to the District Water Engineer the tariff of TShs. 100 is very low; it will not suffice to meet the costs of possible major repair.

Dealing with Defaulters
The defaulters in paying water fee are compelled to bring a chicken to the VWC. The VWC sells it and receives payment of the water fee.

Auditing
The District used to audit the Village Water Account. In recent years, the District has not been requested to make an audit.

4.5 Technical Issues

The scheme was not visited.

Type of Scheme
Kibereshe is a gravity scheme serving water to three villages namely Kibereshe, Gombero and Kwamaligwa. The Scheme has also a Dam and 4 shallow wells.

Map of Scheme
The maps for the scheme are available at District level.

Population Served
The estimated population served is 9,000.

Level of Service
The scheme has 18 DWP and two house connections.

Leakage
It is a newly rehabilitated scheme, hence leakage is minimal.

Operation and Maintenance
The Scheme attendant per village is paid TShs. 10,000. The United Water Committee is responsible for minor repairs and District Council responsible for major repairs.

4.6 Lesson Learned, Conclusions and Recommendations

- There is no budget to control expenditure of the scheme.
- There is no procedure to calculate the tariff.
- With good management, Kibereshe Water Supply Scheme can march towards sustainability because of the following:
  - Users own the scheme and behave as if they do not require the District while they are organised within the Local Government Organisations.
  - However, Kebereshi Water Supply Scheme will require a legal framework and a skilled management before it can face future challenges in increased water demand and major rehabilitation.
  - Therefore, Kibereshe Water Supply Scheme should obtain a legal framework, a skilled management and its users should benefit from capacity building.
- The scheme requires good management to steer it towards sustainability.
- The operation and maintenance is not sustainable since there is still dependence on the District.

APPENDIX VI

Background Paper

Institutional Options, Water Rights and Fees, and Ownership of Piped Water Supply in Rural Areas

INSTITUTIONAL OPTIONS, WATER RIGHTS AND FEES, AND OWNERSHIP FOR PIPED WATER SUPPLIES IN RURAL AREAS

Institutional Options

Overview of possible institutional options, mainly based on *Report on Different Legal Options on Management of Rural Water Schemes*[1]:

1. Water Supply Company, two options,
2. Water User Association,
3. Trust,
4. Central or Scheme Water Committee,
5. Co-operative society,
6. Corporation Sole;

1. Company

Advantages

- A registered company is a separate legal (juristic) person distinct from the members Contracts and debts of a registered Company are those of the Company and not those of the members.
- A Company continues in existence unless it is wound up. The death or retirement etc. of members does not affect that.
- The property of a registered Company belongs to and is vested in the Company.
- A Company can contract with its members and can sue and be sued on such contracts.
- A registered Company has greater facilities to borrow money and receive donations.
- The Company has no powers **to do anything other than those objects stated in the Memorandum** (so if stated that profits can only be used for investments in water supply projects, money can not be spent on other purposes).
- **Alterations in the memorandum on the objects of the Company are very difficult**: one has to follow legal procedures and it has to be confirmed on petition by the High Court.
- Every year is called for to be attended by all members (the Annual General Meeting), then Accounts of the Company and the External Auditor's Reports are read.
- In Memorandum and Articles of Association is must be stated duties and powers directors, qualifications required for directors, regulations as to their meetings, voting and quorum.
- Board is empowered to employ staff to manage the day-to-day affairs of the company.

Disadvantage

- There are many rules and strict formalities.

[1] Swai (1998) Report on Different Legal Options on Management of Rural Water Schemes, Government of Tanzania and Government of Denmark.

Company limited by shares: liability of a member to contribute to the assets of the Company is limited to the amount unpaid on his share.

Company limited by guarantee: liability of a member is limited to the amount that he has undertaken to contribute in the event of it being wound up.

Companies may be *public* or *private:*
Private company restricts the right to transfer its shares, limits the number of members to 50 (minimum two while for public Company this is seven), and prohibits any invitation to the public to subscribe for its shares. A shareholder in a public limited Company can sell his shares without any restriction. A private Company does not need an authorised minimum capital either for registration or to start business. **For relatively small, community-based and community-owned rural water supply, the private company is the only option.**

Registrar will enter the name of the Company in the register (if Memorandum of Association, Articles of Association and statement of nominal capital are accepted) and issue a **Certificate of Incorporation**. Registration is at the Ministry of Trade and Industry. Example of WSC Memorandum of Association, Articles of Association is included in the Report on Different Options on Management of Rural Water Schemes (Swai, 1998).

2. Water User Association

An Association shares many features with Co-operative societies.

Advantages
- Each member or delegate has one vote,
- The service of the society is mainly for its members,
- There is no voting by proxy,
- The control of the society is democratic,
- Membership is open to all who can use the services of the society ,
- To use the profits for water supply purposes only, the Articles of Association must include a statement of this kind,
- Autonomous and no interference from government.

Disadvantages
- Although the MoW indicates that the Association is a body corporate, others say **it is not**,
- **No control mechanisms, so risk of hijacking of the management by influential members for their own personal benefits.** This can be avoided by including specific Articles of Association which are binding.
- All rules and regulations have to be formulated in the Memorandum and Articles of Association to regulate all WUA affairs
- Some lawyers indicate that the Memorandum and Articles of Association does *not* have the same legal status as these of a Company, but the Principal State Attorney of the MoW says **it has**.

Example of a WUA Memorandum of Association, Articles of Association is attached for information. Steps to follow in formation in reference[1].

A WUA can be registered under the Societies Ordinance (Ministry of Home Affairs) and under Water Laws (Miscellaneous Amendments) Act No. 8 of 1997 (Ministry of Water).

The names of the office bearers usually differ from these for companies. Instead of Board of Directors, they usually have Management Committees.

3. Trust

A Trust is constituted by deed with the approval of the Administrator General under the Trustees' Incorporation Ordinance (Cap 375). Features:

- Specified property is legally placed under the custody, management and care of specified persons for the benefit of the beneficiaries.
- The trust deed will usually specify the manner in which the trust property will be managed or else general trust laws will apply.
- Under this form of organisation a set of few specified persons hold on trust the property on behalf of the beneficiaries who have little say in the management.

Disadvantage

- Not much room for participation of the users in management of scheme but this can be corrected somehow by formulating specific terms in the constitution, see example in box;

> In Uroki Bomang'ombe Water Supply Project, Village Water Committees have been established in each of the eight villages in the scheme. They advise the trustees, represent the interests of the villagers through an (elected or appointed) village member in the Board of Trustees; they assist in the security of the system and meet at least once a year. At rural DWPs, an elected agent takes care of the service: opening hours, cleaning schedules etc. Once a month user members pay their share in the water bill according to the household composition and use of water for non-domestic purposes. In the town area, agents manage the 'kiosks' and charges for water per bucket (TShs. 10 in October 2000). The DWP agents pay to UBWS the monthly water bill that is based on the consumption read from the meter.

Registration is done by the Administrator General in the Attorney General's Office by submitting a constitution etc. If the Trustees fail to fulfil the conditions indicated in the constitution or to submit the Returns or in case of appointment new trustees, the Administrator General can revoke the incorporation.

4. Central or Scheme Water Committee

This option is not presented as a legal option in the reference document of the Ministry of Water[1]. The option is being used in Tanga Region by several projects implemented by the Tanga Diocese Development Office (TADDO). It is claimed that the Constitution has passed the Ministry of Local Government and Regional Administration as a bylaw of the District Council. The legal status of this option has not been assessed.

At village level, there are two bodies. At each DWP, the users elect two caretakers, and these caretakers elect the Village Water Committee (3- or 5-year term). All the VWCs and Institutional Water Committees together elect the Central Water Committee (3-year term). This committee has four sub-committees: the Planning Committee, Financial Committee, Technical Committee and Animation Committee.

5. Co-operative Society

In Tanzania, according to Section 4 of the Co-operative Societies Act No. 14 of 1982, a Co-operative is supposed to "... accelerate the building of **socialism** by bringing about **socialist** development in rural and urban areas ..". There is **control and interference**, within the legal frameworks, by the arms of the governments in not only the **development and future direction** of co-operative movements but in the **day-to-day operations** of a Co-operative organisation. Co-operatives in Tanzania are **not autonomous**. Unless the Government changes the above Act a Co-operative society is not an attractive option for the above reasons. In most other countries, co-operatives are autonomous and independent of the Government.

6. Corporation Sole

A Corporation Sole is the holder of a certain office and his successor. The President can designate any public office to be a Corporation Sole (Act No. 25 of 1974). The result of this creation is to lend perpetual existence to a certain office or institution quite independent of the person who occupies it. It is subjected to civil service regulations in areas as procurement and payment hence very difficult to run efficiently, and therefore not an attractive option.

No.	Type of association	Advantages	Disadvantages
1	Companies Limited by Shares or by Guarantee	• Have perpetual life; even after founding and following members have ceased to be members. Such Companies cease only on being wound up voluntarily or by law and being struck off the Register of Companies. • They can sue and be sued because of their legal personality. This means that their members cannot be held responsible for acts of the Company.	• Their establishment and management is rather complicated and requires highly educated people to understand
2	Associations / Societies	• It is very easy to establish and register societies.	• Conflicting interpretations whether they do or do not become a body corporate on registration. • Their registration is discretionary. • The minister, hence the government, has vast powers in determining their continued existence.
3	Trustees	Have the same advantages of corporate bodies (see 1, above).	• Law under which they have to be registered is restrictive only *"... a body or association of persons bound together by custom, religion, kinship or nationality or established for any religion, educational, literal, scientific, social or charitable purpose ..."*
4	Co-operatives	Have the same advantages of corporate bodies (see 1, above).	• Co-operatives are for specified trades and activities only. This restricts their activities. • The government through the Registrar of Co-operatives has very strict and close control on them • Arising from the strict government control, some of their property is deemed to be public

Information in the following table is derived from MoW report (Swai, 1998)[1], Massati report (1995)[2], and table used in Hai District Water Supply (included in Report on Consultative Workshop Morogoro, September 2000). Kiliwater has also a summary from a brainstorm with government staff on legal options.

[2] Massati (1995) A Protocol on Alternative Ways by which People can Associate in order to manage, promote and protect their economic and social interest.

Right for Water Utilisation, Application Fees, and Water User Fees

In Tanganyika, all water (except rainwater) is vested in the United Republic. The Ministry of Water is mandated to deal with all maters pertaining to administration and protection of water. There is no private ownership of water but a **right to use water** derived through a form. All water rights, issued by the Water Officer (appointed by the Ministry of Water and gazetted), are from a specific source, in a certain quantity, for a certain period or indefinite and subject to defined terms and conditions.

The application fees for domestic water use are TSh 35,000/=.

The economic water user fees depend on amount of water used: if it does not exceed 22,700 litres per day the user (Company, Association or Trust) is exempted to pay. If more than this amount is used then TSh 0.30 per 1000 litres per day is to be paid over the entire volume.

Issue to be Resolved on Ownership

SECTION 5(2) of Local Government (Finances) Act No. 9 of 1982 stipulates that all water works and other properties of the kind situated in the respective district are vested in the district council.

The Principal State Attorney of the MoW interprets this statement to be effective until 1982 and from then onwards all water works and other properties of the kind are under the central government and can be handed over to the users. (verbal communication in Morogoro Workshop 25 September 2000).

The district council is empowered to **delegate** the discharge of some of its functions to a village council or other lower government, and in discharge of those functions, act as an agent of the district council.

This conflicts with the draft Rural Water Policy (July 1999) that states that ownership and management is to be vested at the users level.

APPENDIX VII

Policy Paper

Strengthening and Enhanced Sustainability of Piped Water Supply in Rural Areas

Domestic Water Supply Program – Morogoro Region

Strengthening and Enhanced Sustainability of Piped Water Supply in Rural Areas

Rural Water Supply Companies

Introduction

Over the last few years, water supply companies (WSC) have been established at community level in the rural areas of Morogoro Region to manage, operate and maintain piped water supply systems. The Domestic Water Supply Program (DWSP) – Morogoro Region has been assisting and advising the young companies and their communities with respect to the companies' task of supplying water to the communities and with the aim to enhance the sustainability of this public service. DWSP has been involved with twenty-some systems and companies spread over the Region.

The WSCs are registered as company limited by guarantee under the Companies Ordinance (Cap. 212). Memorandum and Articles of Association have been drafted for each WSC registered.

Board of Directors

All companies have a Board of Directors consisting of representatives of the Water User Groups (WUG) that have been formed around each Domestic Water Point (DWP). The representation of consumers with a direct connection to the water supply system (house connection or business connection) is not arranged for specifically. These types of water consumers are supposed to basically have a normal customer relationship with the WSC. The members of the Board select a Chairman, Secretary, and Treasurer. Elections for the Board of Directors are supposed to be held every year.

Size

The size of the systems and the number of direct service connections and DWPs vary. Some systems are extremely small, for instance at Lukenge, a pumped system with only five DWPs serving some 600 households; others are more reasonably sized with house and business connections exceeding 200, in addition to a few dozen DWPs (Ikela, Kimamba, Mikumi, and Ruaha).

Management and Operation

Nevertheless even the larger systems are small in absolute sense and the number of staff that can be employed by a company is limited: certainly less than ten, often not more than three. In quite a number of cases, the management, operation, and maintenance is still done ad hoc and more or less voluntarily by the Board of Directors of the WSCs. DWSP is stimulating the largest companies to appoint executives to manage the system, leaving the task of policy making and monitoring to the Board of Directors.

One of the main arguments in favor of executives is to retain knowledge in the company over a longer period of time as the members of the Board of Directors may change frequently due to elections. In case of extremely small companies[3], the appointment of executives and employees does not seem to be feasible: the board will have to keep actively involved in management, operation, and administration of the water supply system, and engage fundis on part-time basis

Need for Internal Strengthening, Support, and Monitoring of WSCs

It is clear that in the present circumstances and set-up, the WSCs - management as well as Board of Directors – will keep needing support, advice, and assistance from outside, in particular in special cases. For instance if a well or pump breaks down, a WSC will not likely have the in-house specialist knowledge and skills needed for repair, rehabilitation, or replacement. It may engage the private sector to carry out the necessary works, but even then, with lack of knowledge on the matter, the risk of being overcharged is quite high and/or the quality of work may not be guaranteed.

Regular training and monitoring of performance of WSCs is required. Annual financial auditing is even a constitutional obligation. Auditors can be engaged for this last job. According to the draft Rural Water Policy (July 1999) local governments are supposed to facilitate, support, and monitor the general performance of the WSCs. However, the efficacy of the Region and Districts in this regard is questionable, as the past has learnt.

A question to be answered is how to effectively support, monitor, and strengthen (rural) water supply companies (or their equivalents in other regions than Morogoro). In the following section a first effort is made to compare and evaluate alternative institutional arrangements to strengthen rural WSCs and to enhance the sustainability of the piped water supply schemes in rural areas.

Alternative Institutional Arrangements

Local Water Supply Companies (Status Quo)

If the status quo of small, independent, community-based WSCs with no or only ad hoc contacts is maintained, sustainability is all but guaranteed. The introductory section on rural water supply companies and the information provided in the ***Annex*** *Present Operating Environment for Rural Water Supply Companies*, demonstrate this statement.

Slowly but surely the existing water supply systems will fall apart if no proper maintenance is done due to lack of knowledge, skills, and finances. The collection efficiency of water charges will not reach a satisfactory level. Eventually collection will collapse completely as those who have been paying will stop doing so.

In case of diesel-driven systems, the communities will almost immediately be faced with the question whether to pay for water supply, or not. In case of systems driven by electrical pumps the question will need to be answered in a year or so – when TANESCO threatens to cut off the supply of electricity. If that happens, the accumulated electricity bill is most likely too high for the local WSC (and the users) to settle, which means the

[3] As a rule of thumb, one executive can be appointed in case of about 5000 consumers (2000 adults), or 25 DWPs, or monthly revenues of TSh 400,000 (assuming a water tariff of TSh 200 per adult per month and 100% collection efficiency). Systems with large numbers of house and business connections (> 100 and revenues of at least TSh 100,000 per month) are an advantage because of being a more stable source of income than DWPs.

end of the water supply system. Gravity systems will last the longest but eventually break down due to lack of maintenance. The communities will wait for the government to bail them out.

Out of the twenty-some WSCs under DWSP only half a dozen are expected to survive in the long-term: the best-managed and largest ones, as well as those of villages where there is a real demand for water.

Active Involvement in the Operation of Rural Water Supply Systems by the Districts and Region

Past experiences indicate that this does not seem to work due to lack of proper motivation and commitment of funds.

District Water Supply Companies

The existing WSCs of a District are stimulated (or forced) to establish a District Water Supply Company (DWSC) with each of the companies becoming a unit of the DWSC[4]. The existing companies (and/or the villages) will receive shares of the DWSC and appoint a member in the Board of Directors (possibly on rotation). The district could be allowed to hold some shares in the company too. Because of the larger size and number of staff, a DWSC can employ better-educated and more experienced staff in management position. Moreover, a district company can also retain specialists, like an electro-mechanical engineer, a chemist, and a geohydrologist.

A constraint with respect to the option of a district water supply company is the large number of Domestic Water Points (DWP) that require close contacts between the company and the users to make sure that the collection efficiency of water charges is satisfactory. The distance between a district-based water supply company and the DWP users may be too large. On the other hand, the larger distance makes it also easier for the company to act without bias regarding local circumstances, relationships, and politics. A DWSC can be more objective and less prejudiced in its actions. It can act on the basis of figures and leave feelings out of consideration.

The relations with consumers in case of direct service connections are more anonymous, as in principle non-payment automatically means the water supply to be cut off: there is a clear cause-effect relationship. In respect to DWPs cutting off is less simple as some of the users have actually paid but the majority has not.

Cooperation, Association, or Federation of Water Supply Companies

At District (or Regional) level, the WSCs could work together in a cooperation, association, or federation. It could also be a chapter of a national ("umbrella") institution for (self-)support of water supply utilities. The individual companies would remain their independence and seek help from the common institution if they think they need assistance. The WSCs would have to contribute to pay for the operating costs of the common institution.

[4] Comparable with Kabupaten PDAMs in Indonesia. Difference between the situation in Indonesia and Tanzania is the number of direct service connections that is relatively much larger in Indonesia. The number of public taps (comparable with DWPs) is limited and consequently the use of water from public taps is free.

A question to be answered is what the objectives, tasks, and authority of a common institution would be. It is clear that it should not duplicate what is being done by the WSCs. The common institution could have coordinating, networking, and referral functions.

The funding of the common institution is likely going to be a main constraint. Annually a work program and a budget – including the level of contribution of the individual WSCs – will have to be approved by the members of the common institution. As generally the financial positions of the (rural) WSCs are still very weak, there are strong doubts whether they will actually pay their contributions. Payment to the common institution is likely one of the first items to be skipped by a WSC in case of cash problems. This will directly affect the sustainability of the common institution. The conclusion is that a common institution without medium to long-term financial support of central government (and/or international donor organizations) seems not feasible.

Private Sector Involvement

WSCs could engage the private sector to operate and manage the water supply system (management contract). The ownership of the system would remain with the community (WSC) or the government. A clear contract is a must. The contract should include agreements on tariffs, procedures for disconnection of DWPs and direct service connections, tasks of the private sector operator, remuneration linked to a set of performance indicators, etc.

It is not likely that all communities will agree to engage a private company to operate their water supply system. There may well be a reluctance to have a communal water utility run by an outsider. On the other hand, the private sector will most likely be selective in choosing which companies to get involved with: it will pick the cherries out of the pie and it can not be blamed for this behavior. This behavior is likely to leave the smaller communities with piped water supply systems unattended. Moreover, there is also a substantial risk of weak WSCs falling in the hands of non-trustworthy private companies. In general, the private sector will be aimed at profit making. The advantages of increased efficiency private sector involvement is supposed to bring along should be weighed against the disadvantages of their profit-oriented attitude.

Private sector involvement in water supply calls for a government "watchdog", a sector regulating organization (at national, regional, and/or district level), to make sure that the social objectives of water supply are sufficiently served.

Clustering of Water Supply Companies

The existing, neighboring WSCs should be stimulated (or forced) to merge into larger, more-sustainable companies. The clustering of WSCs should be based on hydrological and geomorphological boundaries, and not necessarily on administrative (district) boundaries. As in case of a District Water Supply Company, the existing companies (and/or communities) will receive shares of the merged company, as well as the right to appoint one or more members in the Board of Directors. The resulting company is considered more capable of managing the combined water supply systems, can take a more distant and objective approach towards individual communities and their local politics, and still has the option of entering in a contract-agreement with the private sector.

Evaluation Institutional Arrangements

Criterion	Institutional Arrangement					
	Status Quo	Active Involvement District & Region	District Company	Association; Federation	Management Contract	Clustering WSCs
Beneficiary Ownership	++	-	0	+	0	+
Functionality	-	-	+	0	+	0
Financial Viability	-	-	+	-	++	0
Affordability / Coverage	0	0	+	0	-	0
Overall Score	**0**	**---**	**+++**	**0**	**++**	**+**

In the above table the effect of alternative institutional arrangements on rural piped water supply schemes is evaluated on basis of four criteria: beneficiary ownership, functionality, financial viability, and affordability / coverage. An association, cooperation, or federation of WSCs without too many commitments and outside funding seems not to have much positive impact on the sustainability of the rural water supply schemes. Positive impacts can be expected from establishment of District Water Supply Companies (DWSC), motivation of WSCs to merge, and entering into management contracts with the private sector. Although the communities will own the shares of a DWSC, the rather top-down approach that will be needed to establish a district company (and the risk of bureaucracy) may be prohibitive for realization of this alternative. The clustering of WSCs can take place along a more gradual and natural path and could be combined with the alternative of involving the private sector for the management of the company. Reluctance to involve the private sector is thought to be less in case of a merged WSC than with the existing community-based companies.

Annex

Present Operating Environment for Rural Water Supply Companies in the Morogoro Region

Policy Change

Water is a basic need and right for all human being. Before 1991, it was generally considered as a task of government to provide water to all citizens, free of charge. In 1991, with the approval of the National Water Policy, the value of water as an economic good was officially recognized. To achieve sustainability the principle of cost recovery was accepted, not only for operation and maintenance but also for replacement and expansion of water supply systems. Nevertheless, at village level many leaders, even government officials, do not seem to have accepted or understood the consequences of the new policy and are still proclaiming that water be provided free of cost.

Alternative Water Sources

In a number of villages alternative water sources are abundant and consequently the willingness-to-pay (for a higher level of service and water quality) is limited. In fact in those villages there is no large real demand for the services offered by the WSCs.

Affordability

For cost-recovery in case of pumped water supply schemes a fee for use of a domestic water point of TSh 400 per household per month is required. This is 4% of a monthly household income of TSh 10,000. In general, one has to conclude that people can afford to pay such a water charge. SWOT (Strength, Weaknesses, Opportunities, and Threats) studies carried out by DWSP for a dozen WSCs indicate that affordability is not a real concern. It is a matter of priority.

Transparency and Proper Accounting System

There is an apparent link between the transparency of the (financial) management of the water supply company and the willingness of consumers to pay. A proper general and customer accounting system is a must. Annual financial accounts (balance sheet and income statement) should be prepared by the company and subsequently cleared by an independent auditor. The annual accounts and the report of the auditor need to be discussed and approved by a general meeting of the members of the WSC. If all this is not done, and the actions of the management or Board of the WSC remain unclear and questionable, the willingness-to-pay of the consumers will gradually reduce and the sustainability of the water supply system is at stake.

Type of System

There are clear differences between gravity and pumped water supply schemes. Pumped schemes can be distinguished with respect to power supply: electric or diesel based.

In case of a diesel generator driving the pump, water supply will stop one the diesel is finished. There is a clear link between payment of water charges and supply of water.
In case of an electric driven pump, the link is less direct. Eventually, if electricity bills are not paid, TANESCO will cut off supply. The question is how long this will take to happen.
If electricity bills are not paid for a period of a year or so, liabilities will accrue that are not easily paid off for a rural water supply company or community.
The need for funds in case of a gravity system is the least clear. However, lack of funds will result in an absence of maintenance and consequently a process of gradual deterioration of the system. Once the system fully breaks down, there is little chance the village (company) will be able to fund rehabilitation. One will wait for the government to be bailed out.

Budgeting

Before the start of the (financial) year, the WSC should prepare a budget and have it approved by the members. It is extremely important not only to prepare a realistic and accurate budget, but also to reach consensus about the budget with all concerned (management, board, and members). Consensus regarding the budget also implies approval of the water tariffs on which the budget is based. Subsequently all should be committed to realize the budget as agreed upon. Each member should disseminate relevant decisions to his/her respective WUG.

Remuneration

In order to be able to recruit capable personnel, WSCs should provide reasonable salaries to their staff. On the other hand, especially with respect to executives, it is recommended to pay a relatively low basic salary but allow for an attractive performance-based salary component.

Allowances to the Board of Directors should not be paid if the general performance of a WSC is too low. The company just cannot afford it. Payments for electricity and proper maintenance of the system will have to get first priority.

Personal loans should in principle not be given by the WSC as it is not part of the objectives of the company and brings along too much risk. It is also not likely to add to the confidence consumers have in the management of the company: Managers and directors who allow themselves to take a loan from the WSC are in fact misusing funds of the company and the community.

Water Charges

Seasonal Influences

In principle households (consumers, or only adults) taking water from DWPs are charged a fixed monthly fee. It may be considered to charge consumers quarterly or only once a year at harvest time, but this practice is not recommended. It is very risky, especially if consumers do not pay up-front. The annual income of the WSC will be gained only during a few months, whereas expenditures are gradually incurred over the year. The company is likely to run out of cash halfway the year

Water Kiosk

In case consumers are not paying the charges for the use of a DWP, a WSC could revert to the practice of selling water by the bucket (water kiosk) in a limited number of locations. This alternative has proven effective in the case of diesel driven water supply systems. Also in case of electricity driven systems it could be applied. For gravity systems it is generally not recommended.

Disconnection

If the collection efficiency for a DWP is too low (actual payments as a percentage of water charges), the WSC should disconnect the DWP. The percentage below which the WSC will disconnect, should preferably be agreed by the full board or all members of the company. A company could also start to disconnect the DWP with the lowest collection efficiency (as a test case), and gradually pressure/stimulate consumers (at other DWPs) to pay for the services received.

It should be clear to the consumers that there is a clear link between regular payment of the water charges and supply of water. Ultimately, this is the only way to reach sustainability of supply. In case of payment for bucket, the link is obvious, for diesel systems too. In case of electric systems, the direct link can easily be explained (disconnection from electricity supply will follow in due course of time if electricity bills are not paid). The most difficult it will be to convince consumers of a gravity type of water supply system to pay.

Eligibility for Sector Funding

The internal financial resources of a WSC for extension of the water supply system are rather limited. Access to external funding (sector grants and loans) should be based on a series of performance indicators, like collection efficiency and regular payment of electricity bills.

APPENDIX VIII

Maps

Rural Piped Water Supply Schemes in the Four Districts of Morogoro Region

APPENDIX IX

Overview

Characteristics of Rural Piped Water Supply Schemes in the Four Districts of Morogoro Region

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
0. SUMMARY

No.	District	Scheme type			No. of People Potentially Served								
		Gravity	Electric Pumped	Diesel Pumped	District Capital WS		WSC		Functioning Scheme		Non-functioning Scheme		Total
1	Kilombero	12	3	1	1	6%	5	31%	6	38%	4	25%	16
2	Kilosa	4	13	13	1	3%	8	28%	5	17%	15	52%	29
3	Morogoro Rural and Urban	20	6	16	1	2%	5	12%	21	51%	14	34%	41
4	Ulanga	9	0	10	3	16%	4	21%	1	5%	11	58%	19
Total		**45**	**22**	**40**	**6**	**6%**	**22**	**21%**	**33**	**31%**	**44**	**42%**	**105**

No.	District	No. of People Potentially Served								
		District Capital WS		WSC		Functioning Scheme		Non-functioning Scheme		Total
1	Kilombero	17,828	16%	57,420	52%	23,538	21%	12,250	11%	111,036
2	Kilosa	38,800	17%	69,581	31%	48,290	22%	67,740	30%	224,411
3	Morogoro Rural and Urban	300,000	67%	21,050	5%	85,083	19%	43,256	10%	449,389
4	Ulanga	12,359	13%	39,322	43%	1,900	2%	38,129	42%	91,710
Total		**368,987**	**42%**	**187,373**	**21%**	**158,811**	**18%**	**161,375**	**18%**	**876,546**

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION

1. KILOMBERO DISTRICT

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
1	Namawala	Namawala			DP				1,750
2	Ifakara Mjini	Ifakara Mjini		EP		17,828			
3	Kibaoni	Kibaoni		EP				4,750	
4	Lumemo/Mahutanga	Lumemo/Mahutanga		EP			5,500		
5	Chita	Chita	G					2,750	
6	Ichonde/Kisawasawa	Ichonde/Kisawasawa	G				6,250		
7	Kiberege	Kiberege	G					5,538	
8	Kikwawila	Kikwawila	G					1,500	1,500
9	Mang'ula A&B	Mang'ula A&B	G					2,500	2,500
10	Mchombe/Mgeta	Mchombe/Mgeta	G					1,250	1,250
11	Mkamba (Ikela)	Mkamba (Ikela)	G				27,420		
12	Mkula/Sonjo	Mkula/Sonjo	G					1,250	1,250
13	Msolwa Ujamaa/Station	Msolwa Ujamaa/Station	G					3,125	3,125
14	Mlimba/Kamwene	Mlimba/Kamwene	G				9,250		
15	Mwaya/Mgudeni	Mwaya/Mgudeni	G				9,000		
16	Sanje	Sanje	G					875	875
Nos.			***12***	***3***	***1***	***1***	***5***	***6***	***4***
Total						**17,828**	**57,420**	**23,538**	**12,250**

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
2. KILOSA DISTRICT (a)

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
1	Ilonga	Ilonga			DP			4,389	4,388
2	Kiduhi	Kiduhi			DP				330
3	Kilangali	Kilangali			DP				1,818
4	Maguha	Maguha			DP				2,743
5	Meshugi	Meshugi			DP				2,025
6	Mtumbatu	Mtumbatu			DP				3,874
7	Twatwatwa	Twatwatwa			DP				1,583
8	Ulaya	Ulaya			DP				1,834
9	Ulaya Mbuyuni	Ulaya Mbuyuni			DP				1,399
10	Berega	Berega			DP			2,191	2,192
11	Kivungu	Kivungu			DP				3,314
12	Magubike	Magubike			DP		4,323		
13	Zombo Lumbo	Zombo Lumbo			DP				1,640
14	Changarawe	Changarawe		EP					3,248
15	Chanzuru	Chanzuru		EP					2,622
16	Dumila	Dumila		EP			6,486		
17	Kimamba A&B	Kimamba A&B		EP			13,324		
18	Mabana	Mabana		EP				2,720	1,978
19	Magole	Magole		EP				6,864	
20	Mandela	Mandela		EP				2,125	

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
2. KILOSA DISTRICT (b)

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
21	Mbigiri/Mandela	Mbigiri/Mandela		EP				3,266	
22	Msowero	Msowero		EP			7,100		
23	Mvumi	Mvumi		EP					6,017
24	Rudewa Gongoni & Batini	Rudewa Gongoni & Batini		EP			4,944		
25	Kilombero II	Kilombero II	G	EP			7,102		
26	Gairo (11 Villages)	Gairo (11 Villages)	G					26,735	26,735
27	Mikumi Mjini	Mikumi Mjini	G				7,338		
28	Ruaha	Ruaha	G				18,964		
29	Kilosa Town	Kilosa Town		EP		38,800			
Nos.			***4***	***13***	***13***	***1***	***8***	***5***	***15***
Total			**4**	**13**	**13**	**38,800**	**69,581**	**48,290**	**67,740**

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
3. MOROGORO RURAL AND URBAN DISTRICTS (a)

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
1	Bwakira Chini	Bwakira Chini			DP				2,386
2	Fulwe	Fulwe			DP				5,386
3	Kibati/Salawe	Kibati/Salawe			DP				6,018
4	Kidugallo	Kidugallo			DP				5,848
5	Kikundi	Kikundi			DP				3,446
6	Kingolwira Prison	Kingolwira Prison			DP			2,280	
7	Kingolwira Sisal Estate	Kingolwira Sisal Estate			DP			2,005	
8	Lukenge	Lukenge			DP		1,288		
9	Mbigiri Prison	Mbigiri Prison			DP			1,471	
10	Mikese	Mikese			DP				4,242
11	Mkata	Mkata			DP				410
12	Mkata (Modeco)	Mkata (Modeco)			DP				511
13	Mtibwa	Mtibwa			DP			5,278	
14	Wami Dakawa Agr.	Wami Dakawa Agr.			DP				548
15	Wami Kuu Prison	Wami Kuu Prison			DP			653	
16	Wami Vijana Prison	Wami Vijana Prison			DP			404	
17	Kambala	Kambala		EP			1,147		
18	Luhindo	Luhindo		EP					1,499
19	Lukobe	Lukobe		EP				1,742	
20	Ngerengere	Ngerengere		EP					4,060
21	Wami Dakawa	Wami Dakawa		EP					4,716
22	Mkuyuni	Mkuyuni	G				4,329		

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
3. MOROGORO RURAL DISTRICT (b)

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
23	Changarawe	Changarawe	G						2,395
24	Hembeti	Hembeti	G					3,676	
25	Kauzeni	Kauzeni	G					1,331	
26	Kichangani/Mhonda/Kilimanjaro	Kichangani/MhondaKilimanjaro	G					13,957	
27	Kingolwira	Kingolwira	G					12,105	
28	Kiswira	Kiswira	G					1,891	
29	Kitungwa A	Kitungwa A	G						1,791
30	Konga/Vikenge/Sangasanga	Konga/Vikenge/Sangasanga	G					3,659	
31	Langali	Langali	G					3,714	
32	Legezamwendo	Legezamwendo	G					2,139	
33	Maskati	Maskati	G					4,618	
34	Mhonda	Mhonda	G					3,344	
35	Mlali/Kipera/Melela	Mlali/Kipera/Melela	G				13,123		
36	Mtamba	Mtamba	G					5,090	
37	Mtombozi	Mtombozi	G					1,608	
38	Mvomero	Mvomero	G					9,317	
39	Mzumbe	Mzumbe	G					4,801	
40	Ndole	Ndole	G				1,163		
41	Morogoro Town	Morogoro Town	G	EP		300,000			
Nos.			***20***	***6***	***16***	***1***	***5***	***21***	***14***
Total						**300,000**	**21,050**	**85,083**	**43,256**

PIPED WATER SUPPLY SCHEMES IN MOROGORO REGION
4. ULANGA DISTRICT

No.	Name of Scheme	Names of Villages	Scheme type			No. of People Potentially Served			
			Gravity	Electric Pumped	Diesel Pumped	District Capital WS	WSC	Functioning Scheme	Non-functioning Scheme
1	Ihowanja	Ihowanja			DP				3,678
2	Iragua	Iragua			DP				2,842
3	Kipingo/Malinyi	Kipingo/Malinyi			DP				3,976
4	Lugala/Malinyi	Lugala/Malinyi			DP				3,050
5	Lupiro	Lupiro			DP				2,021
6	Malinyi	Malinyi			DP				7,856
7	Mavimba	Mavimba			DP				2,077
8	Minazini (Itete)	Minazini (Itete)			DP				6,618
9	Minepa	Minepa			DP				1,778
10	Sofi Mission	Sofi Mission *			DP				1,555
11	Isongo (Mahenge)	Isongo (Mahenge)	G				2,858		
12	Mahenge Mjini	Mahenge Mjini	G			6,782			
13	Makanga	Makanga	G				2,039		
14	Mtimbira (6 villages)	Mtimbira (6 villages)	G				19,046		
15	Nawenge	Nawenge	G			2,787			
16	Ruaha/Mzelezi/Mwaya	Ruaha/Mzelezi/Mwaya	G				15,379		
17	Sali	Sali	G					1,900	
18	Vigoi (Mahenge)	Vigoi (Mahenge)	G			2,790			
19	Uponera	Uponera	G						2,678
Nos.			***9***	***0***	***10***	***3***	***4***	***1***	***11***
Total						**12,359**	**39,322**	**1,900**	**38,129**

APPENDIX X

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