PROMISING WATER RESOURCES MANAGEMENT APPROACHES IN DRINKING WATER SUPPLY AND SANITATION SECTOR

A CASE STUDY IN KALOMO DISTRICT SOUTHERN PROVINCE ZAMBIA

ASSESSMENT REPORT

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ABBREVIATIONS AND ACRONYMS

CMMU	-	Community Management and Monitoring Unit
DWA	-	Department of Water Affairs
DWSS	-	Drinking Water Supply and Sanitation
D-WASHE	-	District Water and Sanitation Health Education
DDCC	-	District Development and Co-ordinating Committee
GRZ	-	Government of the Republic of Zambia
IDWSSD	-	International Drinking Water Supply and Sanitation Decade
IWRM	-	Integrated Water Resources Management
MEWD	-	Ministry of Energy and Water Development
MOH	-	Ministry of Health
MLGH	-	Ministry of Local Government and Housing
PCU	-	Programme Co-ordinating Unit
UNICEF	-	United Nations Children Fund
UNDP	-	United Nations Development Programme
V-WASHE	-	Village Water Sanitation Health Education
WHO	-	World Health Organisation
WSS	-	Water Supply and Sanitation

EXECUTIVE SUMMARY

This case study documents experiencesin water resources management (WRM) in Zambia, more in particular to present the state of affairs in a rural setting. The emphasis is on community awareness and involvement in WRM, as well as analysing the functions and roles of the relevant actors at district, provincial and national levels.

The case study is located in Kalomo District of Southern Province of Zambia at the villages of Simalele, Chiyoka and Mazambani in Chief Siachitema. The assessment findings are summarised below.

- Principle 1. Water source conservation and protection: The water points at each of the three villages in the case study area are protected against livestock damage by fencing and against contamination from surface run off by means of grouting in the upmost section of the borehole. Aprons and drainage is provided as above the ground works to carter for sanitary requirements.

- Principle 2. Agreed Water Allocation within a national frame work: Although the case study is in the context of a point system water source, allocation of water to all users is agreed upon and implemented through the system of queues, and restricted hours of drawing to allow recovery of water levels. Further more, at critical times (such as drought) allocation by quantities is applied and based on household sizes.

- Principle 3. Efficient Water Use: Communities have identified ineffective ways of collecting the water from the water points. Where jerry cans are used for collecting water from spouts, fannels are used in reducing wastages. For other uses such as laundry and bathing regulations have been set to minimise water wastage. Laundry is carried out in dishes of about 10-20 litres and rising with similar quantities a considerable number of clothes or materials.

- Principle 4: Management needs at lowest appropriate levels: For all the three villages assessed, a village water committee is in place and basic day to day issues are attended to by these village water committees. The committees collect user fees whilest pump menders and caretakers carry out simple repairs and maintenance respectively.

- Principle 5 and 6: Involvements of all stakeholders and striking a gender balance: Stake holders at various levels i.e. community district, provincial and national levels have been involved in this project. Communities were involved in the initial planning, pre-project activities such as collection of local raw materials site clearing etc. At district level the D-WASHE and NGOs carried out community sensetization and supervised the contactors who under took the drilling of the boreholes. Provincial level staff facilitated the various activities such as organising trainers workshops and provision of transport to the district staff for the monitoring of the project.

- National level participation has been mainly in resource mobilization, monitoring progress, and ensuring the effective implementation of the new approaches in the WRM through the WASHE concept and strategies. At all the levels gender issues have been taken into consideration. At community level it was found out that the V-WASHE committee had 50% representation at two of the villages while at one village 33% represented women in the committee. For the other levels gender issues are being addressed although alot more needs to be done. There are far too few women involved in WRM issues. As an example the N-WASHE is headed by a man and deputized by a man and WSDG is headed by a man and deputised by a man.

- Principle 7: Capacity building for sustainability: This principle is being addressed at various levels. At community level caretakes and pump mender have been trained and provided with necessary tools and tool kits to carry out repairs and ordinary maintenance. Various training workshops have been carried out for D-WASHE members and equipment such as computors have been provided ffor district data base.

- Principle 8: Water has an ecnomic and social value: As envisaged in the Zambia National Water Policy the cost sharing concept has been disseminated to the communities in this case study. Users have agreed on amounts of money to pay. Where cash payment is not affordable, payment in kind is accepted. In this particular case study maize (corn) is accepted as a mode of user fees contribution. The maize is later sold for cash by the village water committee.

For the vulnerable and disabled persons, the general consensus is reached amongst the committee members and users at large to allow such persons to draw water free of charge.

The assessment of this case study has been carried out at various levels as follows:-

- Community
- District
- Provincial
- National

Reflection at community level are highlighted in the principle summaries above. The principles are being addressed at the grass roots levels. The various levels have strived to ensure that the new approaches in WRM are applied. However there are shortcomings within the system which need to be addressed to attain ultmate sustainability of WRM programmes and some of the following issues need to be seriously looked into:-

- Sufficient Government budgetory allocation into Rural Water Supply and Sanitation (RWSS) to enhance sustainable WRM at all level.
- Institutionalization of the D-WASHE to overcome logistical problems such
- as transport and allowances etc.
- Deliberate gender senselization at all levels.
- Improved monitoring and evaluation of the effectiveness in functioning and use of the systems is essential to achieve the desired goals in the utilization of the WRM principles

CHAPTER1: INTRODUCTION

1.1 Background

Mismanagement of water and land resources is putting human health and sustainable social and economical development at risk. Explosive growth of urban centres, unsustainable exploitation of natural resources, uncontrolled industrialisation, increasing water demand for food production, and expanding population lacking proper environmental sanitation have led to progressive depletion and degradation of freshwater resources. Many of the problems in the drinking water supply and sanitation sector(DWSS Sector) are related to the improper management of water resources. To safeguard the sustainable supply of safe drinking water and entire watersheds, concerted action is needed on all fronts, including agriculture, forestry, industry, transport, urban and spatial planning, population planning and electricity generation. To prevent further depletion and degradation of freshwater resources, a more holistic approach is being promoted, which is known as integrated water resources management. (IRC - Proposed Framework for Assessment 1996).

The concerns over the degradation of the resources mentioned above culminated in International Conferences at which guidelines were formulated to enhance the management approaches. Further more eight (8) principles (as in Chapter 3) were formulated, upon which management of the water resources would be based. It has been found necessary to assess these internationally agreed principles as to what extent, in reality, they are applied in the management of the water resources.

In making the preparation for the assessment, a workshop was arranged by IRC/UNDP from 20th-29th November 1996, in the Hague, the Netherlands. Twelve case studies from various countries in Africa, Asia and Latin America were presented.

This report is on the case study on the project supported by UNICEF and entitled:-

"SUPPORT FOR WATER, SANITATION AND HYGIENE EDUCATION PROJECTS IN DROUGHT AFFECTED AREAS OF EASTERN AND SOUTHERN PROVINCES OF ZAMBIA".

This report is specific to Kalomo District in the Southern Province of Zambia and move specifically to the villages of Chiyoka, Mazambani and Simalele in Chief Siachitemas area.

1.1.1 **Objective**

As mentioned above the assessment was undertaken to find out in reality to what extent the eight (8) principles are being addressed and to document the practical experiences made with water resources management in the case study area.

1.2 **Project Description**

Zambia like other Southern African states experienced one of the most severe drought situations in the 1991/1992 rain season. As a result of this drought there was a remarkable decline in the water resources of the country and the southern half being adversely affected. Subsequent rain seasons remained inadequate to replenish the ground water as well as surface water resources. As a consequence the decline in water sources has remained a permanent feature over the last five (5) or so years.

In response to the drought effects UNICEF formulated a project to mitigate these effects through the construction of 625 water points to provide access to safe water to a population of 528000. In addition to the primary objective, the project was aimed at reducing time spent in collecting water by womwn and children from distance sources and thus utilize the saved time in other activities. The project also aimed at construction of 6500 pit latrines to benefit about 120,000 people.

The project was to be executed in the two provinces of Southern and Eastern covering a number of districts. Kalomo district in Southern Province of Zambia has been a beneficiary of this project.

The case study comprising of three (3) villages of Chiyoka, Mazambani and Simalele have had each a water point constructed under this project.

Implementation of this project has been within the framework of the national water policy and WASHE concept with emphasis on capacity building at district and community levels to enable planning, management and maintenance of activities crucial to drought mitigations.

The project has been implemented by UNICEF in conjunction with the Department of Water Affairs, NGOs such as Africare, World Vision International, the District Council and the beneficiary communities. This project has been on going since 1994/1995 and has been extended to other districts in the Southern and Eastern Provinces of Zambia.

1.3 Case Study Setting

This case study is rural in setting. As mentioned already the case study area is in Chief Siachitema of Kalomo district in Southern Province of Zambia. The three villages have a population of about 3000 to 4000 people. The principal inhabitants are the Tonga people, a matrilineal society, whose livelihood is based on cattle rearing and subsistence agriculture. Maize is the major crop grown in the three villages.

Government services are received from the line ministries based at the administrative centre of the town of Kalomo. The major government ministries servicing this project area are:-

- Ministry of Agriculture, Food and Fisheries
- Ministry of Energy and Water Development
- Ministry of Health
- Ministry of Education
- Ministry of Community Development
- The Local Authority (District Council)

The general location of this case study is illustrated at annex 1.

1.4 Water Use in Project Area

The project area lies in the southern part of the country. As mentioned above this area was among the worst affected during drought. The area receives least rainfall (between 700 and 800mm per year) as compared to the northern parts of the country which receives about 1000 to 1300mm per year (see figure 2). Furthermore the rain season start late in the months of November, December and ends early in the months of February and March giving the average rain season to be about two and half months in which period groundwater re-charge is not fully achieved.

Another characteristic of the project area is that it consists of undulating landscape which the rainfall surface run off much quicker. This stuation allows streams and major rivers to flow only during the rain season. Retention of water in mashlands, and in the streams lasts for a limited period of time ranging about a month or two after rain season. As a consequence the communities' reliance of surface water for livestock watering and vegetables growing is also limited. The communities rely on groundwater as the only reliable source of drinking water supply and major concerns such as cattle watering. The water is extracted by hand dug wells and boreholes. The latter applies for the case study.

CHAPTER 2: OVERAL ASSESSMENT METHODOLOGY

The assessment was carried out using a combination of tools focussing on all the eight (8) principles. The assessment was carried out in participatory approaches at three levels i.e. community, district and national levels.

At community level the participatory approach, availed the communities to give fullest contribution in matters affecting their affairs which also affect them as individuals.
In this way communities felt empowered to critically analyse problems affecting them and find solutions to these problems.

In a similar vein participatory approach at higher level affordeed individuals and organisations to critically analyse issues and find practical solutions to the problems arising therefrom. For this case study critical issues were unveiled at all levels of assessment and recommendation to critical problems are made in Chapter 4.

It was initially anticipated to assess the case study on selecting 10 catchment areas (a catchment consists of 10 water points) and identify a water point in each of the catchments. However due constraints in the course of the assessment, only three water points were selected for assessment from one catchment.

2.1 **Selected Case Study Location**

The three villages of Chiyoka, Mazambani and Simalele were selected after full consultation with the D-WASHE to represent the case study (see location map)

2.2 **Tools Used in the Assessment**

The tools used in the assessment and the purposes for which they are used are summarised below.

Consultative discussion: These discussions were held at national level with two fold intentions (I) to brief the officials on the preparatory work of November 1996 in the Hague. (ii) to solicit for support (i.e. financial and logistical) and obtain advice on the approach for the assessment. Consultations were made with the D-WASHE to obtain sites for the case study and to plan field visits.

- Community group meetings: The meetings were held with community groups at the three villages basically to involve the users and obtain as much information as possible pertaining to WRM at grass root levels and to obtain answers to the questionnaire from a public point of view.

- Transect observations: This was employed to establish the trend in WRM by random visits to water points outside the case study area and to establish other sources of water in the case study area, especially at Chiyoka. This was also aimed at establishing the uses of water away from the water point.

- Household interviews: House hold interviews are carried out at Simalele village to cross check information given by the village water committee.

- Village mapping: This was used to establish the number of house holds at Chiyoka village. The map was also used to establish other infrastructure such as schools, churches, the map was also used to find out how these institutions administer their infrastructure and how well they function . It was for instance learnt that the school authority in the neighbourwood of Chiyoka village does not allow villagers far off from the school to collect water from the school water point.

- Key informant discussions: Discussions were held with key informants to obtain information about the communities and WRM. Discussions were held with four (4) informants as follows:-

(a) Mr. Daniel Bothma of World Vision International: He expressed concerns about the high rate of project implementation comparing to the slow rate of community assimilation of the new WASHE concept. He recommends intensive follow up activities to make meaningful community participation during the post project period.

(b) Messrs Coratom Drilling Company of Choma in Southern Province of Zambia. Their views and concerns are similar to those of Mr. Bothma.

(c) Mr. Brian Nakanda, District Planning Officer of Kalomo. He is convinced the WASHE concept will work at community level. He however contends that more efforts need to be put into the programme.

(d) Mr. Kantolo of the Department of Agriculture Kalomo District Office. He supports integrated Water Resources Management at community level. His organisation is undertaking water conservation through construction of small earth dam involving the communities.

Workshops: Two workshops were held towards the end of the assessment period. One with the Kalomo D-WASHE and the other with various stake holders at National level. The workshops were held with a view to generate the thinking of various stakeholders on the 8 principles and the WASHE concept with regard to the WRM. Main issues arising from both workshops are presented at annex IV.

2.3 **People Involved**

As mentioned above the assessment was carried out at community, district, provincial and national levels. Various people and organisations were consulted and talked to. Details are summarised in the table below.

ORGANISATION	NAME OF PERSON CONSULTED	ROLES PLAYED
DEPARTMENT OF WATER AFFAIRS	Mr. R.B. Khuti Acting Director	Advise on approach to take on the assessment. Provision of logistics i.e. transport and upkeep allowances for field team from UNICEF assistance to DWA for monitoring UNICEF projects.
UNICEF	Dr. Sham Mathur	Provided guidance on the approach to the assessment and approved UNICEF funding to DWA. Suggested reference materials Provision of logistics for field work funding to DWA to monitor Unicef supported projects.
UNICEF	Mrs Florence Lungu	Assisted in questionnaire setting and organising the national workshop
UNICEF	Mr. Zyambo	Consulted on protection of boreholes with regard to borehole drilling specificcation
CMMU	Ms Kaluba	Consulted on matters related to gender issues in IWRM
N-WASHE	Mr. I.J. Mbewe	With regard to IWRM. Provided information on capacity building

DEPARTMENT OF WATER AFFAIRS PROVINCIAL OFFICE	Mr. L. Phiri Provincial Water Engineer	Provided staff to collect field information Provided logistics to co-opted field team group
DEPARTMENT OF WATER AFFAIRS PROVINCIAL OFFICE	Mr. G.S. Mbewe	Co-opted as field team group member. Instrumental in questionnaire completion
C.M.M.U	Mr. L. Siwelwa	Co-opted as field team core group member. Instrumental in questionnaire discussion and interviews.
DEPARTMENT OF WATER AFFAIRS - KALOMO	Mr. J.M. Mwansa	Participated in discussions with key informant discussions and village meetings and also the selection of the villages for assessment
KALOMO DISTRICT COUNCIL	Mrs Chibbonta - Acting Council Secretary	Briefed field team on the Kalomo D-WASHE activities
KALOMO DISTRICT COUNCIL	B. Nakanda	Organised the D-WASHE workshop and village meetings and selection of the villages for assessment
WORLD VISION INTERNATIONAL	D. Bothma	Was consulted on NGO involvement in WRM. Also attended village meetings
DEPARTMENT OF AGRICULTURE	Kantolo	Consulted on Agriculture activities in WRM
PRIVATE SECTOR CORATOMA	C. Toma	Consulted on private sector involvement in IWRM
V-WASHE AND VILLAGE MEMBERS	Chiyoka Mazambani Simalele Villages	Response to questionnaire, and household interviews, participated in mapping, village walk and meetings
NATIONAL LEVEL WORKSHOP	See attendance list at annex IV	Provided diversity of views on IWRM and community participation

2.4 **Assessment Planning and Implementation**

Initially the assessment was planned to have been carried out between December 1996 week 2 till the month of April 1997. However due to circumstances beyond control, the assessment was carried out much later than anticipated (see implementation schedule at annex V).

A tentative action plan was drawn up at the preparatory workshop in the Hague and discussed with the following people on return from the Netherlands:

- Mr. R.B. Khuti - Acting Director of Water Affairs
- Dr. Sham Mathur - Programme Officer - UNICEF
- Mrs F.F. Lungu - Programme Co-ordinator UNICEF

Other people involved in the assessment. planning and implementation are mentioned under item 2.3 above. After selecting the water points to be used for the assessment, a reconnaissance was carried out to arrange meetings with village groups.

The tools used in the assessment are summarised under 2.2 above. Prominent among these tools has been the questionnaire which was a simplified version of the leading question and indicators, the later were also turned into simple questions to try and get as much information from the village group meetings and individual households.

2.5. **Assumptions**

The following assumptions were made in this assessment:

The three villages are representative of the water supply systems from the point sources (i.e. wells and boreholes) in other part of the country. This is illustrated by the photographs which were taken for other points in the province.

2.6 **Constraints**

Constraints encountered in carrying out the assessment are listed below:-

- Financial
- Time Constraint
- Season and Weather
- Logistical

2.6.1 **Financial Constraint**

The assessment was planned to start at the end of the financial year for DWA and UNICEF and accounts were closed then and to re-open in the new year 1997. In addition to this the budgets had been finalised at both institutions.

In view of this important fact some activities planned to be part of the assessment were shelved off and approach had to be changed. Minimal financial support was given to enable the team carry out the assessment.

2.6.2. **Time Constraint**

The study team was required to undertake other assignments in their day to day duties and therefore could not devote the entire time to the project assessment.

2.6.3 **Season and Weather**

The period planned for the assessment coincided with the farming season. Some of those who were asked to attend the meeting could not turn up as they were said to be attending to their farm business during the visits to the village of Simalele which was assessed during the rain season. The weather could also not allow the field team go to alternative facilities as the roads leading to the sites were impassable due to severe rains. However at the villages of Chiyoka and Mazambani turn out was excellent (see plate 1), since assessment was done after rain season.

2.6.4 **Logistical Problems**

As alluded to under 2.6.1 the project assessment was not under any budget. In the same vein there was no special allocation of logistics such as transport to enable the field survey team to go out in the field as per programme. Field survey was carried out parallel with other programmes.

CHAPTER 3

WATER RESOURCES PRINCIPLES

The assessment of water resources principles in this case study will be restricted to ground water supply i.e. drilled boreholes equiped with handpumps. As mentioned in Chapter 1 the case study area is in a poor rainfall area with seasonal streams. The communities rely on ground water for most of the year.

3.1 PRINCIPLE 1- WATER SOURCE AND CATCHMENT PROTECTION AREA ESSENTIAL

3.1.1 Background

The use of unprotected water sources has been a great global concern. The first significant impact on the use of unprotected water source is the occurrence and transmission of water borne and water related diseases such as typhoid fever, cholera, scabies etc.

Recently in Zambia (Times of Zambia 30th January 1997) 22 persons died as a result of using water from unprotected wells. The contamination was caused by rodents which had some infection causing bubonic plaque which died in these unprotected wells.

The degradation of water sources due to contamination such as the case highlighted above and the transmission of diseases has in the past prompted authorities in Government to devise means of protecting water sources such as wells and boreholes to reduce or stop the occurrence of water borne diseases.

The Zambia National Water Policy was formulated and approved by Government in 1994 and the water act and about to be reviewed to protect this vulnerable resource. These policies have however not been fully disseminated to the public. The lack of knowledge about the policies on the part of the public in general and users in particular has in the past left the protection of the water sources as the responsibility of the government under the agencies concerned with the uses of water such as the Department of Water Affairs (DWA), Ministry of Health (MOH) etc.

Recent trends in the water supply and sanitation sector global and national levels have however brought awareness among the public and users to address water conservation and protection measures. Times of Zambia 27th April, 1997 reports on villagers in Kalomo District prioritising their needs among which is clean water.

Different protective measures have been devised and applied world wide in the protection of water resources. These range from legislations and policies as mentioned above, which provide practical means of protecting the water source(s) from degeneration.

In Zambia the following protective measures or practices have been identified and applied.

Design measures: These include gravel packing, grouting or cementation and above ground drainage facilities.

Physical protection is carried out by fencing of the water source(s)

3.1.2. **Design Measures**

- Gravel Packing: This is the process in which graded sand particles are systematically packed between the wall of the borehole and the casing pipes. Gravel Packing prevents loose soil particles from the acquifer from entering the borehole and thus prevent siltation. Gravel packing also provides stability to the borehole. The casing pipes are held firmly by the gravel pack. In ungravel packed boreholes casing pipes tend to move and incline on the borehole wall and this affects the verticality which may make pump installation difficulty.

- Grouting or Cementation: This is the process in which lean concrete is placed between the casing pipe and the borehole walls. This is carried out in the uppermost part of the borehole to a depth of about 5.0 to 6.0m to prevent direct intrusion of contaminated run off where borehole soils around the borehole are unconsolidated.

- Above ground drainage facilities: These comprise of the apron, drain channel and soak away pit which is filled with stones. In cases where cattle drinking troughs are provided, the drain channels lead into these cattle troughs. These facilities serve to drain away split water from the water point surroundings. Where these facilities are not available, spilt water tends to pond around the water point. The ponded water will in turn tend to infiltrate into the fround water acquifer around the source (see annex VII).

3.1.1. **Physical Protection**

This is mainly in form fencing made of wooden poles closely erected or with poles and barbed wire (See plates at annex III). Fencing prevents damage to the facilities by livestock. Livestock such as cattle, pigs, goats etc, can also cause contamination of the water source through defecating around the water point. Leachates from decomposing dung may get into the groundwater system and thus pollutes the water.

3.1.4 **Addressing the Principle in the Case Study**

This principle is addressed in this case study. Each of the water point in the respective villages assessed has applied the measures described above. The boreholes are gravel packed, grouted and have above the ground facilities i.e. apron, drain and wakaway pit. Furthermore all the three water points visited are fenced with wooden poles to protect them from damage by cattle, goats, pigs etc.

3.1.5 **Methodology**

In assessing this principle the team held consultations and discussions with various people and had physically visited the villages and carried out some observations on the water points.

At national level discussions were held with Mr. Zyambo of UNICEF to findout as to whether the specifications of borehole construction were followed to include gravel packing and grouting, (copy of specification is attached annex VIII).

At district level the team consulted the District Water Engineer who used to supervise the construction of boreholes. The purpose of the consultation was to confirm whether contractors fulfilled the latent protective measures i.e. gravel pack and grouting.

At the community level, discussion and meetings were held. Villages were asked on the importance of protecting the water points and who carried out the fencing which the team found in place after inspecting the water points.

3.1.6 **Results**

- The borehole specifications included the latent protective measures (see annex VII)
- The latent protective measures were implemented by the drilling contractor as confirmed by the District Water Engineer.
- Sanitary conditions for the three water points in the case study were fulfilled as witnessed during field visits.
- The water points were protected from damage by livestock by fencing which were erected by the communities as gathered during community meetings.

3.1.7 **Lessons Learnt**

- Communities have increasingly become aware that their water sources are protected. Responses to the questionnaire at group meetings confirm this assertion. Protective fencing in all the three villages were erected by the communities and cleaniliness around the water points is maintained by the women folk of each community.

3.1.8 **Weakness**

Inertia by the communities to start the WRM initiatives on their own. Campaigns had to be mounted by the Government organisations, donors and NGOs to instill the sense of IWRM in the communities.

Without follow up activites the initiatives started may be derailed by indifferent attitudes by some users especially those that live far away from water sources. It was learnt at one of the community meetings that certain groups of users had negative attitudes towards community activities in Operation and Maintenance.

3.2 PRINCIPLE 2 - ADEQUATE WATER ALLOCATION NEEDS TO BE AGREED UPON BETWEEN STAKEHOLDERS WITHIN A NATIONAL FRAME WORK.

3.2.1 Background

This principle has been addressed in a rather different context as the project being assessed is confined to one area and is a ground water supply project where water rights have not been introduced yet. The allocation being discussed refers to an equal opportunity for the community to draw water under severe conditions i.e. drought.

Currently there is no legal frame work in an urbanised situation. However the Water Act Cap 312 of the Laws of Zambia is being reviewed and will be amended to include regulation of ground water abstraction. At present the act is restricted to the regulation of surface water obtraction.

3.2.2 Methodology

A workshop was held at national level attended by various stake holders this, was preceeded by). District level consultations with D-WASHE and Workshop.

Village community meetings were held at which answers to the questionnair were recorded. Household interviews were held at the village of Simalele village. The aim of conducting house hold interviews was to cross check the general answers given to the questionnaire at the community meetings. A mapping exercise was conducted at Chiyoka village to establish households and other infrastructure and their uses. This was followed by a village walk to check on other water uses within the village. The walk was also aimed at checking any other possible water sources and if there was any water allocation being carried out. (see plate at annex III).

3.2.3 Results

Discussions at various levels revealed the following:-

- At national level it was learnt that the current law does not regulate the abstraction of groundwater. It is restricted to surface water abstraction only.

- Some members who attended the workshop at national level felt that the users be left to devise their own regulations to ration or allocate water to users as there was no legal frame-work to govern water allocation at community level. However other people felt some by laws should be made to give indicative requirements with regard to WRM issues.

- At District level the D-WASHE did not address the issue of water allocation during workshop.

- At the village of Simalele the village water committee revealed that there was sufficient water for the community around the village. Under normal circumstances each household of about 6 persons uses about 150 per day litres of water mainly for cooking , bathing and other domestic uses. Cattle watering is carried out in seasonal stream during rain season. Under extreme conditions such as drought the village water committee finds it necessary to ration or allocate water to the village community. Two options are employed in the allocation exercise. These are queueing and restriction in the time of drawing water. For the former people drawing water are allowed in the fence one at a time. And for the latter the pump mechanism is locked during the night starting from 1900 hours to 0600 hours.

- At Chiyoka village the mapping of the village revealed that there was restriction in people drawing water from water points outside the village.Two water facilities outside the village boundary belonging to the Primary School and the National Tobacco Company are used only by residents within the boundaries of the school and tobacco company establishment.

- In the village of Mazambani the community priority for the use of water was for drinking. This is evidenced from the question on whether the villagers could use water for vegetable watering. For this village water allocation was only for drinking and other domestic uses.

3.2.4. **Lessons Learnt/Successes**

Though this water allocation mechanism discussed in this assessment does not entail legal processes and granting of the water rights, the spirit of the users to accept the queuing and time restrictions in operating the water facility is an indicator that water allocation has been accepted by the users as need arises. The users also not only allocate water for drinking and other domestic uses but for livestock as well.

It was also learnt that the process of deciding allocation system applied in this particular project was collective and arrived at group meetings. It was further learnt that decisions are not influenced by outsiders.

3.3. PRINCIPLE 3: EFFICIENT WATER USE IS ESSENTIAL AND OFTEN AN IMPORTANT WATER SOURCE

3.3.1 **Background**

In reticulated water supply systems water leakages constitute the major share of losses. In open channels such as irrigation canals, evaporation and leakage through cracks constitute the water losses. For point source systems i.e handpumps overwells and borehole the following practices have been identified as causes or forms of water losses.

- Use of narrow mouthed containers to collect the water flowing from the spout. Where water is drawn by use of narrow mouthed containers, a large part of water spills to waste before the container is filled.

- Overfilling containers even when the same is filled to a reasonable level. Continued pumping results in spillage from containers.

- Carrying out laundry on the apron by use of direct water from the spout. Un gauged quantities of water are used by many users applying this method of laundry.

- Drinking water directly from the spout in the manner as washing hands from public standposts. This is frequent in most handpump facilities especially in schools and other institutions.

- Cattle watering from direct drainage of the above ground facilities i.e. apron and drainage channel.
- Allowing children to draw water for un planned uses.

In assessing this principle in the project under review the above listed have been considered.

3.3.2 **Methodology**

During community meetings the field team put questions from the questionnaire across to the people and obtained responses. Further key formants i.e. the V-WASHE committee members were talked to. The field team also carried out observations on how people draw water, what type of containers are used and how water is carried from the water points to the home-steads.

3.3.3 **Results**

It was observed that a number of users carried their water in small mouthed containers such as jerry cans, of varying capacities. Other users collected water in drums of and open large mouthed 20 litre capacity containers.
The element of water wastage identified under (3.3.1) above was observed during the visit. Further discussion, however revealed that during severe water shortage periods such as drought , queuing is one of the measures that is used to control water wastage. It was learnt that queuing affords one person at a time to draw water as compared to some situations when people draw water in uncontrolled manner. In the latter case there is scrambling and pushing around resulting in spillages as containers are moved around by the competing and un controlled water drawers.

The village water committee and a large number of users identified the practices of drawing water alluded to, above as contributing to the wastage of water, hence the introduction of the queuing system. Further the village committee introduced the use of a funnel to fill small mouthed containers.

As regards children drawing water for unplanned water uses, it was learnt that the children are not given chance to operate the handpumps on their own. At Mazambani village the villagers had restricted the use of water only to drinking and domestic uses such as laundry and for this reason as already alluded to above, villagers had to seek clarification on extending the use of water to vegetable irrigation. The restriction of water use to drinking and domestic activities was perceived as an effecient water use by the villagers.

The decision to control the users by queuing and the use of funnels was arrived at a users meeting convened by the village water committee. The measures taken to control the wastage of water were accepted by most users. In the process of interviews with some individual house holds the question of design of the pump in relation to the receiving container was raised. Some members interviewed felt that the space between the spout and the bucket or container should be reduced to lessen the effect of wind in contributing to water losses during windy days.

3.3.4 **Lessons Learnt/Successes**

Interviews conducted revealed that people (users) at water points are able to identify shortcomings in the system as well as rectifying the same within their means and available resources.

3.3.5 **Weaknesses**

Users are unable to modify some design elements to avoid ineffective and inefficient usage of water. They have little to do with pedestal heights and spout lengths etc. The innovations of funnels and raised bucket bases only reduces the wastage to some degree. The pumps and pump componenets are manufactured under different conditions and environments and are brought in the country as final products and can not be modified in most cases to suit the environment or conditions of the Zambian village water users (drawers).

3.4. **PRINCIPLE 4: MANAGEMENT NEEDS TO BE TAKEN CARE OF AT THE LOWEST APPROPRIATE LEVEL.**

3.4.1 **Background**

The Zambian National Water Policy among its ideals and objectives calls for the formulation of Water Committees for effective Co-ordination, management and mobilization of resources. It further calls for the integration of community education, motivation, health and hygiene and water awareness programmes in development, operation and maintenance of rural water supply programmes.

3.4.2 **Methodology**

In assessing this principle a similar approach outlined in the other two principles was used. Question from the questionnaire were put across to the communities at the meetings held at the three villages oral responses were obtained from the users.

3.4.3 **Results**

All current water supply and sanitation programmes are planned and implemented n the basis of the National Water Policy Framework. The project under assessment is no exception in the approach.

The village communities are involved in all stages of the project i.e. planning, implementation and operation and maintenance. In Kalomo District it is now a requirement that the communities apply for a water point to be constructed in their village. The applications are scrutinised by the D-WASHE. As a starting point the formation of the V-WASHE is a pre-requisite for the D-WASHE to approve any water project application. The V-WASHE should raise 25% of the capital investment for the facility. Another empowerment for the village community and V-WASHE is their decision in site selection. V-WASHE also organises pre-project assignments to the village communities such as site clearing and collection of local raw materials such as sand and stones for the above ground works i.e. apron, drainage and soak away.

On post-project activities the V-WASHE committee manages the basic day to day operation and maintenace issues specific assignments are given to the committee members. Some of the common day to day activities are as follows:-

- User fees collections and safe custody
- Buying of Spare parts
- Cleaning water point surroundings
- Controlling of queues at critical times
- Maintenance of fences
- Maintenance of the pump

The village water committees for these particular water facilities have been in existence since the boreholes were drilled in 1994/1995 and had been carrying out their basic day to day management.

In the Zambian set up the V-WASHE committee is the lowest level at which management of a water facility can be done and this project has achieved lowest basic level management.

However when complicated technical problems such as replacement of parts beyond the capacity of the V-WASHE, assistance is always sought from the District Maintenance Team. This trend is on the decline across various projects/programme in view of the training of pump menders in catchment areas. The Kalomo D-WASHE action 1997 - 20001 has included the aspect of decentralising water facilities repairs to village level through pump menders training.

The developments of all these approaches have been on good will and understanding of all stake holders. The government of the Republic of Zambia has not yet enacted any laws to enforce the new practices. It is however anticipated that governement will soon put in place some pieces of legislation in view of the rapid changes unfolding in the water sector especially the new water policy.

As a matter of interest, the readership of this assessment report may wish to know the following major changes in the water sector which utimately will affect the operation and maintenance of this project.

- Separation of water resources managements from water supply functions.

- Concentration of water supply functions in one line Ministry i.e. Ministry of Local Government and Housing (MLGH) to be decentrilised to district level i.e. District Councils.

- Concerntration of Water Resources Management in the Ministry of Energy and Water Development (MEWD) in view of the new water policy ideals and goals.

The latter Ministry has been co-ordinating water resource management and operation and maintenance and has been over seeing the new initiatives of community based water supply activities. MLGH through District Council will now supervise these initiatives. The project under assessment will eventually interact more with MLGH than with MEWD.

3.4.1 **Successes/Lessons Learnt/Weakness**

The village water committees are in place and carrying out basic day to day functions

The weakness observed or recorded in the assessment of this case study are:-

(1) Lack of constant monitoring by due D-WASHE due to lack of transport and sound financial support from the central government.

(2) There is a gap in the structure of the new WASHE concept. The provincial level seems to be left out of the establishment.

3.5 PRINCIPLE 5: INVOLVEMENT OF ALL STAKE HOLDERS IS REQUIRED.

3.5.1 Stake holder identification

The following have been identified as stake holders in this case study:-

- Village Communities
- V-WASHE Committees
- D-WASHE and line Departments, NGOS, Politicians
- Provincial level line Ministries/Departments
- Line Ministries/Departments, Donors, NGOs and Private Sector at National Levels

3.5.2 Stake Holders roles at different levels

As mentioned under Principle 4 above, the communities now have to request for a water project through their D-WASHE. Another pre-condition alluded to above is in regard to the 25% contribution to the investment cost of the water point. Pre-project obligations also mentioned under principle 4 above such are site clearing are undertaken by the village communities. Post project activities are also carried out by the communities. These are also highlighted in principle 4.

Districts are responsible for promotion and offering assistance to communitites wishing to request for water supply facilities they form D-WASHE committees to spear head the work of promotion. They help to build capacities of communities to plan, implement, operate and maintain the projects in the post project phase.

Provincial level organisations are mostly involved on the supervision and monitoring of the implementation of projects/programmes.

National level organisations are responsible for approving of annual workplans, and budgeting monitoring and periodical evaluation etc and mobilise national and international funding and support to the projects.
The private sector organisations are the physical execution involved in the physical execution of the projects, such as drilling and other construction works

3.5.3. **Methodology**

To asses whether all stake holders are involved in the roles highlighted above a series of activities undertaken are highlighted under chapter 2 and they are:

- consultation with national level line ministries/depts NGOs and Donors
- Workshop at national level with various stake holders
- Discussion with a drilling company in the town of chama, southern province of Zambia
- Discussion with an NGOs project co-ordinator at the towns of Choma and Kalomo.
- Meeting with Council Secretary at Kalomo District Council
- Workshop with Kalomo D-WASHE
- Community meetings at the three villages in the case study area where questionaire and mapping were used to obtain information from the communities.

3.5.4 **Results**

- The village level meeting revealed that the communities were involved in the pre-project activities and are still active in post project activities already alluded to above such as user fees collection, buying of spare parts, repairs of the pumps by pump menders, cleaning of well surrounds by the village women etc.
- In Kalomo the D-WASHE and line ministries/departments have been actively involved in the water supply and sanitation sector. The main activities of the Kalomo D-WASHE are as follows:

- Taking stock of district water points by mapping
- Receiving and considering applications for water points from the communities
- Planning for new points from applications and sourcing of funds
- Mobilization of communities to form V-WASHES
- Train pump menders, care takers community mobilizers and latrines builders
- Co-ordinate activities of all actors in RWSS
- This case study has been covered in all the activities outlined above. At the time of community meetings it was learnened that the local pump mender trained by the D-WASHE had just repaired the hand pump at chiyoka village. As regards politicians they have been instrumental identifying the needs for improved water supplies.

- At provincial level the, the department of water Affairs has been actively involved in the monitoring and supervision in liaison with world vission international.

- At national level, the Department of water affairs, UNICEF and other stake holders have been monitoring the project during the pre-project and post-project period. Project funds have been sourced by the same

- Private contractors such as Coratoma drilling company have been involved in the programme of drilling the boreholes.

3.5.5. **Successes/Lessons learnt**

From the analysis of the roles of various stake holders in the case study as well as the results outlined above, it can be concluded that all the stake holders have been involved in the case study project and have co-ordinated well in the implementation of this project.

3.6 PRINCIPLE 6: STRIKING A GENDER BALANCE IS NEEDED AS ACTIVITIES RELATE TO BOTH MEN AND WOMEN

3.6.1 Background

Abstract

"Women are the main carriers and managers of water for house hold use, as well as the custodians of family hygiene. They therefore constitute an enormous but largely untapped initiative for solving water and sanitation problems. With their knowledge of community needs and customs, they can best determine where to place water points. As they suffer most when facilities breakdown, they have vested interest in ensuring good maintenance. They provide children with first health lessons and they are the ones who decide not to use new facilities if they do not respond to needs." (UNDP statement 1991 - Intergration of Women in Water Supply and Sanitation Seminar - Livingstone Zambia).

About 1989 the Government of the Republic of Zamnbia reflected on the activities of the International Drinking Water Supply and Sanitation Decade to review the development efforts. The review revealed that the coverage in rural water supply remained as low as 32% in 1980 and 41% in 1985. The author of this report does not agree with the latter figure because recent research by CMMU in coverage in rural water supply indicate that the coverage is still averaging about 33%.

Several factors were identified which attributed to the state of low coverage inspite of so much effort put into the International Drinking Water Supply and Sanitation Decade (IDWSSD) to improve the coverage in RWSS. Some of these factors include the following:-

- Inappropriate technologies
- Lack of knowledge and skills in communities arising due to lack of training.
- Lack of involvement of all stake holders in the projects
- Exclusion of women in the planning, implementation and evaluation of the RWSS projects

Realising these short comings the Government of the Republic of Zambia with assistance of UNDP formulated a project to integrate women in water supply and sanitation projects in the year 1989. A workshop was later held in the year 1991 to formulate a common strategy on how best women can be integrated in RWSS project. The aforesaid illustrates that in Zambia the gender issue in RWSS projects is not new.

3.6.2. **Methodology**

This principle was assessed through community meetings at community level, D-WASHE workshop and National Level workshop. Reference is also made to the CMMU research on gender issues. At community level, and district level, the composition of WASHE Committee memberships was used to determine the gender balance.

3.6.3 **Results**

Research by the Community Management and Monitoring Unit (CMMU) and documented in the WASHE and gender modules 8a (1996) reveals that although women are the main users of water and the custodians of the nations health and well-being, they are not adequately represented in decision making related to water supply and sanitation development. This assertion is reflected by some of the sector activities statistics outlined below.

(i) Sector reform process.

- The Programme Co-ordinating Unit (PCU). This is an inter-ministerial committee to be approved by government to chart the sector reform strategies.

- Chairperson: Male
- Committee: 11 Males and 1 Female

- The Water Sector Development Group (WSDG) - Secretariate to PCU.

- Head: Male Male
- Assistant to Head: Male
- Core team specialists: Male
- Support team: 9 Males and 3 Females

- The Community Management and Monioring Unit (CMMU).

- Team Leader: Male
- Deputy team leader: Male
- Core team specialists: 3 Males and 3 Females
- Support team: 7 Males and 4 Female

- The Natrional WASHE Co-ordination and training team.

- Co-ordinator: Male
- Core facilitation team: 2 Males and 3 Females

(ii) **Introduction To D-Washe Process:- Workshop**

NAME OF DISTRICT	NUMBER OF PARTICIPANTS	PARTICIPANTS BY GENDER FEMALE	PARTICPANTS BY GENDER MALE
Chadiza	19	1	18
Chipata	12	1	11
Katete	20	1	19
Mazabuka	15	1	14
Sinazongwe	16	2	14
Isoka	31	4	27
Kaputa	22	4	18
Kasama	27	4	23
Mbala	18	0	18
Nakonde	17	3	14
TOTAL	**197**	**21**	**176**
PERCENTAGE	**100**	**11**	**89**

Source: Water sector news No5 december, 1996.

The statistics given reflect the general imbalance in gender representation at national and district levels. This scenario obtained during the assessment of the case study. At the national level workshop out of 15 participants only three (3) were female. At the D-WASHE workshop there was no female member of the committee. The situation was however different at community level.

All community meetings had large numbers of women who attended as can be illustrated by plates 1and 2 at Chiyoka village.

All the V-WASHE committes had female members. At the villages of Chiyoka and Mazambani representation was 50% for either sex. In the village of Simalele representation was 33% for female members Plate 6 in the annex illustrates the committee of Mazambani village showing 3 men and 3 women.

3.6.4. **Successes/Lessons Learnt**

The following successes have been recorded in this case study:-

- The involvment of women in the water and sanitation sector is acknowledged at all levels of sector activities in general.

- Women are involved in the case study in various Operation and Maintenance involved int he planning and implementation of pre-project activities

- All menfolk at the three villages accept women as partners in the management of the water facilities. They take part in the activities highlighted under principle 4.
- Representation of Women is stronger at community level.

3.6.5. **Weakness**

Although there is general awareness of involvement of women in the WSSS, there is disturbing imbalance in the representation of women in the management of the sector activities especially at higher levels i.e. district, province and national.

3.6.6. **Way Forward**

In view of the circumstances mentioned above in regard to the imbalance in gender representation there should be strong advocacy and facilitation of gender in development by creating an environment that facilitates, coaches and enables change.

In their research the CMMU have suggested the following approaches at various levels;_

(i) **National Level**

- An increased budgetary allocation by Government of the Republic of Zambia (GRZ) and a continued donor commitment to the provision of adequate, relaible and safe water supply and sanitation services based on WASHE principles.
- Recruitment and selection policies and procedures that are transparent, non discriminatory and gender aware
- Representation of professionally supported women at a national level; PCU, WSDG, CMMU, N-WASHE and associated WASHE line ministries
- Strategic planning that integrates the ability, motivation and commitment of men and women in the sector.
- The development and dissemination of gender specific WASHE guidelines to assist the facilitation of gender balanced programmes at all levels.
- Equitable education and training opportunities in WASHE related programmes and institutions at all levels.
- The inclusion of gender awareness training in all WASHE related curriculum.
- The formation of a regulatory diversity unit that includes gender, to set guidelines and to monitor and evaluate gender activity and impact.
- Collaboration with Zambia's neighbours to develop gender sensetive approaches, education and development.

(ii) **Provincial Regional Level**

- Gender balanced recruitment, placement and continued development opportunities through provincial and regional planning units and WASHE line ministries.
- Sector specific gender awareness training for all WASHE partners.
- Strategic planning that integrates the ability, motivation and commitment of men and women in the sector.
- Responsibility, with accountability for the dissemination of gender awareness messages and principles to the district
- Appropriate monitoring and evaluation using participatory techniques and the introduction of performance indicators.

(iii) **District And Sub-District Levels**

- Gender balanced recruitment, placement and continued development opportunities through District Development and Co-ordinating Committees (DDCCs) and the District WASHE committees (D-WASHE).
- A deliberate training and development programme to address the empowerment needs of identified women who have the capacity and potential to develop at district level and beyond.
- Sector specific gender awareness training for all WASHE partners
- Strategic D-WASHE planning that integrates the ability, motivation and commitment of men and women in the sector.
- Responsibility, with accountability for the dissemination of gender aware messages and principles to the sub-district.
- Appropriate monitoring and evaluation using participatory techniques and the introduction of performance indicators
- A gender balanced recrutiment, placement and continued development opportunities in the extension service through the district WASHE line ministries.
- Sector specific gender awareness training in the context of the project cycle for the rural water supply and sanitation, for all WASHE partners, particularly key extension personnel.
- Responsibility, with accountability for the dissemination of gender awareness messages and principles to the community.

- Appropriate monitoring and evaluation using participatory techniques and the introduction of performance indicators.

(iv) **Community Level**

- Community managment of rural water supply and sanitation that is promoted through gender aware methodologies throughout the project cycle.

- A deliberate training and development programme to address the empowerment needs of identified women who have the capacity and potential to develop at community level and beyond.

- Gender awareness activities to challenge the imbalances between men and women in traditional law, practice and custom related to the community management of rural water supply and sanitation through health education.

3.7 PRINCIPLE 7: CAPACITY BUILDING IS KEY TO SUSTAINABILTIY

3.7.1 Background

Effective integrated water resources management requires an enabling environment conscious and competent actors. Education, skills development and capacity building are essential to promote this capacity building of the organisations involved in water resources management and is crucial both for proper and for its subsequent sustainablitity. (Framework paper 1996).

In Zambia the national water policy advocates for the development and implementation of a well articulated training programme to achieve sustainability in WSS Programmes.

Many programmes/projects are now formulated with the aspect of human resources development at all levels. The case study under assessment is no exception in approach pertaining to the principle.

3.7.2 Methodology

Discusions were held with DWA, UNICEF, CMMU, N-WASHE and D-WASHE of Kalomo to find out programmes peratining to capacity building.

3.7.3. Results

Findings in this assessment with regard to this principle are as follows:-

- Programme specific to the case study have included in the budget training component. UNICEF and CARE funded capacity building.

(I) Apron construction at village level

(ii) Installation of hand pumps at village level

(iii) Health hygiene education at village level

(iv) Training of pump menders at village level

As of december 1996 UNICEF and CARE had trained the following categories of user groups in Kalomo District.

- trainers - men
- trainers - women
- pumpmenders
- women clubs to facilitate health hygiene education

In order to maintain continuity in the capacity building for this project, the Kalomo D-WASHE has in its plan of action 1997 - 2001 included this aspect as a major component of the action plan. They have budgeted. Three million kwacha (K31,773,000 for this activity for the current year 1997.

To boost the data base of the D-WASHE UNICEF has recently train some members of the D-WASHE in computor operation and have provided a new computor for the data base.

3.7.4 **Successes/Lessons Learnt**

From the results the success pertaining to this principle are as follows:-

- Water facilities are functioning well as a result of training received. Daily maintenance such as greasing nuts and bolt tightening is being carried out. At Chiyoka it was learnt that the pump mender had just repaired the pump cyclinder a few days before the community meeting day.

- People trained are utilizing their skills.

3.7.4 **Weaknesses**

It has been observed that the training programme has not addressed the gender balance issue. There are too few women trained as compaired to menfolk.

The D-WASHE resources are limited to achieve better results in the villages. They have no transport specifically assigned to WASHE activities.

3.8.0 PRINCIPLE 8: WATER SHOULD BE TREATED AS HAVING AN ECONOMIC AND SOCIAL VALUE

3.8.1 Background

For a long time, people across all walks of life (especially the rural masses) have been considering the supply of water a social obligation for the government and other water undertaking agencies.

Yes, indeed water supply is a social obligation for the government, but it has a cost. This social obligation can only be maintained when the cost for providing and ensuring reliability in supply is also maintained.

In trying to achieve this, the Zambia National Water Policy, has enshrined in its specific policies the following:

- Recognising water as having an economic good

- Developing a cost recovery approach as an integral part of RWSS which will ensure sustainability. Many projects have adopted these approaches and consequently it is now a requirement for a village requesting for raise money for initial contribution to the project. In Kalomo district of Southern Province the communities are required to raise money to purchase cement for the above ground works i.e. apron, drainage and possibly a cattle drinking troughs.The communities are also required to carry out pre-project works such as collection of stones and sand for construction of headworks. These contributions are costed and should account for 25% of the investment cost.

3.8.2. Methodology

Community meetings were held as already mentioned in the other principles (1-7) above. Questionnaire answering from the general meetings provided answers to this principle. House hold interviews and key informants were also talked to. The two workshops at district level and national level also provided answers to the issue of cost recovery or cost sharing.

3.8.3 Results

The community meetings, discussions with house hold members, key informants and the two works revealed the following:-

(I) **Community Level**

- At community level, in all the three villages assessed, communities are complying with user fees payment for operation and maintenance. The money is used for purchase of spareparts, lubricants for handpumps, head lubrication and to pay pump menders. Part of the fees are also used for the purpose of transportation i.e. calling the district based maintenance teams where pump menders are not able to repair or rectify faults such as fishing out dropped riser pipes.

- The communities decide on the amount of user fee rates to pay. For this case study at all the three village the communities agreed on three thousand kwacha (K3,000) per household per year. Payment was accepted in cash as well as in kind where some users are unable to raise cash payment. Maize is accepted in this case study as a more convenient in kind payment. The maize is later sold for cash by the V-WASHE committee.

- The vulnerable groups of the communities such as the blind, the lame, the aged and the mentally disabled draw water free of charge.

- The user fee collection system is transparent. The tresurers of the three villages of Chiyoka, Mazambani and Simalele maintain user fees payment registers. At Simalele village, receipts are given to the payees. (See annex XI showing the register of payees and cash receipts.

- The villagers spoken to did not complain of the fees being high.

(ii) **District Level**

- The D-WASHE plans to increase community contribution towards the construction of water point from 25% towards 100% in the longer term. At the time of assessment it was learnt that the initial contribution of twenty five thousand kwacha (K25,000) has been increased to Seventy five thousand Kwacha (K75,000).

(iii) **National Level**

- National level line ministries and Government Departments fully support the cost recovery approach.

- The workshop held at national level agreed to the cost recovery/cost sharing approach, but cautioned against hurried raising of user fees and rather felt the users themselves should be educated to see the need and benefit for increasing the contributions and user fees.

3.8.4 **Successes**

Success recorded with regard to this principle is that:-

- The communities have come to understand the cost sharing rationale and have implemented the same.

3.8.5 **Weakness**

Weaknesses found as the assessment went on are:-

- The fees collected are kept with in the villages by the treasurer. This is due to distances to the nearest banks and partly because operation and maintenance fee have not been extended to administrative expenditure for treasurers to travel to town and bank the fees. This has left most V-WASHE committees having no bank accounts opened.
- Limitation in handling financial books by the treasurers.
- The treasurers have no records of operation and maintenance expenditure.
- Pump menders are charging too high.
- There is no indicative and realistic user fees tariffs which can be applied across the country.
- The D-WASHE does not check the books or registers to ensure that a transperancy is upheld.

CHAPTER 4: CONCLUSIONS/RECOMMENDATIONS

4.1 CONCLUSION

The process of implementing the eight (8) principles in WRM has been started in Zambia. The assessment carried out on the case study has revealed that all the eight (8) principles are being applied especially at the community level.

All the three villages of Chiyoka, Mazambani and Simalele in the case study have adopted the 8 principles. Their water points are fenced to protec the facilities against damage by livestock (especially cattle, goats and pigs). Sanitary conditions are addressed by construction of aprons, drainage channels and soakaway pits. This applies to principle No.1.

Users at all the three villages mentioned above have agreed on water sharing and efficient use by setting regulations and rules on how and when to draw the water to ensure every user is afforded the opportunity to draw water and also ensure there are no wastages. Thus addressing principles 2 and 3.

There are V-WASHE committees at all the three villages in the case study assessed. The committees comprise of both men and women ensuring that gender issues are addressed (principle 6). The committees are empowered to set rules and vegetations on routine maintenance of the water points with approval of the users at large. The committees and users have also been involved in pre-project activities. This demostrated adhearance to principles 4 and 5.

The questions of capacity building and cost sharing have been addressed in all the three villages assessed. The D-WASHE with assistance from UNICEF carried out training at district and village levels to strengthen the capacitites of people involved in the projects to be able to carryout routine functons. The D-WASHE has also budgeted for training in their plan of action for the period 1997 to 2001. At present caretakers and pumpmenders trained are able to utilize skills acquired from the training. The V-WASHE committees are also collecting user fees. Pre-project financial contributions were in all three projects made. These actions confirm application of principles 7 and 8.

4.2. Comments

Although there is positivity in addressing the principles a lot more efforts are required in attaining ultimate results on all the principles for instance.

- Principle 1, other aspects of catchment protections such as deforestration, landuse e.t.c are not fully addressed. The question of sanitation is not fully addressed as there are very few households with pit latrines.

- Principle 6, gender issues need alot more attention. Statistics given on gender issues in this report are worrying, alot more action is required to bring the levels of women participating in WRM to equlibrium. Some of the actions required to create equilibrium in participation by women are removed of discrimination of women in all forms with regard to WRM.

4.3 **Recommendations**

As stated above alot more efforts are needed in attaining ultimate results in the WRM with regard to the eight (8) principles. In achieving the required results the following are recommended.

The central government should review its budgetary politics to allocate sufficient financial resources to the sector to be able to accompolish initiatives started by donors in the long run.

- Decentrilization of resources and authority to strengthen district and community levels should be encouraged as this will enhance improved monitoring and evaluation of the effectiveness in how the principles are being applied.

- Government should enact legislations to legally support the initiatives in WRM e.g encourage construction of pit latrines, pay user fees etc.

- There should be strong advocacy for communities to be given more responsibility in WRM.

- There should be a strong advocacy for gender issues to provide equal opportunities for both men and women to be on Water Committees.

- Capacity building for all levels should be strengthened and adapted to WRM issues.

- Appropriate tariff system which communities could sustain should be established (WHO Workshop 1993).

- Thought ought to be given regarding the institutionalization of the D-WASHE to overcome legistical problems such as transport and field allowances.

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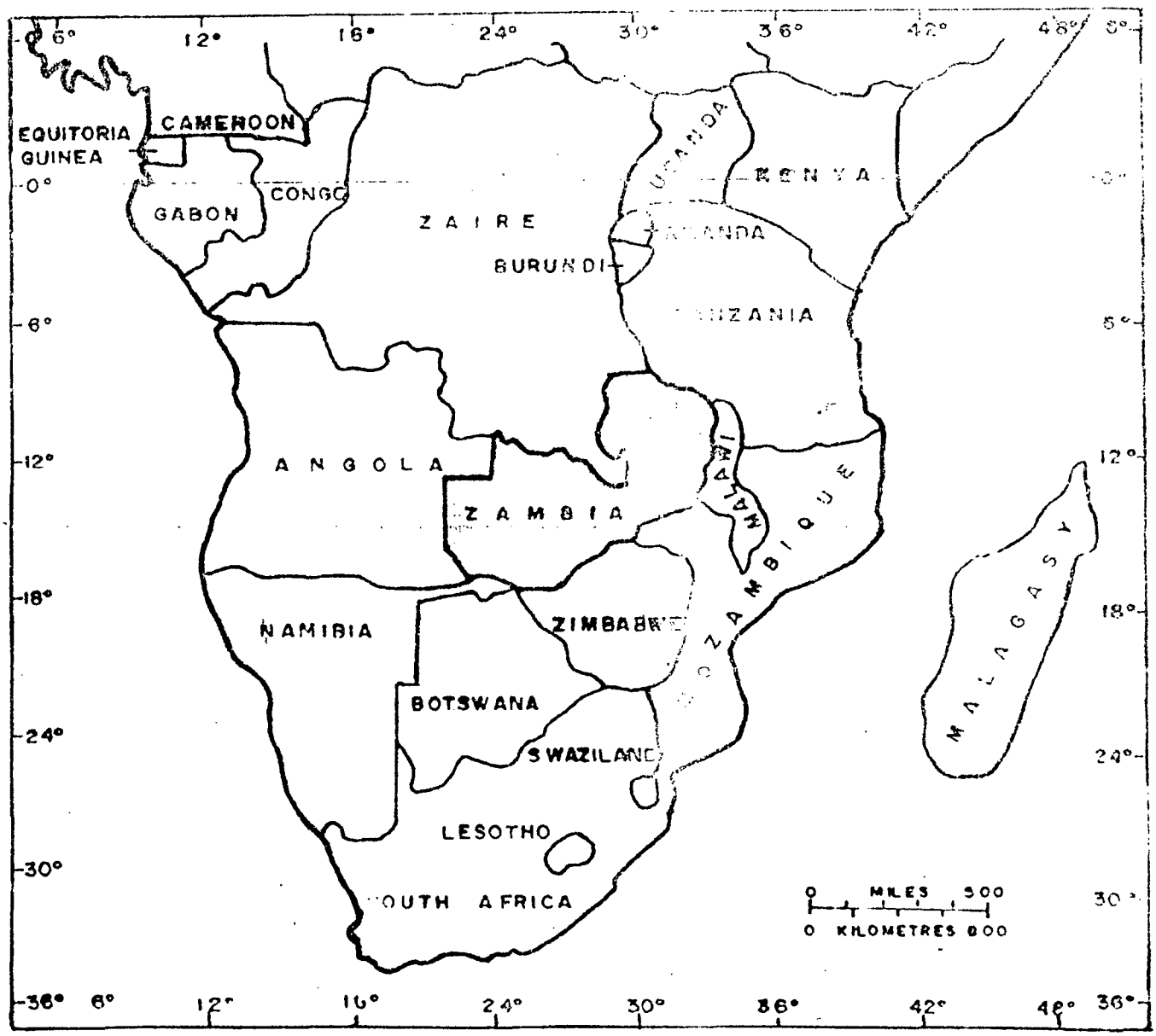
ANNEXIES

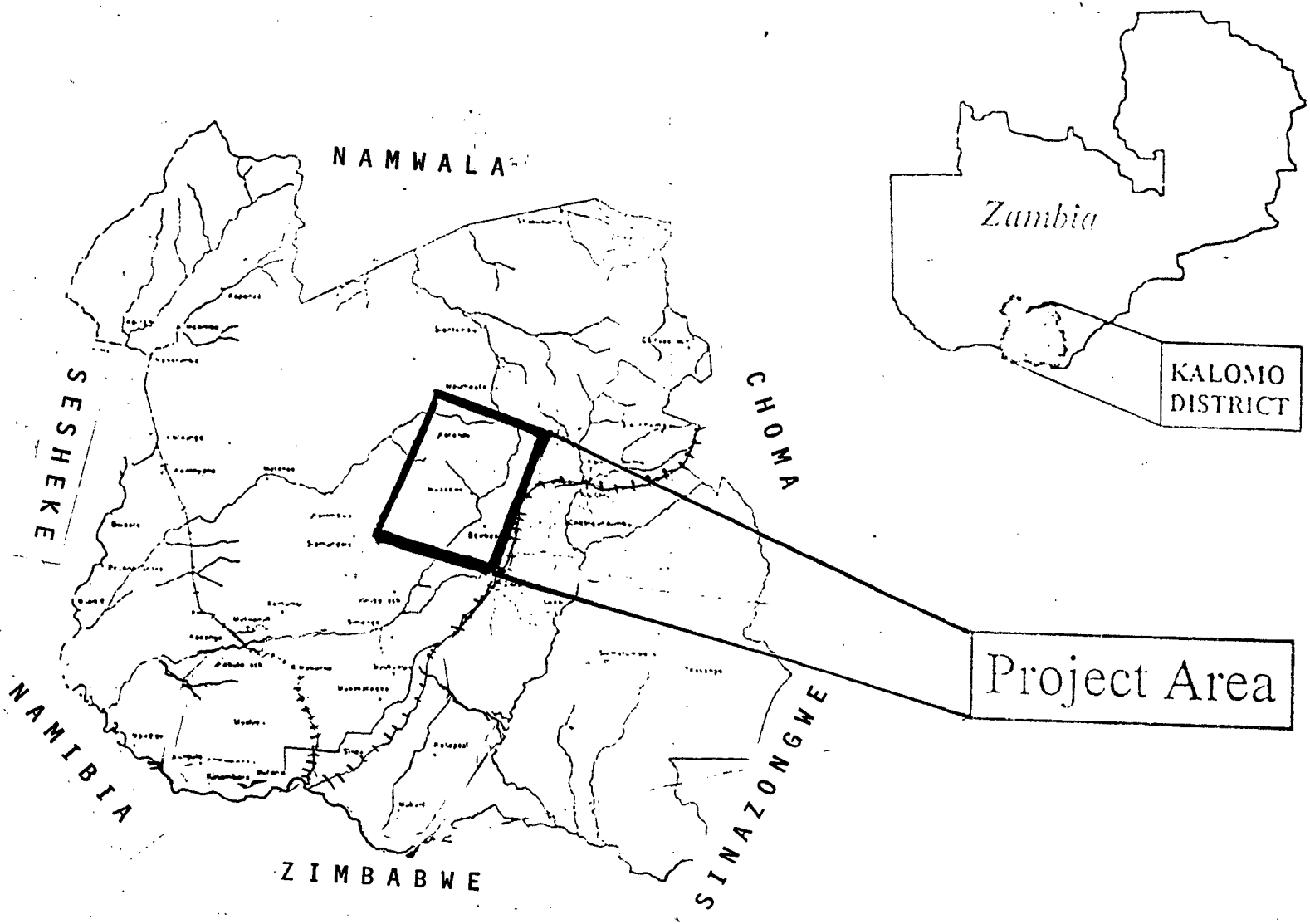
ANNEX I

LOCATION MAPS AND VILLAGE MAP.

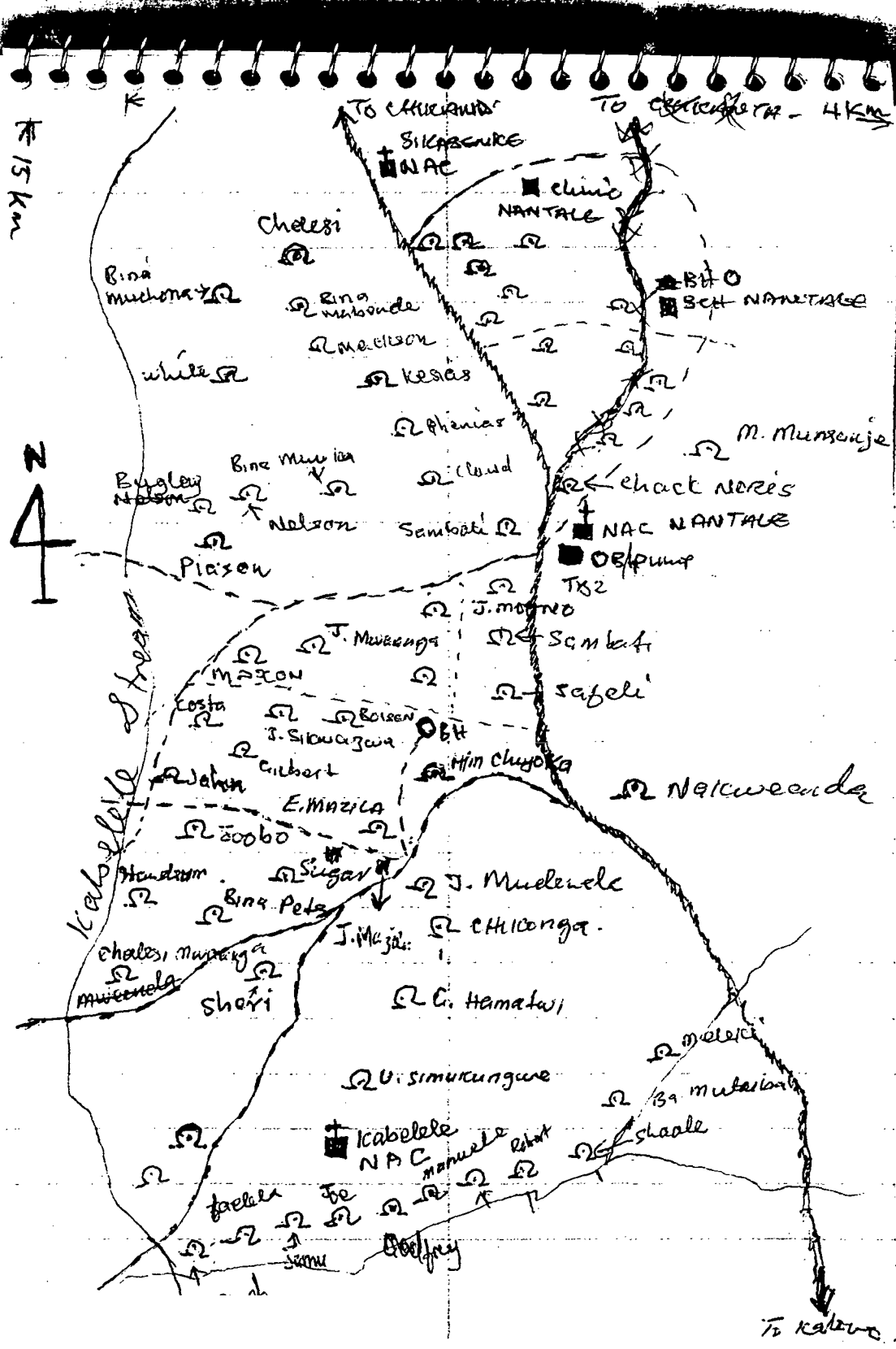
ANNEX 1A - LOCATION MAP - ZAMBIA



LOCATION MAP - KALOMO DISTRICT AND PROJECT AREA



ANNEX 1C: CHIYOKA VILLAGE MAP.



CHIYOKA VILLAGE MAP

LENGED

	House hold
	church building
	other buildings e.g. School
BH	Borehole
	path

ANNEX II

QUESTIONNAIRE AND ANSWERS.

WATER RESOURCES MANAGEMENT APPROACHES IN THE DRINKING WATER SUPPLY AND SANITATION SECTOR

ASSESSMENT QUESTIONNAIRE

CASE STUDY: SUPPORT FOR WATER, SANITATION AND HYGIENE EDUCATION IN DROUGHT AFFECTED AREAS - KALOMO DISTRICT.

Principle 1

Water Source and Catchment conservation and protection are essential

1. (a) Has water source and catchment protection been identified as a need presently or in the longer term

   (b) Why has this need been identified in the project area.

   (c) Who has been instrumental in realising the need for the protection of water source and catchment protection in the project area.

   (d) When was this need identified and how was this identified in this protection project area.

2. (a) Are there any negative influences in the catchment within this project area. YES / NO.

   (b) What activities are influencing the water source and catchment conservation. and what are the threats to water source and catchment area.

4. (a) What protection activities are being undertaken in terms of;
   (i) livestock control
   (ii) reforestation
   (iii) Sanitation (on site) control.

   (b) How is land use in the project area since project inception.

   (c) What is the demographic trend over the period of the project and how is it effectively (4 (a) (iii)) above.

Principle 2

Adequate Water Allocation needs to be agreed up between stake holders within a national frame work.

1. (a) Is sufficient water of required quality available to meet the demand of all users.

   (b) What is the estimated water use by the community.

   (c) Is there any system of water allocation during any particular time of the year?

   (d) Are stake holders satisfied with the water allocations if it applies.

2. (a) What water allocation mechanisms exist, who is consulted and who makes the decision.

   (b) How many of the stake holders are present at the decision making meetings (elected and ordinary who feel their contributions would be wealth while).

3. (a) What practices/system for water allocations do exist.

   (b) Is the water allocation system effective.

4. (a) Is the water facility fairly located for all the users.

   (b) How many of the users walk longer distances to the water facility in comparison to the total number of users.

   (c) What is the defined normal distance to the water facility.

Principle 3

Efficient water use is essential and often an important water source.

1. (a) Is inefficiency in water use identified as a problem?
YES / NO
If yes who perceives it as a problem and why?

(b) How many people in the community/users groups identify inefficient use as a problem.

2 (a) What inefficiencies have been identified,

(b) How many people use narrow mouthed containers (approx.)

(c) How many users tend to overfill their containers to overflow situation.

(d) How many people seem to just pump the water for drinking without any container below the hand pump sprouts.

3. (a) What measures are undertaken for effective and efficient use of water.

(b) Who is involved in the promotion of effective use of water.

4. (a) Are there measures which have been considered but not yet implemented.

(b) What is the main constraint in implementing the measures.

Principle 4

Management needs to be taken care of at the lowest appropriate levels.

1. (a) Who manages the water supply points.

   (b) How long have they managed the water point systems.

2. Who manages each system.

   (1) for day to day operation.

3. (a) Is management currently taking place at the lowest appropriate level

   (b) Can management be implemented at one step lower level. If not, why not.

   (c) How many of the management committees have ~~clear~~ clear task assignments.

   (d) How many (approx.) problems have arisen in the management of their water facilities over the past 1 year of these, how many are refereed to higher level.

   (e) What is the level of back up support arising from (d) above.

   (f) Of all the users/stake holders how many are satisfied with the management.

4. (a) Is there existing legal frame work facilitating this principle.

   (b) Is the legislation effective?

   (c) If the legislation is not effective what appropriate arrangements exist.

5. What changes are taking place regarding levels of water resources) management.

   What are the constraints if any?

Principle 5

Involvement of all stake holders is required

1. (a) Who are stake holders in this particular project.

   (b) Do the stake holders in this project perceive themselves as being stake holders.

   (c) Are these stake holders actively involved in the project.

   (d) How many are not involved.

2. (a) Do these stake holders wish to be involved in the project.

   (b) How many of these stake holders request for information regarding the project.

   (c) How many of these stake holders would like to be more actively involved in the project.

3. (a) Who owns the water sources in this project.

   (b) How many of the stake holders own water sources?

   (c) What is the project scope.

   (d) How many of the water sources have been constructed and handed over the community and or to farmer co-operatives.

4. (a) What plat forms/forums exist for decision making.

(b) Do the decision making forums work effectively who make / takes the decision.

(c) How many problems have been recorded on average and acted upon at each forum.

(d) Are stake holders represented at the decision making forums.

5. (a) Are there any conflicts over the water point system at certain periods of the year.

(b) How many of these conflicts have occurred and resolved during different periods of the year or over the life of the project.

(c) What conflicts management mechanisms are applied?

Principle 6

Striking a gender balance is needed as activities relate to different roles of men and women

1. (a) How are gender differences if any perceived at user level. Briefly describe.

   (b) Of the users how many persons indicate separation of gender functions.

2. (a) What are the differences in the degree of participation and influence over decision making by men and women.

   (b) What is the composition of the decision making committee at user level in terms of sex.

   (c) How many persons in terms of sex and numbers are satisfied with each others influence in decision making.

   (d) How many meetings, are programmed at the user level, and do these suit both sexes.

3. (a) Do approaches promote equal participation and access to resources for both men and women.

   (b) List specific activities for each sex in terms of the management of the water source(s).

4. If any, are there gender sensetization programmes at local level.

Principle 7

Capacity Building is the key to sustainability

1 (a) Is capacity building a part of the project activities.

(b) What are the key capacity building activities at the District and user levels.

(c) What is the percentage of the training or capacity building budget.

(d) How many people have been ear marked for training and of these how many have been trained.

2. (a) Has the project / programme encountered any constraints / problems in capacity building what is the nature of the problems.

(b) Of the trained people how many are utilizing acquired skills.

(c) How many water facilities are functioning well as a result of utilization of acquired skills.

3. Which techniques and or philosophy is used in capacity building.

Principle 8

Water should be treated as having an economic and social value.

1. (a) How many people use the water supply facility.

   (b) Do all the users pay for the water. If not how many do?

2. Is there a tariff system for the water facility.

3. (a) What is the capital cost for the water facility.

   (b) What are the operation and maintenance cost.

   (c) What has been the replacement cost if any?

   (d) Does the tariff (cost recovery) system meet the cost components at 3 (a) & (c) above and what is the ratio income from tariff and O & M.

4. How are the poor members of the community catered for to enable them use the water point(s).

5. (a) Is the financial system transparent.

   (b) Who collects the user fees and are the payments recepted.

   (c) Have Village water committees opened bank accounts and are these accounts audited.

6. Do the different users perceive the user fees as fair. If not how many see the fees as unrealistic.

ANSWERS TO THE ASSESSMENT QUESTIONAIRE AT HOUSE-HOLD INTERVIEW IN SIMALELE VILLAGE.

PRINCIPLE 1

WATER SOURCE AND CATCHMENT CONSERVATION AND PROTECTION ESSENTIAL

1 (a) Water source and catchment protection has been identified as need.

(b) This need has been identified in the project area in order to protect water point damage by livestock.

(c) The users have been instrumental in realising the need for the protection of water source with much sensetisation.

(d) This need was identified in 1995, October.

3 (a) Protection activities are being undertaken in terms of

(i) Livestock control - the water source is fenced

(ii) Sanitation control - There is a soakaway and pit latrines construction have been planned.

(b) The land is used for cultivation (Crop growing) and livestock grazing

(c) There is an increase in population of about 6 or more villages coming up.

PRINCIPLE 2

ADEQUATE WATER ALLOCATION NEEDS TO BE AGREED UP BETWEEN STAKEHOLDERS WITHIN A NATIONAL FRAMEWORK.

1 (a) There is sufficient water for all the users

(b) The estimated water use by the community is about 150 litres

(c) There is a system of water allocation where by users have to queue.

(d) All the users are satisfied with the water allocations.

2 (a) Each sex has got its queue. Users do consult and make decisions through the V-WASHE.

(b) Over 50 people attend decision making.

3 (a) The system which exists in water allocation is queuing and restricted time of operation.

(b) The water allocation system is effective.

4 (a) The water point is located at a central place.

(b) Many people walk long distances to the water point

PRINCIPLE 3

EFFICIENT WATER USE IS ESSENTIAL AND OFTEN AN IMPORTANT WATER SOURCE.

1 (a) Inefficiency in water use is identified as a problem. The users perceive it as a problem.

(b) Most of the users did identify inefficient use as a problem.

2 (a) Overfilling the tins and water spillage have been identified as some of the inefficiencies.

(b) Most people use narrow mouthed containers.

(d) Many people just pump the water to drink without any containers, especially those passing through the water point.

3 (a) The measures undertaken for effective and effective use of water are controlled queuing, timing and the use of funnels.

(b) Men and women are all involved in the promotion of effective use of water i.e women control queuing, while men control peace.

4 (a) There are measures which have been considered but not yet implemented - design- reduce distance from spout to container to avoid wastage by wind action on windy days.

PRINCIPLE 4

MANAGEMENT NEEDS TO BE TAKEN CARE OF AT THE LOWEST APPROPRIATE LEVELS.

1 (a) The V-WASHE manages the water supply points.

(b) They have managed the water point systems since 1995.

2 (a) Committee members manage each system for day-to-day operation on rotation basis.

3 (a) Management is taking place at the lowest appropriate level.

(c) Each committee member has an assignment eg women clean the water point surrounding.

(d) Some technical problems have arisen ie worn out leather cups and defective valves.

(e) Users donate money for maintenance.

PRINCIPLE 5

INVOLVEMENT OF ALL STAKEHOLDERS IS REQUIRED.

1 (a) All users from the village are stakeholders in this particular project.

(b) Users in this project perceive themselves as stakeholders.

(c) Stakeholders are actively involved in the project.

(d) None are not involved.

2 (a) Stakeholders wish to be involved in the project especially in maintenance.

(b) Most of the distance users enquire on how to acquire a water point

(c) All the stakeholders would like to be more actively involved in the project.

3 (a) Community owns the water sources.

4 (a) The V-WASHE committees exist for decision making.
(b) The decision making forums work effectively and correctively.
(c) Many problems have been recorded and acted upon.
(d) Stakeholders are represented at decision making forums

5 (a) There are no conflicts.
(b) No conflicts have occured.

PRINCIPLE 6

STRIKING A GENDER BALANCE IS NEEDED AS ACTIVITIES RELATE TO DIFFERENT ROLES OF MEN AND WOMEN.

1 (a) Gender differences are not a hindrance to user level.
(b) There is no seperation of gender functions

2 (a) Participation at decision making is equal.
(b) The composition of the decision making committee at user level consist of 12 members (8 men and 4 women at Simalele Village).
(c) All are satisfied with decision making.

3 (a) Approaches promote equal participation for both sexes
(b) - Women clean the sorrounding, control queues and rationing time.
- Men control peace.

PRINCIPLE 8

WATER SHOULD BE TREATED AS HAVING AN ECONOMIC AND SOCIAL VALUE.

1 (b) All the users pay for water.

2 There is a tariff system for the water facility.

3 (c) Only K 3,000 so far has been the replacement cost.

4 Poor members of the community are allowed to draw water free.

5 (a) The financial system is transparent

(b) The Treasurer collects the fees and they are all receipted

(c) The V-WASHE committee have no bank account due to the distance to the bank.

6 Users perceive the user fees as fair because they are realistic.

ANNEX III

PLATES SHOWING

ASPECTS OF WRM PRINCIPLES.

PLATE I - COMMUNITY MEETING AT CHIYOKA VILLAGE - SHOWING USERS

PLATE 2 - COMMUNITY MEETING AT CHIYOKA - SHOWING WOMEN FOLK IN LARGE NUMBERS

PLATE 3 TRANSECT OBSERVATIONS - EXAMINING A DRYING STREAM BED

PLATE 4: HOUSEHOLD INTERVIEW

AT SIMALELE VILLAGE

PLATE 5: PROTECTED WATER SOURCE

AT SIMALELE VILLAGE

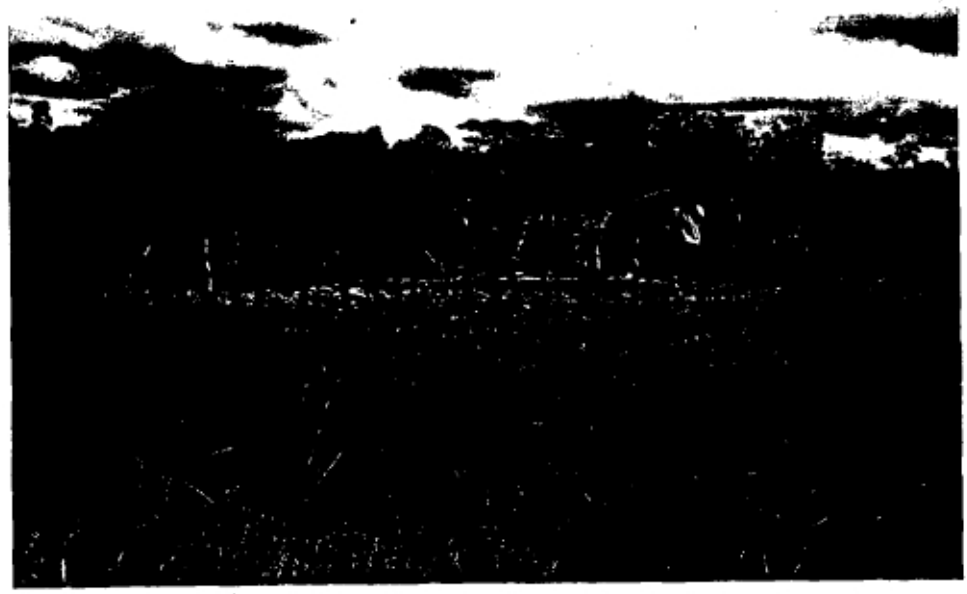
PLATE 6: GENDER BALANCE: V-WASHE COMMITEE FOR MAZAMBANI VILLAGE WATER POINT.

PLATE 7: MORE GENDER AWARENESS ERMEGING AT COMMUNITY LEVEL SOME OF THE WOMEN WHO ATTENDED CHIYOKA COMMUNITY MEETING.

PLATE 8: VILLAGE MAPPING AT CHIYOKA

PLATE 9: TRANSFERING VILLAGE MAP FROM GROUND TO PAPER CHIYOKA VILLAGE MAP.

PLATES 10 AND 11 SITUATION ON WELL PROJECTION AT WATER POINTS FROM OTHER DISTRICTS ABOVE CHOMA DISTRICT, BELOW MAZABUKA DISTRICT.



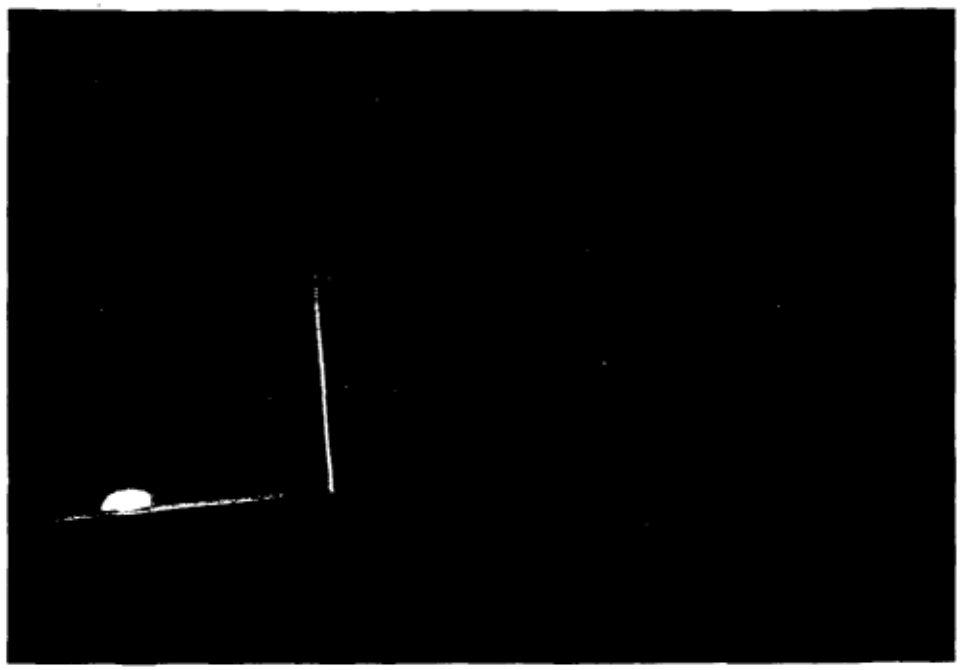


PLATE 12:
WORKSHOP AT NATIONAL LEAVE: IRC FACILITATOR ADDRESSING PARTICIPANTS.

PLATE 13 NATIONAL WORKSHOP:
PARTICIPANTS DISCUSSING ISSUES.

ANNEX IV

WORKSHOP ISSUES.

DISTRICT LEVEL WORKSHOP

1. The workshop was convened at the District Planning Office in Kalomo on 4th July, 1997. The team from Lusaka paid a courtesy call on the Acting Council Secretary prior to the workshop.

2. The Council Secretary explained the status of the Kalomo D-WASHE as summarised in the attachment number 1. Mr. Peter Bury there after briefly explained his mission.

3. The following issues were discussed at the workshop.

- Existence of the D-WASHE in Kalomo, membership and organisation
- Water point coverage criteria
- Advocacy and awareness campaign on politicians
- Community contributions for initial capital investment
- Ownership shift to users
- User fees contributions
- D-WASHE policy and its acceptance
- Monitoring
- Private sector definition
- Role of women in V-WASHE
- Exchange visits by D-WASHE and V-WASHE

4. **DISCUSSIONS**

1. The D-WASHE has been in existence for the last two years or so and membership consists of the line Ministries/Departments, the private sector, NGOs, see attachment number 2. There are 12 members in the D-WASHE and all are males. The committee meets monthly to discuss issues.

There were strong feelings about the absence of women in the committee and those present at the workshop recommended inclusion of females in the committee. On the monthly meeting the IRC facilitator felt that monthly meetings may not be effective but may be more demanding since the members also attend to their routine work in their mother Ministries/Departments. Somehow the D-WASHE seems to be managing the monthly meetings.

The primary aim has been to focus on drinking water provision. However the D-WASHE now looks at other WRM issues such as dams.

2. Water point coverage was rather low prior to the 1991/1992 drought. The D-WASHE estimated coverage to be about 1000 persons per water point at that time. The suitation has since improved and was reported to be about 500 persons per water point in some places and is about the global figure of 200-250 persons per water point in some places. The ultimate goal is to have the coverage of 250 persons per water point.

3. The D-WASHE has budgeted for training of D-WASHE members and councilors.

4. Community contributions will gradually be increased from 25% to 100% to shift complete ownership of water points to the communities.

5. User fees contributions are decided by V-WASHE and users at large. There is no government fixed tariffs.

6. The D-WASHE is not instititionalised and as such face problems in executing their duties. It does not have direct budget at present although the District Council Budget for the year 1997 includes D-WASHE activities.

7. Health Hygiene education is being carried out mostly by NGOs

8. D-WASHE policy - the policy was briefly discussed. It was learnt that the D-WASHE perceives it self as a policy maker rather than directly involving itself in physical execution of projects. The team from Lusaka strongly felt that the D-WASHE should see itself as an active actor in WRM instead of remaining at policy making level.

8. Monitoring is not regulary carried out due to lack of institutional set up. There is no direct WASHE transport, budget etc. The monitoring is rather sporadic.

9. Role of Women in V-WASHE. The menfolk have accepted women as partners in WRM and included women in V-WASHE committee. Women can hold various portofolios in the committees. The main activities for women are health hygiene education and also cleaning arround the water point surroundings.

10. Exchange visits were recommended for D-WASHES as well as V-WASHES to enable the members learn new ideas from each other.

NATIONAL LEVEL WORKSHOP

1. The workshop was convened on 10th July,1997 at UNICEF and was attended by 14th Participants from various organisations (see attachment) No. 3.

2. The workshop was opened by Mr stan Shisala, Acting Chief Water Engineer from the Department of water Affairs. In his remarks Mr Shisala welcomed and thanked the participants for attending the workshop. He then briefly explained the objective of the workshop and invited Mr Peter Bury from from IRC International Water supply and sanitation centre to address the participants.

3. Mr Bury outlined the position of IRC International Water and sanitation Centre. Which is summarised at WRM 2-5 on attachment No 3. In his address to the participants Mr Bury also explained the Project:

   " promising Water Resources Management Approaches in drinking Water supply and sanitation"

This is summarised from WRM 6 to 9.

4 Mr Shisala presented the draft report of the case study in Kalomo Southern Province of Zambia.

5 Issues from the case study presentation are as follows;

(I) Women and WASHE at District level

(ii) Legislation for gender advocacy

(iii) Institutionalization of D-WASHE

(iv) Hand dug wells for case study

(v) Decision on user fees who decides and how are decisions made

(vi) Case study representative of the country situation of the 8 principles?

(vii) By laws to enforce community participation.

6. **Discussions on issues raised**

(I) The concerns over lack of female representation at D-WASHE in Kalomo was acknowledge and the UNICEF programme co-ordinator on WASHE informed participants that her organisation was working hard to change the situation in Kalomo

(ii) Members felt that some legislation ought to be deliberately put in place to address gender issues. It was learnt that the gender policy is in place.

(iii) Participants felt that D-WASHE will remain weak as long as they are not institutionalised. This was due to the fact that they do not have direct budgets and other logistics such as transport. It was recommended that the institutionalisation of D-WASHE be addressed by line ministries and other actor in the sector.

(iv) Hand dug wells in the case study: participants were informed that hand dug wells are not considered in the project area . This was due to the lowering water table as a result of drought.

(v) Decision on user fees: some participants strongly felt that users at large be left to decide the tariffs. which they fee will sustain their water points.

(vi) Case study representative of the country situation: participants were informed that all new projects in Drinking water supply in rural areas have adopted the new approaches with the WASHE concept as praticed in the case study.

(vii) By-laws: some participants felt that there should be by laws to enforce community participation.

7. Water Resources in Zambia-State of Affairs: Mr Cecil Nundwe briefed the participants on the status of Water Resources in Zambia. In line with the ideals of the Zambia National Water Policy which defines clear institutional responsibilities of stake holders in the sector for effective management and co-ordination. Mr Nundwe then summarised on going development as follows:

- Water sector reforms
- Restructuring of MEWD
- Amendment of the water Act cap 312 of the

8. Mr Denis Mwanza informed participants of the Zimbabwe approach in WRM which has embarked on catchment conservation at community level.

9. Possible future steps: Mr Peter Bury informed the participants of the future steps in WRM research by IRC (see summary at WRM 10)

10. The workshop was closed by Mr Shisala who thanked the participants for their contributions. He also thanked Mrs Florence Lungu of UNICEF for organisaing the workshop

ATTACHMENT NO. I

WHAT IS D-WASHE?

KALOMO D-WASHE is a multi- sectoral cooperation committee comprisng all actors involved in the promotion of rural Water supply Sanitation and Health education in the District.

MISION STATEMENT

Kalomo D-WASHE is an inter- sectoral committee and a sub- committee of the District Development Coordinating Committee (DDCC) aimed at improving the quality of life for the rural population of Kalomo through:-

- Provision of safe water within a reasonable distance.
- Health and Hygiene education.
- Promotion of sanitation
- Training communities in planning, construction and management of water and Sanitation facilities

MEMBERSHIP

The District Council, Government and Non-Governmental organizations are members of D-WASHE which meets once every month to share, update and plan for water and sanitation interventions in the District.

POLICY OBJECTIVES

The specific objectives of Kalomo D-WASHE are:-

(i) Providing safe water within reasonable distance should gradually be moving to the standard rate of 250 people per water point

(ii) Promoting health and sanitation hygiene education

(iii) Training the community in planning and management of water and sanitation facilities.

(iv) Planning, construction and management of water and sanitation facilities should be gender sensitive. Women involvement is of paramount importance.

(v)Ensure that rural water supply and sanitation are cost recovery and sustainable.

(vi) Government and Donors will only subsidize construction of slabs for latrine construction in the short term.

COMMUNITY MANAGEMENT

		1995	1996	1997
1.	# of V-Washe comm.	0	126	203
2.	# of pump menders	0	25	50
3.	# of masons trained	0	20	45
4.	# of VLOM trained	1	4	9
5.	# of p. care takers	0	250	406
6.	# c/ment areas formed	0	25	50
7.	# of latrines construct	1022	1322	2002

KALOMO DISTRICT COUNCIL

DISTRICT WATER AND
SANITATION HEALTH

EDUCATION

(D-WASHE)

KALOMO

CO-OPERATION IN DEVELOPMENT

ATTACHMENT NUMBER 2

D-WASHE MEMBERSHIP BY INSTITUTIONS

- Department of Agriculture
- District Planning Office - District Council
- Ministry of Education
- Forestry Department
- Central Statistics
- CMMU (District Enumerator)
- Zambia Railways (Water Suprintendent)
- Natural Resources
- Department of Agriculture
- World Vision International
- Care
- Africare

ATTACHMENT No. 3

Promising Water Resources Management Approaches in Drinking Water Supply and Santiation Sector

Mini-workshop at UNICEF Lusaka, 10th July 1997

List of participants

Name	Position	Organisation	Phone	Fax	Email
DANIEL J. BOTHMA	PROJECT CO-ORDINATOR	World Vision International	026 032 21149	026 032 20174	Daniel Bothma @ WVI.ORG
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Florence Lungu	Sanitation Office	Unicef	252055		
MARCUS BETTS	M+E Officer	UNICEF	"		mbetts@unicef.zm
Musonda Kaluba	Act. Team Leader	CMMU	260-1-226905	226905	cmmu1@zamnet.zm
Hope Nkoloma	Health Planner	N-WASHE	260-1-237490/1	226905	c/o cmmu1@zamnet-zm
Peter BURY	Progr. Officer	IRC Netherlands	31-70-3068930	31-70-3589964	bury@irc.nl
Patrick Brigham	Technical Officer	Environm. Council of Zam.	254130/31		necz@zamnet.zm.
Nick Osborn	Technical Sector Coordinator	CARE Zambia	02 618473	02 612797	nick@zamnet.zm
WILFRED KALINDA	PROJECT MANAGER	AFRICARE	20257	20272	
NUNDWE CECIL.	WATER ENGINEER PLANNING	MEWD.	254685	252589.	Hydro@zamnet.zm.
A. LUSAKA	R/WATER SUPPLY ENG.	DWA - WATER AFFAIRS	252011	252121	AMDRO@zamnet.zm
Dennis D. Mwanza	Head	Water Sector Devt. Group	226941/2	226904	WSDG@zamnet.zm.

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IRC International Water and Sanitation Centre
FAX: +31 20 70 35 899 64 Email: gerneral@irc.nl

WRM

10.07.97

TENTATIVE PROGRAMME

08:30	.	Welcome
	.	Introductions
	.	Objectives and Programme
09:00	.	What is IRC
	.	The WRM Research project
09:30	.	Case study Kalomo, Southern Province, Zambia
	.	Questions/Discussion
10:30	.	BREAK AND VIDEO
11:00	.	WRM in Zambia: State of Affairs
	.	Discussion
11:30	.	Possible future steps
	.	Summary and Closure
12:00		END

WRM 2

10.07.97

OBJECTIVES

OVERALL: Bring together actors in WSS and related Sectors to present and discuss current thinking and activities in W.R.M. related to WSS and Community involvement.

SPECIFIC:

1. Present IRC/UNDP WRM research project
2. Present outcomes case study Zambia, Southern Province Kalomo D.
3. State of affairs WRM, Zambia
4. Exchange views and ideas
5. Explore interest in Zambia for WRM follow-up activities

WRM 3

10.07.97

"BETTER WATER AND SANITATION FOR A HEALTHY FUTURE"

MISSION: Help people in developing countries to get use the best water and sanitation services they can afford

HOW:
- Partnerships
- Shared learning experiences
- Exchange of information and experiences
- Support dev. of regional/national resources centres

FOCUS:
- Communication
- Gender
- Participation
- Community involvement
- Affordable technologies

WRM 4

10.07.97

IRC? ... Continued .....

PRINCIPLES:
- We are facilitators
- Partners on equal basis
- Dialogue
- Learning environment

WE ARE:
- Independent
- Non. profit foundation
- International
- 27 years old
- Resource centre providing:
  - Research
  - Publications
  - Training
  - Advisory services
  - Advocacy

WRM 5

10.797

INNOVATION IN THE WSS SECTOR.

Community involvement in Water Resources management.

- Developing crisis in fresh water resources
- International Conferences: Dublin '92,
  Noordwgk Ministers conference '94,

- PRC'S rope: promotion of communities and local government in WRM

IRC ACTIVITIES:

'94 for OECD/DAC Publication:

" Towards better Water Resources Management:
a catalogue of Policies and strategies of external support agencies"

WRM6

10.07.97

'96 for UNDP: Research:

" Promising Water Resources Management
Approaches in drinking Water Supply
and Sanitation Sector"

- Assess
- document
- Disseminate

Experiences with Principles for WRM
agreed in Dublin '92.

FUNDING:

- Dutch Government (DGIS/VROM)
- Sida
- UNDP
- SDC
- Various donors supporting 12 participants

WRM7

10.07.97

PARTICIPANTS

1. Cinara - Columbia - Peripurban - ODA SDC
2. Water Source of Peace - Quatemala - Peri-Urban - UNICEF
3. NODP - Zambia - Rural - Irish Aid
4. Drought Intervention Zambia - Rural, UNICEF
5. Tonga Water Supply - RSA - Peri-Urban, Mvalat, SDC
6. Umgeni - RSA - Rural/Urban - Umgeni
7. RWSSP - Ghana - Rural - Danida
8. RWSSP - India - Rural ODA
9. RWS - India - Rural - RNE
10. Int. Watershed Dev. - India - Rural - UNICEF
11. RWSSP - Nepal - Rural - Finnida
12. Watsan P-cambodja - Urban/Rural - UNOPS

WRM8

10.07.97

ASSESSMENT METHOD:

- Framework paper 8 - Principles dublin '92
- Participatory Assessment at all Levels
- Levels: National, Region, Local
- Freparatory workshop (November 1996)
- PArticipatory Assessment (I.7.97
- Documentation (8/97)
- Synthesis workshop (9.97)
- International Advisory group
- Lessons Learned
- Recommendations
- Dissemination

WRM9

10.07.97

PRINCIPLES:

1. Water Source Conservation and Protection
2. Agreed Water Allocation within a National Framework
3. Efficient Water use
4. Management at Lowest Appropriate Levels
5. Involvement of all stakeholders
6. Striking a Genda Balance
7. Capacity Building for sustainability
8. Water has an economic and social value

POSSIBLE FOLLOW-UP ACTIVITIES:

Assumption:
- Experiences limited
- need for further learning and developing solutions

Proposal:
- Action learning
- 2.3 years models
- Develop approaches/methods/tools
- Document
- Disseminate
- Promote application

Open issues:
- IWRM broader than WSS?
- Rural - Urban issues
- Situation specific

Possible set-up: IRC Others IWRM

Outside Funding

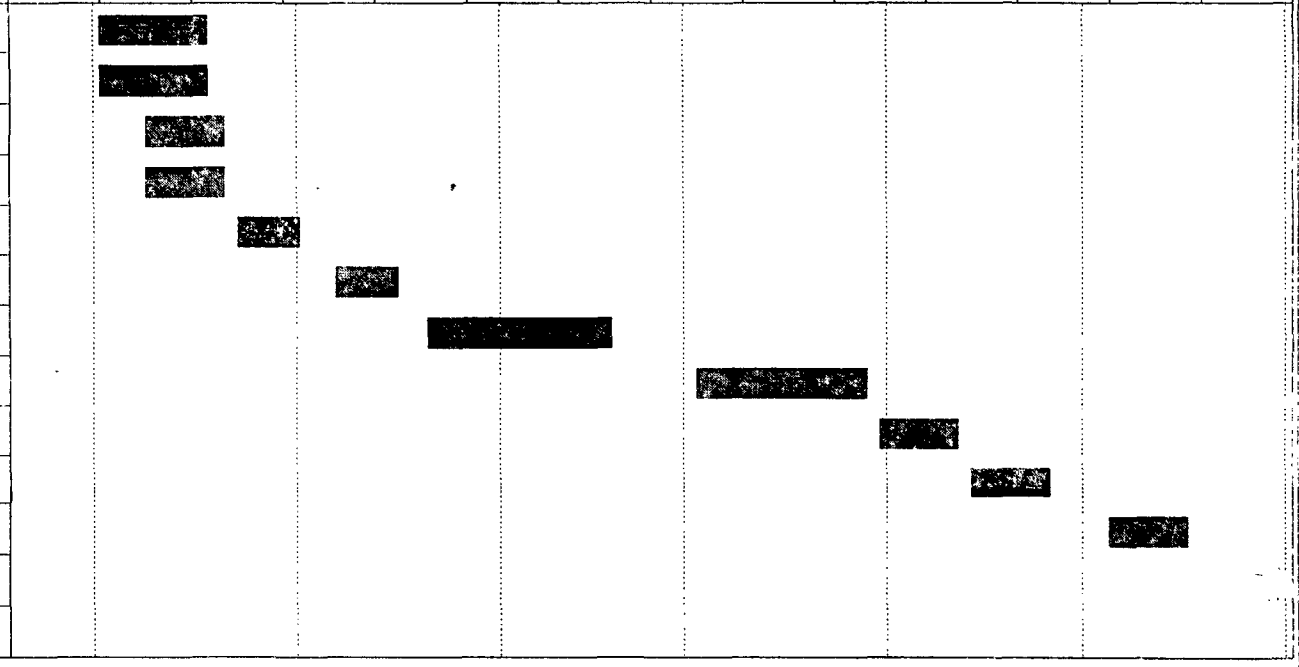
Funding	Countries	
GRZ/Lead Donor	"	"
Resource Centre	"	"
Project	"	"
Case/Pilot	"	"

ANNEX V

ASSESSMENT PROGRAMME

IMPLEMENTATION SCHEDULE: PROJECT:- PROMISING WATER RESOURCES MANAGEMENT APPROACHES IN DRINKING WATER SUPPLY AND SANITATION

ID	Task Name
1	Reporting and briefing on workshop
2	Preparation of detailed work plan
3	Acquisition of logistics i.e a vehicle
4	Inform relevant actors to participate
5	Analysing principles and indicators at National level 1st workshop
6	Organising local level data
7	Data collection from the field
8	Documentation
9	Documentation review and editing
10	Send draft document to IRC
11	Final documentation
12	
13	



Project:
Date: 04/08/97

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

ANNEX VI

TIMES OF ZAMBIA - CUTTINGS

TIMES OF ZAMBIA
Forward with the nation
Thursday, January 30, 1997

Plague as toll spreads tops 22

By Times Reporter

THE bubonic plague which has killed 22 in Namwala has spread to Maala, outlaying areas of Chikwato, Ilombola and Busangu, and Government has quarantined the areas to contain the disease.

Central Health Board spokesman Ben Chirwa said a team of medical experts from Lusaka and Choma was dispatched yesterday to reinforce the group already in the affected areas.

Medical personnel interviewed in the affected areas yesterday said there was need for consignments of tetracycline and streptomycin drugs which are used in the treatment of the disease to be sent there immediately. Cases of the epidemic have shot up amid fears more people could die from the disease.

Three deaths were recorded in Kantengwa area since the first team arrived there last Friday.

Appeals for food supplies and blankets have been made for patients at the treatment centres who are sleeping on the classroom floors. The team has asked for a helicopter to be used to airlift medical supplies and personnel in areas which are inaccessible by road.

There is need to instal a radio communication system at Kantengwa for easy communication among the medical authorities. A clinical officer at Kantengwa rural health centre, Alex Mubita, has appealed to the ministry to provide protective clothing to ensure officers combating the disease do not get infected.

Mr Mubita urged the department of water affairs to rehabilitate two boreholes in the area to decongest the only one where people were currently drawing their water.

Dr Chirwa said medical experts were mobilised from Livingstone, Choma and Lusaka. Additional specialised medicines have been sent to the area. Government has received reports that treatment of patients was progressing very well.

The team consists of five doctors from Lusaka. It will carry out further tests from several people to ensure the disease does not spread.

Last week, 18 villagers died from a plague said to be a combination of bubonic and pneumonic plagues which first broke out in Makoho area 66km from Namwala boma.

The disease was caused by dead rats which contaminated the wells.

TIMES
OF ZAMBIA
Forward with the nation
Tuesday, April 29, 1997

Katombora villagers cry for roads

VILLAGERS in some parts of Katombora still depend on drum-beats to communicate messages of distress to each other because the area has no roads.

This was said by Simango ward area councillor James Syulikwa at the weekend during a meeting with constituency Member of Parliament Joyce Nondo.

"We are still using drum-beats to alert others of distress messages like funerals and impending danger. It is sad that up to this day we should depend on the drum to pass messages to each other. We want all weather roads constructed here," he complained to the MP.

Mrs Nondo said she had presented their problem on the road construction and was waiting for response from the Government. Villagers want a road from Nyawa through Simango to Chief Musokotwane and then connect to Ngwezi and the Mulobezi Road. The road, she said, would ease communication and spearhead development.

"I have asked the Government to give us a road from Chief Nyawa's area through Simango ward to Chief Musokotwane and then connect to Ngwezi and the Mulobezi Road. I am still awaiting Government response to your cries for roads," Mrs Nondo told the villagers.

Mrs Nondo was invited to a victory celebration in her honour following her victory in last November elections for the Katombora seat.

The villagers complained they needed boreholes. Most of them depended on dirty shallow well water which was not fit for drinking. Some villagers had fallen sick after drinking the water and this was confirmed by a local nurse who said sanitation in the area was poor.

Meanwhile, Mrs Nondo has advised her electorate to contribute 25 per cent to any project they initiated in the area so that the Government can meet the remainder of the costs.

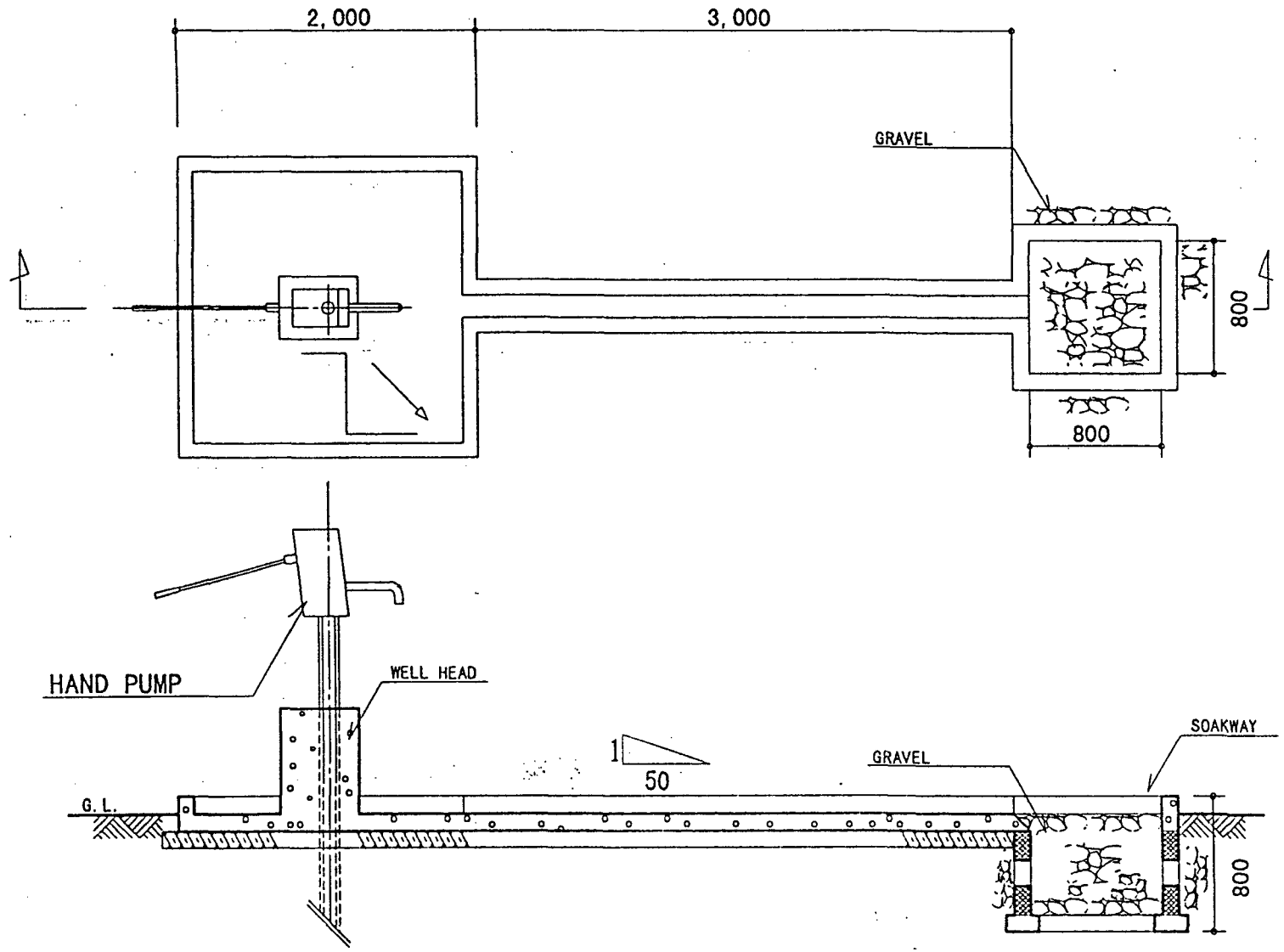
Simango area has electricity extended. But the place has no shops for essentials, no agents for farming inputs and implements. The villagers have appealed to businessmen to open shops in the area. Simango has more than 5,000 people.

Mrs Nondo donated a ball to one of the football teams. Katombora has 52 soccer teams 21 of which are in Simango ward.-Zana.

ANNEX VII

SCHEMATIC PRESENTATION OF

BOREHOLE DESIGNS.



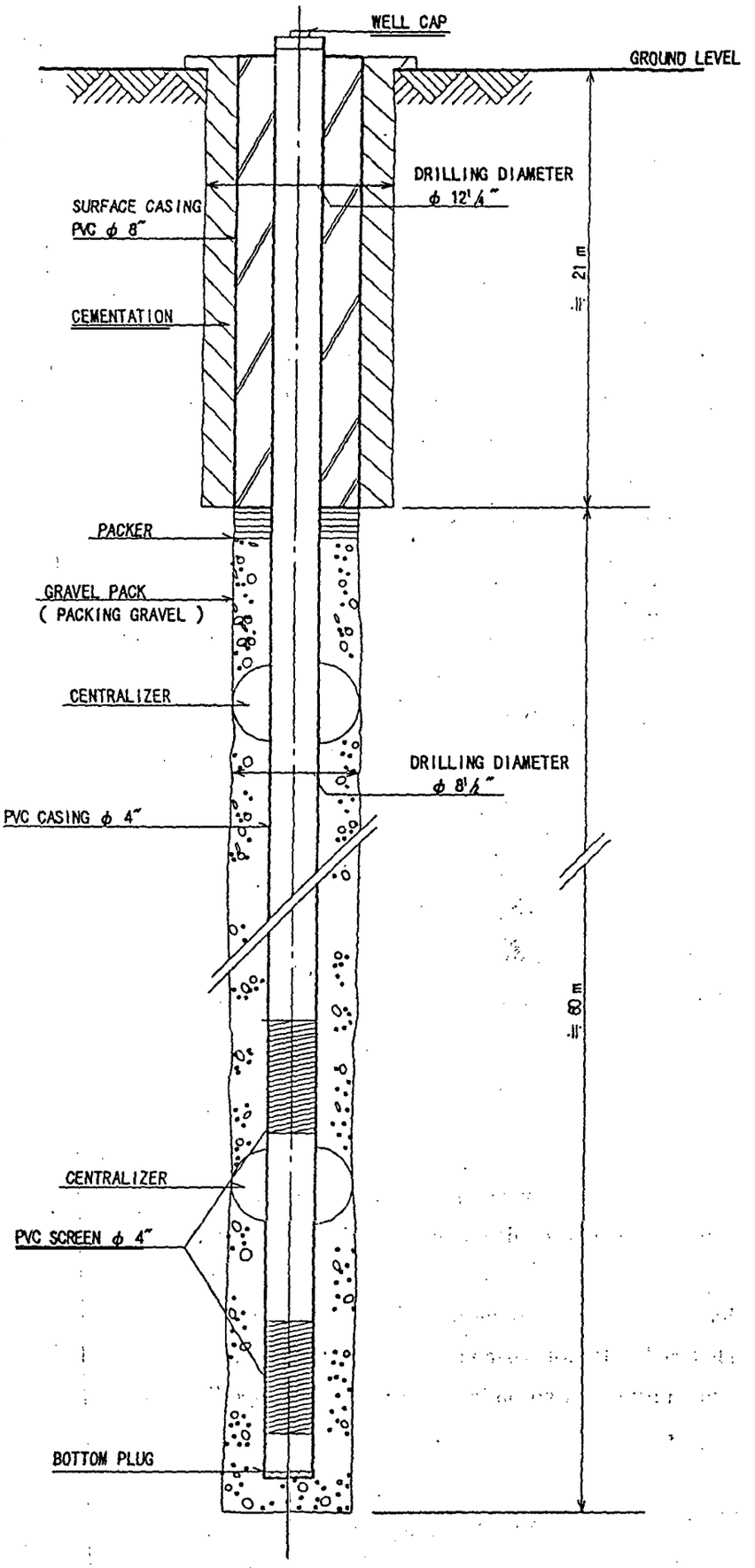
NOTES : LENGTH OF DRAINAGE IS 3.00m. SOAKWAY IS MADE OF CONCRETE BLOCK.

STANDARD APPURTENANT FACILITIES (TYPE I)

JAPAN TECHNO

3

STANDARD BOREHOLE STRUCTURE



ANNEX VIII

BOREHOLE DRILLING SEPECIFICATION

2

ANNEX II: THE SPECIFICATION:

10. NATURE OF CONTRACT

The specification is for contract for the drilling, construction, development of boreholes designed for the installation of hand pump.

The Contractor shall provide all labor, transport, plant, tools, materials and appurtenances, and shall perform all work necessary to satisfactorily locate sites for drilling, construct and complete successfully drilled boreholes, develop borehole for 3 hours, and seal/cap boreholes to prevent them from filled by foreign materials in accordance with the specifications and observe any further details as may be ordered by the client. **The borehole depths will be dependent on local hydro-geological condition at the site.** The boreholes will be completed in UPVC casing and screen of four inch nominal diameter.

The Contractor shall employ only competent workmen for the execution of his work, and all such work shall be performed under direct supervision of an expert water well driller.

2.0 CONTRACTOR'S DRILLING EQUIPMENT:

The Contractor shall specify in the Schedule of drilling equipment, borehole development and other accessory specifying its type and capacity to be used to undertake this work. Its capacity shall be sufficient to cope with the work of the contract. It shall be kept at all times in full working order and good repair.

If the client considers that the drilling equipment or any accessories in use on the site of the works is in any way inefficient or inadequate in capacity, the client shall have the right to call upon the Contractor to put such equipment in order within seven days or alternatively to remove such plant and replace it with additional plant or equipment which he considers necessary to meet the requirements of the contract. In the event that this requirement of the contract is not satisfied, the client reserves the right to terminate the contract immediately.

No extra payment shall be made for Contractor's change of equipment or labor to complete the work specified, nor for any incidentals thereto, the cost being deemed to be included in the schedule of rates.

3.0 SITES SELECTION:

The contractor upon arrival in a District will meet the D-WASHE Committee Chairman, especially Director of Works and Engineer and the NGO responsible for the community mobilisation to receive the list of villages selected by D-WASHE along with the locations on the map. The contractor upon visiting these locations will determine the road conditions for accessibility of drilling rig and other heavy equipments. Any changes or alternative sites will be in consultation of D-WASHE committee. ***The contractor should demand from the D-WASHE at least 5 additional villages as replacement for the dry or unsuccessful boreholes.***

Within the selected village, the village WASHE committee(V-WASHE) in consultation with the users group will select two or three sites that are socially acceptable to the communities. The sites will be precisely marked on the ground and shown to the Contractor by the V-WASHE member. The contractor will be responsible to get these socially selected sites checked by proper site selection surveys to confirm on technical feasibility of drilling a successful boreholes for handpump installation. In case the contractor selects a site that is not one of the socially selected by V-WASHE, then he should discuss with the V-WASHE communicate and explain the need for changes. If the V-WASHE Committee is not satisfied by

the change in location than he should communicate to the NGO/D-WASHE.

The siting team should ensure that the sites selected for the hand pump facility are within the settlement, easily accessible and in any case is not more than 500 meters from the settlement. The site should definitely not be in a place that gets flooded in the rainy seasons, and should be away from the flood plain area of the steams or river banks.

The contractor in a district will select all sites, prepare a mutually agreed drilling work plan between the contractor, NGO, and D-WASHE Committee and communicate it in writing to the client with a map showing the location of sites.

Access to site will consist of existing roads, tracks, and open paddocks. If the Contractor considers improvements are required for any reason to enable him carry out the works he shall make the improvements at his own expense.

4.0 BOREHOLE CONSTRUCTION:

4.01 Drilling methods:

The preferred method of drilling in consolidated compact formations is rotary percussion with air and/or foam flush. Six inch boreholes will drilled and the entire length of the borehole will be cased with 100 mm (4 inches) nominal diameter of UPVC casing and screen of appropriate slot size and length, gravel packed in the screen intervals.

In unconsolidated loose formations, rotary with appropriate mud drilling will be used. If other fluids or solids are used to arrest collapsing of formations, then the contractor has to use proper borehole development methods and borehole cleaning methods to make the use of borehole water safe for drinking purposes. The contractor will use such fluids or solids with the agreement of the client. Borehole will be constructed with 4 inches UPVC casing and with appropriate slotted screens in the aquifer intervals.

4.02 Borehole depth:

Boreholes shall be drilled to such depths to penetrate below the water table aquifers and tap the first potential deeper aquifer or aquifers in confined/semi-confined conditions with discharge of 0.2 liters per second to sustain continuous reliable operation of hand pumps fitted on them. The depth to be drilled should be at least be 5 meters below the main aquifer to provide proper installation of hand pump and has an sand trap of at least 1-2 meters. If discharge is less than 0.2 liters /sec., abandoning the borehole or continue to drill deeper will be the discretion of the contractor.

4.03 Borehole diameter:

Boreholes of 6 inch diameter will drilled and completed with a clear 100 mm(four inch) nominal internal diameter casing to allow installation of handpump of the type India Mark-II/ Afridev pump.

The first three meters from the surface will have concrete grouting of 2 inches thick for sanitary protection. For this the bore hole will be reamed with an 8 inches(or around) nominal drill bit and

concrete grouting done in the annular space between the casing and open borehole wall.

In collapsing formation, the borehole drilling will be telescopic. In collapsing fomration, 8 inch diameter borehole will be dilled to install temporary casing to enable further drilling of 6 inch boreholes to install 4 inch nominal internal diameter UPVC casing.

In sedimentary formations, where aquifers need to be screened and gravel pack provided, the boreholes will be reamed to 8 inches and the well completed in 4 inch nominal diameter.

note: drill bit sizes around those indicated are also acceptable to accommodate the drill bits the contractor's rig is equipped with or have stocks.

4.04 Screen:

The Contractor will use the factory made UPVC slotted screens, the slot size and screen length depending on the aquifer materials and aquifer thickness. Contractor will take the sole responsibility of designing the well assembly and placing it at appropriate depths to match the screens positioning in the aquifer intervals.

Slotted screens should be U-PVC of ISO standard, class 10, 3 meters in length, nominal outside diameter 110 mm, wall thickness 5.65 mm, nominal slot width 0.8 mm, length of slot (External/internal 65/52 mm, number of rows of slots 4, land between adjacent rows(ext/int 21/ 25 mm, slot pitch 5.8 mm, total number of slots per linear meter-689 and open area as percent of internal surface area -9.26% per linear meter. Depending on the aquifer material, the contractor may choose an appropriate slot width other than 0.8 mm.

4.05 Casing pipe:

The casing will be Unplasticised polyvinyl chloride rigid Well casing pipe, non toxic, with nominal internal diameter of 4 inches(100 mm), wall thickness 5.04 mm, flush jointed with threads made to ASTM F 480, 5.9 or 3 meters long.

The contractor will take all the precautions during the transportation and storage of casing pipe from their warehouse to drilling site to prevent distortions and bending of the pipe or deformation resulting in eccentricity along the length of the pipe.

4.06 Sand Trap:

One meter length of sand trap will be part of the well design when bore holes are cased up to the bottom of the boreholes. The sand trap will be from UPVC casing of nominal diameter of 4 inches with and end cap either threaded or glued with appropriate glue or solutions as recommended by the UPVC manufacturer. At the bottom of the assembly should be closed with a bottom cap.

4.07 Sampling and drill time logs:

Representative samples of the strata intersected shall be collected every one and half meter, and at changes

of formation. For collection, the Contractor shall cease drilling, circulate all cuttings to the surface, resume drilling and collect the cuttings then brought to the surface. The Contractor shall take every possible precaution to guard against sample contamination due to poor circulation, hole erosion, or caving. Cutting samples shall be bagged, labeled with borehole depth at time of collection, and stored in a position where they will not be contaminated by site conditions or drilling operations. The Contractor shall supply strong, transparent sample bags and labels as required. The driller in-charge will also record the drill time logs/penetration rate of each rod or every three meters.

4.08. Chlorination of borehole after drilling.

Borehole after the completion will be chlorinated. The contractor will decide on the concentration of chlorine based on the volume of water in the borehole.

4.09 Drilling and construction of boreholes

The drilling shall be carried out with the least possible delay in order to run casing in the shortest possible time after total depth is reached.

4.10 Straightness and verticality

All boreholes shall be drilled and cased straight and vertical and all casings and screens shall be set round, plumb and true to line. Any delays encountered in running casing and screen considered to be due to poor hole alignment shall be at the Contractor's expense.

The client can at random for a few boreholes ask the contractor to carryout tests for plumpness and alignment as may be required after completion of the well and before its acceptance. The Contractor shall provide the necessary 12 meters section of pipe, not more than 15 mm diameter less than the diameter of the hole. Should the plumb fail to move freely throughout the length of the casing to the required depth or should the well vary from the vertical in excess of two-thirds of the smallest inside diameter of that part of the borehole being tested per 30 meters of depth, the plumpness and diameter of the well shall be corrected by the Contractor at his own expense. Should the Contractor fail to correct such faulty straightness or plumpness, the client may refuse to accept the borehole and no payment of the works and materials shall be made.

4.07 Protection

During the contract period, when work is not in progress, the boreholes shall be kept capped in such a manner as to prevent the entrance of foreign materials. The Contractor shall remove any foreign matter at his own expense. On completion of each borehole, the Contractor shall supply and fit an approved permanent lock-up cap. Casing shall terminate not less than 0.5 meters above ground level and fitted with an end cap.

5.0 ABANDONMENT

The client shall have the right at any time during the progress of the work to order the abandonment of the borehole. The Contractor shall there upon remove the drilling rig, withdraw any casing and screen and salvage all such materials as the client shall direct, and shall fill and leave the borehole to the satisfaction

of the client.

6.0 "LOST" (UNSUCCESSFUL OR DRY BOREHOLES):

"Lost" boreholes are either "dry boreholes" or the uncompleted boreholes. These are:

6.01 DRY BOREHOLES:

Dry boreholes are defined as :

i. If the borehole is dry with no water bearing zones/aquifers;

ii. Boreholes that have insufficient discharge (0.2 liters/sec) to sustain a hand pump facility continuously in use by the communities at the designed discharge rate of the hand pump installed. The minimum guarantee period is three months from the date of construction. During this guarantee period, any reduction in aquifer discharge (less than 0.2 liters/sec) and lowering of dynamic water level below 45 meters resulting in poor or inefficient operation of hand pump (India Mark-II) will be considered as dry boreholes.

The contractor shall either improve the discharge by appropriate well development methods or redrill a new borehole at an alternative site mutually agreed with the V-WASHE Committeeand the contractor. If the contractor after investigations feels that there is no possibilities of drilling a successful borehole in the village, then the driller can shift to a new site given by the D-WASHE Committee.

6.02 UNCOMPLETED BOREHOLES:

Should, by accident to the drilling rig, difficult drilling conditions or formations unsuitable for the drilling method or rig type used, jumping of tools or casing, loss of air pressure, loss of drilling bit or part of drill stem, any other cause other than abandonment on instruction of the client, prevent the contractor from satisfactory completion of the works, the borehole shall be deemed to be lost "borehole".

In case of "lost boreholes", no payment shall be made for that borehole either for drilling or material that cannot be salvaged and rigs unproductive time spent. If the contractor is forced to deviate from standard procedure and agreed method of drilling, wishes to adopt any other procedure or techniques that involve any additional cost and time the so required cost/time will be borne by the contractor.

7.0 DEVELOPMENT

On completion, the contractor will choose a suitable and appropriate borehole development method. The bore hole shall be developed at least for a period of three hours to obtain a maximum yield of water, free of suspended matter. Developing shall be carried out by air-lift pumping and surging, jetting and block surging, or other techniques agreed with the client. All boreholes shall be presented for testing free of any bridging or obstruction to total depth.

8.0 TEST PUMPING

No pumping test is required on a routine basis for each borehole. The contractor will estimate the discharge from the air lifting rates during the borehole development. The development will be at least for a period of three hours to ensure the borehole is clean of silt and drill cuttings.

Based on the estimated discharge, the contractor will certify the borehole as either "successful" or "lost". For successful boreholes, contractor will provide recommendations on installation of hand pumps.

If the communities are unable to continuously use the hand pump facility during the first three month period, the borehole will be regarded "Lost" (see 6.01 clause ii); If the contractor still insist the borehole is successful and refuses to redrill a replacement borehole, then the contractor is obliged to conduct a six hour pump test which will be witnessed by the client appointed agent. If the discharge is less than 0.2 liters/sec., the works will be regarded as uncompleted and no payment will be made to the contractor for the borehole and pump test.

The six hour pumping test will be by a continuous pumping rate at discharge rates to be decided by the contractor based on air lifting rates during development. Pumping rates will normally range between 0.5 and 2.5 l/s but may not fall below the rate of 0.2 liters. If it is below 0.2 liters/second, then the borehole will be regarded as "lost".

The Contractor shall have on site a 90° V-notch weir, preceded by a tank with baffles, for the measurement of flows. Small flows (less than 0.3l/s) can be measured by timing the filling of a vessel of known volume. The Contractor shall also have on site an operating electric dip meter, calibrated in centimeters, and with visual or indicator sound when water level is reached.

Readings of flow and water level shall be taken at the intervals defined in the test pumping form. Recovery readings shall be taken for a minimum of 1 hour, during which period air-lifting or pumping equipment shall not be removed from the bore hole site.

9.0 TEST OF ACCEPTABILITY AND REPORTS:

Subject to meeting the requirements of the maintenance period, the borehole shall be accepted for payments on presentation of the reports of the well construction, lithology logs, drill time logs and discharge rate from airlift test and recommendations on depth of installation of the hand pump.
Several of these aspects can be combined on a single log sheet.

NAME	DESCRIPTION	FREQUENCY
Strata log	An accurate record of strata passed through and the depths at which strata were intercepted, also progressive measured (V-notch) air-lifted yields after reaching water.	Daily
Penetration log	An accurate record of the penetration rates achieved in minutes for each meter drilled, together with type, size and grade of bit.	Daily

Construction log	An accurate record of all casing, and slotted casing run into the borehole, and quantities of all other materials used such as cement, bail plugs etc.	On completion of construction
Time log	An accurate record of time spent each day on different phases of drilling, to include rig down time, with causes	Daily and summary on completion of construction

The contractor is expected to prepare five copies of the above reports to be submitted to the following persons:

1. The D-WASHE Chairman or director of works in the concerned district.

2. The District Engineer from DWA

3. The NGO who is responsible for Community participation and for installation of hand pump.

4. Two copies for UNICEF(Original with invoices for Finance for payments and Copy for programme section)

II. Drilling of bore wells in existing dug wells:

The specifications and terms and conditions for borehole drilling in wells will be the same as described for new boreholes. Some of the additional information and conditions are detailed below:

Existing dug wells that are at least 15- 20 meters deep and are properly lined but are now dry because of the lowering of water tables are selected for further deepening by drilling in the wells. The communities should clean the well of debris, mud and garbage etc before the drilling start. The communities should prepare the well as instructed by driller to enable him to start drilling in the well, specially if the protection wall is to be broken to enable the placement of rig for drilling.

Boreholes are drilled to such depths to tap the deeper aquifer which is under semi-artesian conditions. If these aquifer are productive, then the water in the borehole will rise and fill the well. The bore hole is constructed by lowering the casing and screen as necessary. The casing will protrude about 1 meter above the static water level. The communities should put gravel of thickness about half meter at the basement of the well.

If the water do not rise into the well a hand pump is installed with a well cover. If there is sufficient water in the well then the chain and bucket is used.

For the purpose of drilling, a steel platform with an opening for the casing is put on the well. Through the opening in the shutter, temporary casing is lowered into the base of the well. As the drilling progress the temporary casing is further lowered to case loose formations. The drill cuttings are brought to the surface. After drilling is completed, 4 inch PVC assembly is lowered up to the bottom of the well and gravel packed. The temporary 6 " casing is pulled out.

SCHEDULE OF BOREHOLE DRILLING RATES

1. UNICEF provides you VAT free fuel exemption certificate for fuel per borehole indicated by you.
2. UNICEF will provide Duty and VAT free exemption on casing and screen used
3. UNICEF can provide VAT free and Duty free exemption on drilling bits at a rate of not more than one bit for every 10 successful boreholes completed.

No	Description of activity	unit	Unit price In US$ VAT free Fuel
1.	Mobilisation from base to the first drill site (in the nearest district) and demobilization	Km.	3.00
2.	**Drilling of borehole and well completion:**		
2.1	Site location by appropriate resistivity method: Site selection by traditional methods (Sticks):	L.S. L.S	280
2.2	Mobilisation of the rig between the drill sites:	Km.	4.25
2.3	Drilling of 6" borehole: a. Depths from 0-60 meters	meter	24.00
	b. Depths from 61-80 meters & above	meter	25.00
2.4	Reaming & Installation of temporary casing & pull back	meter	7.85
2.5	Install alation of UPVC 4" well assembly :	meter	3.00
2.6	a. Gravel packing & back filling:.	LS	52.00
	b. Reaming & Grouting of first 3 meters for sanitary protection:	LS	53.90
	c. Well development for 3 hours:	LS	
	d. Pump testing for six hour duration & recovery test (not routinely done, but on boreholes at request by client)	LS	
2.7	Supply of materials by the contractor: (see foot note ##) a. UPVC 4"(100 mm) casing(see specification)	meter	12.00
	b. UPVC slotted screen(as per specifications)##	meter	14.00
3.	Transportation of materials supplied by Client(casing, screens and hand pumps sets) per ton/Km	per ton/Km	300.00
4.	a. Estimated average consumption of fuel for drilling and development of a 60 meter borehole:	liters	860.00
	b. Estimated average fuel consumption per borehole for support vehicles for materials transportation:	liters	
5.	Locally procured casing from Pipco	M	9.00
6.	Locally procured screen from Pipco including support vehicles for VAT free exemption	M	10.00

Name of contractors/ company:
Address of Company:
Company Seal:

ANNEX IX

KALOMO DISTRICT COUNCIL:; D - WASHE WORK PLAN 1997 - 2001

KALOMO DISTRICT COUNCIL

PROJECT TITLE: ***DISTRICT WATER AND SANITATION HEALTH EDUCATION (D-WASHE)***

DOCUMENT TITLE: ***ACTIVITY FINANCING PROPOSAL AND PLAN***

WE NEED YOUR SUPPORT

A SYMBOL FOR COOPERATION IN DEVELOPMENT

DISTRICT PLANNING UNIT- 1997

LOGICAL FRAMEWORK FOR D-WASHE PROJECT DESIGN

(Project Planning Matrix (PPM)

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Overall Goal Overall improvement in rural peoples access to water and helath in Kalomo	Significant improvement in water point user ratios and key helath indicators	Departments of health and water affairs statistics	Other necessary health activities will be undertaken.
Project Goal: Provide safe water to the rural community within a reasonable distance	- user water point ratio reduces significantly - A significant decrease in the indicators of diarrhoea diseases	Periodic surveys	
Project purpose: Increased and continued use of clean water in rural areas of Kalomo District.	Water and sanitation facilities constueted adequately and ~~m~~ntained and utilised by the intended beneficiaries at equitable cost	Inspections of villages, observations and interviews.	The facilities provided and improved health unde standing will deter caus use of the old pollited water sources.

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANCE ASSUMPTIONS
Project outputs: Boreholes drilled and hand pumps installed, operating and maintained. Pitlatrine and refuse dug and used by communities	90 boreholes drilled (1997) and handpumps isntalled for people	Council, DWA and MOH field monitoring.	Clean, convenient water supply will be utilised and will produce the expected health improvements
INPUTS: - Formation of V-Washes - Monitoring of boreholes - Trainig of pump menders - Installations - Maintenance of vehicle - Health education - construction of latrine for demo. - Monitoring of sanitation - training of D-Washe members and Councillors - Administrative Costs	Expenditure per activity 5,250,000 750,000 2,652,500 2,000,000 5,120,000 4,525,000 1,492,000 3,000,000 4,000,000 31,773,000	Donor Agency, DWA, MOH and Council field monitoring	Communities contribute sufficien amounts of money to ensure adequate maintanance of water points. Satisfactory incentives established for hanpump repair and replacement by the beneficiarie

Appendix 15 Budget

NO.	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANISATION	INPUT	QUANTITY				UNIT COST	TOTAL COST (K)
					COMMUNITY	COUNCIL GRZ.	DONOR	TOTAL		
1.	Formation of 90 V-WASHES	JAN-JULY	Comm. Dev. & Social Welfare	Fuel Allowances		1 000 L	3000L	4000L 50 Trips x 3	900 15000	3,600,000. 2,250,000
2.	Monitoring of drilling 20 Bore-holes	JAN-NOV	M.O.H D...A COUNCIL	Fuel Allowances		Vehicle and Perso-nnel	400L	400 L	900 45000 20000	360,000 270,000 120,000
3.	Training of 15 Pump Menders	MARCH-JUNE	DWA	Fuel Allowances Training Materials		Vehicle and Perso-nnel	1850L	1850L	900	1,665,000 800,000 187,500
4.	Transpo-rting of Pumps and MOULDS	MAY	D...A Driver	FUEL Allowances		"		320L	900	288,000 160,000
5.	Installa-tion of hand pumps by pump menders	MAY-NOV	Community	Allowances		Community		-	-	-
6.	Monitoring of Pump-menders	MAY-NOV	D. .A Council	Fuel Allowances		"		320L	900	288,000 160,000
7.	Maintenance of vehicles	JAN-NOV		-		"			Lump Sum	2,000,000
										13,836,000

NO.	ACTIVITY	TIME FRAME	RESPONSIBLE ORGANISATION	INPUT	QUANTITY			UNIT COST	TOTAL COST (K)
					COMMUNITY	COUNCIL ZRZ	DONOR		
1.	HEALTH EDUCATION	FEB-AUG	Health E.H.T	Fuel IEC Materials Allowances Stationery	- - - -	72L 500000 20 Reams (up copper)	1080L 1500000 30 Reams (own copper)	900 - 10,000	1620000 2000000 1000000 500000
		Sub - Total			-				5120000
2.	CONSTRUCT OF LATRINES FOR DEMONSTRATION	FEB-AUG	E.H.T	• Cement • Lonfirla Wire • Bricks • Crushed Stones • Building Sand • River sand • Allowances • Fuel	- - 30 000 40 Tonnes 40 " 40 " - -	10 - 72L	190 60mt 1080L	10000 10000 15000 900	2,000000 600000 105000 1620000
		Sub- Total							4,325,000
3.	SANITATION Monitoring	Quarterly	MCH COUNCIL	Fuel Allowances	-	72L	1260L	900 2000	1,332,000 160,000
		Sub- Total							1,492,000
4.	TRAINING D- WASHE Councillors								2,000,000 1,000,000
		Sub- Total							3,000,000

5. Administrative Costs

- Taking drillers to the proposed sites		1000 000
- Photocopying		500 000
- Stationery		100 000
- Allowances for Quarterly Progress review meetings of D- Wards		2400 000
	Sub Total	4000 000
	GRAND TOTAL	K31,773,000

ANNEX X

PROO F OF TRASPARENCE-

RECORDS OF USER PAYMENT

ANDSAMPLE OF RECEIPTS.

Village SIMALELE

DATE	NAME	~~CASH~~ NO	CASH SALE NO	AMOUNT	Received By
13/10/95	D. NAMAKANDA	0015	15	K3,000=00	✓
" "	J. S. MWEENE	0021	21	K3,000=00	Mrs. J. Simweene
" "	A. MUNKOMBWE	0024	24	K3,000-00	
" "	JONATHAN MUNKOMBWE	0025	25	K3,000=00	Mr J Munkombwe
14/10/95	S. HAMBWEKA	0028	28	K3,000=00	Hamweka
" "	K. MULENGA	0033	33	K3,000=00	C. Hamweka
15/10/95	MARIYA MULEYA	0037	37	K3,000=00	✓
" "	FANTA MUTINTA	0038	38	K3,000=00	Fanta Mutinta
" "	MOSES SINCWAYO	0049	49	K3,000=00	MOSES
16/10/95	J. MAYAMBO	0047	47	K3,000=00	~~Paid~~
" "	J. KAZANYA	0051	51	K3,000=00	Paid
" "	DICKSON SILUKULA	0052	52	K3,000=00	Paid
" "	MATISON NAJAME	0062	62	3,000=00	Paid ~~Paid~~
	MUNYATI SIMWANDA	0063	63	3,000=00	~~Paid~~
	ALON NAMAKANDA	0068	68	3,000=00	Alon Namakanda
18/10/95	S. MATI SITALI	0071	71	3,000=00	Paid
9/10/95	S. MUINYUKA SIAMASAMU	0072	72	3,000=00	Paid
11-11-95	ALICK MWEEMBA	0078	78	3,000=00	Paid
12-11-95	DENESH KATAMBO	0079	79	3,000=00	BALANCE 2,000
13/11/95	S. A. HANGANYA	0080	80	3,000=00	Paid
17/11/95	SANDILE CHIMWINGU	0081	81	3,000=00	Paid

Sibuky Mulibus

DATE	NAME	CASH SALES	No	AMOUNT	Received
12/10/95	BENANI MUNKOMBWE	0001	1		
" "	" " "	" "		K3,000=00	Bus Fare
" "	J.SALIYANA	0002	2	K3,000=00	
" "	W.MUBANGA	0004	4	K3,000=00	SELF
" "	C.MUBANGA	0005	5	K3,000=00	
" "	M.MUBANGA	0006	6	K3,000=00	" Moses Mubanga
" "	P.HALITI	0008	8	K3,000=00	" P. Haliti
13/10/95	LAMECK SHAMUSALE	0009	9	K3,000=00	" LAILA
" "	P.NANGULOMBE	0011	11	K3,000=00	" P. Nangulombe
" "	SITOLOMA	0012	12	K3,000=00	" Naiba
" "	AMOS HANDUNKA	0016	16	K3,000=00	" Nelly Handunka
" "	J.SEKAZIKA	0018	18	K3,000=00	Jericho Sukazi
" "	JACKSON MUNKOMBWE	0023	23	K3,000=00	J. Munkombwe
14/10/95	MICHAEL NGANJI	0029	29	K3,000=00	"
" "	MARSHAL BULONGO	0030	30	K3,000=00	
" "	E.MUNIANGA	0031	31	K3,000=00	" Enfield
" "	FULENI KASISIMUNA	0032	32	K3,000=00	" F. Kasisimuna
15/10/95	GIVEN KASISIMUNA	0036	36	K3,000=00	"
15/10/95	DOMINIC MUCHINDA	0038	38	K3,000=00	" Muchinda
" "	RITA MUTINTA	0040	40	K3,000=00	"
" "	C.MUNIANGA	0042	42	K3,000=00	"
" "	Beyindi SIANDUNKA	0043	43	K3,000=00	(500BL)
16/10/95	MARIA HAMUCHI	0046	46	K3,000=00	Paid
" "	B.SIANDUNKA	0043	43	K3,000=00	" Paid
" "	B. KASISIMUNA	0044	44	K3,000	~~Not Paid~~
" "	J. KAKOMA	0045	45	K3,000=00	Paid "
" "	JONMICHELO	0007	7	K3,000=00	"
" "	D.MUNIANGA	0053	53	K3,000=00	DAMEL Kuni
" "	JONSON MUNIANGA	0058	58	K3,000=00	Paid
" "	MITA SAMBEBE	0060	60	K3,000=00	Paid Mutema
" "	G.HALUMBA	0061	61	K3,000=00	(500BL)

St. Bukuy Bulinzi Boarden

CASH

DATE	NAME	SALE NO	NO	Amount Received	Ka
13/10/95	SHADRECK M. MUSANJE	0017	17	K3,000=00	R. Musan
" "	O. KAZENI	0019	19	K3,000=00	O. KAZEN
14/10/95	SAM. CHONGO	0026	26	K3,000=00	
" "	RIBA. CHONGO	0027	27	K3,000=00	BALANCE
15/10/95	M. HAKAMINZA	0034	34	K3,000=00	(Sambl Pale
" "	F. MWILA	0035	35	K3000=00	Nat (P.L)
" "	G. MUNSANJE	0041	41	K3,000=00	L. munsanje
16/10/95	MATIYAS NGHANJU	0048	48	K3,000=00	meeting
16/10/95	B. MWILA	0050	50	K3,000=00	B. mwila
" "	GIFT. Mulinga	0055	55	K3,000=00	Gift mulin
" "	P. LANGANJU	0056	56	K3,000=00	Peace
" "	DEXTAR MUHAMBA	0064	64	K3,000=00	D mwanza
" "	JONA MWANANGAEZA	0065	65	K3,000=00	J mwanangu
22/10/95	VISENTI NABUYANGA	0075	75	K3,000=00	Vincent Nabunga

SIBUKU SIAMATENDE

DATE	NAME	CASH SELENO	NUMBER	AMOUNT	RECEIVED
13/10/93	TENISONE MUSANJE MASUBAS.	0010	101	K3,000=00	Joyce Sabao
"	K.M.SIACHIWENA	0014	14	K3,000=00	Benard
"	P.KALANGA	0020	20	K3,000=00	P.Kalanga
"	B.NAMANGOMA	0059	59	3,000=00	Paul

Sibuku Mupafi

DATE	NAME	CASH NO	NO	K	Received Paid
16/10/95	ESTA MUSANJE	0054	54	3,000=00	Paid
" "	F. MUSANJE	0057	57	3,000=00	"
17/10/95	VENI MULINGA	0064	67	3,000=00	V. Mulinga
	TOTAL			246,000=00	

13-10- 95

P. NANGULO 3,000-00

0011

K3,000=00

3,000

13-10- 95

SITOLOMA 3,000=00

0012

3,000=00

3,000=00

13-10- 95

0013

KIM

SIACHI

0010 13-10- 95

KIM

SIACHIWENA 3,000-0

K3,000=00

3,000-0

13-10- 95

DAUDI SAMAKA

0015

NDA 3,000-00

K3,000=00

9,000=00

ANNEX XI

REFERENCE EXTRACTS

In this module we have presented guidelines for all levels of the Sector to address the current gender imbalances. The CMMU considers that these strategies are the minimum requirement if Zambia is to achieve equitable access to safe, adequate and clean rural water supply and sanitation for all its rural citizens.

In order to realise our goals the CMMU and the N-WASHE Co-ordination and Training Team are currently :

- undertaking advocacy activities at national level
- ensuring that all internal recruitment and selection exercises are transparent and gender aware
- professionally supporting women at national level within the Units charged with the implementation of the Sector Reforms
- continually seeking and securing increased GRZ allocation and donor commitment to the Sector to fund gender awareness training, the production of guidelines and their dissemination
- integrating the gender perspective in the all strategic planning exercises
- developing and disseminating gender specific WASHE guidelines to assist the facilitation of gender balanced programmes at all levels as part of our community management approach
- advocating as part of the Sector Reforms that a regulatory diversity unit be established
- collaborating with our partners, national and regional on enhancing gender equity
- researching and learning about gender strategies and participatory techniques that will assist action for change at all levels of the sector
- targeting district level women in GRZ, NGOs and/or the private sector that can potentially take an active role in D-WASHE committees and training them in leadership, assertiveness, basic water, sanitation and health education principles and management skills
- mainstreaming gender in the development of the National Training Strategy for Rural Water Supply and Sanitation through health education
- talking, discussing and embracing gender and development themes, principles and action !

WORKSHOP ON THE INTEGRATION OF WOMEN IN WATER SUPPLY AND SANITATION ACTIVITIES

PROCEEDINGS

1.0 INTRODUCTION

1.1 Zambia drafted an action plan for the water and sanitation sector in 1983. This plan was based on commitment to the aims and goals of the International Drinking Water Supply and Sanitation Decade (IDWSSD), a UN resolution to which Zambia was a signatory. The Action Plan has formed the basis for subsequent activities in the WSS Sector, including the formulation of policy guidelines outlined in the Fourth National Development Plan.

A review of development efforts in the WSS sector has indicated an increase in the rural water supply coverage from 32 percent of the population in 1980 to 41 percent in 1985. Though coverage in nominal terms continue to increase, the reliability of the installed facilities is very limited. Several factors including inappropriate technology, lack of knowledge and skills in the community arising from lack of training and lack of involvement in the earlier phase of project implementation have attributed to this state of affairs. More specifically, the exclusion of women in the planning, implementation and evaluation of such projects has been documented to have greatly contributed to this situation.

It is against this background that the DWA in the Ministry of Water, Lands and Natural Resources and United Nations Development Programme organised this workshop on the Integration of Women in Water Supply and Sanitation Activities in Zambia. The overall objectives of the workshop was to provide a forum for those involved in WSS activities; to share their experiences and formulate a common strategy on how best women can be integrated in such activities. The specific objectives were:-

(i) Review the roles, achievements to date and intended contributions of organisations involved in implementing and supporting WSS activities.

(ii) Strengthen their common understanding of what each other had set out to do or is doing in the area of WSS.

(iii) Identify and clarify some of the key issues impacting on success and/or failure of such projects.

(iv) Strengthening the interpersonal and inter-organizational relationship critical to the integration of Women in Water Supply and Sanitation project's success.

(v) Provide a common understanding of the implementation the WASHE concept in all provinces.

Papers describing the activities of GRZ and selected donor agencies in the sector were presented. A theme paper was presented by the workshop consultant to identify and highlight certain issues which operate as barriers to women's participation in sector activities. Group discussions were conducted on the salient aspects of a project's cycle and recommendations were made in regard to changing conditions which inhibit women's participation.

These proceedings are a summary of all speeches and discussions during the plenary sessions. The full details of papers presented and recommendations arising from group discussions are in the Annexes. The conference programme is Annex 1 and the list of participants is Annex 5.

Monday 8th July, 1991

1.2 Opening ceremony

1.2.1 The opening remarks and welcome were made by Mr. L. Mbumwae, Acting Director of Water Affairs Department. He stressed the need to create capacities for operation and maintenance of water supply facilities; to create awareness of sanitation activities throughout the country; and

Annex 2

UNDP STATEMENT AT THE INTEGRATION OF WOMEN IN WATER SUPPLY AND SANITATION ACTIVITIES SEMINAR 8-11TH JULY, 1991, LIVINGSTONE

HON. MINISTER

THE CHAIRMAN. DIRECTOR OF

WATER AFFAIRS DEPARTMENT

COLLEAGUES

LADIES AND GENTLEMEN

THE ISSUE BEFORE US THIS WEEK IS NOTHING LESS THAN DETERMINING HOW ZAMBIA'S RURAL POPULATION CAN BE PROVIDED WITH AN ADEQUATE SUPPLY OF SAFE WATER AND PROPER SANITATION-SERVING THE UNSERVED'. INVARIABLY AMONG THE UNSERVED ARE THE POOR WHO SUFFER FROM THE VICIOUS CYCLE OF ILL HEALTH, LOWERED PRODUCTIVE CAPACITY AND HARDSHIP IN A DETERIORATING ENVIRONMENT. AMONG THE RURAL POOR, ARE THE WOMEN AND CHILDREN WHO SUFFER. WITHOUT CLEAN WATER AND DECENT SANITATION, THEY HAVE LITTLE CHANCE FOR BETTER HEALTH AND FOR THE BETTER LIFE THAT ECONOMIC DEVELOPMENT CAN BRING.

MR. CHAIRMAN, AS WE MAY ALL KNOW THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE (IDWSSD) WHICH WAS INAUGURATED BY THE GENERAL ASSEMBLY OF THE UNITED NATIONS CAME TO AN END LAST YEAR. THOUGH WE DID NOT ACHIEVE ALL OF OUR AMBITIOUS GOALS, THE DECADE SHOWED SOME REMARKABLE RESULTS. IT MAY HOWEVER, BE WORTHWHILE FOR US, DURING THIS WEEK AND FROM TIME TO TIME, TO REFLECT ON THE LESSONS OF EXPERIENCE OF THE DECADE AS WE CONTINUE TO SEARCH FOR SOLUTIONS AND PLAN FOR THE FUTURE. THESE LESSONS OF EXPERIENCE, MR. CHAIRMAN, INCLUDE THE FACT THAT:-

- AFFORDABLE TECHNOLOGIES ARE EFFECTIVE AND THAT COMMUNITIES CAN TAKE RESPONSIBILITY FOR THEIR OPERATION. MOST STRIKING BEING THE SUCCESSFUL INVOLVEMENT OF WOMEN IN PLANNING AND DECISION MAKING.

- WHERE GOVERNMENTS CANNOT AFFORD TO PROVIDE FOR SERVICES THE PEOPLE THEMSELVES ARE FULLY PREPARED TO HELP PAY FOR WATER AND BETTER SANITATION.

MR. CHAIRMAN, WOMEN ARE THE MAIN CARRIERS AND MANAGERS OF WATER FOR HOUSEHOLD USE, AS WELL AS THE CUSTODIANS OF FAMILY HYGIENE. THEY THEREFORE CONSTITUTE AN ENORMOUS BUT LARGELY UNTAPPED RESERVOIR OF INITIATIVE AND CREATIVITY FOR SOLVING WATER AND SANITATION PROBLEMS. WITH THEIR KNOWLEDGE OF COMMUNITY NEEDS AND CUSTOMS THEY CAN BEST DETERMINE WHERE TO PLACE WATER POINTS. AS THEY SUFFER MOST WHEN

FACILITIES BREAKDOWN, THEY HAVE A VESTED INTEREST IN ENSURING GOOD MAINTENANCE. THEY PROVIDE CHILDREN WITH THEIR FIRST HEALTH LESSONS AND THEY ARE THE ONES WHO DECIDE NOT TO USE NEW FACILITIES IF THEY DO NOT RESPOND TO NEEDS. GUIDELINES AND CHECK LISTS FOR INVOLVING WOMEN IN DEVELOPMENT PROJECTS HAVE BEEN PRODUCED AND DISTRIBUTED BUT STILL MANY PROJECTS DO NOT REFLECT WOMEN'S ROLES EXCEPT IN A GENERAL WAY. THIS IS MAINLY DUE TO A LACK OF EXPERIENCE AND KNOWLEDGE ON HOW WOMEN'S PARTICIPATION CAN BE ENCOURAGED AND HOW THIS TRANSLATES INTO POLICIES, WORK PLANS AND ACTIVITIES AT THE FIELD LEVEL.

IT IS DUE TO THE FOREGOING, MR. CHAIRMAN, THAT THE CURRENT UNDP SUPPORT TO THE GOVERNMENT IN THIS SECTOR IS THROUGH THE PROJECT, NAMELY, " THE INTEGRATION OF WOMEN IN WATER SUPPLY AND SANITATION ACTIVITIES IN ZAMBIA". UNDP ENVISAGES THROUGH THIS PROJECT TO FACILITATE THE FORMULATION OF A FRAMEWORK FOR INTEGRATING WOMEN IN RURAL WATER SUPPLY AND SANITATION ACTIVITIES IN ZAMBIA BY THE DIFFERENT ACTORS IN THIS SECTOR. TO THIS END IT IS EXPECTED THAT THIS SEMINAR WILL PROVIDE FOR A FORUM TO EXCHANGE EXPERIENCES, IDEAS, SUCCESS STORIES AND VISIONS FOR THE FUTURE.

IN CONCLUSION, MR. CHAIRMAN, IN ACCORDANCE WITH THE NEW DEHLI STATEMENT OF THE GLOBAL CONSULTATION ON SAFE WATER AND SANITATION TO MAKE THE END OF THE IDWSSD DECADE, THE CHALLENGE FOR THE FUTURE IS "SOME FOR ALL, RATHER THAN MORE FOR SOME". LET ME ASSURE YOU ONCE MORE MR. CHAIRMAN, THAT UNDP IS AND REMAINS COMMITTED TO ASSISTING THE GOVERNMENT TO MEET THIS CHALLENGE.

I WISH YOU SUCCESS IN YOUR DELIBERATIONS.

WATER SECTOR NEWS

WATER SECTOR DEVELOPMENT GROUP & COMMUNITY MANAGEMENT & MONITORING UNIT NEWSLETTER

NUMBER 5. DECEMBER 1996

WOMEN AND WASHE IN ZAMBIA

By Hope Nkolemo - Health planner - WASH

WASHE stands for Water, Sanitation and Health Education in Zambia. This concept has been developing in the last 10 years learning mainly from the experiences of Western and Southern Provinces. It has since been recognised as a sustainable approach to Rural Water Supply and Sanitation. The National goal of Rural Water Supply and Sanitation is aiming at ensuring universal access to adequate, reliable, safe water and sanitation services. Since reliable, safe Water and Sanitation services are essential to life and yet the current situation is such that only one third of the rural population have access to safe drinking Water and Sanitation facilities. Scarcity of Water compounded by inadequate sanitation and poor hygienic practices causes common diseases that have an impact on public health. Women who are key players /actors in WASHE related programmes are not adequately represented in planning and decision making.

WHY TARGET WOMEN?

Women encounter a lot of constraints in the Water and Sanitation Sectors some of these problems will show :-

In many developing countries Zambia included, women are primary haulers and users of water for home / domestic consumption. As home managers women decide where and when to collect water. They also determine how much to collect and how to use it. They are also traditional guardians of Family health and teachers of Sanitation and hygiene education aimed at disease prevention of their families and communities. It is the Women that teach young children and supervise the use of water and sanitary facilities. They also enforce hygiene at family and community level. Women Play an important role in the maintenance and management of community water supplies and sanitary facilities and yet they lack knowledge needed to repair and maintain the technologies. This compounded by fact that women's work in carrying water and maintaining sanitation facilities is not given any economic value. To make matters worse often water and sanitation technologies do not take into consideration women's needs, concerns and views. This is as result of lack of consultation of women leading to one sided decisions. Finally women are excluded from planning implementation and monitoring of water and sanitation programmes.

Continued on page 7

WOMEN AND WASHE IN ZAMBIA

Continued from page 4

There is evidence that although women are the main users and regarded as guardians of the nations health and well being they are not adequately represented in decision making as related to water and sanitation development programmes. Experience has shown that at district and Sub-district levels women hold very few positions of authority and have very little or no executive functions. For example the National WASHE Co-ordination Training Team has been around to introduce the WASHE concept in 10 districts in the Northern, Southern and Eastern Provinces. During these workshops the following observations have been made in relation to participation of women in District WASHE.

Table 1: Participation of men and women during the WASHE concept introduction workshops conducted in 10 districts in Northern, Eastern and Southern Provinces.

Name of District	Total No. of Participants	No. of Participants by gender: Females	males
Chadiza	19	1	18
Chipata	12	1	11
Katete	20	1	19
Mazabuka	15	1	14
S/zongwe	16	2	14
Isoka	31	4	27
Kaputa	22	4	18
Kasama	27	4	23
Mbala	18	0	18
Nakonde	17	3	14
Total	197	21	176
%	100%	11%	89%

What efforts are being put in places in order to promote involvement of women at district level.

1. In the immediate future identification of 3 women have the potential to contribute to development of WASHE programmes at district level.
2. Institute a deliberate training programme to address empowerment needs of the identified women in order for them to influence decisions with focus on women's concerns, needs and issues in WASHE programmes.
3. Carry out sector specific gender awareness training in the context of project cycle for rural water supply and sanitation for all WASHE partners.
4. Ensure Strategic D- WASHE plans to integrate the ability, motivation and Commitment of both men and women in the sector.

From the foregoing scenario it is evident that women have vested interest in the establishment and sustenance of safe, reliable water and sanitation programmes. Since inaccessibility of water means hard work for women and girls. Women and Girls walk long distances to fetch water for home use. Due to their domestic roles women come in greater contact with contaminated water hence risk infectious water borne disease. And yet their participation in the mainstream interest group in WASHE programmes is very low. It is therefore imperative that women (are) should be involved as beneficiaries through lessening their burdens and allowing them to contribute to other development activities and as partners in planning and decision making in order to take into account their needs, issues and concern.

* Carrying out specific hygiene behaviour studies prior to implementing water and sanitation projects.

* Increasing emphasis on private sector involvement to provide spare parts and technical service for complex technology.

* Operationalizing the joint WHO/UNICEF water and sanitation monitoring programme by instituting bottom-up participatory data collection and reporting systems and establishing communication links between sector agencies and communities through rural and district councils and regional administrations.

* Formulating national policies, strategies, legislation and action plans for community management of rural water supply and sanitation systems.

3. RECOMMENDATIONS

In order to respond to the constraints formulated earlier, the participants of the Workshop were divided into four Working Groups (Urban water supply; Rural water supply; Urban sanitation; Rural sanitation), and a series of recommendations were proposed and then discussed and agreed upon in a Plenary Session. The recommendations are listed below:

3.1 Recommendations concerning O&M of Urban Water Supply

Planning issues

1. The Central Government should review its budgetary policies with the allocation of sufficient financial resources to the water supply sanitation sector.
2. A programme should be formulated and implemented dealing with the rehabilitation and replacement of components of the water supply systems where considered appropriate.
3. Preventive maintenance services should be introduced in order to increase the reliability of the systems, reduce the need for corrective maintenance and reduce the overall maintenance costs.
4. The private sector should be involved in the execution of preventive maintenance service specially where it is not cost effective or efficient to carry out these services through the water agencies staff.
5. The water agencies should count on information systems to support the adoption of managerial decisions at all levels.
6. The water agencies should develop sound procedures for the updating of records and plans of the pipe distribution system and other operational units.
7. In order to minimize the problems related to vandalism of the water supply facilities, the provision of appropriate means should be found to provide coverage to populations along the existing structure. In addition, the access to the infrastructure should be limited and controlled.
8. Surveys should be conducted to identify the unaccounted for water component and programmes should be formulated and implemented to minimize these losses to acceptable levels having into account technical and financial factors.
9. Universal metering should be adopted as a strategy to reduce wastage of water, to ensure that the water delivered is efficiently used by the consumers and to achieve a more equitable approach for cost recovery.
10. Meters should be regularly maintained to ensure their functioning according to established specifications. The meters used within the same water supply should be standardized to facilitate its control and maintenance.
11. Public educational campaigns should be organized to increase public awareness on the importance of water use and to promote the ownership concept of infrastructure.
12. Special consideration should be dedicated to water conservation at the level of the consumers. Consumers should be aware of the importance of effective and efficient use of water. The water agencies should encourage the manufacturing of water saving devices and should educate the consumers towards the importance of water conservation.

Financial issues

13. Water agencies be structured to generate revenue to cover O&M costs and long term investments for the achievement of its financial self-sufficiency.
14. The water tariff structure should reflect the need of revenue collection to ensure the coverage of capital and O&M costs. The tariffs should be adjusted within adequate time intervals to ensure the continuous financial sustainability of the water agency.
15. The need for cross-subsidization should be assessed and implemented where appropriate.
16. The tariff should be established according to technical criteria and should not be influenced by political motivation.

Management issues

17. The senior management and administration of the water agencies should be encouraged to offer improved conditions of work to their employees. Adequate salary levels, a plan of career development and a consistent training programme should be common strategies, to ensure increased staff motivation, greater efficiency of the institution and to prevent the loss of personnel towards the private and other sectors.
18. The middle level managers should receive special attention with regard to training, motivation and salaries as they are not severely affected by political changes at the high administrative level of the institutions. Stronger middle level managers would ensure the continuity of the policies and programmes under the implementation by the agency.
19. Decision-makers at the highest possible level should be convinced about the importance of water supply as opposed to other sectors (energy, telecommunication, etc...) to ensure the channelling of appropriate levels of financial resources to improve Water supply coverage and better management practices.
20. The water sector agencies should be better organized to maximize and optimize their operations avoiding overlapping responsibilities and to have better coordination.

3.2 Recommendations concerning O&M of Rural Water Supply

Planning issues

1. Governments should formulate strategies on operation and maintenance development.
2. These strategies should define the role and responsibilities of all actors involved.
3. Strategies should ensure the adequate choice of appropriate technologies including availability of spare parts.
4. Strategies should optimize the handing over procedures after completion of projects.
5. Governments should provide legal tools to implement rural water supply projects and programmes.
6. Governments should improve the coordination of NGOs and donor activities including : registration of assisted projects, reception of progress reports and coordination of choice of technology.

Management, Institutional and Organizational issues

7. A reorganization or adjustment of the institutional framework could be necessary in order to optimize the implementation of a new strategy.
8. Management capacity at all levels (planning and communities) should be improved.
9. Awareness on operation and maintenance issues should be enhanced and sustained at all levels (planning and communities).
10. An appropriate data bank system on O&M for management purposes should be improved or introduced.

Training issues

11. Training capacity for providers, users, mechanics and trainers themselves should be strengthened and adapted to Operation and Maintenance issues, including O&M system development; management and finance; technical issues; health education; gender awareness.

Finance issues

12. An appropriate tariff system covering O&M costs, which communities could sustain, should be established.
13. Revenue collection system should be strengthened.
14. Allocated funds should be used with closer supervision.

3.3 Recommendations concerning O&M of Urban Sanitation

1. Government should review and re - structure sanitation tariffs in urban areas,
2. The funds from sanitation tariffs should be used exclusively for sanitation activities.
3. Governments should initiate sustainable sanitation programmes and approach donors for funding.
4. Data bases and monitoring systems should be established in urban areas for planning and management purposes in sanitation activities.
5. Governments should initiate institutional capacity building activities in urban sanitation (training, procurement,..)
6. Governments should allocate adequate funds and other resources.
7. Urban planners should make available land for residential settlement in conformity with the urban population growth rate.
8. Governments should ensure that the developments in the urban areas adhere to the laid down procedures (in accordance to existing master plans).

3.4 Recommendations concerning O&M of Rural Sanitation

1. Rapid assessment of sanitary facilities should be carried out to update or establish baseline data.
2. Data collection on water supply and sanitation monitoring system should be institutionalized as part of the national monitoring system (in the context of WASAMS).
3. Sanitation training at the community level should be initiated and strengthened in the light of changing technology
4. Capacity building of community based operations and maintenance should be promoted.
5. National leaders should declare one day in a year as a sanitation day.
6. Minimum standards on sanitary facilities should be set up with a view of achieving universal coverage.
7. Ministry of Health should review, update and amend the Public Health Act.
8. Ministry of Health should solicit support from the highest political authority to have the mandate of implementing sanitation programmes.
9. Ministry of Health should initiate and promote activities which will reduce morbidity and mortality from sanitation related diseases.
10. Opportunities should be created for income generating activities to enable villagers to improve and sustain their own sanitary facilities.

3.5 Recommendations concerning the AFRICA 2000 Initiative

General recommendations

1. The Workshop recognizes the value and the need of the AFRICA 2000 Initiative, which proposes :
   - to increase investments in water supply and sanitation services in Africa, through a cooperative effort of Member Sates and external donors
   - to advise on potential development programmes and serve as link between organizations
   - to carry a rapid needs assessment
   - to facilitate the priority setting and formulation of strategies through workshops
   - to raise the public profile of the sector through an innovative communication strategy and close relationship with the media
   - to support implementing mechanisms, through all existing coordinating mechanisms.
2. This Initiative would be a major achievement in the sector for Africa in the coming years.
3. Operation and Maintenance concerns should be considered as a major component of the AFRICA 2000 Initiative and as a key strategy to ensure the sustainability of the water supply sector in Africa.

2.2.4 Defining clear institutional responsibilities of all stakeholders in the Water Sector for effective management and co-ordination by:

i) separation of water resources management responsibilities from those related to water supply;

ii) concentration of water resources management activities in one line Ministry;

iii) identification of weaknesses in the existing institutional structure regarding water resources management;

iv) recommending reorganization measures for water resources management.

2.2.5 Developing an appropriate institutional and legal framework for effective management of the water resources by:

i) strengthening capacity in water resources management activities in the DWA;

ii) enactment of appropriate legislation to deal with water resources management at national level as well as those dealing with internationally shared water resources;

iii) recognition of Environmental Protection and Pollution Control Act and any other pieces of legislation relating to water resources quality aspects.

2.2.6 Promoting a state of disaster preparedness to mitigate impacts of extreme occurrence of water (flood and drought) through:

i) establishment of early warning system capabilities pertaining to floods and drought;

ii) provision of financial resources to establish and strengthen research activities in climatic variations related to flood and drought occurrence;

iii) effective co-ordination links between various institutions during emergence situations.

2.2.7 Recognising water as an economic good by:

drafting a water tariff legislation to cover the provision and allocation of water resources for consumptive and non- consumptive use.

2.4 RURAL WATER SUPPLY AND SANITATION (RWSS)

Adequate clean water supply and sanitation are absolute necessities to the well being of life. The current situation is such that one-third of the rural population have access to safe drinking water and sanitation facilities. This means that a majority of rural population still remain at great risk of exposure to some water borne diseases. The problems of RWSS include the following: (a) lack of an adequate institutional framework; (b) absence of coordination amongst the many organisations involved in RWSS; (c) inadequate national policy on community participation; (d) ineffective Government policy on Operation and Maintenance; (e) low coverage of health educational programmes on the benefits from better water and sanitation; (f) absence of standardised pumping technology and water point designs; and (g) limited financial resources to rehabilitate and upgrade existing water RWSS infrastructure.

Given this background, the Policy supports measures aimed at increasing accessibility to safe drinking water and sanitation facilities for the rural population of Zambia. The overall National goal shall be:

universal access to safe, adequate and reliable Water Supply and Sanitation Services

The following are the policy measures and strategies which are aimed at achieving this important goal:-

2.4.1 Ensuring that RWSS Programmes are Community based through:

i) formation of Water Committees for effective coordination, management and mobilization of resources;

ii) integration of community education, motivation, health and hygiene and water awareness programmes in development, operation and maintenance of RWSS programmes;

iii) development of standardized educational materials and training of trainers.

2.4.2 Developing a well defined investment programme for sustainable RWSS by:

i) assessing the costs for meeting water and sanitation needs;

ii) establishing appropriate procedures of appraising and financing of RWSS projects;

iii) according preference to rehabilitation and upgrading of existing facilities rather than construction of new RWSS schemes;

iv) encouraging of investments in RWSS.

2.4.3 Promoting appropriate technology and research activities in RWSS through:

i) standardisation of construction methods, equipment, procedures and other important aspects of appropriate technology;

ii) consideration of user views in relation to choice of technology;

iii) involvement of educational and research institutions like UNZA (particularly TDAU) and NCSR in development of appropriate technology;

iv) establishment of an appropriate mechanism for data collection, processing, analysis and dissemination of vital information related to RWSS;

v) provision of incentives to local manufacturers engaged in development and production of appropriate technology.

2.4.4 Developing an emergency and contingency plans to mitigate impacts of drought and floods in rural areas by:

i) establishing early warning system capabilities pertaining to floods and drought;

ii) provision of adequate resources to establish and strengthen research activities in climatic variations related to flood and drought occurrences;

iii) effective co-ordination links between various institutions during emergence situations.

2.4.5 Developing a cost recovery approach as an integral part of a RWSS which will ensure sustainability by:

i) encouraging user communities to contribute part of the investment cost of RWSS schemes. This contribution could be in terms of labour and locally available material to be used in the construction phase;

ii) assisting the communities in the assessment of costs, establishment of revenue (fee and charges) collection mechanisms and determination of contributions towards operation and maintenance (O&M) of RWSS schemes.

2.4.6 Development and Implementation of well articulated Training Programme by:

i) establishing a Human Resource Development Unit;

ii) defining service targets and estimating manpower needs in the sector;

iii) identifying occupational priorities and determining training requirements;

iv) preparing an Instructors' Manual and Planning Guide for the training of Trainers.

2.5 URBAN WATER SUPPLY AND SANITATION (UWSS)

In urban areas, the level of access to safe drinking water and adequate sanitation facilities are 70 per cent and 43 per cent respectively. This implies that slightly more than 50 per cent of urban population is susceptible to some water borne diseases due to poor sanitation. The problems being experienced in UWSS are similar to those highlighted under section 2.4. Additionally, urban areas are facing serious problems related to proliferation of illegal settlements especially on rich water aquifers and uncontrolled discharge of effluent into water sources. **However, Peri-urban areas considered to be legal settlements by Government shall be treated in the same manner as urban areas with regard to provision of water supply and sanitation facilities.**

In this light, the **Policy is oriented to provide adequate, safe and cost effective water supply and sanitation services with due regard to environmental protection.** The policy measures and strategies for achieving this goal are as follows:-

2.5.1 Maintaining strategic reserves or stock pile of water treatment chemicals by:

i) assessing the quantity of water treatment chemicals and ensuring their availability at all times -including emergencies;

ii) procuring and storing adequate chemicals under the safe custody of the GRZ and any other responsible organization;

iii) monitoring quantity and quality of chemicals by GRZ and any other responsible organisation.

2.5.2 Implemention of a well planned delinkage of water resources management from water supply and sanitation management through:

i) separation of water resources management responsibilities from those related to water supply;

ii) concentration of water resources management activities in the MEWD;

iii) conducting an inventory of existing urban water supply facilities, technical and financial resources, manpower and other WSS assets in the overall WSSS;

iv) working out a time schedule, modalities and other administrative measures by the MEWD, local authorities etc, to facilitate the transfer of urban water supply schemes to local authorities.

2.5.3 Development and implementation of a National Water Conservation Strategy by:

i) assessing water losses arising from defective installations or leakage through the water distribution systems;

ii) rehabilitating and upgrading of UWSS schemes;

iii) discouraging vandalism through anti-vandalism public awareness campaigns;

iv) enactment and enforcement of necessary pieces of legislation to deter vandalism;

v) charging cost effective water and sewerage tariffs;

vi) introducing and enforcing penalties to defaulters.