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

ASSESSMENT REPORT

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August 1997



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Executive Summary

Provision of water supply (Protected shallow wells) to rural communities has been the major concern for a larger part of N.P.D.P- It is up to now trying to integrate line ministries as well as Non-Governmental Organisations by supporting the establishment of D-WASHÉs in all Districts as a means to combine resources and capacities to effectively handle W.R.M. issues. Like in any other programmes, there are social problems which includes the misunderstanding on gender. There are also other problems WASHE Committees are facing like:-

= Implementing what is discussed in the meetings

= Local leaders equally fail to implement their departmental duties. This is coupled with operational problems due to many factors- Transport, lacking capacity to plan and execute the plans. Until D-Washe is properly trained in Multi-sectoral planning, Budgeting and Implementation, the issues of Water Resource development would fail to materialise.

There is a progressive reduction in rainfall amount. Water levels are getting lower and lower as a result wells, streams, furrows, etc. are drying. The overflowing of cesspools is causing unsightly conditions coupled with many unsatisfactory and unreliable services, leading to the loss of credibility and none payment by the consumer. In the efforts of protecting water resources chief and village headmen need to play a very important role in prohibiting tree cutting unnecessarily. But this is not done effectively and especially that there are no specific sterns measures a Chief or Headman can do to their subjects. This is leading to the degradation of water and land resources. Need has recently arisen to prevent further destruction.

With the reforms taking place in almost all Ministries and policies being formulated, Water Resource Management problems will be taken care of. It is believed that the DDCCs and PDCCs will be more involved in Water Resource Management issues actively, especially in seeking for donors to fund approved plans.

Women are still seen as mere collectors of water and fire wood. There is need to strengthen the processes going on which are meant to equitably apportion roles for women and men. Their involvement in the entire process of the project cycle is crucial for sustainability of Water Resource Management. The gender power relations and access to resources, benefits, information and decision-making still remain the crucial areas of concern in our Project Area.

Water resources at all levels have not been taken very seriously as to make it more an economic resource. Hence the reason for not showing a great concern also for paying for what is used.

PREFACE

The Project: "Promising Water Resources Management Approaches in the Drinking Water Supply and Sanitation Sector" was initiated at the realisation that though availability of water world wide, it was not to be taken for granted. This was prompted by the fact that there was a growing world population, rapid urbanisation, increasing Agricultural and industrial production, coupled with erratic changes in weather and climate patterns which has led to the realisation that water is not an unlimited resource.

The initiation of the project was basically to assess, document experiences from as many projects as possible.

Among other meetings held internationally the Dublin meeting of 1992 came up with eight agreed principles related to water resources management. IRC International Water and Sanitation Centre in collaboration with UNDP United Nations Development Programme took up the challenge to carry out the project.

The preparatory workshop was organised in November 20th - 29th 1996. In the Hague, the Netherlands.

In this workshop 15 participants and three advisory group members worked tirelessly with the IRC staff in preparing the frame work and methodologies to be carried out in order to document the practical experience in Water Resources Management. Participants came from 13 different projects in India, Nepal, Cambodia, Guatemala, Sweden, Zambia, Ghana and South Africa.

This report is the documentation of the findings from various stake holders at Provincial, District and local (Village) level.

I would like to thank Mike O'Brian who in the early stages helped to initiate the projects, Sion Hoy now in Mozambique and many others in Dublin responsible for Zambia for the interest they took to involve Irish Aid.

My special complement go to the facilitators for the hard work. They managed to accomplish the work in those rough roads and compiling data onto the master sheet:

Mr Joseph Kachiliko

Development Education Programme (DEP) Co-ordinator, Archdiocese of KASAMA

- DEP is a participatory approach/methodology in development**

Mrs Godfridah Mugala

Principal Public Health Nurse/District Director of Health (Mungwi District)

Mr Albert M Kabwe

Formerly Assistant DEP Co-ordinator, Archdiocese of KASAMA

The three formed the WRM Assessment Team:

- **Ms Maureen Namuchimba,**

Public Health Nurse by profession now working on secondment to Irish Aid. She accompanied the team on logistical basis as Irish Aid provided the resources for the assessment.

- **Mr Henry Muselepete,**

Environmental Health Technician/Health Education Officer similarly on logistical basis especially that he is on Irish Aid programme in Mbala district which was covered.

Special thanks go to Mr Brendon Rogers and his staff at the Embassy responsible for finances. Many other thanks go to Mr Martin McCormack for taking an interest in wanting to participate in the project (being Programme Co-ordinator then).

I would like to give many thanks to Mr Finbar O'Brien, Programme Co-ordinator N.P.D.P. for having shown the same interest in the project and for his useful hints he accorded us in how best the assessment should be handled; for financing all the expenses made to this final report. I would equally like to thank the facilitators who were engaged to carry out the data collection and putting it on the data Master Sheet. Their commitment made this report a success.

Ms Joyce Mambwe for typing this document so nicely. Mr Cosmas Chizongo for his tireless efforts in mobilizing and organising the logistics and travel arrangements.

Jacinta Barrens for her siezless encouragement to be critical in documenting the facts collected from the field.

Special compliments go to IRC staff, Peter Bury, David Saunders Ester de-large for every support given during the training of how to document and equally for the interest shown even in getting in touch with us during the field assessment. Davids notes and those of the advisory group were like a rescue party to the drowning man.

I would equally like to thank all those people that participated in the exercise from the Province, District offices and all those from the villages (see appendix).

PEOPLE AND DEPARTMENTS WHO PARTICIPATED IN THE W.R.M. ASSESSMENT: Special compliments go to:

DEPARTMENTS (Provincial)

- **Ministry of Agriculture**
- **Department of Water Affairs**
- **SADC Hydrological Assistance Project**
- **CMMU**
- **Local Councils - Kasama**
 - **Mbala**
- **PPU**
- **Provincial Medical Officer's office**
- **Permanent Secretary's office**
- **Social and Community Development**
- **Irish Aid**

INTRODUCTION:-

Northern Province Development Programme because of its broad community base approaches participated in the project “PROMISING WATER RESOURCES MANAGEMENT APPROACHES IN THE DRINKING WATER SUPPLY AND SANITATION” Preparatory workshop which was conducted by IRC in the Hague The Netherlands in November 20th - 29th , 1996.

Independent facilitators were recruited in order to carry out the assessment. This was to reduce the biasness in the documentation of the data being given by the communities. Also to meet the principle aim of the project which is to “document the practical experiences made with water resources management to lead to improved water resources management practices”.

Having set the tools for use and catchment areas identified, a protest of the methodologies were done in Kasama in three catchment areas.

This report will explain and give the results of the main exercise which took place from 2nd to 8th February 1997 and in Kasama from 13th to 18th March 1997.

Areas selected (randomly) were those where there are wells constructed or rehabilitated by Irish Aid between 1992 - 1997 (Mbala) 1985 - 1997 (Kasama).

Villages with traditional wells or those who draw from streams were equally invited to participate in the exercise to give their views on these principles in order to have a broader perspective of the knowledge, altitude and practices.

This report is the draft documentation of field experiences recorded during the assessment. The outline of the findings is as follows:

(Chapter 1) Background of project and purpose for the project, overview of water resources in the region. Main actors in the water sector. Criteria used for selecting the Districts where assessment took place.

(Chapter 2) Overall assessment Method:- (Chapter 3) Water Resource Management Principles addressed.

(Chapter 4) Conclusions



Background

People of Northern Province have in the past been receiving enough rain to the extent that they were able to sustain themselves in the Agricultural Production. Although they were not able to produce for sale to other provinces at a larger scale - They were self sustained.

Lack of farm implements, especially fertilizer, hampered many a promising farmer the desire or interest to pursue farming. The fertilizer that was available was costing at a very high price for a small time farmer to purchase. Loan facilities were hard to get. Most of the people resorted to brewing of illicit beer. This was now the means of generating funds.

KASAMA and Mbala are on a mountainous type of setting. Both districts are blessed with a lot of water resources. There are many rivers, streams, dambos or man made furrows which act as water resources for many rural communities. People like to settle along the rivers for easy access to water source. Unless in situations where they are able to sink a hand-dug well near the village. Since there were no laws or anybody to enforce the law on water rights, people were diverting water resources at their own free will without any control.

Domestic water was not a big problem in the last ten years. Until recently when the rainfall pattern changed for worse. However even now the lowest yield from most of the sources do meet the daily demand for all domestic uses. But in order to prevent the situation from worsening, it is being hoped that integrated water resources management will be necessary to combat increasing water scarcity and pollution.

Village communities have an average of two alternative sources if their most reliable one dries up. This is regardless of the quality of the sources which in most cases is either ignored or merely due to inadequate information on the health hazards associated with the source. Taste and colour are the most worrying factors for them.

1.1 Water Resources

- (a) **Lake:** Lake Tanganika is the only lake in the Northern Province and is shared by Zaire, now the Democratic Republic of Congo, Burundi, Tanzania and Zambia.

This resource if fully utilized would improve the economy of the country, let alone the province. It is however being used to ferry cargo to and from Zambia to the countries mentioned above. The people living rely on fishing as the area is rock and mountainous.

Other water resources of the province are: Lake, rivers, streams, dams, farrows, dambos, strings and wells (protected and unprotected).

Note: Information on actual number of each of these is not available.

- (b) Uses: Apart from the foresaid, it is also used as a means of communication to all the villages along the lake shore and to two of the Rural Health Centres. Iyendwe on the west and Chisanza on the north.**
- (c) Water Supply: Mpulungu town gets its water for consumption and other domestic uses from the lake.**
- (d) Fishing: There are several fishing companies that have been established for fish processing- making it the sore means of livelihood in the area.**
- (e) Rivers: The rivers and streams are being used for fishing (Lufubu river) gardening, brick-making, drinking and other domestic uses.**
- (f) Dams: are being used for fish farming while farrows and other resources are used for drinking water plus many other domestic purposes.**

1.2 Water Problem Faced

Pollution is one of the biggest problem in the drinking water sources. The problems generally are caused by the users themselves. Most people have decided to reside along the lake shore, along the rivers and streams.

Fishing industries disposes its waste products into the lake. The refuse produced during the journey from the neighbouring countries is also dumped into the lake.

Small time fishermen with their families have settled along the shore where bathing, washing and many other unsanitary practices are conducted.

Animals particularly the goats and pigs are a big problem in water contamination. In some sources it is difficult to protect. Hand dug wells lined with concrete gets contaminated by the users themselves.

Protected wells usually get chlorinated whenever found with faeco coliforms. Health education on causes and how to prevent contamination is given to the well users. Contamination is usually from individuals handling the bucket and chains while hands are dirt.

Traditional wells are difficult to prevent contamination because usually people either step in the water in order to draw and also because of varieties of drawing utensils from individual homes.

Drying of water sources is yet another big problem being faced by both the consumers and the project.

Due to the poor rainfalls for the past five years had led to poor yields of most wells and total drying up of shallow wells and scoopholes.

This problem has led to the project to embark on redeepening of all Irish Aid Supported wells.

1.3 Urban Setting:

Pollution of piped water is due to pipe bursts in the mains or in the distribution pipes.

Intermittent supplies also cause a greatest problem in that it worsens the condition of sanitation in compounds whose sanitation system is of pour flash.

The situation is so critical that dysentery, round worms are almost endemic in Mbala, cholera plus many diarrhoeal problems in Mpulungu.

Irish Aid has assisted the Municipal Council of Mbala and Mpulungu Department of Water Affairs by purchasing new pump/generators to boost up the delapidated ones.

To correct the problem of water shortages due to tank leakages, Irish Aid put up a new tank in Mbala as a means of resource management.

1.4 Water Problems Faced

Contamination

This is the biggest problem the drinking water sources around the circles of our project areas. It is assumed that the problem is caused by water users themselves through the habits like bathing, washing of clothes by those up streams, use of individual containers, individual ropes which are usually left lying on the contaminated ground by feet and animals. This all falls in the hygiene awareness which is not practised. Most samples analysed by the laboratory indicate presence of more than 10 faeco counts which is not safe according to the WHO standards.

1.5 Drying

The changing of the rainfall pattern in Northern Province has caused a great worry to the people. Streams wells and springs are drying up. This has posed a big threat to people in the villages including their livestock.

The project for instance in Mbala has been re-deepening the wells since 1993. some wells have been re-deepened twice. See appendices for re-deepened wells.

The yield in some wells is very slow but then can not be deepened due to the soil formation being basically sandy or silty. When such wells dry the solution is to dig another well deeper than the first one usually on another site but within the vicinity of the village.

1.6 Water Uses Range from:

- **Transport (Lake Tanganyika) which connects Zambia to Tanzania, Zaire (now democratic Republic of Congo) and Burundi.**
- **Hydro-electrification by ZESCO (Zambia Electricity Supply Corporation)**
- **Gardening (irrigation) on a very small scale**
- **Domestic uses ranging from:**
 - : **Drinking**
 - : **Bathing**
 - : **Cooking**
 - : **Brick making and construction**
 - : **Fish farming on a small scale (Senga area)**

1.7 Actors:

Actors are identified by the way they influence the community on water use e.g. Health encourage the people not to contaminate water for the fear of disease out breaks.

- ii Water Affairs, Local Government ministries provide piped water to the township dwellers**
- iii Agriculture influences people to rear fish in dams, make vegetable gardens etc.**
- iv Irish Aid encourages communities to participate actively in digging of open wells in their villages and teaches the communities to keep their well in a more sustainable manner.**

Chapter 2

Overall Assessment Method

2.1 PLANNING AND IMPLEMENTATION

Identification and formation of the Assessment Team.

The team studied the proposed framework "November 1996" on I.R.C. and the principles involved. The team came up with methods and tools to use while carrying out the assessment (See the tools above). A pre-test was carried out in three (3) catchment areas of KASAMA District and report was produced (See the Pres-test report).

As mentioned in constraints (2.6) the reduction of time from one full day per catchment area during the pre-test to two (2) hours per catchment during the actual assessment forced the team to leave out a number of planned tools (Chapati, role play and climate exercises).

Presentation of pre-test report to the Co-ordinator of Irish Aid and his assistant.

Verification of the pre-test report which was basically feed back to the communities. Re-organising the assessment material and tools and organising logistics. The actual assessment was carried out in Mbala and Kasama Districts.

2.2 Methodology

Choice of the two district where the assessment took place was basically for the easier access to project areas and easy mobilization of logistices.

Kasama and Mbala being the longest Projects in Northern Province which acts as models for the extention of the programme to other districts, make them representative enough.

Initially Isoka District was chosen as an area where the second exercise could be carried out. The poor roads prompted us to replace it with Kasama.

Catchment area selection was done randomly. From each catchment area (Rural Health Centre catchment areas) six communities were picked by the facilitators who did not have any idea of where it is or what goes on in the area.

From these areas three wells were picked again by random sampling. Out of which 3 well committee members and three other members drawing water from unprotected sources represented the general community.

Techniques Used:-

(i) Questionnaire

A set of questions were distributed among the groups. Some principles required the groups to gather according to the villages they have come from. Other principles were asked in mixed groups so as to get a common practice. Each group a chairperson and a secretary who was to write all the points raised during their discussions.

(ii) Focus Group Discussion

Sometimes when the groups were mixed up (those with protected wells and those without) each facilitator took up a group and led them in the discussions related to the common practices for some principles. Facilitators recorded the generated answers.

(iii) Interviews

The facilitators stopped at some villages who were far away from where the sessions took place and also in villages that were not invited to the W.R.M proceedings. Both men and women were interviewed on all the eight principles and answers recorded in the note books of the facilitators. This was more time dictated. Depending on what time the main session are ended.

(iv) Observations

After the meeting participants were driven back to their villages and facilitators took advantage of this to compare the answers given and what actually is in practice.

Village headmen and well committee member were made to identify the representatives from these communities.

The five groups were collected and ferried to the central point or to the furthest point to join the sixth group.

The programme began with some exercises to make participants feel at home and get to know each other. One ice breaking exercise used was the self introduction by name commonly known and also by the clan to which one belonged to.

The purpose of the meeting was then explained to the participants. As a starter to group exercises, some volunteers were asked to perform a role play on how the well project in their area began, how they accomplished their dream and how they are managing it. Participants were divided into groups of 3 - 4 depending on the number of participants present. In these groups, discussions relating to the questions in the 8 principles were recorded and later presented to the plenary session.

The facilitators other task was to probe further in order to get full information from each representing group.

Before the rap-up, one facilitator presented the rain cycle to make people understand how rain is formed. This method helped a great deal to consolidate the answers and the points raised during the discussions. Pictures of water sources where necessary were taken (as shown in the appendices).

2.3 Assumptions

Some techniques like pocket chart and mapping were planned to be used but due to time factor one assumption did not work out. However, quality answers were still given out by use of these other techniques.

Chapter 3

PRINCIPLE 1

3.1 WATER SOURCE AND CATCHMENT CONSERVATION AND PROTECTION ARE ESSENTIAL

BACKGROUND

AFFORESTATION:

Traditionally people in villages have an understanding that trees or grass should not be cut any how. They are aware of the high rate of evaporation if the water source is left too open.

They also perceive that if water source is left to open, the water will not be cool.

Soil erosion is another concern. They dislike the water to be discoloured by the water run offs from up hill.

People do not cut trees any how except where it has some economical value especially where one wants to make timber or one is clearing for a vegetable garden for easy irrigation.

3.2 Charcoal Burning:

This is an occupation which makes many trees be cut though not necessarily near the river banks but the effect to the ground is great as soil erosion is encouraged in this way.

3.3 Chitemene System

The cost of fertilizers has of late encouraged this type of cultivation chief or village headmen have no control over.

3.4 Protected Wells

For fear of contaminating the water. There is only one bucket and one chain used by all the users. This helps to reduce the contamination of the water at least this is the lowest level at which this principle is being practised.

Below are some of the measures being practised these are:

- # **The Environmental Health Technician during the Site Selection with the community advises the community not to choose the well site near the old grave yard or the refuse pit or within the proximity of an old or existing pit latrine (thirty metres apart is minimum).**
- # **When the well is complete, the soak away is placed on the sloppy side 1-2 metres away the well. Concrete platform is constructed around the well to avoid spillage accumulating and sink back into the well.**
- # **The metal lid is provided for the well users to close the well opening to avoid debris blown by the wind falling into the well.**
- # **Workshops and seminars are organised for the well users where hygiene education is imparted to them.**
- # **Well users adopt the weeding, sweeping around the well to keep away dirt. Hence protecting water source.**

3.5 Communities

1. Water Source and Catchment Protection identified as a need presently or in the longer term

Presently, Communities have identified the need to protect water sources, with bias to protected wells.

Natural sources are:

- * **Main reason- To avoid contaminating the water since it is used for drinking.**
- * **Measures put in place are locking up the well from dusk to dawn, constructing fences around the well or spring, forbidding children playing around the wells.**

As for rivers and streams, there is no perceived control by most of the rural communities apart from the traditional restrictions of tree cutting along the river banks. These are ignored by many people.

Out of 67 communities, 53 (79%) had protected wells.

3.6 Measures put in place

- 19 (28%) - Lock up the well**
- 1 (1.4%) - Fence constructed**
- 53 (79%) - Forbid children to play near the well**
- 53 (79%) - Covering the well**
- 2 (3%) - Shelter over the well**

In terms of catchment protection most communities perceive it as not being in their power to do anything about it. They felt it God's will.

Less than 5% identify stopping deforestation as well as cultivating near streams as a present need to protect catchment areas and water sources.

Most of the participants identified drought as:-

- God's will**
- Science in Chinakila area (1 Person). Scientists draw rain clouds to their countries**
- Deforestation - at river source**
- Gardening along river banks**

**** Drought - (Refer the declaration by the President in 1992 - PAM Document)**

For the protected wells some communities were not satisfied with the water due to the following reasons:

Communities-

- Senga hill : Water tastes "heavy" due to:-**
 - = Too much iron?**
 - = Soil**
 - = Cylinder submerged in the well?**

- **Numbuka** : **Termites have invaded the rings in the well**
- **Ndasa** : **Water tastes sweet**

3.7 Threats to water source and catchment protection

Poverty, lack of funds and ignorance.

Forestry department has a rule that a licence should be purchased for every tree one needs to cut. Citizens are aware of this. Chiefs and village headmen can either punish the culprit or report him to the forestry department.

- **No legal framework to back traditional leaders (Chiefs, village headmen) to enforce punitive measures to those who participate in deforestation activities.**
- **Fears of witchcraft/traditional beliefs**
- **Little Knowledge in the older generation on scientific causes of drought.**

3.8 Stakeholders

8/11 - Have identified the need to protect water sources and catchment areas. At provincial level - 73%.

When - Presently

How - Afforestation - 8/11 (73%)

- **Education - 1/11 (9.0%)**

- **Conservation and Management- 5/11 (45%)**

Deterioration - Drop in levels as seen by water shortages

See appendix

Threats

- **Increase in population (Growth of townships and villages)**
- **Agricultural Policies**
- **New Land Bills - Chief's power weakened in terms of management (Chief Chinakila and Chipoka, Agriculture)**
- **Legal powers for chiefs (P.S., Agric. - Lands)**

3.9 What protection activities are being undertaken

Wells:-

- **Locking up the well**
- **Covering**
- **Removal of windlass, bucket and chain**
- **No children to play around and near the well**
- **Fencing around the well to keep away livestock**
- **Construction of shelters to keep water cool and avoid evaporation.**
- **No washing of utensils or clothes around the wells to maintain quality**
- **Regular clearing around the well**
 - **Slashing**
 - **Sweeping**
 - **Weeding during rain season**
- **Chlorination of wells**

Furrows:

- **Clearing of debris along the furrows to increase the amount of water flowing. Clearing is portioned according to each house hold.**

Rivers/Streams

- **Clearing of paths leading to the water point.**

Traditional Shallow Wells:-

- **Slash the surrounding area**
- **Remove debris dropped in the well**

- **De-water the well when seen to be discoloured**
 - **Construction of thatched cover above the opening to protect the water from debris and to keep it cool.**
- ** Malole Area and Mengo, and Kalongola Area**

No cutting of trees along the river - this was equally observed by facilitators.

3.9.1 Land Degradation

Stakeholders

- **Deforestation is increasing and causing gullies, they observed.**

**** Over the last five (5) years, there was very little interest by many people rearing goats, pigs, cattle in a larger part of Northern Province. Of late the trend has changed and there is slight increase in livestock population, particularly goats and pigs. Overgrazing has contributed in the land degradation (soil erosion). Cattle is said to be diminishing due to E.C.F. outbreak since 1994 (Department of Animal Health).**

3.9.2 Protection activities

- **Afforestation - Forestry Department**
- **Planting of Verlifer grass - (Forestry and Agriculture)**
- **Sustainable agriculture methods (Agriculture and Catholic Church)**

Milungu, Chafwa and Misamfu.

- **Some village headmen have prohibited people from cutting trees anyhow in certain selected areas like water sources, grave yards and shrines however there was no written document to support them nor is there any legal support to strengthen the order.**

- **Traditional Beliefs also assist in protecting the degradation of land. There are some trees and places which should not be tampered with those who fail to oblige to this invoke the wrath of spirits, e.g:-**
 - : **Chinakila area**
 - (settlement)**
 - : **Kawimbe village**
- **Water source protection aims to ensure the reliability of the sources, but may also contribute to improvement. Improvement means increasing the quality of water, increasing the yield, or diminishing fluctuations in both. (Occasional paper 15).**

3.9.3 Only new Policy will Stem out tree cutting

The current Forest Policy which was formulated in 1960s is highly outdated and needs to be changed given the various developments in the forest sector over the years.

The policy, which was formulated as a set of instructions to the forest department and its lack of provision for community participation in forest issues, is of great concern.

According to the Zambia Forest Action Programme (ZFAP) draft final report under the Ministry of Environment and Natural Resources, the policy provides for Government control by way of "policing" over forest reserves.

"This is inconsistent with current overall /government policy which promotes private sector and communication participation. "The report reads in part. It further states that the Government of Zambia has developed the first ever policy on Non-Governmental Organisations' involvement in forestry which is yet to be approved by cabinet.

In order to solve the current problem of cutting down trees and to conserve biodiversity in the country, the Zambia Forestry Action Programme recommends that appropriate measures must be taken.

Government Institutions and NGOs with the potential to conserve indigenous forest must be involved in the management of forests by entering into an agreement between the Forestry /departments and the institutions concerned.

Forest departments must be transformed into an efficient and effective forest agency which is mission-oriented with improved capacity to implement Government forest policies and programmes.

The report further states that forest management plays a key role in water resources development. The continuous degradation of forest areas especially those located on head waters represents a threat to the sustainable flow regimes in Zambia's rivers.

"The forest sector if properly developed has the potential to make a significant contribution towards economic growth. The current under development state of the sector means increases can be substantial. Forest products and services can be sustained only if exploitation does not exceed regeneration", stresses the report adding that with good management of forests, this can be achieved.

However, the current rate of deforestation suggests that the current practice is not sustainable.

The extract above proves how much the government being the highest level is considering this principle as important.

(Extract from the "Sun Newspaper" No. 196 of May 19-25. 1997)

Appendix 4

Irrigated Areas Streams/Rivers

Mbala

Senga Hill	-	6.25 Ha.
Chinakila	-	4.00 Ha.
Chitimbwa	-	3.50 Ha.
=====		=====
Total	-	15.75 Ha.

=====

Kasama

Mungwi South-		15.00 Ha.
Chisali	-	0.75 Ha.
Ndasa	-	0.25 Ha.
Malole	-	1.25 Ha.
Mungwi North-		6.25 Ha.
Nseluka	-	39.00 Ha.
=====		=====
Total	-	62.50 Ha.

=====
(Information from Ministry of Agriculture)

Canal/Furrows (Kasama)

Mungwi South-		9.80 Ha.
Ndasa	-	0.50 Ha.
Chisali	-	0.75 Ha.
Mungwi North-		10.50 Ha.
Malole	-	41.75 Ha.
Nseluka	-	39.00 Ha.
=====		=====
Total	-	102.30 Ha.

=====
(Information from Ministry of Agriculture)

Dambos (KASAMA East) (Agriculture)

Irrigated Areas

Mungwi South- 2.50 Ha.

Mungwi North- 5.75 Ha.

Nseluka - 0.60 Ha.

=====

Total - 8.85 Ha.

=====

There was no information on the total land for each of the catchment area mentioned here except for the irrigated areas.

3.9.4 Lessons Learned: (Principle 1.)

Communities have some Knowledge on the extent to which water source and catchment protection involves. Protection has so much been emphasized on water source such as those particularly done by the project.

Departments who are equally stakeholders have not educated the masses effectively. The importance of catchment protection - conflicting messages arise where Agriculture encourages uprooting of trees for better farming.

Some traditional beliefs are helpful in protecting water sources although they are being ignored lately.

Forestry department discourages the same communities from cutting trees but to plant more.

Level of Knowledge on which type of plants can protect water sources is less. People gave some answers that they uprooted trees then afterwards plant orange trees which will be able to protect the water source and catchment - (Cinci)

The project should consider and facilitate the protection of various water source and catchment instead of concentrating on wells whose levels are falling every year.

Cost of fertilizers and lack of loan facilities has of late encouraged deforestation (Chitemene).

Background

4. PRINCIPAL 2

ADEQUATE WATER ALLOCATION NEEDS TO BE AGREED UPON BETWEEN STAKE HOLDERS WITHIN A NATIONAL FRAME WORK

The water resources of Zambia are generally considered to be sufficient to meet both short and long term requirements of the country. However, unfavourable climatic conditions in some regions, uneven geographic distribution in relation to areas of demand, declining quality of water have militated against adequate water allocation. This situation demands that water allocation needs to be agreed upon between stakeholders. There is also the factor of seasonal and annual variability in both quantity and quality of water sources. Such changes require a change in some attitudes so that serious consideration is given to water allocation. Hopefully the D-WASHE committees will handle this situation. This is to make sure that the potential benefit of water supply is realised by making it available to users daily.

4.1 Findings

Participants indicated satisfaction on water sufficiency and below are the percentages of satisfaction:

Communities:- 41/67 (61%) = Satisfied with water allocation

26/67 (39%) = Were not satisfied with quality and quantity to meet demands.

Data above gives us the information on the allocation of water and the level of satisfaction of the consumer. Satisfied means the consumer has no problem with either taste or colour of water they use.

Irregular chlorination of wells dug by Irish Aid raised some dissatisfaction from a few communities (39%). They demanded that chlorination be done regularly. They do not seem to accept the fact that Irish Aid assists in chlorination when the water sample test demands so.

4.2 Town Supply Mechanism

Municipal Council - Not covered. However, during the meeting with stakeholders in Mbala, all departments present (10) openly showed their disappointment with the way the council was handling the water issue. This is because there is no proper forum to discuss WRM.

The departments consulted were:-

Permanent Secretary's office

Provincial Planning Unit

Provincial Medical Office

Department of Water Affairs

Department of Agriculture

Zambia Electricity Supply Corporation

House of Kasama

Provincial Local Government and Housing

Irish Aid

Community Development and Social Welfare

Kasembo Farms

The findings were as per following percentages:-

82% were satisfied as being consulted.

18% were not satisfied.

4.5 District (Mbala)

All departmental representatives said they were not consulted on all decisions made by the local authority. They attributed this to meetings not taking place.

Supply

aid their contribution are at liberty to draw as much as they

such a local arrangement existing.

g (Protected Wells):-

Inprotected Wells	Rivers/Streams	Furrows
Village productivity committee headed by village headmen	-Same as for unprotected wells	- Individual owners
Individual owners		-Committees formed through RIF support (Chitimbwa)

ppointed with the ar a school.

ie.

ne use of the well e.g. time to open or time to close the users consulted before any change.

ugh not in all

rtments were satisfied with the way they are utilized

on issues related to Water Resource Management usually in

draw at will annial.

4.7 Protected Wells:-

For those that have the fear of theft or witchcraft time for drawing water is fixed. Amount is not apportioned.

8/67 (12%) - Have bought locks and practicing it effectively:-

- i. As a means to punish those who do not contribute**
- ii. To avoid being poisoned by the defaulters.**

100% have equal access to water supply though some sources may be distant, an average of 3 km, regardless of quality or quantity (Refer to irrigated area data).

14 far = 21%

5 Not satisfied = 7%

14 Unacceptable taste or colour = 21%

1 Congestion = 1%

The above information indicated that every body has access to water and there is also equity to distribution. There is no measurements to how much each person is supposed to us at all.

Information

Information is available in some Government Offices.

- Agriculture**
 - Number of water sources**
 - Number of farmers using water for irrigation**
 - Type of water sources in the district**
- DWA**
 - All hydrological data**
- Irish Aid**
 - Number of protected wells**
 - Number of water points compiled by CMMU**

- District Councils**
- **Number of water pipes in the district**
 - **Number of houses with access to piped water**

This information is accessible upon request.

4.8 Lessons Learned :

PRINCIPLE 2

Generally there is sufficient water in the project area. This is in form of surface and ground water.

Erratic supplies in townships is due to:-

- {a} Increase in demand for domestic use is not matching with expanding supply.**
- {b} Very poor operation and maintenance, hence constant breakdowns**
- {c} No interaction between potential competing users like restuarants, hotels, hospitals**
- {d} There is no water allocation agreed upon**
- {e} Until 1994, November, there has been no policy on Water Resources Management, hence approach to W.R.M. was very fragmented.**

5. PRINCIPLE 3:

EFFICIENT WATER USE IS ESSENTIAL AND OFTEN AN IMPORTANCE WATER SOURCE

There has been sufficient water in Northern Province over the years, except in the very recent past. The abundance of water has generally meant that very few people regarded efficient water use as an issue at all there has generally been no consideration for reuse of disposed waste water. Water saving measures such as the growing of less-demanding crops and charging for water used to curb wastefulness have not been on priority list in the areas where this assessment was carried out. Although it is laborious and time consuming women take water drawing as normal and do it as often as possible as need arise.

5.1 INTRODUCTION

In order to come up with some data for this principle, a questionnaire per individual department representative was provided and answers derived from this were as listed:-

Urban

1/10 = 10% - identified it as a problem because there is no forum to discuss issues related to inefficiency use of water.

Leakage in water pipes and sewer lines from Kampompo and Location flowing directly in the stream used by people was identified as one way of sufficient water use by the council (leakages are left for months without being attended to).

Rural Areas

Focus group discussion was the tool used to get information on this issue.

Protected Wells:-

9/67 = 13% - Identified leaking buckets as inefficiency in water use.

Other sources:-

At one village, many people have made deviations from the main furrow to their houses for domestic uses. Water is left to continue flowing unnecessarily in their yards. They do not perceive this as inefficiency in water use for water is a "gift from God".

1/67 = 1.4% - Using drinking water for cattle (Nsokolo area)

0% of irrigated area - Refer to irrigated area data

26/67 = 39% of user groups have adopted water saving measures by contributing to the repair or purchase of a bucket.

Clay soil is used to block the holes in the bucket (Numbuka Primary School) to reduce leakage.

Protected Wells:-

During the dry season when the water levels drop, the committee passes a ruling that no water should be used for moulding bricks (Mutende Village).

Unprotected Water Sources:-

There are no serious measures undertaken generally where rivers, streams, lake or furrows are concerned except when a furrow is owned by an individual or where a village headman is well informed and cares about the resources.

Measures:- Province PDCC (Technical and Tender Committees)

District DDCC, D-WASHE

At National level down to the District, the National Water Policy was formulated.

5.2 Weakness

Civic education need to be employed as some departments are not even aware of it (Health).

Coordination should exist (Community Development)

Water Reforms not clear (Irish)

D-WASHE Committee formed but not active

Natural Resource Committee in place (PS)

5.3 Lesson Learned :

PRINCIPLE 3

Efficiency in water use needs to be addressed very seriously. for instance, only 10% of stakeholders assessed have identified inefficiency in water use as a concern. About 13% of well users identified leaking buckets as an inefficient way of using water.

Self regulation exists when threats of water shortage become apparent. For example some well users prohibits brick making using water from a well when level of water in the well drops

It was very apparent from the assessment that natural sources such as rivers, streams, lakes are free for all- There was no form of regulation to govern their use.

6. PRINCIPLE 4:

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

6.1 BACKGROUND

There has been negligible direct role for water users, local institutions and the formal and informal private sectors in water resource development and management. However, the current trend towards decentralization in Zambia appears promising and may help to bring management of water resources to lower levels. The major aspects that are being considered under this principle are those to do with consultations, planning, decisions and actions concerning water resources management.

6.2 INTRODUCTION

In all villages where the exercise took place a focus group discussion was used to generate answers. Observations by transect walks with participants.

Urban :

Piped water supply systems are managed by councils but of late, cost of defective water taps were made to be footed by the individual owner.

Rural Areas:-

Protected Wells:-

These are managed by water committees or Parent Teachers' Association in schools or village productivity committees.

Out of 67 areas visited,

20% wells were not functioning indicating that they were either no committee existing (Senga Post Office) or the Committee were dormant.

7% of wells were dry

1% of wells were infested with termites (not used)

3% - Bucket or chain dropped in the well

4% - Theft of chain or/and bucket

4% - Bucket destroyed

1% - Bad technology - (Windlass too heavy for women)

** Experience of well committee varies from 1-15 years. Committees begin to exist when formal agreement between Irish Aid and the community to sink or rehabilitate a well is agreed upon. This is in line with our Project circle. However this depends on whether there was no committee existing at all.

6.3 Management of different water resources

Management of different water resources is done by various Management bodies. At community level, the Village Productivity Committee, the Village Headmen, the Parent Teachers' Association (PTA), Individual owners, Farm Managers and Users themselves, are the management units.

This kind of management includes operation and Management strategies, particularly where streams/furrows are concerned.

6.4 Formal Policies and Legal Frame work exist at a very low level

19 Communities (28%) - have enacted a rule to bar all those who have failed to subscribed the monthly stipulated fee from drawing water at a protected well (though they are free to draw from other unprotected sources). If the defaulter persists to draw water from the well, the Committee Chairman reports him to the Village Headman who in collaboration with the Village Productivity Committee (where it exists) passes judgement accordingly (4 %).

Some individuals have wells of their own and do manage them at a family level (6%). This is the lowest level of management. Farmers and farm managers fall in this category as well.

Legislation

Legislation in existence is that anyone requiring a water point (furrows) should register with the department of Water Affairs.

- > Mbala has only 7 out of 157 canal/furrows (45%) registered individuals with water rights
- > Kasama has only 55 out of 255 (21.5%) registered individuals with water rights (information from water resource statistics, Irrigation and Land Husbandry brack book)

**There are basically used for domestic as well as agriculture purposes.

These are no other arrangements made to facilitate the legislation.

6.5 Monitoring of water resources

Water resources will be monitored by the Department of Water Affairs while the Councils will be responsible for the supply of Urban and Rural Water Supply.

Constraints

Village Level

Committees exist but it was discovered that some have only met once.

Meaning there are no changes taking place at all.

Committees have no capacity to organise themselves when there is a problem. They wait for the projects personal which is not good enough.

District Level

Committees are in place but are not effective. such committees like

D-washe, DDCC do exist in the districts but on paper

Lack of transport to travel in the villages has demoralised most personnel

Shortage of staff was said to be another problem to carry out the registration of furrows villages.

Funding is one the biggest problem as each department looks at this committee as alien.

Time:- Meetings are not attended since each officer has his/her own departmental programme and looks at these committees as disturbing. Hence making these committees inactive. The D-washe and DDCC have no allocation of funds.

6.6 Lesson Learned:

PRINCIPLE 4:

- > It is evident that most wells are being managed fairly well**
- > Despite the water wells depreciating, there is still some water for every user from other sources except women have to walk long distances.**
- > Although the country is generally considered to have abundant water resources, Zambia (Northern Province) could experience severe water shortages in the near future due to localised growing demand for water for industrial and domestic use (National Water Policy)**
- > In the Rural Water Supply in my project areas, management varies, e.g., an individual, a Well Committee, an association, Municipalities and Ministry departments**
- > Management decisions still done by influential figures such as headman in a village, well committee chairman or local politician or men**
- > Changes are taking place, Department of Water Affairs will monitor water quality management and planning of water resources**

- > If management was done at the appropriate lowest level, there would be efficiency in water supply so training of many water users be extended to more people in the village so that Management posts will always have people replaced in case of death or moving away of a member.
- > the Zambian Government is beginning to play the role of a facilitation rather than that of a provider through Washe concept.
- > Committees related to WRM do exist but commitment by its members to meet and discuss is lacking due to the fact that there is no budget for there Washe Meeting or activities in any of the key ministries.

7. PRINCIPLE 5:

INVOLVEMENT OF ALL STAKEHOLDERS IS REQUIRED

7.1 BACKGROUND

The water sector in Zambia has since operated on various ad-hoc sub sector water user objectives. As a result of this there has been frequent and persistent poor performance. This resulted into crisis management. In 1993 , a process started which resulted in developing the water policy for planning management and development of water resources. This inevitably meant that all stakeholders were to be involved in the development of a policy. Although water resources are abundant, shortages and conflicting demands have been experienced in some areas in Northern Province.

Hitherto, various plans for development of water resources are being prepared without cognisance of the impact on the water sector. Strategies have been proposed in order to develop an appropriate institutional and legal framework for effective management of the water resources. For instance, enactment of appropriate legislation to deal with water resources management, and drafting a water tariff legislation to cover provision and allocation.

7.2 The involvement of all Stakeholders is required

Stakeholders are those people that are directly or indirectly involved with the management of water resources/sources.

The identified stakeholders by participants with percentage showing how many perceived them as such.

Village Level

Irish Aid	-	47.76%
Health	-	47.76%
DWA	-	14.40%

Council	-	10.40%
Users	-	8.90%
Agriculture	-	7.40%
Villagers	-	7.40%
Committees	-	7.40%
Village Headmen	-	5.90%
Farmers	-	4.40%
Teachers	-	2.90%
GRZ	-	2.90%
Environmental Health Technician	-	2.90%
Church	-	2.90%
Caretakers	-	1.40%
Community Health workers	-	1.40%
Mps	-	1.40%
Chiefs	-	1.40%
Pupils	-	1.40%
Local Court	-	1.40%
Business Community	-	1.40%
Farm Manager	-	1.40%
Civic Education	-	1.40%
Washes	-	1.40%
Community Development	-	1.40%
Education	-	1.40%

Other stakeholders identified at Province and District level were:

Permanent Secretary

Provincial Agriculture Officer

Provincial Forestry Officer

Provincial Planning Unit

Provincial Local government Officer

Provincial Medical Officer

Community and Social Development

Zambia Electricity Supply Corporation (ZESCO)

Kansato Farms

House of Kasama

Lualuo Farms

7.3 INVOLVEMENT

Participants perceived themselves as stakeholders in Both Decision Making and implementation at both the Province and at the District.

Provincial Level

Ministerial Heads do meet in the PDCC and agree in many issues being discussed. But when it comes to implementations, individual Ministries are left to do the task. Amongst these Ministries some do not have transport other have limited manpower and much more, the morale to work hard is very low amongst government employees. The provincial heads can delegate a task down to the district which on many occasions are much worse than the province in logistics.

District Level

The DDCC especial in Mbala meet very irregularly. This usually result in the District Councils make decision on their own and departments complain later.

While the department may be willing to participate in decision making of certain issues, they become handcuffed at time of monitoring or even at implementation level.

Policy

The water policy is now in existence but the only departments at District level who have the copy of it or who are aware of its existence are: Irish Aid,

Department of Water Affairs and

Town Clerk

Otherwise the rest of the personnel in many governmental offices are not aware of it. However, building on the fact that DDCC are existing, what is needed is to encourage these departments to attend meetings and the policies being formulated in all ministries have to be translated and applied.

7.4 Project Involvement

The Project in the meantime is supporting D-washes whose membership is more or less the same as those in the DDCC (Departmental heads) Irish Aid, Supports National Washes in many logistics including transport.

The project is training many candidates in various ministries to be sub-district washes, this later will minimise individualism (assumption) and will assist the department to utilize the available resources for one common good.

7.5 Other Donors

It will only be easy for Irish Aid to pull out smartly if other donors of equal interest begin to fund some of the plans of the D-wash committees, Government Ministries begin to put their donated project money in one basket. Other than that the wash committee head for a bad crash.

The grouping of the above list according to their function is as follows:

Donors	Implementors	At which Level	NGO
Irish Aid	Health	District/Rural Health Centre	
	Dept of Water Affairs	District/Province	
	Councils	District	
	Dept of Agriculture	District/Village	
	Teachers	Village	
	E H Ts	Village	
	Government	Province/District	
	Local Court	Village	
	Farm Managers	Village/farm	
	Civic Education	District	
	Village headmen	Village	
	Chiefs	Village	
	Committes	Village	
Community Development	Village		

7.6 Water Source Ownership

Water sources ownership depends actively where it is located and who funded it. All Community protected open wells are perceived to be either for Irish Aid, Council, Water Affairs, Headman, etc.

Councils

These are responsible for all urban piped water supply.

Village

Water sources are owned by either individual, committee, school, or church (See stakeholders list). At each of these levels, the individual, committee or whoever may be influential will make effective decisions.

Some of the decision-makers mentioned were:

Village Committee	-	29 (43%)
Headman	-	7 (10%)
Users	-	5 (7%)
Men	-	4 (6%)
RHC Staff	-	2 (3%)
Farm Managers	-	2 (3%)
Teachers	-	2 (3%)

Previously water resource management was running in a very uncoordinated manner until now when the Water Policy and passing of the Water and Sanitation bill has come to exist (See National Water Policy - November, 1994).

113 hand dug wells (protected) exist in Mbala and Kasama and Committees ranging from P.T.A., Well Committee or Health Committee run these source.

There are over 300 in Kasama similarly run by same system.

There are several water points run by individuals (See Water Point Inventory 1st Edition, July, 1996), (iv - No. Used by farmers See appendix (iv)).

7.7 Lesson Learned:

PRINCIPLE 5

Irish Aid and Ministry of Health rank first as the obvious stakeholders

There is little involvement of other stakeholders

Platforms existing for stakeholder involvement were seen as ineffective

There is no active involvement of women in planning and decision making

8. PRINCIPLE 6

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

8.1 BACKGROUND

There has been unequal participation of women and men in planning and execution of development initiatives. This principle is very crucial in that Irish Aid has made a commitment to equitable, participatory, poverty focused and sustainable development. The major concern is the fact that there has not been equal involvement by women and men in planning and implementing development initiatives. There are social inequalities which tend to disadvantage women. Arising out of this was the development of gender policy as integral perspective in development.

**** (See Irish Aid Policy on Gender on an Operation Footing). There is therefore a clear policy on gender on project supported by Irish Aid.**

8.2 INTRODUCTION

Gender is one subject that has not been understood clearly by many people. Women like always have been looked upon as a weaker sex. Because of this concept, women look to their men as providers, decision-makers, planner while the women are seen as receivers or users.

It is under this background that everybody has realized that a gender balance must be encouraged in all sectors, at all levels. Irish Aid Programme is among those organisations in the fore front of promoting gender.

Striking a Gender Balance is needed as activities relate to different roles of Men and Women

Through focus group discussions the participants gave their answers as indicated. The figures indicate who were perceived as planners.

Planning

Men	-	39%
Women	-	15%
Balanced	-	15%
Non Committal-		31%

Decision Making

Men	-	39%
Women	-	18%
Balanced	-	13%
Non committal-		30%

Men were equally seen as decision makers on all water related issues.

8.3 TRADITION

Generally Northern Province has a tendency of women keeping quite in meetings. This is particularly due to the relationships of intermarriages. In these relations, the in laws to the man will usually be silent. Because of this, participation of women is very limited. In the Zambian context (Northern Province) a woman who used to talk more in the midst of men either risked a beating by the husband or a divorce. To the unmarried, she risks not to get married by those very well known to her (being considered a loud mouth).

It is by this background that Irish Aid (N.P.D.P) embarked on the emphasis that a village well committee be consisted of 3 men and 3 women. Even that did very little to change the common practice that only men can make right decisions. Women in these meetings were overriden. They obeyed whatever the men decided. Lately the trend is changing. Now there are some committees that are dominated by women and can never be pushed so easily (big achievement).

8.4 IRISH AID POLICY

The existence of the policy on gender makes even those that did not believe in it started thinking twice. Understating gender by project staff is another problem before it can effectively be applied.

To assist in this, the project (Mbala) Technical Advisor, being a woman with gender principles, the project has formed a committee and a lot is being discussed especially in understanding what gender is and what it is for in the project.

A workshop for all employees was organised in which independent facilitators were the main speakers (women).

Employment

Presently there are more men than women carrying out most jobs. However, there are more women at the Embassy holding senior positions including financial control. Down the line, more women are being employed depending on the qualification and vacancy available.

Women Involvement

When the project began it was seen that men decided where a well will be sited, when to open and lock, when O and M contributions would start and how much or what (crop) many wells were left unfunctioning and women went back to the old source. Now the women have been motivated and now they choose the site, participate in many labour work e.g. stone gathering. Women are now chairmen, secretaries or treasurers. They are able to decide when to begin contributions.

User Level

Men - 4%

Women - 70%

Non committal- 26%

Planning and Decision Making	78%	33%
User Level	4%	70%
Balanced	28%	

The figures shown particularly on user level are based on domestic use.

There are other uses of water:-

Agriculture

See appendix (iii)

Participation in WRM

Men who participated - 69%

Women who participated- 31%

Gender at Project Level

Gender Policy is in place and being adhered to. Gender Committee organised in Mbala and meeting once monthly.

The project staff emphasized that there should be a committee comprised three (3) men and three (3) women at every level. Some committees have all women on the Decision Making posts.

During the survey of the first stage of the project circle, participation of women attending these meetings is encouraged (Village level).

8.5 Women in Development

In order to see to it that the "Being" recommendation filter back down to local level, Irish Aid Financial support is being channelled to the National Commission for Planning and Development (Irish Aid report 1995).

As a local initiative, Mbala has formed a Gender Committee which meets once a month to sensitise the project staff on gender related issues then enforce it down to Well Committees in villages.

Findings

Men are predominant on almost all areas - be it in management, farming, etc. Culturally women look to the male folk as providers.

8.6 Lessons Learned:

PRINCIPLE 6

Women should no longer be perceived as beneficiaries only

70% of participants in the assessment still see women as the main user of water

Gender Policy for the Irish Aid Projects is giving a tremendous boost to women involvement at all levels of the project cycle.

The situation is improving very slowly and effectively.

9. PRINCIPLE 7

9.1 BACKGROUND

There are various groups of stakeholders in the Water Resources. In order to achieve an effective logistic Water Resource Management, there must be an enabling environment and actors who are conscious of the tasks involved and competent to execute them successfully. The water project in Northern Province under Irish Aid is undergirded by a very strong belief in community participation and capacity building. Capacity building in projects supported by Irish Aid in Northern Province of Zambia involves around project staff, communities benefiting from this support and Government officials who are supporting partners. It covers aspects of education meant to change attitudes and that meant to impart or strengthen skills and competencies.

Skills Development and Capacity building are the key to Sustainability

Capacity Building is a part of project activities. At National level, see annual report for 1995 - 13 fellowships were provided to Zambians to study in Ireland.

Project Level

Project Staff are sent for short seminars/courses organised at National and International levels.

Year	Number of Staff	Course attended	Venue	Duration (years, months and days)
1993				
1994				
1995	1	Engineering	Ireland	2 years
	3	Sustainability in water & Sanitation	Kenya	10 days
1996	4	Sustainability in water & Sanitation	Kenya	10 days
	5	Water Resource Management	Netherlands	10 days
1997				

The above table shows the type of courses attended by project staff related to Water Resource Management.

9.2 Village Level

Seminars for well committees are held regularly. These seminars are on:

- Operation and maintenance (O and M)
- Methods of fund raising
- Managerial Skills

Various meetings for well users at each village are also organised on proper use and maintenance of well implements. 66 well committee - members have attended at least two workshops (Mbala). Over 1,800 committee-members have attended in Kasama.

At least Capacity Building has been developed at all levels. All those in management have participated at all levels.

9.3 Lessons Learned:

PRINCIPLE 7

There is need to know what capacities to build in order to ensure sustainability.

Sustainability in the absence of economic empoweing is a far away dream

Failure by Municipalities to deliver a satisfactory water supply system is partly due to low technical capacities and weak managerial systems.

10. PRINCIPLE 8

WATER IS TREATED AS HAVING AN ECONOMIC AND SOCIAL VALUE

10.1 BACK GROUND

It is expensive to provide adequate, safe and clean drinking water to those who require it. Hence the economic value attached to it. Yet, water has a social value and therefore it is a basic right for every one. This is going to be a very challenging period for the project because of the Water policy now in place. The people in both urban and rural must be educated to realise that although it is a Government/s obligation to provide water, the economic value associated to it is great. The more systematic the exploitation of the water resources becomes, the greater the need to recover the costs if the operations and mentanance have to to be sustainable. It is in some rural areas that some people will ague that water belongs to God. However thetrand is beginning to change.

Rural Areas

10.2 PROTECTED WELLS

The villages that have been supported with a protected well lined with concrete rings (open wells) or lined with casing pipes for cylinder wells do pay for water. The payment goes to the purchase of defective parts of the well. "Majority of people have individual wells and as long as there is water in their well, they refuse to cooperate" some mebers complained.

In the well committees interviewed, there were different methods of fund contributions towards O and M. Very old men and women were left out from paying due to old age. Some people just refuse to pay and continue to use a stream or the furrow that flows along their village.

10.3 METHODOLOGY

A questionnaire was presented to the district council to find out if at all there was any water tarriffs in place, and if so how many people paid for the water provided. the answers were as follows;

58.8% do not pay for water (Defaulters) this is paticularly domestic.

For water tarriffs see appendix..3

Townships

The Municipal Councils have put up water charges for different type of consumers (See appendix but many people default paying for various reasons.

In Kasama it was found that 58.8% did not pay for the water used (Domestic).

The water charges put in place do not meet the cost for O and M.

During the discussion with some comminuties they said they do not pay because it was the responsibility of the government. Others said they refused to pay because there is intermitent water supply and were not satisfied with that.

Lessons Learn/weakness

- # Villagers did not knowhow to record collections and expences for all the collections received.
- # It was expensive to travel to the bank for some committees.
- # Capacities to build should be catigorised between the weakness in well Committees as well as personnel in the councils.

Lessons Learned:

10.4 PRINCIPLE 8

Treating water as having social value only leads to poor services

Community sensitization should be an on-going concern, more so in rural areas, like our project area, for users to appreciate that water has an economic value as well.

Many consumers do not realise what it costs the council to provide water

Due to poor services offered by council the consumers opt not to pay.

11. CONCLUSIONS and RECOMMENDATIONS

Water Resource Management practices need to be re-addressed in order to make it more effective at all levels. Most issues noted at village level are those that can be changed for the better if more time and commitment is applied. If all the stakeholders identified in this report did their part in re-addressing the issue by advocating change in attitudes and practices of the communities there would be no fear for land depreciation, no contamination of water sources, no unnecessary cutting of trees without a licence including Zesco and PTC. This may take time but we will some day save one environment.

2. District and Provincial Washe Committees need to be supported very much in their operations so that whatever is planned gets funded and implemented. No departmental projects should be allowed by the Provincial or District Co-ordinating committee. No department influence should be exercised as long as the funding is for the purpose of Water and Sanitation related. Problem only lies in the fact that most of this money is donor driven. Unless the fund exercises some flexibility, the committees would not take off in many districts.
3. Northern Province Development Programme (Irish Aid) should take another step in its development programmes to conduct health education talks not only to communities with Irish Aid supported wells but to all communities with any type of water source as this will reduce diseases in one way and will equally impart some knowledge on the importance of proper water resource management.
4. Technical advisors sent to run the project should have an interest in the promotion of improved Water Resources Management (WRM) as there are many more experiences that out there in the communities that would be useful if "GLOBAL WATER MANAGEMENT" has to be achieved (Troubled water tape).

Water resources/sources (Province)

Irrigated Land - Kasama

Irrigated Land - Mbala

Water Point Inventory

Hydrological Data - Kasama/Mbala

Water Levels (Lunzua River)

References:

National Water Policy (November 1994)

Drinking Water Source Protection

Occasional paper series 15 (IRC)

Water Point Inventory 1st edition (July 1996)

(a) Mbala (b) Kasama

SADC Hydro-electric Hydrological Assistance

Project Hydrology Department - ZESCO

Meteorological Department. Department of Water Affairs Kasama

Irish Aid Annual Report (1995) on Zambia

APPENDIX 1

INTRODUCTION

The photos that in the pages to follow are those of a typical African sources of water. Most of these are shallow wells or merely holes that tap water from the see page

Other pictures show people drawing water from the stream stepping in the water. Usually this is the source of contamination leading to many diarrhoeal diseases like: cholera, dysentery, typhoid. People also get infected by a schistosomiasis (BILHAZIA) and many other related problems.

Some villages to minimise contamination of their water sources put up a poster of rules to follow, they demarcate the source in two so that the upper part is where to draw drinking water while the lower and will be used for bathing, washing of clothes, plate etc.

The coming in of Irish Aid on Water and Sanitation project, many villages enjoy good quality water which to some extent has lessened diarrhoeal diseases in many communities.

Appendix 1 (a)

Mbala Water Affairs

Hydrological - Water Level Records

Lucheche River below Lake Chila

Month	1992	1993	1994	1995	1996	1997
January	1.40ft	1.70ft	LL	1.87ft	1.52ft	
February	1.46ft	1.57ft	LL	2.13ft	1.68ft	
March	1.49ft	1.92ft	LL	2.40ft	1.85ft	
April	1.79ft	1.69ft	1.73ft	1.46ft	1.53ft	
May	1.64ft	1.50ft	1.51ft	1.87ft	1.45ft	
June	1.28ft	1.49ft	1.45ft	1.66ft	1.33ft	
July	1.36ft	1.47ft	1.46ft	1.65ft	1.23ft	
August	1.30ft	1.39ft	1.43ft	1.76ft	1.19ft	
September	1.38ft	1.36ft	1.39ft	1.72ft	1.11ft	
October	1.13ft	1.30ft	1.27ft	1.55ft	1.11ft	
November	1.40ft	LL	1.51ft	1.54ft	1.09ft	
December	1.40ft	LL	1.73ft	1.93ft	1.30ft	
Total	17.05ft	15.35	13.46	23.08	19.90	

Table showing the deepings of the river which is yet another source of the booster pump for Mbala Municipal Council.

Appendix 1(b)

Mbala Water Affairs

Hydrological - Water Level Records

Lake Chila

Month	1992	1993	1994	1995	1996	1997
January	11.86ft	12.09ft	L.L.	12.64ft	11.83ft	11.35ft
February	11.86ft	11.94ft	L.L.	12.63ft	11.86ft	
March	11.87ft	12.29ft	L.L.	12.98ft	11.98ft	
April	12.16ft	11.78ft	L.L.	12.24ft	12.04ft	
May	11.93ft	11.77ft	12.04ft	12.02ft	11.75ft	
June	11.68ft	11.73ft	11.89ft	12.00ft	11.64ft	
July	11.72ft	11.68ft	11.76ft	11.98ft	11.54ft	
August	11.70ft	11.69ft	11.75ft	11.95ft	11.53ft	
September	11.69ft	11.68ft	11.73ft	11.91ft	11.50ft	
October	11.84ft	11.62ft	11.71ft	11.72ft	11.39ft	
November	11.84ft	4.L	11.67ft	11.71ft	12.04ft	
December	11.87ft	LL	11.93ft	11.92ft	11.36ft	
Total	142.02ft	118.27	107.13*	145.70	140.46	

Figures indicating the fluctuation of water level in the lake which is the main source of water supply for Mbala township.

Appendix 2

Kasama Water Affairs

Meteorological Rainfalls Records

(only totals)

Month	1992	1993	1994	1995	1996	1997
January	11.08"	10..83"	13.83"	13.83'	0.63'	8,002mm
February	13.80"	7.85"	12.86'	12.86'	6.18"	181.63MM
March	10.57"	10.57"	13.80"	8.19"	9.19"	165.80mm
April	0.17"	0.45"	0.31"	0.31"	2.80"	
May	Nil	Nil	Nil	Nil	1.88"	
June	Nil	Nil	Nil	Nil	Nil	
July	Nil	Nil	Nil	Nil	Nil	
August	Nil	Nil	Nil	Nil	Nil	
September	Nil	Nil	Nil	Nil	Nil	
October	Nil	0.50"	11.02"	0.04"	6.11"	
November	5.17"	0.25"	0.19"	1.91"	42.19"	
December	7.79"	2.80"	10.53"	9.26"	26,518mm	

Table showing the monthly rainfalls for the last six years.

Appendix 3

Number of Consumers

2,956

Consumers who donot pay

1,729 (58.5%)

Tariffs for Water Users

Domestic:

Medium Cost

High Cost

First 26 untis.....	K9,500.00
Next 10 untis.....	K 200.00
Additional untis.....	K 250.00

Industrial/Commercial Users

First 80 untis.....	K28,500.00
Next 8 untis.....	K 200.00
Additional untis.....	K 450.00
Stuck Meters per month.....	K10,000.00

Domestic Users

(Ungraded)

* Communal users.....	K2,000.00
* Low Cost users.....	K4,000.00
* Medium Cost users.....	K6,000.00
* High Cost/Month H/Cost with s/Quarter/Pool.....	k12,000.00

Industrial and Commercial

* Shops, Offices, Pre-schools.....	K20,000.00
* Bars, Office-complexes.....	K40,000.00
* Banks, Boarding Schools, Colleges, etc.....	K200,000.00

Annotated Donot pay
 Jan 2005