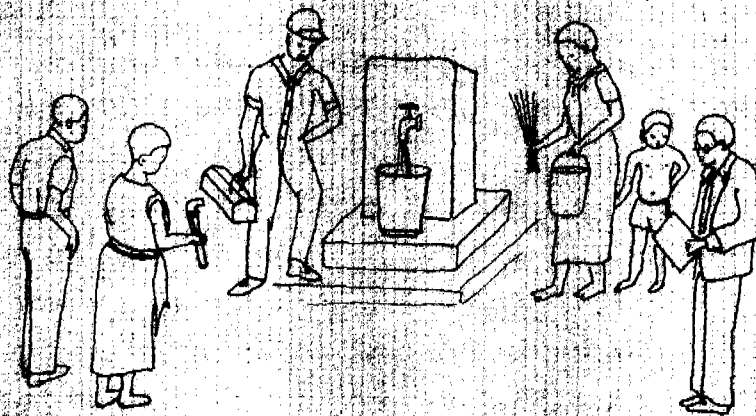


**MINISTRY OF ENERGY AND WATER DEVELOPMENT
DEPARTMENT OF WATER AFFAIRS**

**NATIONAL WORKSHOP ON COMMUNITY MANAGEMENT OF
WATER SUPPLY AND SANITATION PROGRAMMES**

**Volume II: Background Papers and Presentations
on Project Experiences**



**LIVINGSTONE, ZAMBIA
JULY 1994**

Main Sponsor: The Netherlands Government

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Programme

Workshop on Community Management of Water Supply and Sanitation Programmes

5 - 8 July 1994, Livingstone, Zambia

Day 1: Tuesday 5 July 1994

TIME	ACTIVITY	PRESENTER
08.00-09.00	Registration	
09.00-10.30	<ul style="list-style-type: none"> ◆ Official Opening ◆ Introduction of participants ◆ Briefing PSSC Project/workshop background 	R.C. Sampa, PS, MEWD Chairman/ facilitator J. Smet
10.30-11.00	Tea Break	
11.00-11.15	Introduction workshop objectives and expected output	facilitator
11.15-11.35	Re-organizational and institutional developments in water supply and sanitation sector	B. Chivala
11.35-11.55	Overview of Water and Sanitation Projects and Activities	
11.35-12.55	Communication between national, sub-national levels and donor-supported projects	I.J. Mbeve M. Samani
12.30-14.00	Lunch break	
14.00-15.15	Project presentations PSSC, WaterAid, Gossina Mission, Irish Aid, LWF	Facilitator
15.15-15.30	Tea	
15.30-17.00	Project presentations RWFH, GTZ (Gauff), Africare, NORAD, JICA	Facilitator
17.00-17.30	Wrap-up session	facilitator

Day 2: Wednesday 6 July 1994

08.00-08.45	Community participation	K.L. Kamalata
08.45-09.15	Community management and financial issues	E. Mumba M. Boesveld
09.15-09.30	Financial Systems for water supply	R. Hynne
09.30-10.15	Briefing on group work and reporting procedure	facilitator
10.15-10.45	Tea break	
10.45-12.30	Group discussions	facilitator
12.30-14.00	Lunch break	
14.00-15.00	Plenary session	facilitator
15.00-15.20	Community Hygiene and Behavioural Change	S.T. Chisanga
15.20-15.30	Case presentation	J. Mate
15.30-15.45	Tea break	
15.45-17.15	Plenary discussion	
	facilitator	
17.15-17.30	Wrap-up	facilitator

Day 3: Thursday 7 July 1994

08.00-08.45	Water Resource Management and Environment	V. Kasimona
08.45-09.00	Presentation of experiences	M. Boesveld
09.00-10.30	GROUP discussion	
facilitator		
10.30-11.00	Tea break	
11.00-12.00	Sustainable technology, operation and maintenance	O. Chanda J. Smet M. Mwanza
12.00-12.30	Group discussion	facilitator
12.30-14.00	Lunch break	
14.00-15.30	Group discussion	facilitator
15.30-16.00	Tea break	
16.00-17.00	Plenary session	facilitator
17.00-17.30	Wrap-up	facilitator

Day 4: Friday 8 July 1994

08.00-09.00	Institutional issues sector and policy developments	D. Mwanza J. Smet
09.00-10.30 facilitator	Plenary discussion	
10.30-11.00	Tea break	
11.00-12.30	Plenary discussion on Action Plan	facilitator
12.30-14.00	Lunch break	
14.00-15.20 15.20-15.40	Plenary session on Summary and Conclusions Evaluation	facilitator
15.40-15.45	Tea break	
15.45-16.15	Closing	
16.15-...??	SURPRISE	

LIST OF PARTICIPANTS AND THEIR RESPECTIVE
ORGANIZATIONS AND EXPECTATIONS

<u>NAME</u>	<u>ORGANIZATION/INSTITUTION</u>	<u>EXPECTATIONS</u>
A. Hussen	Dept. Water Affairs Chipata	Learn and Share Experiences in Community Management in Water Supply and Sanitation Programmes.
O. Chanda	Dept. Water Affairs	Learn from others working in the different projects. Share my Experiences in Community based approach in WSS. Get to know others
M.M. Moonde	Africare	<u>EXPECTATIONS</u> Technological Choice Experiences in Community Participation - (involvement of the Majority)
L. Nkhata	RWHP-N.W.P	Share Experiences in Carrying Carrying out Community - based Projects. Learn better ways of running Workshops.
T. O'Flynn	Irish Aid	Learn from the Experiences of my Colleagues. To seek help in improving the Implementation of our Projects.

<u>NAME</u>	<u>TITLE/INSTITUTION</u>	<u>EXPECTATIONS</u>
B. Chiwala	Water Sector Development Group	Share Experiences
E. Maluma	Gwembe South Dev. Project/Gossner Mission	To learn and Share Experiences
P. Mwanamwenge	Department of Water Affairs	Review Successes and Failures Review Guidelines Review New Policy
O.C. Mwansa	Dept. Water Affairs Northern Province	I hope that this workshop will Stress on Community Participation in Water Policy
J. Masiye	Kafue District Council	To review successes and Failures in the PSSC Project and share Experiences. What next steps to PSSC Project.
T. Yates	Water Aid: Supporting Water Programmes of Gwembe South Develop. Programme: Sinazongwe Monze Catholic Diocese Development Education Programme - Southern Province.	Get a Statment of National Policy of Community Participation in water supply and Sanitation Programmes. Share Experiences
C. Towani	National Commission for Development Planning	The Role of Women in Water supply and Sanitation
	Women in Development Department	Policies developed on Water Supply and Sanitation will be gender neutral.
I. Mbewe	C.M.M.U Community Management and Monitoring	That Guidelines of Community Management are put in place.

NAME	TITLE/INSTITUTION	EXPECTATION
Leonard Phiri	DWA Southern Province	Clear cut policy on community participation
P.A.Zulu	D W A N.Western Province	Community Development
Sarah Sakala	Sharing ideas with my fellow participants	Learn from experiencies of other organisations.
	Community Development Officer	Clues to solve some constraints in programmes of women
S.F. Shisala	D W A - HQ Senior Water Engineer	Learn new approaches in water/sanitation activity to enhance community participation & sustana- bility
M.S. Muyendekwa	D W A Western Province	Solutions to the problems in the operations/maint- enance of water supplies.
Fred Mulenga	D W A Luapula Province	An effective community participatory demonstrat- ion in water and sanita- tion programmes and capacity building of various sector involved.
B. Chiyaba	P S S C Mwachisompola	Expect to share ideas & learn more.
A.G. Mkandawire	J I C A Central Province	Learning best ways of comm unity pariticipation through experiences.
I. Kabombo	Dept. of Community Development Lusaka Member of PSSC Project	Sharing experience especi ally on ways of sustain- ing community water projects in rural areas.
Dr. E. Mumba	University of Zambia	Sharing experiences of different water projects
		How have communities been involved in these projects
		How health and hygiene standards are being maintained in these projects.
		Are community expectations being met.

NAME	TITLE/INSTITUTION	EXPECTATIONS
P. Chola	D W A - HQ	<p>Why most piped schemes are failures through out the country?</p> <p>Why most Zambian communities are un willing to contribute for sustanability?</p> <p>What should we do to remedy the situation?</p>
J. Mate	C.M.M.U Community Management and Monitoring Unit	Share experiences on hygiene education aproaches
A. Silwimba	Kafue District Council I am also an Extension Worker in the Soloboni project	I hope to Share experie-nces and learn new ideas from this workshop.
M.K. Samani	D W A - Mongu Western Province	<p>To share experiences with regard to community man-agement in WSS project</p> <p>Key factor towards effect ive community management system.</p>
F.N. Ngoma	D W A A/PWE - Central Province	To learn and share experiences
M. Boesveld	I R C International Centre for Water & Sanitation	<p>To learn & share experiences</p> <p>To Define new aproaches in community management</p>
A. Simasiku	Community Development	<p>Review the PSSC peoject</p> <p>Share ideas on the water and sanitation programmes</p> <p>To plan for the extention of PSSC project.</p>
P.P. Kimena	D W A Lusaka Province	Learn & Share Experiences on community based water projects
F. Pitcher	G A U F F	Improvement on Mainten-ance of water points & share experiences on maintenance.

NAME

TITLE/INSTITUTION

EXPECTATIONS

S.T. Chisanga

Min. Of Health

Co-ordinated approach to rural water supply and sanitation programmes.

V. Ngulune

IRISH AID

Better understanding of community management.

M. Mwanza

TDAV/UNZA
Technology Development and
Advisory Unit
(Project Engineer)

Getting to know other experiences.

V. Kasimona

Department of water
Affairs

To have a well defined policy on management of community based projects/program

SPEECH DELIVERED BY THE PERMANENT SECRETARY, MINISTRY OF ENERGY AND WATER DEVELOPMENT ON THE OFFICIAL OPENING OF THE NATIONAL WORKSHOP ON COMMUNITY MANAGEMENT IN WATER SUPPLY AND SANITATION PROGRAMMES ON 5TH JULY, 1994 AT MOSI-O-TUNYA HOTEL INTERCONTINENTAL LIVINGSTONE.

MR. CHAIRMAN

THE DEPUTY PERMANENT SECRETARY OF SOUTHERN PROVINCE

THE FACILITATORS

RESOURCE PERSONS FROM THE INTERNATIONAL WATER AND SANITATION CENTRE (IRC)

INVITED GUESTS

LADIES AND GENTLEMEN

I AM PLEASED AND GRATEFUL FOR THE PRIVILEGE YOU HAVE ACCORDED ME TO COME AND OFFICIATE AT THE OPENING OF THE NATIONAL WORKSHOP ON COMMUNITY MANAGEMENT IN WATER SUPPLY AND SANITATION PROGRAMMES.

MR CHAIRMAN I AM THE BEARER OF A MESSAGE FROM THE MINISTER AND DEPUTY MINISTER OF ENERGY AND WATER DEVELOPMENT. ON THEIR BEHALF AND MY OWN BEHALF I WELCOME YOU TO THIS IMPORTANT WORKSHOP. ALLOW ME TO EXTEND A SPECIAL WELCOME TO RESOURCE PERSONS, MR. JO SMET AND MS MARY BOESVELD FROM THE INTERNATIONAL WATER AND SANITATION CENTRE (IRC) AND THE FACILITATORS WHO WILL BE CO-ORDINATING THE DELIBERATIONS OF THIS WORKSHOP. I ALSO WISH TO TAKE THIS OPPORTUNITY TO WELCOME AND THANK THE REPRESENTATIVES OF THE INTERNATIONAL ORGANISATIONS AND DONOR COUNTRIES AND AGENCIES FOR TIRELESSLY SUPPORTING OUR ACTIVITIES IN THE WATER SECTOR.

I SAY THANK YOU TO YOU ALL FOR ACCEPTING THE INVITATION TO COME AND ATTEND THIS WORKSHOP AND SHARE YOUR RICH EXPERIENCES AND IDEAS WITH US. I REALISE YOUR SCHEDULE WILL BE VERY TIGHT BUT I SINCERELY HOPE THAT YOU WILL FIND TIME TO HAVE A GOOD AND PLEASANT STAY IN THIS TOURIST TOWN OF LIVINGSTONE.

MR CHAIRMAN, I EXPECT THAT THE OVERALL OBJECTIVE OF THIS WORKSHOP WILL INCLUDE A REVIEW OF THE EXPERIENCES AND LESSONS LEARNED FROM THE (PSSC) PIPED SUPPLIES FOR SMALL COMMUNITIES PROJECT AND THE MANY OTHER ZAMBIAN WATER PROJECTS AND PROGRAMMES, AS WELL AS TO FURTHER DEVELOP AND ARTICULATE POLICIES AND STRATEGIES TO ENSURE THE LONG-TERM GOAL OF COST RECOVERY AND SUSTAINABILITY OF SMALL COMMUNITY WATER SUPPLIES.

I AM HAVE BEEN ADVISED THAT DURING THE COURSE OF THIS WEEK YOU WILL AMONG OTHER THINGS:

- * REVIEW SUCCESSES AND FAILURES OF DIFFERENT PROJECT APPROACHES AS REGARDS THE CRUCIAL TOPIC OF SUSTAINABILITY.

- * REDEFINE THE ROLES AND RESPONSIBILITIES OF ALL STAKEHOLDERS INVOLVED IN WATER SUPPLY IMPROVEMENTS, PARTICULARLY WITH REGARD TO OPERATION AND MAINTENANCE OF SMALL WATER SUPPLIES.

- * FURTHER DEFINE THE FUNCTIONS OF THE NEW MULTI-SECTORAL UNITS: PROGRAMME CO-ORDINATING UNIT (PCU) AND COMMUNITY MANAGEMENT AND MONITORING UNIT (CMMU) USING EXPERIENCES FROM COMMUNITY BASED PROJECTS AS SUCH AS THE PSSC.

ALLOW ME, MR. CHAIRMAN TO BRIEFLY ALLUDE TO THE PSSC PROJECT IN ZAMBIA. THIS PROJECT WAS JOINTLY RUN BY VARIOUS MINISTRIES AND DEPARTMENTS WHICH INCLUDED THE DEPARTMENT OF WATER AFFAIRS, THE DEPARTMENT OF SOCIAL DEVELOPMENT; THE MINISTRY OF HEALTH, THE MINISTRY OF DECENTRALISATION AND THE UNIVERSITY OF ZAMBIA. IT WAS AN INFORMATION SHARING PROGRAMME IN WATER SUPPLY AND SANITATION, SUPPORTED BY THE INTERNATIONAL WATER AND SANITATION CENTRE (IRC) WITH FUNDING FROM THE NETHERLANDS GOVERNMENT. THIS PROJECT WAS SPECIFICALLY DESIGNED TO LOOK INTO PROBLEMS OF SMALL PIPED SUPPLIES BY PROMOTING AND APPLYING NEW INFORMATION ON PLANNING, ORGANIZING, IMPLEMENTING AND MANAGEMENT OF PIPED WATER SUPPLIES AS WELL AS PARALLEL ACTIVITIES OF SANITATION AND HYGIENE IN BOTH RURAL GROWTH CENTRES AND THE LOW INCOME URBAN AREAS WITH SPECIAL ATTENTION ON COMMUNITY PARTICIPATION, SUSTAINABILITY AND FLEXIBILITY.

MR. CHAIRMAN, THE ROLE OF THE COMMUNITY IN WATER SUPPLY AND SANITATION IS CRITICAL IF PROGRAMMES ARE TO ATTAIN ANY MEASURE OF SUCCESS AND THE CRITICALLY IMPORTANT ISSUE OF SUSTAINABILITY. IN THIS REGARD WE MUST HAVE IN PLACE POLICIES AND STRATEGIES THAT ENCOURAGE COMMUNITIES TO PARTICIPATE IN PLANNING, IMPLEMENTATION AND LONG TERM MAINTENANCE OF WATER SUPPLY FACILITIES AS WELL AS SANITATION IMPROVEMENTS. COMMUNITY MANAGEMENT IS KEY TO SUSTAINABILITY, AND PRESENTS, IN MY VIEW, A SIGNIFICANT STEP FORWARD FROM EARLIER IDEAS OF PARTICIPATION TO AA LEVEL OF MORE GENUINE COMMUNITY RESPONSIBILITY AND CONTROL.

THE DAY IS LONG GONE, MR CHAIRMAN, WHEN THE COMMUNITY'S ROLE WAS PRIMARILY RESTRICTED TO FOCUSING ON SOLVING TECHNICAL PROBLEMS OF INSTALLATION AND MAINTENANCE AND OFTEN OVER-LOOKING THE TRADITIONAL CAPACITY ALREADY MANIFESTED WITHIN COMMUNITIES TO MANAGE RESOURCES.

I AM AWARE THAT THE PSSC PROJECT BEGUN PRELIMINARY STUDIES INTO THE ROLES WHICH COMMUNITIES CAN AND DO PLAY IN THE MANAGEMENT OF WATER SUPPLY SYSTEMS. ALTHOUGH THESE STUDIES COULD NOT BE COMPLETED DUE TO THE PROJECT FUNDING COMING TO AN END, THESE STUDIES I BELIEVE POINT TO SOME EARLY LESSONS THAT CANNOT BE IGNORED. IT IS MY HOPE THAT YOU WILL FULLY EXPLORE THESE IMPORTANT LESSONS AND SHARE VIEWS IN THIS WORKSHOP. SOME OF SUCH LESSONS I AM SURE WILL INCLUDE THE FOLLOWING:

i) THE OBSERVATION THAT COMMUNITIES HAVE UNEXPLOITED POTENTIAL TO SOLVE PROBLEMS THAT AFFECT THEM. PERHAPS MUCH MORE IS THE IMPORTANT CONTRIBUTION WHICH THE WOMEN OF THE COMMUNITIES CAN PLAY; AND

ii) ANOTHER LESSON RELATES TO THE TIME WHEN MOST WATER SYSTEMS ARE COMPLETED. OFTEN THESE ARE NOT MANAGED IN A MORE COMPREHENSIVE MANNER. OFTEN COMMON RESPONSIBILITIES CONCENTRATE ONLY ON THE TECHNICAL ASPECTS OF OPERATIONS.

LADIES AND GENTLEMEN I WOULD LIKE TO ARGUE THAT LOCAL MANAGERIAL CAPACITY DEPENDS NOT ONLY ON THE AVAILABILITY OF TRAINING AND OTHER SUPPORT ACTIVITIES. WATER SECTOR ORGANISATIONS NEED TO DEVELOP PRACTICAL AND EASY TO UNDERSTAND FORMATS RATHER THAN ELABORATE BUT COMPLEX STRUCTURED OR UNSTRUCTURED TRAINING COURSES. THE EVERYDAY WORKING EXPERIENCE OF COMMUNITIES SHOULD BE THE KEY INPUT FOR A MORE PRAGMATIC APPROACH THAN SIMPLE BUT VEXING INSTRUCTIONS IN TECHNICAL TASKS.

MR CHAIRMAN, PAST EXPERIENCE PROVIDES A USEFUL FRAMEWORK AND USEFUL LESSONS FOR COMMUNITY MEMBERS TO IMPROVE THEIR CAPACITY AT THEIR OWN PACE AND IN THEIR OWN SETTINGS, AND DEVELOP THE SKILLS TO ORGANISE LEARNING ACTIVITIES OF THEIR OWN, MAKING MAXIMUM USE OF THEIR OWN RESOURCES.

MR. CHAIRMAN TO ACHIEVE REAL PARTICIPATION IS A CHALLENGE TO ALL CONCERNED INCLUDING PROJECT IMPLEMENTING AGENCIES, DONOR COUNTRIES AND AGENCIES, HEALTH EDUCATORS, AND COMMUNITY DEVELOPMENT OFFICERS AT ALL LEVELS STARTING FROM THE GRASSROOTS.

I AM HAPPY AND ENCOURAGED TO NOTE THE RICHNESS OF COMPOSITION OF THE PARTICIPANTS WHICH IS VERY REPRESENTATIVE, INCLUSIVE OF ALL MAIN ACTORS IN THE WATER SECTOR. I AM, THEREFORE, VERY CONFIDENT THAT THIS GATHERING OF EXPERTS WILL BE VERY INCISIVE IN THE DELIBERATIONS AND LUCID IN ITS ARTICULATION OF PRACTICAL DEVELOPMENT OF POLICIES AND STRATEGIES IN THE SECTOR THAT WILL TAKE US FORWARD.

I AM OPTIMISTIC THAT WITH THE PROGRAMME CO-ORDINATING UNIT (PCU) THROUGH ITS EXECUTIVE ARM OF WATER SECTOR DEVELOPMENT GROUP (WSDG) IN PLACE TO STREAMLINE THE RESPONSIBILITIES IN THE WATER SECTOR, COMMUNITY MANAGEMENT OF RURAL PROGRAMMES WILL BE ENHANCED AND TAKE ITS RIGHTFUL PLACE IN THE SECTOR.

MR CHAIRMAN, LADIES AND GENTLEMEN, I MUST ONCE AGAIN THANK YOU ALL FOR HAVING FOUND TIME TO COME AND SHARE YOUR EXPERIENCES IN THIS WORKSHOP. I HAVE EVERY HOPE THAT YOU WILL WORK HARD TO ACCOMPLISH THE TASKS BEFORE YOU IN THE FOUR DAYS YOU WILL BE HERE AND THAT THE KNOWLEDGE GAINED FROM THIS WORKSHOP WILL BE PUT INTO PRACTICE IMMEDIATELY AFTER THE END OF THIS WORKSHOP.

MY MINISTRY ACKNOWLEDGES WITH GRATITUDE THE SUPPORT IT HAS ALL ALONG BEEN RECEIVING FROM BILATERAL, MULTILATERAL AND OTHER DONOR AGENCIES GATHERED HERE. WE HOPE THEIR COMMITMENT WILL CONTINUE.

I PARTICULARLY EXTEND WORDS OF APPRECIATION TO THE INTERNATIONAL WATER AND SANITATION CENTRE (IRC) THE SPONSORS OF THIS WORKSHOP.

LASTLY, MR. CHAIRMAN MAY I THANK THE RESOURCE PERSONS WHO WILL PRESENT PAPERS AT THIS WORKSHOP, THEIR CONTRIBUTION WILL PLAY A VITAL ROLE IN THE SUCCESS OF THIS WORKSHOP.

IT IS NOW MY PLEASURE AND PRIVILEGE, MR CHAIRMAN, TO DECLARE THIS WORKSHOP OFFICIALLY OPEN.

T H A N K Y O U

Paper 1

**Re-organization and institutional developments
in the water and sanitation sector**

by

Mr. B. Chiwala

GOVERNMENT OF THE REPUBLIC OF ZAMBIA

WATER SUPPLY AND SANITATION SECTOR DEVELOPMENT GROUP

**RE-ORGANIZATION AND INSTITUTIONAL DEVELOPMENTS IN
THE WATER AND SANITATION SECTOR**

BERRARD CHJWALA

WSDG (FRD)

**PAPER PRESENTED TO DWA/IRC WORKSHOP ON COMMUNITY
PARTICIPATION
5-8TH JULY 1994**

**Hotel Intercontinental
Livingstone**

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1.0 BACKGROUND

For sometime now the **Zambian water supply and sanitation sector** has been unable to provide its customers with an adequate supply of reliable, safe water and the required sanitation facilities. This arises from the fact that the sector is generally under financed, under staffed, and unable to meet its service delivery obligations. As a result the quality of life many **Zambians** has deteriorated drastically as they no longer devote most of their time in productive ventures but are instead fetching water.

2.0 PRESENT INSTITUTIONAL RESPONSIBILITY

Presently there are several ministries and Government departments and local authorities that share responsibility for the **Water and Sanitation Sector**. Some of them are basically concerned with policy issues, while others deal with the actual delivery of services to the consumers, i.e implementation and operation and maintenance of utilities, and some with both. The functions performed by the various institutions are briefly summarised below:

- 1. The National Commission for Development Planning (NCDP)** of the Office of the President is responsible for overall development planning, determination of intersectoral investment priorities, setting of overall objectives, donor co-ordination, and monitoring of executing agency performance.
- 2. The Ministry of Energy and Water Development through the Department of Water Affairs** is responsible for design, construction, operation and maintenance of 46 township water supplies and rural (point) water supply. It is also responsible for water resources development and management.
- 3. The Ministry of Local Government and Housing (MLGH)** is responsible for about 22 urban water supply and sanitation through Local Authorities. These are mainly larger cities and towns along the line of rail and Provincial Headquarters.
- 4. The Ministry of Works and Supply through the Buildings Department** is essentially responsible for water supply and sanitation in Government institutions (Govt ministries, schools, army camps etc.) and sanitation for a number of district centres.
- 5. The Ministry of Health** is responsible for rural sanitation, hygiene education and the establishment and monitoring of drinking water quality standards.
- 6. The Ministry of Environment and Natural Resources through the Environmental Council of Zambia** is responsible for establishing sewage treatment effluent standards, for environmental policies and pollution control.
- 7. The Ministry of Community Development and Social Welfare** is responsible for assisting rural communities to organise for water and sanitation project development, implementation operation and maintenance.

3.0 SHORTCOMINGS RELATED TO WATER SUPPLY AND SANITATION

The fragmentation of responsibility among several institutions in the sector as highlighted above has not been without adverse effects. This problem has also been compounded by limited national economic growth especially within the last decade, and the lack of a comprehensive strategy for water supply and use. This explains the urgent need for a clearly defined policy and strategy on water and sanitation. The major sector problems include:

1. **Legislation** does not provide for all water resources to be regulated by Government i.e groundwater abstraction;
2. **Water Resources Management** is the responsibility of the same Government Unit also responsible for water supply operations;
3. **There is no provision for protecting the interests of water customers;**
4. **Financial Problems:** the economic hardships that Zambia has been facing over the decades and the lack of clear financial policies have had adverse effects on the availability of funds both from internal and external sources. Furthermore Tariff adjustments have not kept pace with rising costs in the sector, thus increasing dependency on Government subsidies. The sector is largely (more than 85%) financed through external assistance and is not financially sustainable under present conditions.
5. **Unsustainability of water supplies in small towns and in rural areas.** The social traditional attitude of looking at water as a cost free service has rendered the water supply unsustainable. Community participation in the construction, operation and maintenance of their water supply facilities has often been ignored in favour of a centralised approach, keeping costs at unaffordable levels.
6. **Scarcity of human resources:** lack of staff both in required quantity and quality has restricted the operational capacity of local authority leading almost to complete breakdown of service.

4.0 GOVERNMENT EFFORT TO IMPROVE SECTOR PERFORMANCE

To date many studies have been undertaken which are aimed at improving sector performance but without realising any significant improvements. Hence the sector is in disarray, unable to provide the its customers with an adequate supply of safe water and appropriate sanitation facilities. Aware that without rapid improvements in all social services the citizen of Zambia cannot become productive members of society and will be unable to improve their efforts to overcome past neglect and promote improvements.

Recognising the need to achieve long term improvements in the sectors performance, and to improve the sector's attractiveness for foreign investments, the Government formed an interministerial committee called the "*Programme Co-ordination Unit*" (PCU). This

comprises of all institutions that are involved in the provision of water supply and sanitation services.

The PCU was established as a result of a Cabinet Memorandum jointly prepared by the Minister of Energy and Water Development and the Minister of Local Government and Housing which was approved by Cabinet on March 8., 1993. The main objective of the PCU is to make recommendations to Government on the re-organization of the Water supply and Sanitation Sector in Zambia.

The tasks of the PCU are as follows:

- i) Recommend policy reforms of water supply and sanitation sector;
- ii) Define the responsibilities of Ministries/Organizations in the water supply and sanitation sector ;
- iii) Determine and recommend necessary reforms and reorganization of the sector;
- iv) propose the creation of a framework for planning, development, operation and maintenance of the infrastructure in the water supply and sanitation sector which will encourage and optimise donor support; and
- V) Make proposals for reforming and strengthening of various institutions with a responsibility for water supply and sanitation sector.

5.0 ORGANISATIONAL SETUP OF THE PCU

For administrative purposes the PCU reports to the Permanent Secretary, Ministry of Energy and Water Development . The PCU operates independently but only reports to Government for approval of various recommendations through MEWD. The PCU is chaired by the Permanent Secretary of MEWD and the Secretariat is in the same Ministry.

Members of the PCU are representatives of the following institutions:

- **Ministry of Energy and Water Development (MEWD)- Chairman and Secretariat**
- **Ministry of Local Government and Housing (MLGH)**
- **National Commission for Development Planning (NCDP)**
- **Ministry of Health (MOH)**
- **Ministry of Environment and Natural Resources (MENR)**
- **Environmental Council of Zambia (ECZ)**
- **National Council for Scientific Research (NCSR)**
- **Ministry of Works and Supply (MWS)**
- **Ministry of Agriculture Food and Fisheries (MAFF)**

The PCU is composed of members who have full time responsibilities in their respective Government Departments/Ministries. A substantial amount of technical, financial, organisational and management planning and preparatory work is required to reorganise the sector and to advise on policy reforms.

6.0 MAJOR DEVELOPMENTS

In August of 1993 the PCU engaged a Short Term Interim Consultancy Team whose main task was to lay the foundation work regarding the establishment of the Water Sector Development Group the executive arm of the PCU and the moderators of the reorganisation process. The Team conclude its work in late November 1993 after which the PCU called for a Planning Workshop at Lilayi Lodge in early December to discuss the findings of the Team's report. All the Donors who are supporting the sector were invited. The major topics covered include:

- 1. General organisational framework of the sector;**
- 2. Institutional and Financial matters;**
- 3. Human Resources Development ;and**
- 4. Technical Aspects.**

6.1 SUMMARY OF THE LILAYI WORKSHOP CONCLUSIONS AND RECOMMENDATIONS

- a) Establishment of the Permanent Water Supply and Sanitation Sector Development Group including its detailed workplan. The plan should clearly distinguish between rural, community, peri-urban, urban, and small townships water supply and sanitation.
- b) Preparation of Water Supply and Sanitation Sector Policy and Strategy Paper for the Programme Coordination Unit (PCU) to submit to the Cabinet. This paper is to translate sector principles into specific policy guidelines. It will also include elements such as regulatory and organisational principles, decentralisation, user participation, cost recovery and financial principles, human resources development policy issues, and principles for the choice of technology.
- c) To assist Ministries in Budget utilisation for construction and rehabilitation. This task would serve to determine urgent water supply and sanitation rehabilitation programmes, or simply the preparation of an indicative priority investment programme.

6.2 THE WATER SECTOR DEVELOPMENT GROUP (WSDG)

The WSDG started its work on 1st February 1994 and currently comprises of a number of qualified personnel in the water sector. By mid March the WSDG produced a discussion paper on the various options of institutional arrangements for the sector. To ensure as much objectivity as possible, a transparent methodology was used to determine the relative ranking of the various institutional options. The methodology permitted an examination of the factors used in the analysis, and can be modified for different

conditions or objectives. A list of criteria that were used in selecting the future institutional arrangement is shown overleaf:

1. **Ensuring User Satisfaction;**
2. **Promoting Improved Service Delivery Capacity;**
3. **Commercialisation and Flexibility;**
4. **Ensuring Financial Viability;**
5. **Holistic Management;**
6. **Responsiveness to GRZ Decentralisation Policy;**
7. **Attractiveness to staff; and**
8. **GRZ Support.**

Having selected one option for the future institutional arrangement at a one day Workshop held at Andrews Motel on 20th April 1994, the PCU has directed the WSDG to seek the views of other stakeholders in particular the local authorities. A paper was presented at a Consultative Meeting with representation from the Local Government Association of Zambia (Engineering Committee) by the WSDG on 4th June 1994 at PAID-ESA in Kabwe. Their comments have already been received and will be part of the annexes for the Policy, Strategy and Institutional Framework Paper which the PCU shall submit to Cabinet after their final Discussion on the proposals. Their final meeting is planned for July 29th, 1994.

Thus the most important task of the WSDG at the moment is to work out, advocate and reach a consensus on the future water supply and sanitation sector organization.

7.0 FUTURE WATER SUPPLY AND SANITATION SECTOR ORGANISATION

At a one day workshop held on 20th April 1994 at Andrews Motel, Lusaka the PCU considered the WSDG recommendations on the future institutional arrangement for the Sector and have in principle agreed to the following:

1. Transformation of the PCU into the National Water and Sanitation Council (NWASCO) to perform the required regulatory functions, by the Minister of Energy and Water Development.
2. Creation of Council owned Regional Companies (CORC) to assist Councils in the performance of their service delivery functions in urban, peri-urban and rural areas, subject to overall supervision of Ministry of Local Government and Housing. The water supply functions of the Department of Water Affairs would be transferred to MLGH and CORC.
3. Channeling of funds and monitoring of GRZ and externally financed investment implementation will be done by an investment Unit in the MLGH.

Preference is given to the Regional organisational because this arrangement provides a maximum of flexibility for future. Whenever the local authorities have acquired the capability to operate on their own, they will have the option of leaving the CORC. It is proposed that councils join initially for ten years, with the possibility of leaving any time thereafter following a one year notice. The CORC may provide services for payment for such a council at that council's request. If enough councils decide to leave the shelter of the CORC, the latter would become a service organisation.

Another advantage of forming regional grouping is the possibility of CORC providing additional services. For example, it may provide waste collection and disposal services if councils decide to transfer this function to the CORC. It may also be asked to design storm water drainage, and possibly undertake other service oriented tasks. These services are complimentary to water supply and sanitation and greater could be achieved by addressing all of them, at least in the planning than to handle them separately.

Above all this approach will enable the councils to assume their proper role in the provision of services and this certainly requires optimising the use of scarce financial and human resources. This implies a shift of responsibility to the councils and a co-operative effort of the councils to share the scarce resources for the benefit of all.

As an initial step, a CORC should be established in the Copperbelt and the lessons learned in its establishment, implementation and initial operation used to improve subsequent CORCS. This initial step would be part of transition arrangement leading to the establishment of CORCS in all provinces.

8.0 SECTOR PRINCIPLES

Policies and strategies and the proposed future institutions have been developed on the basis of sector principles which Cabinet approved and these serve as a foundation for overall re-organisation process of the sector. The sector principles are given below:

- 1. Separation of Water Resources Management from Water Supply and Sanitation.**
- 2. Separation of regulatory and executive functions.**
- 3. Devolution of authority to local authorities and private enterprises.**
- 4. Full cost recovery in the long run.**
- 5. Human Resources Development leading to more effective institutions.**
- 6. Technology appropriate to local conditions.**
- 7. Increased GRZ priority and budget spending to the sector.**

Paper 2

Overview of water and sanitation projects and activities

by

Mr. I.J. Mbewe

COMMUNITY MANAGEMENT & MONITORING UNIT

**OVERVIEW OF WATER AND SANITATION
PROJECT ACTIVITIES**

***A PAPER PRESENTED AT THE NATIONAL WORKSHOP ON
COMMUNITY MANAGEMENT IN WATER SUPPLY AND
SANITATION PROGRAMME - LIVINGSTONE***

5TH - 8TH JULY 1994

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1.0 INTRODUCTION:

Management of the Water and Sanitation Sector in Zambia is presently split amongst various Government Ministries, Departments and District Councils. This situation inherent weaknesses in this fragmentation of responsibility. The Water and Sanitation Sector can therefore be described as bad or in a crisis.

The Government of the Republic of Zambia recognizes these problems and therefore decided to examine the need to reduce the often conflicting responsibilities of sector ministries and agencies and determine what structure and policies would make the sector more effective.

The Cabinet therefore established an Inter-ministerial Programme Co-ordinating Unit (PCU) to examine these problems and make recommendations for improvement.

2.0 SECTOR POLICY:

2.1 Water Supplies:

The National Water Policy is mainly based on the Ministerial Policy Statement of December 1974 and subsequently the Local Administration Act 15 of 1980.

The ministerial statement of December 1974 put down general principals and laid emphasis on water supply for human consumption, construction of simple systems with low operation and maintenance costs and involvement of communities in planning, implementation and maintenance. The responsibility of various centres, Municipalities, Urban Townships, Rural Townships and Rural Areas were spelt out between District Councils and Department of Water Affairs (DWA).

The Local Administration Act 15 of 1980 empowers District Councils to establish, operate and maintain facilities within their areas of operation.

2.2 Sanitation:

No ministerial policy statement has been formulated for sanitation, but the Local Administration Act of 1980 provide powers and responsibilities to District Councils for the establishment of Sanitation and Public Health facilities.

The water and sanitation situation in the country could be described as bad or in a crisis.

3.0 SECTOR ORGANISATIONS AND RESPONSIBILITIES:

3.1 Present Sector Responsibilities:

Presently the Water and Sanitation Sector Management is divided into various ministries, departments, district councils and parastatals.

3.2 Functions performed by various institutions are as follows:

- (i) Ministry of Energy and Water Development (MEWD) through the Department of Water Affairs (DWA) is responsible for design, construction, operation of 46 township water supplies and rural water points. It is also responsible for water resources development and management.
- (ii) The Ministry of Local Government and Housing (MOLGH) is responsible for 22 urban water supply and sanitation and a number of small councils water supplies. The 22 are mainly cities and larger towns along the line of rail and provincial centres.
- (iii) The Ministry of Works and Supply through Buildings Department is responsible for design and construction of water supply and sanitation in Government Institutions.
- (iv) The Ministry of Health (MOH) is responsible for rural sanitation, health and hygiene education and the establishment and monitoring of drinking water standards.
- (v) The Ministry of Community Development and social Services (MCDSS) is responsible for assisting rural communities to organize for project development (water and sanitation), implementation, operation and maintenance.

ORGANISATION	PURE RURAL	RURAL TOWN	TOWN-SHIP	MUNICIPALITY	LARGE TOWNS
DWA (MEWD)	WS	WS	WS	-	
DC's Company Structure DC's (MOLGH)	WSS	WSS	WSS	WSS	WSS,C
MWS (GRZ INST.) MOH, HEALTH INSPECTORATE	WSS S/HE	WSS S/HE	WSS S/HE	WSS S/HE	WSS S/HE
CD(MCDSS)	S/CD	S/CD	S/CH	S/CD	S/CD

WS = Water Supply
 HE = Health Education
 S = Sanitation
 C = Company Structure
 CD = Community Development
 Source = D. Carty

A number of parastatals and private organizations are also involved in the sector, e.g. mining companies, Zambia Railways, ZESCO, major Donors and NGO's. Responsibility and functions of the various organizations are not clearly defined and often the availability of resources decides who does what within the sector.

4.0 COMMUNITY WATER SUPPLIES:

There is extremely low access to water of good quality particularly in rural areas where coverage ranges from 15 - 35%. (The current coverage being estimated to be 28%). Inadequate sanitation and poor hygiene practices have provoked the impact of water borne and water related diseases (i.e. 1992 children claimed 1,178 lives).

The major constraints are as follows:

- lack of adequate policies
- poor operation and maintenance of facilities
- lack of guidelines
- weak co-ordination mechanism
- inadequate community involvement in planning, operation and maintenance of water and sanitation facilities

This paper brings together the impression and conclusions delivered from the tour of major projects dealing in Rural Water Supply around the country. The two were undertaken as part of Community Management and Monitoring Unit's (CMMU) effort to find ways and means of assisting the development

of sustainable community managed water supplies. The study was therefore directed at collecting details of management issues affecting community managed water supplies, therefore the paper only gives the general overview of rural water supply situation. The following aspects have therefore been focused in this paper:

- (i) Co-operation among actors
- (ii) Community institution
- (iii) Institution support
- (iv) Technology
- (v) Sanitation and health and hygiene education

4.1 Co-operation within the Agencies:

To date the Department of Water Affairs has been the major implementor of rural water supply projects, while District Councils have been channels through which the communities have applied for water supply assistance. All major projects (i.e. rural water supply), operating under the Department of Water Affairs, have used (or have sought to use) health extension workers, indicating a field level co-operation between MEWD and MOH.

The link between projects and community development extension staff needs to be strengthened. It is believed that the larger the number of extension staff with which a project co-operates the higher are the chances of its success. This is so because the community's perspective of water is broadened by the different views of each of the co-operating ministry/department.

At district, provincial and national there is need for an inter-sectoral approach to rural WSS. One example of development of an inter sectoral based approach is the model which is in place in Western Province (WASHE).

4.2 COMMUNITY MANAGEMENT ELEMENTS

(a) Village Water and Sanitation Committee

Experience has shown that the success of most projects largely depend on the strength of institution. The idea of forming a Village Water and Sanitation Committee (VWSC), advocated by all projects but not practiced by DWA, is a channel where extension staff could reach the community.

Thus VWSC has been a popular channel of community management of rural water supplies. The VWSC's have been found to execute the following responsibilities:

- mobilize funds for operation and maintenance of facilities
- mobilize labour before, during and after construction
- site selection with the community
- repairs or report faults to sector organizations

From the preliminary survey (Eastern, Central and Southern) indication are that few communities have Village Water Committees though in Western, Central, North-Western and Northern Provinces where there are major donors the situation is different.

(b) Training:

VLOM is not a static but dynamic process needing constant development and refinement to cater for increased skills obtained by communities thus increasing the possibility of having users take further responsibility within the system.

The VLOM concept when applied to handpump and small piped water supply project means management of facility by the communities. It is therefore important that communities are well trained from the inception of the project (i.e mobilization) through construction and maintenance.

(c) Community Based Financial Arrangements:

The establishment of viable maintenance fund is one of the key indicators of willingness of community to look after its water points.

At present there are few Village Water Committees consistently contributing towards maintenance fund while others await a breakdown of the facility.

(d) INSTITUTIONAL SUPPORT:

The success of VLOM concept depends on several factors such as:

- social-cultural
- economic
- institutional support and technical backing

The institutional support comprises mostly capacity building. It can be regarded as the relation between the project and the community after water points have been installed. Projects continue to provide spare parts for sale and free technical advice.

Training of the communities should continue in order to cater for increased skills and responsibilities. This requires a well-trained and motivated extension staff/community motivators who would ensure maximum community participation.

5.0 OVERVIEW OF MAJOR ACTORS IN THE WATER SECTOR IN TERMS OF COMMUNITY MANAGEMENT:

5.1 WATER SUPPLY PROGRAMME WESTERN PROVINCE - NORAD

(a) Co-operation with Agencies:

The programme has co-operated well with other programmes through WASHE. The programme, therefore, uses extension staff from MOH, MAFF and MOE. This ensures sustainable development as the villagers would get help from a development centre, agricultural camp or rural health centre.

(b) Community Management Elements:

All water points have Village Water Committees (VWC) who mobilizes labour during construction and mobilizes funds for operation and maintenance of the facilities

(c) Training:

The project has embarked on an extensive programme of training staff from the district to the Village level. This is a success story as the committees are buying spare parts and are able to repair India Mark II, Consallen and Blair pumps.

(d) Institutional Support:

The project continues supporting communities through capacity building and making spare parts available. This is enhanced by the monitoring aspect which is in place.

5.2 RURAL WATER SUPPLY - CENTRAL PROVINCE (KFW-GTZ)

(a) Co-operation with other Agencies:

They co-operate with the Ministry of Health and the District Council. They mostly use District Council staff for operation and maintenance of the facilities.

(b) Training:

They do not train user committees in maintenance and repairs of handpumps but train the district plumbers for pump installation and maintenance. The community are requested to pay for call-out fees and spare parts.

(c) Community Management Elements:

Few villages have Village Water Committees who mobilize cash and labour during construction as well as funds for O&M.

(d) Institutional Support:

The project has provided motor cycles to the District Maintenance Technicians and provide spare parts.

5.3 GROUND WATER DEVELOPMENT - SOUTHERN PROVINCE AND CENTRAL PROVINCE BY JICA(a) Co-operation with other Agencies:

They co-operate with DWA and Councils.

(b) Training:

They train DWA staff in Operation and Maintenance of drilling rings but do not train users as they use contractors for the job.

5.4 RURAL WATER FOR HEALTH:(a) Co-operation with other Agencies:

It co-operates with DWA, Ministry of Health, MCDSS, and the Councils.

(b) Training:

They train motivators, project supervisors and construction foreman as well as train Village Water Committees.

(c) Management Elements:

All water points have Village Water Committees and Caretakers. More than 50% of villages have maintenance funds.

(d) Institutional Support:

They help in welding of windlass and sell chains. They provide refresher courses for the users.

5.5 IRISH AID PROJECT - NORTHERN PROVINCE DEVELOPMENT AID:(a) Northern Province Water Supply Project:

They co-operate with MOH, DWA, MCDSS and District Councils.

(b) Training:

They train community motivators and Health Assistants - Environment Technicians and also train Village Water Committees.

(c) Maintenance Elements:

All water points have Village Water Committees who are trained. Funds are mobilized for maintenance. The Community mobilizes funds for maintenance.

(c) Institutional Support:

Spare parts are provided at subsidized prices.

5.6 CO-OPERATIVE VILLAGE WATER SUPPLY AND PROVINCIAL WATER WORKS (GRZ)(a) Co-operation with other Agencies:

The co-operate with Councils for priority lists.

(b) Training:(c) Management Elements:

No Village Water Committees for projects done by DWA

(d) Institutional Support:

All operation maintenance done by DWA.

5.7 COMMUNITY MANAGED PIPED WATER SUPPLY:

So far there are two projects which had embarked on community water supply to supply water to rural and peri-urban centres. The projects are:

(a) Piped water supply for small communities Dutch Government through (IRC).

(b) Kamanga Water Supply (Irish Government)

6.0 TECHNOLOGY:6.1 WATER POINTS:

The most common water points are hand dug wells fitted with bucket and windlass and boreholes fitted with hand pumps. There are other technologies which are provincial specific such as jetted or tube wells fitted with hand pump and bucket pump respectively.

Spring protection is found in few places as well as improvement of traditional water sources. It is not unrealistic to encourage the protection of more traditional water sources where communities do not qualify according to the criteria.

The VLOM when applied to water supply project means maintenance of the facilities by the community themselves. It is important that communities be made to understand the technology to be introduced by any project if they are to be adequately sustained and maintained them. Where possible the communities should be consulted on what technology they feel should be introduced.

6.2 HAND-PUMPS

Presently a large number of hand pumps (i.e. about 15 types) have been installed in the country. For example Southern Province which has 14 different types of hand pumps out of 630 water points. (See attached papers)

The situation obviously gives problems in terms of stocking spare parts as well as training of communities.

6.3

TECHNOLOGIES USED IN THE PROJECTS

AGENCIES	TECHNOLOGIES
NORAD Funded Projects	Well-fitted windlasses, bucket and chain Boreholes-fitted with handpumps Jetted Wells-fitted with handpumps Improved tradition sources
JICA Funded Projects	Boreholes-fitted with handpumps
DUTCH Funded Project (RWH)	Wells-fitted with windlass, chain and bucket
GERMAN Funded Project (KFW)	Wells-fitted with handpumps Boreholes-fitted with handpumps
IRISH Funded Project	Wells-fitted with windlass Tubewell-fitted with bucket pump
OTHERS	Spring protection Community piped water supply Boreholes- fitted with windlass

7.0 SANITATION AND HEALTH/HYGIENE EDUCATION

Sanitation coverage is very low and it is a pity that there is little in terms of increasing coverage.

In terms of health education, almost all major donor funded projects utilize Health Assistants (i.e. now called environmental technicians). It is thought that projects employ their own health educators in areas where health education service is weak.

8.0 RECENT DEVELOPMENTS:

There are recent (measures) which have been taken in order to address the problems/constraints:-

- The formation of Programme Co-ordinating Unit (PCU) to co-ordinate the reorganization of the sector
- The setting up of Water Sector Development Group (i.e executive arm of PCU) to carry out research and make recommendation to PCU
- The setting up of CMMU to address many important issues in relation to Rural Water Supply and Sanitation.
- The MEWD has initiated the development of water policy.

9.0 CONCLUSION:

It is hoped that all those involved in the sector fully participate in order to have an impact in the improvement of water sector. It is hoped that projects share their experiences through tours and workshops.

HANDPUMPS - SOUTHERN PROVINCE

TYPE OF PUMP	MAZABUKA			MONZE			CHOMA			GWEMBE			KALOMO			SINAZONGWE			SIAVONGA			NAMWALA			TOTAL				
	T	W	N	T	W	N	T	W	N	T	W	N	T	W	N	T	W	N	T	W	N	T	W	N	T	W	N	T	W
1. INDIA II	13	11	2	34	23	11	65	57	8	5	4	1	66	48	18	26	18	8	13	7	6	23	18	5	245	186	59		
2. INDIA III	12	9	3	30	30	0	9	8	1	6	3	3	18	18	0	1	1	0	2	0	2	11	11	0	89	80	9		
3. STANDARD II	12	4	8	7	1	6	1	0	1	1	0	1	1	1	0	1	1	0	-	-	-	-	-	-	23	7	16		
4. BUSH PUMP	14	9	5	2	1	1	14	9	5	-	-	-	17	15	2	-	-	-	9	7	2	9	7	2	65	48	17		
5. NISSAKU	25	19	6	66	55	11	8	7	1	-	-	-	9	4	5	4	4	0	2	1	1	8	7	1	122	97	25		
6. DWA	20	11	9	10	4	6	4	1	3	-	-	-	-	-	-	5	0	5	-	-	-	-	-	-	39	16	23		
7. MONO PUMP	6	2	4	1	1	0	2	2	0	-	-	-	1	1	0	-	-	-	1	1	0	-	-	-	11	7	4		
8. SUNWELL	-	-	-	1	1	0	2	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	0		
9. CLIMAX	4	4	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	-	-	-	5	4	1		
10. M B LORIE	1	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0		
11. WINDMILL	5	3	2	6	1	5	1	0	1	-	-	-	-	-	-	1	0	1	-	-	-	-	-	-	13	4	9		
12. UNKNOWN(OTHERS)	5	0	5	1	1	0	-	-	-	-	-	-	-	-	-	1	1	0	1	0	1	2	2	0	10	4	6		
13. SLL FIGIO	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	2		
14. BLAIR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	2	2	0		
TOTALS	119	73	46	158	118	40	106	86	20	12	7	5	112	87	25	39	25	14	29	16	13	55	47	8	630	459	171		
	61%			75%			81%		58%			78%		64%			55%		85%			73%							

Paper 3

**Communication between national, sub-national levels
and donor-supported projects**

by

Mr. M. Samani

**COMMUNICATION AND COORDINATION
STRATEGIES BETWEEN PROVINCIAL WATER
SUPPLY AND SANITATION PROJECTS
AND NATIONAL / DONOR LEVEL**

BY MAURICE K. SAMANI

*PAPER PRESENTED TO THE WORKSHOP ON COMMUNITY
MANAGEMENT IN WATER SUPPLY AND SANITATION
PROGRAMMES*

ORGANISED BY DEPARTMENT OF WATER AFFAIRS AND
INTERNATIONAL WATER AND SANITATION CENTRE (IRC)

LIVINGSTONE, 5-8th JULY 1994.

ABBREVIATIONS AND ACRONYMS

- DWA - Department of water affairs.
- D WASHE - District Water, Sanitation and Health Education.
- GRZ - Government of the republic of zambia.
- NORAD - Norwegian Agency for Development.
- NGO - Non Government Organisation.
- P WASHE - Provincial Water, Sanitation and Health Education.
- PWE - Provincial Water Engineer.
- PCU - Programme coordination Unit.

1.0 INTRODUCTION

1.1 GENERAL

In Zambia the responsibility for water supplies, sanitation and health education are in separate ministries.

Development of rural water supply is the responsibility of department of water affairs (DWA). The water development programmes depend to a large extent on external funds by donor countries and organisations. In most cases donors have concentrated on regional (Provincial) programmes (map), being involved in the planning and the actual implementations, in this way there has been supposedly efficient use of external funds resulting in increased provision of water supplies in the rural areas.

1.2 PURPOSE OF PAPER

The purpose of this paper is to examine communication and coordination strategies for rural water supply and sanitation at National, Provincial and from a donor perspective.

The paper focuses on the NORAD funded WASHE programme in Western Province, as a case study. The approaches and experiences, are widely applied to cover water supply and sanitation programmes in Zambia.

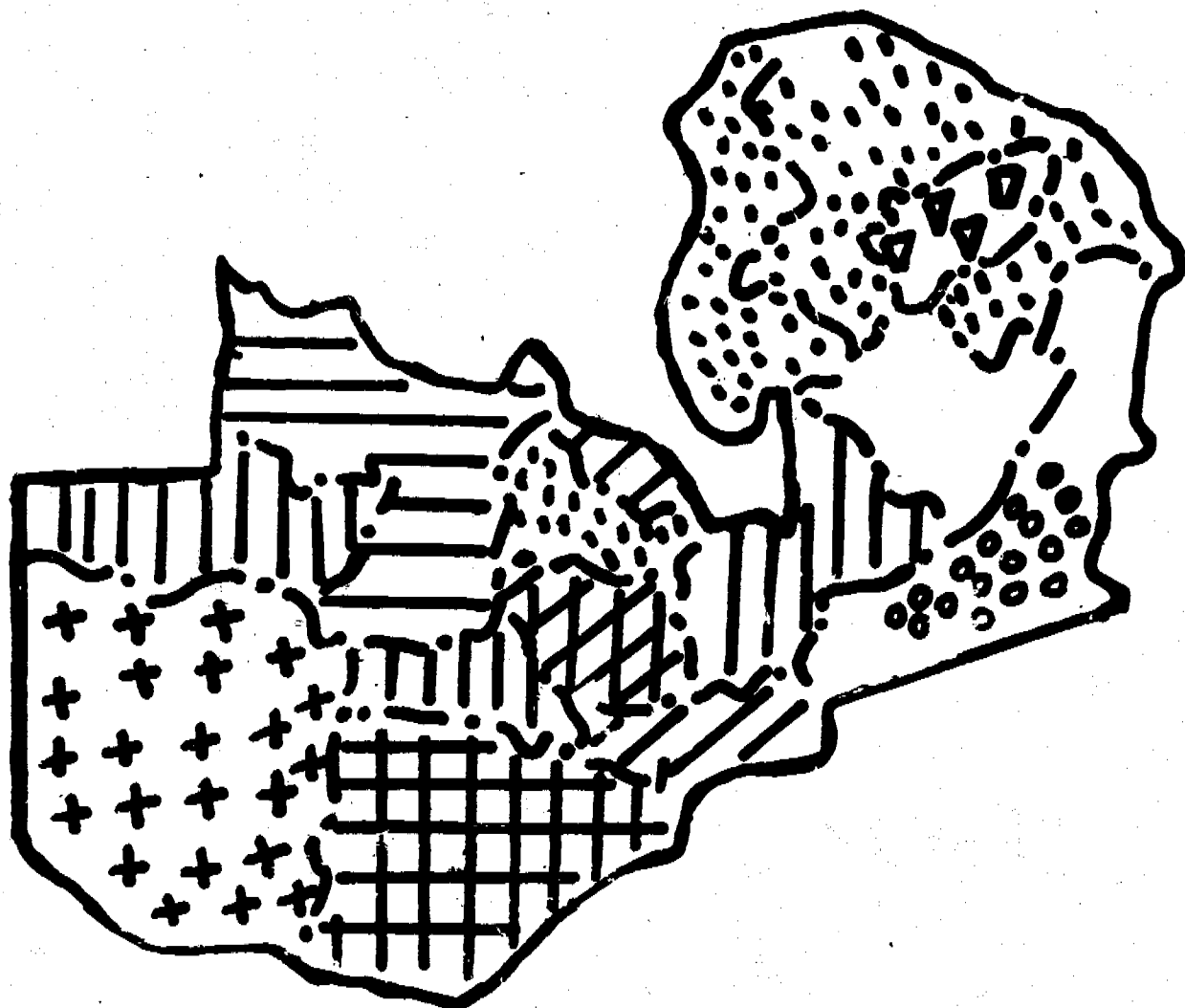
1.3 CURRENT SITUATION

A great number of actors are involved in the development of water supply and sanitation. There are problems with the definition of responsibility, authority and accountability between and within various sector organisations with resulting weakness in the coordination and management of the activities concerned.







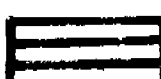


The role of non government organisations (NGOs) in water supply and sanitation is not defined in any clearly stated policy by G.R.Z. This has resulted into lack of communication between the two parties. It is not surprising to find NGOs starting projects without any liaison with government planners and in most cases these neither fit into country plans nor meet approved technical specifications.

From an NGO perspective, some view government as lacking the will to consult them when preparing strategies for improving performance in water supply and sanitation. This lack of coordination and collaboration has resulted in diminished benefits to the recipient communities.

DWA-RWS PROGRAMMES



LEGEND

 UNDP	 NORAD
 WORLD BANK	 IRISH
 KFW / GTZ	 JICA
 DUTCH	 ROTARY
 LWF	

2.0 NORAD FUNDED WATER SUPPLY AND SANITATION PROGRAMME, WESTERN PROVINCE

2.1 GENERAL

Norway has assisted Zambia in developing the water supply sector (both urban and rural) in Western province since 1977. NORAD funding to the programme has been allocated through six successive phases.

2.2 THE PROBLEMS

In a history perspective, the programme has evolved through three main stages, which have straddled the first five operational phases. The first stage between 1977 and 1985 was characterised by an engineering approach which focused on the construction of water supply services. The approach was very much resource driven, planned from the central level.

The programme coordinator was a NORAD employee based at DWA, Lusaka and coordinated the project through a team leader in Mongu. There were no strong links with either PWE, or the Provincial administration.

The organisational structure was not an ideal one as, to all intents and purposes, the programme operated outside GRZ. This was so despite the GRZ/NORAD agreement which stated that GRZ was to be responsible for the administration, planning and implementation of the programme. The second stage ran between 1985 and 1989 and reflected the recommendations of a critical report in 1984 and an even more critical evaluation report commissioned by NORAD towards the end of 1986. At this stage there was a recognition of the need for a soft ware component which would address community participation, hygiene education and sanitation. The third stage 1989-1993 marked the beginning of consolidation of investments and institutionalisation of operation and maintenance capacity.

2.3 EVOLVEMENT OF THE WASHE STRUCTURE

The WASHE programme in the province started in 1985 after DWA, Provincial Administration and NORAD realised the need for community involvement and intersectoral approach. To ensure the success of this intersectoral cooperation, the province agreed to set up a Provincial WASHE Committee and to have one set in each district with a view of securing coordinated activities pertaining to water, sanitation and health education.

2.4 COMMUNICATION AND REPORTING

In addition to routine reporting to PWE, the following written reports are regularly prepared.

- Monthly letter reports to relevant District Council and D WASHE.
- Quarterly progress and planning report submitted to PWE, P WASHE.
- Bi annual progress and planning report submitted to PWE and P WASHE
- Annual progress and planning report submitted to PWE and P WASHE.

3.0 TOWARDS AN INTEGRATED APPROACH

The envisaged re-organisation of the water and sanitation sector aims at achieving greater operational autonomy and responsibility.

It has been argued on various forums that in order to improve the effectiveness and efficiency of water supply and sanitation, overall responsibility should be concentrated, to the maximum extent possible in a single line ministry of GRZ. Thus GRZs current efforts to decentralise central operational functions is a step in the right direction towards intersectoral approach.

3.1 FLOW OF INFORMATION

Report preparation forms a very important part of the line ministry's responsibilities in district integrated water supply and sanitation projects and every effort should be made to produce these to as a standard as possible. It is noted that every ministry has its own reporting systems but it is the responsibility of the line ministry to report on progress in the project as whole, compiling information obtained from all involved ministries.

Communication strategies should therefore be established and strengthened at all levels, national, provincial, district and local. This would greatly enhance partnership and participation and also maximise efforts and resources.

The flow chart below summarises the envisaged reporting structure in an integrated water supply and sanitation programmes.

4.0 CONCLUSION

A concept of integrated water supply and sanitation and health education has been translated into workable and operational system in western province. This success is re-affirmed by the acceptance by GRZ of the need to establish the Water, Sanitation, Health Education (WASHE) committees at district and provincial levels. In addition this has given credibility to the concept of intersectoral project planning and implementation.

The inter-ministerial coordination bodies, D WASHE, P WASHE and PCU, provide the focus for development of water supply and sanitation. By reporting through these bodies, involved ministries are able to keep track of progress in their own areas of responsibility and also keep in close touch with development within the project as a whole.

Non-Government Organisations (NGOs) often have a strong capacity for facilitating community centred development and make natural partners in community management activities. Whatever the partnership arrangement may be, NGOs need official government backing and recognition of their activities.

ANNEX 1

TERMS OF REFERENCE FOR WASHE COMMITTEE

- To coordinate the planning of the individual projects in order to secure compliance with the overall objectives of the WASHE programmes.
- To guide the executing authority during implementation of the work, and intervene when conflicts occur and take the required policy decision to ensure smooth implementation of the project.
- To oversee and guide activities of district level and promote close cooperation among the parties involved.
- To refer change proposals in scope and objectives to the central authority.
- The committee to meet quarterly.

ANNEX 2

TERMS OF REFERENCE OF THE PCU

- Recommend policy reforms on water supply and sanitation sector.
- Define the responsibilities of ministries/organisations in the water and sanitation sector.
- Propose the creation of a framework for planning, development, operation and maintenance of the infrastructure in the water supply and sanitation sector which will encourage and optimize donor support.
- Make proposals reforming and strengthening of various institutions with a responsibility for water supply and sanitation.
- Collaborate closely with the Task Force water and sanitation committee, formed under the Social Rehabilitation and Maintenance Programme, and provide advisory support to the line ministries, district councils and local communities in the planning, implementation of water and sanitation programmes.
- Provide technical support to the National Commission for Development Planning in the formulation of sector plans and in coordination of bilateral and multi-lateral support to the water and sanitation sector.

Paper 4

Financial systems for water supply

by

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**MINISTRY OF ENERGY
AND WATER DEVELOPMENT**

DEPARTMENT OF WATER AFFAIRS

**PAPER PREPARED FOR A WORKSHOP IN WATER SUPPLY AND SANITATION
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**FINANCIAL SYSTEM
FOR WATER SUPPLY**

PREPARED BY:

JULY 1994

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1. INTRODUCTION

The past trends has shown that donor community have played significant role in augmenting the Government's efforts to develop the water sector. The average donor assistance in the water sector accounts for about 90 per cent. That is more than the capital costs in the sector, which is no higher than 80 per cent of the total costs. The donors are hence not covering only the capital costs, but they are supporting some of the operational and maintenance costs of the water supply as well. In such a situation it is far away from sustainability in the water supply.

Zambia has practised the concept of free water for all up to recently. It has been a change lately to look at potable water as a scare economic good. That is the main reason why water tariffs are introduced and why the expression cost recovery has been mentioned in different documents.

Ministry of Finance has given DWA approval of establishment of revolving funds at each province, with effect from 1st of July 1993. The revolving funds in the various provinces will then cater for all DWA Schemes within the same province. If this exercise of revolving funds for a group of water schemes will be successful, this might play an important key role in the further process of re-organisation of the Water and Sanitation Sector.

All the revenue from water tariffs to the water schemes will go into the revolving funds. In the first two and a half year these incomes are supposed to cover all operational and maintenance costs at the water schemes as well as for Provincial Offices of DWA, excluded salaries. From 1996 the salaries are supposed to be covered by means form the revolving funds as well.

This new situation will give more detached water supply in the provinces. DWA in the provinces and its water schemes will from now on be more independent of the Government. They therefore have to be more business like in the future.

By that reason Ministry of Finance requires that Water Affairs in the provinces introduce Commercial Accounting System. To comply with this request, there must be elaborated an Income and Expenditure Statement, Balance Sheet and Cash Flow Statement. It is not possible to spend money from the revolving funds before this new accounting system is in use. It is therefore necessary to have this business oriented system on going from 1994. By that reason are this accounting system already developed and introduced to all DWA schemes.

In order to improve the water sector further, has the Cabinet approved seven principles for the water sector, and they are as follows:

- 1) Separation water recourses, water supply and sanitation.

- 2) Separation regulatory and executive functions.
- 3) Devolution of authority to local authorities and private enterprises.
- 4) Full cost recovery in the long run.
- 5) HRD leading to more effective institutions.
- 6) Technology appropriate to local conditions.
- 7) Increased GRZ priority and budget spending to the sector.

The Programme Co-ordinating Unit (PCU), has used these principles as the main guidelines when a proposal for a new organisational structure for water supply and sanitation has been worked out. This new organisation structure for the water supply is described and explained in a Final Draft Paper by Water Sector Development Group (WSDG) (organisation map on last page in this paper).

The purpose of this paper is to look into the financial aspects regarding the revolving fund and the proposed new organisational structure.

Cost Recovery is the key word for the first part. Which costs of supplying water should be covered by the income from water tariffs, and which costs should be financed by the Central Government, in addition to the time scale of cost recovery, are the topics of the next chapter.

In the second part, third chapter, is the tariff policy discussed and analysed.

2. COST RECOVERY

Development of a policy and strategy on how to achieve full cost recovery in the long run is essential if the sector in Zambia is to improve the sector's overall productivity and service delivery to the public. When the water supply must cover their costs by income from the water tariffs, there will be incentives to be more effective like increasing collection efficiency and to reduce water leakages.

In a cost recovery policy it must be defined which costs are going to be covered by the income from the water tariffs. It may be useful to use the words economic goods and public goods.

Treated and distributed water is an economic good and not a public good. Economic goods are scarce goods which is consumed by individuals. Bread, meat, beer, shoes and jeans are examples of economic goods. Economic goods are as we see goods which can be bought in a shop. Drinking water can easily be divided in different pieces and sold to individuals. Individuals do often pay for the consumption of economic goods.

Public goods are, however, goods which are difficult to divide to different pieces and sell to individuals. Examples of public goods are police, military, fire unit, recreation areas like parks, etc. Such goods are financed by the Government through the general tax system and given freely to the people. Without a Government public goods have been very difficult to supply.

The discussion above indicates that the consumers should pay the real cost for potable water. The real costs of supplying drinking water must therefore be analyzed. One way of doing that is to divide the costs into different groups. The two main cost groups regarding water supply and sanitation are:

1. Regulatory costs
2. Executive costs.

The regulatory costs are the costs for the regulatory authority in the water supply and sanitation sector, while the executive costs are the costs for the executive authority in the sector.

2.1 REGULATORY AUTHORITY

The tasks of the Regulatory Authority are the setting of the sector standards regarding water quality/quantity and water protection, technical standards, and service delivery levels. Standards for the sanitation sector are of course also decided and designed by the Regulatory Authority. Rules for treatment of sewage and solid waste is one important topic in that respect.

In addition the Regulatory Authority must elaborate regulations for cost recovery, tariff policy, and auditing. The Regulatory Authority is also making procedures for community participation and for operation and maintenance of the schemes. Guidelines for how the management and the information system should be build up are therefore of great importance.

It is difficult to divide the services from the Regulatory Authority and sell it in a marked. It is almost impossible for one individual to buy one specific service from the Regulatory Authority, because they make rules and guidelines for a whole sector. It is meaningless to sell laws piece by piece in the free marked. The Regulatory Authority should therefore be financed by the general tax system, and not by direct payments from individuals. The service may be defined as a public good.

Costs for the Regulatory Authority should by that reason not be included in the water tariff. However, today is the regulatory functions together with the executive functions, and not separated in an own unit. It is therefore not so easy to detach the regulatory costs from the executive costs, when needed tariffs to get cost recovery are calculated.

In the PCU proposal for a new organisational structure, there is created a separated unit for the Regulatory Authority at Central Government level, which is called National Water and Sanitation Council (NWASCO). By reasons mentioned above, NWASCO should be financed by the Central Government, and not by income from the water tariffs.

2.2 EXECUTIVE AUTHORITIES

The Executive Authorities are responsible for the project planning, implementation, operation and maintenance. The water is treated, distributed and sold according to the regulations. The management of the water supply and sanitation must follow all the rules and guidelines for the sector, established by the Regulatory Authority, where procedures for the financial management is one example and guidelines for Human Resource Development is another. One important aspect for Rural Water Supply is to use the guidelines for Community Participation.

The costs for the executive authorities is the same as the direct costs of supplying water to the consumers. Potable water is as mentioned an individual economic good. The executive costs should therefore be covered by the customers. Which means that all costs of producing and distributing drinking water should be covered by income from water tariff.

Costs of running the water schemes and the rural water supplies are such costs, and should be financed by the water tariff system. Different type of help from regional level are needed, to be able to run the water schemes and the rural water supplies

properly. The water schemes and the rural water supplies don't have all the equipment and necessary skills by its own. As long as the regional level is involved in supplying water, their costs should be covered by income from water tariffs as well. Provincial Water Engineers and their offices should therefore be financed by the water consumers through the water tariffs.

In PCU's opinion there should be a support from regional level, not only for DWA's water supplies, but for water schemes under District Councils as well. In the document for a new organisational structure by PCU, there is a proposal to create Council Owned Regional Companies (CORC) to assist all the water schemes and all the rural water supplies in the districts. By reasons mentioned above should the costs of running the CORCs be covered by income from the water tariffs.

To improve the co-ordination of financial support, mainly from donors, to the water supply and sanitation, PCU recommend to develop an Investment Unit at Ministry of Local Government and Housing. This Investment Unit follows the rules and the guidelines from NWASCO when they are setting up investment plans for the Water Supply and Sanitation Sector in Zambia.

Though the new Investment Unit at Ministry of Local Government and Housing is a part of the executive functions, it should not be financed by means from the water tariffs. This central unit is more closely linked to the central government than to the consumers in the district. This unit is an important tool for the central government in the macro management of the water supply and sanitation. It is also difficult to divide the service from the investment unit in different pieces and sell it an open market. The investment unit should therefore be financed by the general tax system.

2.3 RECOMMENDATIONS

1. NWASCO, the Regulatory Authority, should be financed by the Central Government.
2. Investment Unit at Ministry of Local Government and Housing should be financed by the general tax system.
3. Costs of Water Supply and Sanitation at district level should be covered by income from water tariffs.
4. Costs of the support from regional level (Provincial Water Engineers/CORC), should be financed by the consumers through the water tariffs.

2.4 EXECUTIVE COSTS

Costs of the executive functions are the costs which are directly connected to the water supply. There is recommended in this paper that this costs should be covered by income from water tariffs. By that reason there is a need to analyze and discuss these costs. The executive costs can be divided into variable costs and fixed costs. The variable costs vary with the change in the production level, while fixed costs are independent of the changes in the daily production.

The variable costs may change from one week to another. It depends on the variation in the production. Operative costs are directly connected to the water production. Costs like electricity or diesel for the water pumps, spares for maintenance and minor repairs, rental charges and salary for operators, plumbers and mechanics, are costs which a water scheme can't avoid not even a single day. It is costs which are necessary to be able to operate the scheme from one day to another.

When there are more water produced, more power for pumping water and more chemicals for treatment are needed. When the water production decreases we got the opposite situation. The use of electricity and chemicals will be reduced. Costs like these fluctuate with the change in the production level. That's the reason why they are called variable costs.

If the water production increase from one week to another or from one month to another, the fixed costs are still the same. They don't change even if the production is fluctuating. The biggest component among the fixed costs are the cost of capital. A smaller one is some of the labour costs at the overhead functions.

Water installations as pipe system and wells, technical equipments as water pumps, and buildings are what we call capital in the water supply. When the water consumption are increasing or decreasing from one week to another, the costs of the technical equipment are still the same. The capital costs will just increase when there are new investments or bigger repairs.

2.5 OPERATIONAL AND MAINTENANCE COSTS.

Operational and maintenance costs are defined as all the costs except the capital cost. That means that the operational and maintenance cost are the same as the operative costs and the overhead costs together. Almost all of the operational and maintenance costs are variable costs, because approximately 90% of the operational and maintenance costs may be defined as variable costs. But of the total costs, the operational and maintenance costs are only around 20%.

Elements that constitute O&M costs are:

- a) Personnel
- b) Materials
- c) Chemicals
- d) Utilities
- e) Transport

Personnel.

The second biggest element among the operational and maintenance costs are cost of labour. Approximately 20% of the operational and maintenance costs are labour cost.

Materials.

The operational and maintenance involve the use of a variety of types of materials. Spare part is a main key word regarding materials. What items will be needed, how much of each, and unit cost of each? How much in stock at all times are necessary? These questions are central when spare parts is the subject. 4% of the operational and maintenance costs are materials.

Chemicals

Chemicals are needed for water treatment. Surface water need a lot more treatment than ground water. That's the reason why it is a rather big difference in cost of chemicals between some water schemes. In average 3.5% of the operational and maintenance cost goes to chemicals.

Utilities

Utility costs are made up of power costs. The cost of powering operating equipment depends primely on three factors:

- daily operating times
- characteristics of the motors
- cost of energy

Electricity is mostly used as power to operate the water pumps. Where there are no electricity available, diesel is used. In 1993 the electricity tariffs increased by 5 times, and after this big increase the cost of electricity became the far largest cost component with regard to operational and maintenance cost. 70% of the operational and maintenance cost are now cost of electricity. However, the cost of power is even bigger if diesel is used.

Transport

In the water supply system there are transport of personnel, materials and supplies. Transport of personnel is for preventive maintenance, repairs of pumps/taps, motor engines, piping and tanks as well as system inspections, water meter reading etc. Materials must of course be transported once a while, so spare parts are available where they are needed.

Only 2% of the total operational and maintenance costs are transport costs.

Recover Operational and Maintenance costs

The cost components mentioned above are 99.5% of the total operational and maintenance costs. The last 0.5% is overhead costs like stationery and telephone, but some of the labour cost are also connected to overhead costs. Secretary functions and book keeping are examples in that respect.

The goals which is worked out by the Ministry of Finance, regarding revolving fund in DWA, can be used as minor goals to reach the major goal about financial sustainability. This goals are as follows:

1. Full cost recovery of the operational and maintenance costs excl. salaries for the operational staff by the end of 1995.
2. Full cost recovery of the operational and maintenance costs including salaries for the operational staff from 1996.

When these two goals are achieved the water customers are covering all the costs of running the water schemes. As mentioned earlier the operational and maintenance cost are, however, only 20% of the total costs. Therefore it must be set up some goals and time schedule for how the capital cost should be covered by Zambia as well.

To manage to cover all the operational and maintenance cost the water tariff must be so high that the consumers in average must use approximately 10% of their income on water. People can't probably afford to use more of their income than that on water consumption. It is therefore difficult to cover some of the capital cost by the income from water tariffs in the near future.

2.6 CAPITAL COSTS

The biggest component among the fixed costs are the cost of capital. Water installations as pipe system and wells, technical equipments as water pumps, and buildings are, as mentioned earlier, what we call capital in the water supply. Capital of

this type has a rather long life time. The cost of the capital are therefore decided for many years to come, when the investment is done.

The current cost of capital is the loss of value, cost of necessary loans or alternative rate of return. What ever method there is chosen, an interest rate must be used. However, this will discussed in details in another report later on.

How can the capital costs be financed, is now a relevant question. Donors have covered the capital costs so far, so they maybe willing to do the same some more years. However, it can't be expected that donors will be the financiers of the capital costs for ever. It should therefore be a time schedule for how Zambia can take over and cover the capital costs.

As mentioned the consumers will use approximately 10% of their income on water consumption, if the income from water tariffs are going to cover all the operational and maintenance costs. There could be an assumption that cost of water compared to the consumers income could remain at 10% for many years to come.

If there is an economic growth and thereby increased salaries each year in the coming years, the water tariff may increase with the same growth rate. Then the income from water tariffs will cover more and more of the capital costs, although the consumers will use the same amount of their income on water.

The real increase in the water tariff rate could actually be the same as the growth rate of the Gross National Product.

With a real growth in the Gross National Product by 5% per year, the water tariffs will be doubled in 15 years. At this average growth rate, it will take 35 years to get full cost recovery including the capital costs, which will be year 2029. If Zambia manage to get the same economic growth as China the recent years, and the increase in the water tariff is following the same rate, approximately 10%, the water tariff will be doubled in 7 years, and there will be full cost recovery after 16 years, in year 2010. Last year the growth in the Gross National Product was 4% in Zambia.

The estimates above shows, however, that the capital costs of water supply and sanitation have to be subsidised many years to come. According to the theory of external effects it is not wrong of the government to subsidise the water supply. If a consumption of a product has a negative or positive effect on others, the expression external effects is used.

Consumption of potable water has positive external effects. Clean safe water is not only an advantage for the person who is consuming it, but for other sectors in the economy as well, because this actual person get a better health than he would have had without access to potable water. The government will save money on health expenditure and there will be less absents from work, when more people have access to safe drinking water.

Safe drinking water should therefore be subsidised to encourage people to consume potable water instead of contaminated water. The water shouldn't be too expensive of reasons mentioned above, but the water supply shouldn't be too cheap either, because then the demand for water will be too high. It must be remembered that potable water is a limited resource.

When the consumers after some years hopefully have much higher income than they have to day, they can pay what the water really costs, and they don't need to be encouraged to use safe drinking water any more, because they will use potable water anyhow when they no longer have problems of affording it.

The goal could be that donors do not cover any of the capital cost in the water supply from year 2012, which means that Zambia it self must cover all the costs of supplying water within 18 years. Exceptions could be support from donors regarding new technology and bigger expansions.

The time schedule could be that Zambia is increasing their financing of water supply by 10% each year from 1996. The increase in the water tariff may be, as mentioned, at the same rate as the rate of the economic growth. Most probably there will be a gap between the economic growth rate, and thereby the increased rate in the water tariff, and the required 10% rate. The Zambian Government must cover that gap by income from other sources.

The inflation rate is not taken into account in the discussion above. The inflation rate must of course be added to get the needed size of the water tariff.

2.7 RECOMMENDATIONS

1. Full cost recovery, at district level, of the operational and maintenance costs excl. salaries for the operational staff by the end of 1995.
2. Full cost recovery, at district level, of the operational and maintenance costs including salaries for the operational staff from 1997.
3. Operational and maintenance costs including salaries, at regional level, should be covered by income from the water tariffs within 5 years.
4. Zambia it self cover all the capital costs of water supply and sanitation from year 2012. Exceptions should be support from donors regarding new technology and bigger expansions.

3. TARIFF POLICY

The water tariffs have mainly three main tasks. The first and most obvious one is that the income which is created of the water tariff ought to cover the costs of producing water. In other words the water tariffs is used of financial reasons. The second task for the water tariff is to encourage conservation of water recourses. The third and not less important task is that a water tariff may be used to subsidise poor people and to tax rich people.

The water tariffs should solve three problems:

1. Financial
2. Conservation/efficiency
3. Willingness to pay/affordability

3.1 FINANCIAL

If all the costs of producing water are covered by the income from the water tariffs, then the financial problem is solved. It doesn't matter which tariff system it is. All tariff structure which give enough income is sufficient from a financial point of view - it is closely to believe, but unfortunately it is more complicated than that. The simplest way of clarifying is probably to divide the discussion into the two cost factors operational and maintenance costs, and capital costs.

Almost all the operational and maintenance costs are variable costs, because 75% of these costs are cost of power and chemicals and they are directly connected to the volume of supplying water. In addition some of the labour, and spare costs depends on the size of the water supply. Operational and maintenance costs may therefore be looked at as variable costs.

The major operational and maintenance costs as power and chemicals are proportional to volume of supplying water. That means that these costs and the supply of water are increasing together in the same rhythm. Optimal price for water in such a situation will then be equal to the average of operational and maintenance cost. If the average cost is for instance K200 per cu.metre, then the price should be K200 per cu.metre as well. This equality between average cost and price will give balance in the finances, neither profit nor deficit, when the capital cost is not taken into account.

It is actually correct to include only the operational and maintenance cost in the water tariff build on water meters, because then it will be the right signals between the consumers and the producer. When the consumer for instance reduce her water use, the amount of supplied water may be reduced with exactly the

same amount. The producer will then save some of the operational and maintenance cost like cost for power and chemicals. The consumer should then get the same reduction in the charge of water as the producer save.

It will be the opposite situation if the consumer increase her water consumption and the water supplied must be increased to cover this higher demand of water. Then the power cost for instance will increase as well. The consumer should then pay so much more for the water as the cost of supplying has increased.

The capital cost is independent of the production level. If half of the capacity of the water plant is used or if the whole capacity is used, the capital cost is the same. The capital cost per cu. metre water decreases when water supply increases. The total costs will have the same behaviour, because the capital cost is so dominating by its 80% of the total.

The fixed cost of capital should be covered by income from a fixed tariff, because the capital costs is independent of daily water consumption. When the costs are independent of the water consumption, then the water tariff, which is financing these costs, should be independent of water consumption as well.

It may be concluded that the water tariff should be divided in two:

- One part linked to water meters. The income from water meters should cover the operational and maintenance costs.
- The other part build on fixed rates. The income created by the fixed rates should finance the capital costs.

3.2 CONSERVATION

To encourage conservation of water and to improve the efficiency of the water supply the structure of the water tariff system is important. It should be expensive for the consumers to waste water, and the producers should lose a lot of money if there are water leakages.

It is difficult to comply the first condition, to decrease water waste, without using water meters. Water tariffs build on flat rates are independent of the water consumption. The consumers pay the same amount for water, even if they misuse and waste water. In such a system there are no encouragement to reduce water waste. With water meters the size of the water tariffs depends on how much water there are used. That will lead to more careful use of water, and waste of water will be more limited.

With cost recovery the producer usually get covered all his costs as long as the customers afford to pay. Under such a system it

doesn't matter for the producer whether there are leakages or not, because he gets the production costs covered anyway. To encourage the producer to reduce the leakages in the pipe system, they should get covered only the costs of water produced which is sold to the customer. That can be done by calculating the power and treatment cost per cubic meter and multiply that with amount of water sold. The water tariffs should then be at such a level that only the costs of sold water are covered.

Water meters should be introduced to reduce:

- water waste
- water leakages

3.3 WILLINGNESS TO PAY/AFFORDABILITY

A basic need like potable water should all people have access to, even the poorest among the poor. There are estimates of how much clean water a person or a normal family need for basic consumption. This water consumption for basic need should be offered at a price so everyone can afford it, which will make subsidises necessary. Water use beyond this basic level should, however, be priced much higher, so more luxury consumption is kept rather low. The tariff for more unnecessary water use may even be higher than the cost of supplying it. However, water meters are a must with this system.

Richer people are likely to use more water than poor people. If the water tariff for water use above the basic level is higher than the cost of supplying it, these richer consumers may subsidise poorer consumers so they can afford to use water to cover their basic needs. The water tariff for poorer users will then be lower than the cost of supplying the water.

This system is fit for the part of the tariff system which is covering the operational and maintenance costs by using water meters. All the water customers together should be able to pay so much for the water supplied, that the income from water tariffs is covering all the operational and maintenance costs.

Another way of cross subsidising between the customers is to stipulate the water tariff after the customers income instead of after how much they consume of water. If the customers income is high, then the water tariff will also be high. Opposite, the tariff will be low when the customer is poor. The easiest way of calculating a customers richness, is not to use the income but by valuing his private property. The water tariff will then be more like a property tax. The fixed part of the water tariff, which should cover the capital costs, could be build up like this.

It may be concluded that the metered rates and the fixed rates can have a social profile by:

- Stipulating the fixed water tariff after how wealthy the consumers are.
- Deciding that a consumption higher than what is defined as a basic need has a higher metered tariff than the production costs, and consumption within the limits for basic need has a lower metered water tariff than the real cost of supply.

Consumers willingness to pay is a crucial point. Approximately 50% of the consumers pay their water bills to day. With the rather dramatically increase in the water tariff this year and in the years to come, it will not be easier to convince the consumers to pay their water bills. The consumers have most probably very little understanding for the doubling of water tariffs this year, if the service standard is not improving. The supply of water is very bad many places. Some consumers get water only a few hours per day or they don't get water for some days at all. It is not surprising if these people are not paying their water bills, especially after the big increase in the water tariff this year.

From a consumers point of view it is very important that there is a link between the size of the water tariff and the service level of the water supply. An increase in the water tariff must therefore go hand in hand with improvement of the water supply, with regard to both quality and quantity. The donors may play a major role here. While the Zambians are trying to achieve cost recovery, the donors should do investments which improve the standard of the water supply. With such a strategy it will be much easier to convince the consumers to pay their water bills, despite high water tariffs.

3.4 RECOMMENDATIONS.

1. The water tariff should be divided into two different parts based on:
 - a) Water meters
 - b) Fixed rates
2. Install water meters to:
 - encourage less water waste
 - encourage less water leakages
3. Income from water meters should cover all operational and maintenance costs.
4. Income from fixed tariffs should cover capital costs.
5. Consumers payment for water through water meters should be higher than the operational and maintenance costs, when the water consumption is above what is defined as basic need, and consumption within the limits for basic needs, has a lower water tariff than the real operational and

maintenance costs.

6. Consumers payment for water through fixed rates should depend on how wealthy they are. The wealthiness could be calculated on the basis of the value of their property.

Paper 5

Community management and financial issues

by

Dr. E. Mumba

COMMUNITY MANAGEMENT AND FINANCIAL ISSUES

BY ELIZABETH MUMBA

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Introduction

The paper presents a discussion of Community Management and financial issues in water supply and sanitation programmes in Zambia. The first part of the paper provides an view of the definition of Community Management. This is followed by a brief history of community management and financial issues in Zambia including issues regarding cost recovery and their importance. The paper then discusses different implementantion strategies used in involving communities in managing water supply and sanitation programmes. It also discusses problems encountered in Community Management and resolving financial issues.

Community Management

In attempting to define Community Management, I will first define community participation as the terms are inter-related. Community participation refers to the involvement of people in projects and programmes at community level that are designed for their benefit. Community management on the other hand refers to the total organization and implementation of a particular project or programme.

For the success of any project or programme designed to improve the socio-economic and health status of a community, public support and participation leading to local organization are first importance. Community Management refers to all inter-related components of a project. These may include coordination with other departments working in the Community such as health workers, community development workers and agriculture extension workers. Community Management refers to the integration of related components which often overlap. These include; implementing hygiene education, planning service levels; agreeing financial and maintenance responsibilities; participation in construction, carrying out day-to-day management of the completed project and evaluation. Community Management refers to the overall organization, implementation and supervision of a project, in which community participation is a component. Community Management is concerned with long term sustainability of a Project or Programme.

Historical background of Community Management and Financial issues in Zambia.

After independence, several attempts were made of trying to improve the living standards of the people in Zambia by providing basic services such as health facilities, schools and water supply at minimal or no cost to the community. Although members of communities participated actively in community projects, they expected the government to provide all these services free of charge. This attitude was engrained in the minds of many rural and peri-urban

communities. Communities expected the government to dig wells free of charge and provide safe water to them. During this period, communities were not mobilized to take care of water points and maintain health education activities in their communities.

Where self-help projects were encouraged aimed at solving immediate problems, communities expected the government to provide other basic services including personnel. In digging wells, communities expected to provide materials and equipment. In self-help projects community workers involved the communities from the initiation of the project through the implementation stage. The role the community worker is to motivate the people, to work with the people in solving their problems. Community Management therefore refers to the community worker involving members of the community in all stages of the project.

International Drinking Water Supply and Sanitation Decade

As part of initiatives to implement the goals of the International Drinking Water Supply and Sanitation Decade several projects were established in Zambia in Western, North Western and Central Provinces. In 1983 the Zambian Government and the International Reference Centre undertook a demonstration project on Public Standposts Water Supplies in Central province. NORAD initiated a water project in Western province and GTZ established projects in North-Western Province. These projects have been discussed in detail during the workshop on the short presentations from projects and provinces.

During the International Drinking Water Supply and Sanitation Decade debate on community participation, community management, health education and who should pay and how much should be paid for water began to be discussed.

Importance of Community Management

From the paper on community participation, it has been emphasized that people in communities can only participate if they have been educated on the project being carried out in their community. For people to participate in any programme or project they have to understand issues at play.

In order for communities to be involved in the stages of planning and management, they have to be involved from the beginning of a particular project. Once people become aware and educated about project, they feel they can take charge of the project, they feel the project is theirs, they feel they can manage the project. In other words, these people have become empowered to manage their own affairs in that community. But this process cannot happen over night. It requires a lot of effort and patience and knowledge on the part of the community worker. A water project will only succeed if the community is involved from the start of the planning procedure from the site of the water point to the proper use and maintenance part.

Involvement of women at local level is essential for the success of rural water supply. Another aspect of community management is that it is essential that villagers or members of a community are able and willing to pay for the operation and maintenance of their water supply.

This will be discussed in detail when we discuss ideas on cost recovery and their importance. It is necessary that people recognize water-related diseases so as to enhance health education.

Issues of Cost Recovery and their importance

Although water is indispensable, it is undoubtedly wasted to a much greater extent than any other commodity of service. Half of the man race is short of water because of a lack of funds to develop supplies. The concept of cost recovery entails that everyone who uses water pays for it in one way or another. According to the guidelines from the WHO the total cost of Water supply and Sanitation operation should be calculated as:-

"either the sum total of labour, goods and services and capital resources mobilizers as inputs to the Water Supply Sanitation System" or "the sum costs of activities undertaken to plan, design, construct, operate, maintain and eventually extend and renew that system". The difficulty to recover cost is a major constraint to water supply sanitation financial management.

Until recently, many countries were in agreement that water should be free for some categories of users. This idea was justified by Politicians in the name of equity, while philosophers explained that the right to water had been reorganized in the oldest religions and cultures.

In many developing countries water supply is provided at prices unrelated to financial cost. Another problem is that engineers, financial analysts and economists have different perceptions of the problem and the goals they pursue. Cost recovery issues are not always financial in nature. Successful cost recovery requires not only appropriate financial policies but also appropriate organizational framework and arrangements for effective community participation. Activities that encourage public awareness and health education are important. Cost recovery requires changes in the behaviour and attitudes of all those involving in the provision, management and levying of water and sanitation services.

RECOVERY OF COSTS

Many agree that users should pay for water but the problem is deciding how much. There are several approaches to cost recovery. One approach is the cost sharing approach. The provision and continuing operation of any water supply sanitation facility involves costs and responsibilities which are usually shared between the agency and the community or (the user).

What is important is that the right balance of responsibility sharing should be struck so that no one group is doing less, or more than their share. In this approach, the objective is sustainability of the system which can be achieved by focusing on Key elements:

- enabling environment
- health awareness
- strong institutions
- community
- agency
- special interest group
- felt need
- supportive attitude
- expertise and skills
- appropriate service level
- appropriate technology
- materials and equipment
- support services
- customer relations
- community support
- operation & maintenance support

RESOURCES COVERAGE

Each element of sustainability has responsibilities and costs attached to it. Each party involved should provide certain resources to ensure that the elements are in place. A broad range of resources is necessary and include cash, equipment, materials and supplies, expertise and skills, and time and labour.

Apart from resources coverage, cost containment and liquidity maintenance are important.

Cost containment refers that every effort should be made to reduce wastages, cut costs and improve cost effectiveness.

Liquidity Maintenance - refers that at any given time, all cash needs should be covered. This means having always enough cash on hand to meet any expenses on construction operation and maintenance and debts.

Reducing Costs

Laugeri (1987) outlines some ways in which costs can be reduced. Some of these are: use of appropriate technology, the carrying out of preventive maintenance, the detection and reduction of losses and wastage, community commitment, inter_sectoral cooperation, invoicing and collecting amounts due.

COMMUNITY MANAGENENT AND FINANCIAL ISSUES: CONSTRAINTS AND PROBLEMS

Community management assumes that there is already community participation and health education in the project. In managing communities in their day to day activities, the general approach should be a participatory approach.

In doing so, the community worker has several tasks. He or she lead by example in hygienic behaviour. He/she should help create responsibility in individuals to ensure proper use, instil a sense of ownership. The community worker should ensure that members of the Community contribute for spare parts.

He/she should report any serious repairs that may be necessary. It is necessary to maintain records on water quality and maintenance. It is essential that villagers are able and willing to pay for the operation and maintenance of their water supply.

During the implementation stage, the community worker should monitor whether the work being implemented is moving according to schedule, and whether resources are being used properly. It is also important to determine problems and discuss how these can be solved with the community through the appropriate committee.

FINANCIAL MANAGEMENT

Good financial management is important to ensure sustainability. In the book "What Price Water" the following steps have been recommended:-

- i) Determine the operating environment
- ii) Identify user needs and expectations
- iii) Identify and analyse options - technical and cash raising
- iv) Jointly select preferred option and allocate responsibilities v)
Operation and cost recovery between agency and the Community

CONCLUSION:

To conclude the discussion on community management and financial issues in water supply sanitation project or programme it is important that the community worker involves the community from the preparatory stage and during the implementation. The community worker should lead by example in hygienic behaviour, help create responsibility in individuals to ensure proper use and instil a sense of ownership. The money that comes in should be accounted for in expenditure and the community should be encouraged to pay in cash or in kind for the water supply. Cost recovery is necessary to ensure sustainability of the service. The way the money is used should be clear and members of the community through the committee should know how funds will be utilized. Members should know when funds have been exhausted. Whatever goes on the community should be involved to ensure that the system works.

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Paper 6

Community hygiene, awareness and behavioural change

by

Messrs. S.T. Chisanga and J. Mate

COMMUNITY HYGIENE, AWARENESS
AND
BEHAVIORAL CHANGE

(A Discussion paper presented to the National Workshop on Community Management in Water Supply and Sanitation by S.J. CHISANGA - Chief Health Inspector Ministry of Health).

1.0 GENERAL:

In focusing on community hygiene, awareness and behavioral change, it may be advisable first to agree on what constitutes a community. There may not be a generally accepted definition, but for the purpose of guiding our discussion, in this paper, perhaps. We should hold the view that there are two broad categories in Zambia today: Urban dwellers as one particular set of a community diverse in its composition, social structures and so on, and the rural community, also with its own peculiarities. In both categories recognition of strong individuals who could and have influenced hygiene practices, created awareness about topical issues and influenced both positive and negative behavioral change needs to be accepted. They play a role, which development, promoters cannot ignore but may find useful in the introduction of new innovations aimed at contributing to the improvement of the communities well being.

If the two loosely classified types of communities are accepted, I intend to refer to them as such in this presentation. At the outset, however, several questions start to emerge when trying to design a programme for each of them. Would strategies have to differ according to the target community and how complex would the process of behavioral change be in each of them and so on. I will not attempt to answer any such questions, suffice to say from this premise, that we take a short reflection on the past in so far as creation of hygiene awareness and influencing behavioral change was differently administered and to some extent, continues to be up to the present moment.

2. HISTORICAL PERSPECTIVES:

2.1 Coersion through Legislation as a strategy for behavioral change:-

For the large part of the pre-independence days, there existed a village Management Ordinance among other legislation, which made it mandatory for village household to have in its use sound sanitary facilities for the disposal of both domestic and faecal waste. District administrators were always at hand to

enforce the provisions and any defaulting heads of households were not spared of either fines or imprisonment. It was considered a form of instituting behavioral change and creating community awareness in hygiene practices.

Whether or not the programme was a success is perhaps as debatable as the notion " prosecution versus persuasion in public health promotion.

On the other hand, management of standard hygienic practises for creation and maintenance of sound environmental sanitation, a number of laws were enacted and enforced, among them the following: Country and Town Planning Act,

Public Health Act
Township Act
Markets Act etc.

Together they combined to regulate such specific issues as zoned development, housing, trading, public health and settlements. They provided, and those still in force continue to provide for orderly development with its significant contribution to a sanitary environment that promotes hygiene.

Local authorities are mandated to be in the forefront of hygiene promotion in their respective areas by authority of various statutes. Particularly in the rural areas where local authorities usually do not have the capacity, the Ministry of Health using its structure of rural health centres takes on the role of health promotion through health education, demonstrational programmes on protection of water wells and construction of pit latrines. Perhaps not much resource has been made available in the past for any noticeable progress.

2.2 HEALTH EDUCATION AS A STRATEGY TO INFORMED BEHAVIORAL CHANGE

Morbidity patterns in the country continue to indicate that close to 70% of total sickness is related to preventable diseases. This implicitly means that if individuals and communities took certain actions, they would significantly intervene and be able to suppress, in fact in most cases be able to prevent occurrence of some of the diseases altogether. Health Education, therefore, aims at giving society factual information on disease causation and health promotion for it in turn to be able to take informed decisions and action.

The health sector, if it can be called as such, has organised itself in such a way that giving health education talks to communities forms part of its routine programmes.

to demonstrate hygienic aspects in rural water supply and sanitation, the health sector has for a long time worked with the communities in addressing and providing protected wells and construction of sanitary facilities (toilets, refuse pits etc). It is argued and rightly so, that provisions of water and sanitation facilities is not a matter for the health ministry and there are better suited institutions to do this. Its roles are regulatory, giving the dos and don'ts for society generally to follow to prevent disasters and dangers to public health and, health promotional, demonstrating what is acceptable and a better way to enhance good health.

In demonstrating hygienic aspects of water and sanitation, this Ministry of Health has been implementing protection of rural water supplies and sanitation programmes in some districts. The programmes have been seriously hampered by inadequate funding. However, these programmes are reportedly sustainable because they were undertaken with the full participation of the beneficiaries, the communities.

The health centre has acted as the Ministry's entry into the catchment area to mobilise communities for any intended health programmes. The staff being closer to the people are better placed and understand the social and any geographical problems first hand.

3. FUTURE APPROACHES:

Decentralisation of Health Programmes:

The Ministry of Health has embarked on the process of making districts autonomous and formulating and implementing health programmes in each district with direct funding from the Ministry. It is emphasised to them to effectively collaborate with all interest groups in the district, in fact, all plans before submission to the Ministry must be endorsed by the local district council.

Already, water supply and sanitation, particularly for the rural districts, is being given special attention. Demonstrational programmes are likely to increase and cover more areas.

4. WATER AND SANITATION PROJECTS:

District health officials are involved in all rural water supply and sanitation projects being implemented in their respective areas either by donors or charitable organisations. In 22 districts starting this year, they will be implementing sanitation projects supported by the World Health Organisation. The guidelines include close collaboration with

will be implementing sanitation projects supported by the World Health Organisation. The guidelines include close collaboration with all interested groups, however, community participation should be the benchmark. Districts will formulate and implement their plans as agreed upon and funded by the Ministry.

5. OPERATIONAL CONSTRAINTS IN THE PAST:

The Ministry observed a number of administrative difficulties in implementing programmes or projects in the past in that the top-bottom approach was inappropriate and time consuming. The Ministry had decided to overcome this major obstacle by empowering the districts to design their plans, budget for them. The Ministry's roles will be limited to releasing the funds, monitoring progress and providing guidelines as considered appropriate.

6. PAST ACHIEVEMENTS:

As stated above, past programmes by the Ministry in water supply and sanitation have largely been demonstrational in nature to dramatise hygiene aspects of water and sanitation. They have mainly included protection of community wells and assisting communities and house holds with the technical aspect of constructing improved pit-latrines. Community participation as a strategy has been cardinal and the basis of selecting a community to benefit. At least a district in each province has implementation either supported by a donor or government with the fullest participation of either the district or rural health centre staff.

7. FUTURE STRATEGIES:

The Ministry has decided to operate through district health officials who should design their plans with the full participation of all local interest groups. It is hoped to extend this practice eventually to rural health centres so that all plans coming out reflect the people's desires and not perceived problems by officials alone. Water and Sanitation has been given a high priority rating to accelerate future sanitation programmes.

8. CONCLUSION:

Although water and sanitation are considered important elements in health promotion, accessibility to them is getting more difficult inspite of the remarkable efforts of the recent past. Increase in population combines with other

There has been little effort for collaborated water supply and sanitation projects implementation among the many actors in the sector. The Ministry of Health hopes with its district focus, inter-sectoral collaboration to be the basis for any future district health plans. Coordination at the project implementation level, the district should be able to harmonise and maximise resource utilisation at its disposal.

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JUNE 1994

Paper 7

Water resource management and environment

by

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WATER RESOURCES MANAGEMENT AND ENVIRONMENT

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**Paper presented at a National workshop on community
management in water supply and sanitation programmes
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INTRODUCTION

Water forms an extremely complex component of the environment with many parallel roles and functions. It is a driving force of all life support systems and enhances our standards of living by ensuring more tolerable conditions of existence. Water is also a vital component of the environment and a home for many forms of life on which our well being ultimately depends. Water therefore has a great influence on the socio-economic and in some cases even political conditions in a country.

Water resources when properly managed, planned and utilised can bring about massive economic changes which can lead a country to self sufficiency in food production, energy requirement and self sustaining economic growth through industrial development, creation of job opportunities and general attainment of good health.

The role water plays in the socio economic of Zambia is neither seen as Central nor substantial. Not central in the sense that water is treated as a lubricant or mere catalyst to the various processes in human health, agriculture as well as manufacturing processes and not substantial in the sense that the amount of water put to economic use compared to the total potential in terms of resources availability is very small if not negligible. For far too long, we have continued to boast of abundant water resources to the extent that it has been taken for granted. Until the drought of 1991/92 water was not seen as scarce resource or a limiting factor to economic productivity.

The demand for water arise out of the necessity to satisfy human needs. In view of the fact that populations are growing at a very high rate, (3.2%), there is a corresponding increase first in the demand for water, quantitatively and secondly in the potential to destroy the quality of available water resources. Consequently, the scarcity for water results in or deepens the conflict among competing users. On the quantity perspective, the increase demand has to be met from a fixed supply which is only renewed periodically. Presently, the water availability in various sources exceeds the demand but in due course demand will equal or exceed supply. These are major environmental issues and usually bring about localized water scarcity. On the quality aspect, the natural water quality is continuously being loaded with wastes of socio-economic development process. Since the increasing waste loads are charged into a fixed or diminishing quantities of water, the quality of water is deteriorating with time, and the cost of treatment to make water fit for use is rapidly increasing.

This paper is an effort to address water development and management in the context of the environment, first identifies the role water plays in the environment, then looks at human manipulations in the natural cycle and focuses on how these interfere in the processes. Issues of water pollution in the context of water supply and sanitation are addressed in detail. This is in line with the theme of the workshop. Environmental issues that are discussed but may not have direct relevancy to the theme are included for the sake of completeness and to give a wider perspective and understanding of water management as addressed in concept of integrated resource management.

SOURCES OF WATER

Rainfall is the principal source of water in Zambia. The water then finds its way into rivers, lakes, soils, percolates into the ground and supports plants. The average rainfall in Zambia is 800mm with Northern parts having (1200mm - 1600mm) while the southern parts (600mm - 800mm). Within the context of our region, these figures sound impressive. However, rains fail resulting in drought with various intensities and durations. Rainfall has considerable impact on people's ability to live and prosper, and its patterns affects water supplies and determines the availability of water.

From the natural perspective the functions of water are those in the hydrological cycle. It is assumed that without our interference, the cycle would be self sustaining. For purposes of this discussion, the paper is restricted to two main sources namely surface and groundwater.

WATER USES:

Water use in Zambia is divided in the following categories: Public Water Supply, Agriculture, Industry, Hydropower Generation, Transportation, Recreation and Tourism and for Fisheries and Wildlife. However, there is unclear definition of the water sector and stakeholders in Zambia. There has been a tendency to marginalise other equally important water users and concentrate on water supply and sanitation sub sector. It is evident that the thrust of the PCU and its mandate is focused on this understanding and consequently its composition is purely from organisation involved in water supply and sanitation. There still remains the formation of an organisation that will encompass a wider representation of other water users. It is however hoped that the formation of the PCU and its composition is in essence the beginning of the separation of responsibilities between overall water resources management and water supply functions.

PUBLIC WATER SUPPLY:

The provision of adequate safe water to communities who under conditions of urban living, cannot readily get these services by self provision, is a key issue in the management of water resources. It is therefore not surprising that many players are involved in the provision of this service. This in itself is not an environmental problem. However, the uncoordinated implementation of activities has resulted in poor delivery of service.

Human settlements are characterised by increased demand exceeding the yields of the local source. This is very prominent in Zambia as evidenced by our high urbanisation (42%) rate coupled with high population growth rate (3.2%). To overcome the shortfall in water demand in these settlements, water is brought from distant sources, but usually very little is known about the impacts of such water transfers on the regional water balance and associated quality impacts. As the abstractions for domestic and industrial use increase, there is a corresponding increase in the volumes of waste water. As a consequence, the scale of the waste water problem begins to parallel that of water supply. In order to preserve quality of fresh water resources, the role of waste water reclamation becomes vital in the over all water management. As water is used as a means of disposing waste it implies that a reduction in waste produced implies a reduction in quantity of water demanded and consequently less pollution.

It is obvious therefore, that a health and productive life can be enhanced if safe drinking water is supplied. The supply must be within a convenient distance from a community and adequate facilities must be provided for the sanitary disposal of excreta and waste from the community. If the supply is not conveniently located, valuable time and energy are lost in the search for water to support life.

On the other hand, if the supply of safe water is not accompanied by adequate human waste disposal facilities, the benefits accrued from the supply of safe drinking water could substantially be reduced by the transmission of pathogens from infected to health persons.

Although the provision of safe drinking water and adequate sanitary disposal is vital to human health, not all the people enjoy these facilities. In Zambia for example, it was estimated at the beginning of DWSSD that 53% did not have sanitary waste disposal facilities. The rural population is the most affected by absence of these facilities. To date after the decade 47% of entire population have safe drinking water and 37% with adequate excrete disposal.

It is interesting to note that from the Local Government Act of 1990 the Department of Water Affairs (DWA) is not statutorily responsible for the provision of water and sanitation facilities. This is a function of the Local Government. However, from the water quality management point of view, DWA is concerned with adequacy of existing sanitation facilities like pit latrines and their proximity to water sources.

WATER, FOOD AND AGRICULTURE:

Water is a primary factor of production in the food and agriculture sector. It is through agriculture production that basic needs of clothing and shelter are produced. Hence food and agriculture production becomes the basis by which society first survives and secondly begins to develop. Good water management to ensure supply at the right time and place is a prerequisite for adequate yield. In some instances land use is dependent on water availability as water makes the land productive.

The problem of waste water from agriculture activities is still very localized in Kafue Basin and not yet alarming but nonetheless existent. An estimated 26,000 hectares of land out of a total potential of 50,000 hectares is currently under irrigation in Zambia with an annual water requirement of 2,600 MCM of this total amount, 20 - 30% of water is returned to the source directly or indirectly. The return flows are charged with chemicals from fertilisers, pesticides and herbicides used on farms. It is evident therefore that agriculture is not only a competing user of water quantitatively, but also qualitatively as it renders water unfit for use or uneconomical to treat.

WATER AND INDUSTRY:

Water plays an important role in industry. It may be incorporated in the finished products like food, beverages and pharmaceuticals. It may be used in processing products like textiles, paper pulp etc. It may also be used for cooling purposes. The water quality requirements vary according to the use water will be subjected to. Water incorporated in finished products requires the highest quality while that used for cooling requires minimum quality standards.

The major environmental impact on water from industrial activity is the release of effluent. The effect of these effluent is pollution of various kinds and severity. The ever increased quantities of wastes discharged directly into the river courses or damped at locations where rains will transport it overland or percolate the earth surface, causes serious pollution problems in the rivers and groundwater aquifers respectively.

From the Zambian perspective, the mining industry and its related activities is the largest user and polluter of water resources. It is also the mining activities that exacerbate the lowering of water table and eventual over exploitation of groundwater through the mine dewatering processes. The Kabwe and Konkola mine are typical examples in this regard. In all, an estimated 0.8 million cubic meters per day is abstracted from the mines through out the country. In the case of Konkola the dewatering is well below 600m ground level.

However, with the exception of Kafue river, most of Zambian rivers have maintained their waters in the natural state with regard to quality. The existance of industries that have failed to treat their waste in the Kafue basin gives rise to water pollution problems. The proliferation of aquatic weed at the Kafue Bridge near Kafue town is a clear manifestation of eutrophication resulting from industrial activities.

The other concern is that with the liberalised market economy in the country proliferation of the small scale industries will be on the increase. Consequently, pollution is likely to be on the increase as the cost of treating industrial effluent is beyond reach of many of the existing and emerging small industries. While the bigger polluters are easier to identify and locate, the opposite is the case with small scale industries otherwise commonly known as backyard industries. It is hoped that the effective enforcement of the Environmental Protection Pollution Control Act (EPPC) on effluent standards coupled with awareness promotion will result in adequate protect the water bodies.

WATER AND ENERGY.

Almost all Zambian's power generation is from hydropower. The hydro-electricity potential of Zambia is estimated at 4,000 MW with present installed capacity of 1700MW. The major schemes include Kariba North Bank, Kafue Gorge and Victoria Falls.

Hydropower offers several advantages over the development of the other sources of energy. These include absence of pollution, renewableness, possibility to develop water resources for other uses like domestic and industrial water supply, irrigated agriculture, flood control, water transportation, tourism, fisheries etc.

However, hydropower generation is associated with construction of dams that impound rivers and create large reservoirs.

The environmental activities associated with dam construction may include, forced resettlement and displacement of people, loss of wildlife habitat, eutrophication and the associated proliferation of various weeds and increase in environmental diseases. The most notable constructions have been the Kariba (5,400km²), Kafue Gorge (800km²) and Itezhi-tezhi (370km²) is a case in point that resulted in the displacement of several thousands of people, loss of grazing land for cattle and game.

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The most important diseases that are promoted by dams in Zambia are Malaria and Bilharzia. The stagnant water bodies in the reservoirs present favourable habitats for the breeding of malaria mosquitos and bilharzia snails which are hosts of the parasites that cause malaria and bilharzia respectively in humans.

The existence of such environmental diseases plays a major role in determining the distance from the community to the water source which in this case is the supply point. While the general principle is to be closer to the water source this has to be comprised with the risk of catching diseases.

It is important to note that hydropower generation has some positive aspects with regards to watershed conservation. The provision of hydropower to communities relieves the demand for the use of wood fuel that would otherwise results in deforestation and related erosion impacts. Erosion results in poor water quality and siltation of rivers. On the other hand deforestation results in increased local runoff. These changes have an overall impact on water balance and quality aspects.

FISHING AND WILDLIFE:

Water systems provide habitats to fish and wildlife which are major products of wetlands in Zambia. Good water management is essential if productivity has to be maintained. Some fishing methods such as fish poisoning cause pollution to water systems and may result in serious environmental problems.

WATER POLLUTION:

Water is a key factor in the sustenance of health because it is needed to keep the physical processes of life going in the environment. However, surface and groundwater, particularly surface water, which are the traditional sources of water supply invariably cannot be used directly. This is because they contain dissolved components from soils, decaying organic matter and wastes of socio_economic activities including human excreta which may have been disposed of in unsanitary manners. The disposal of waste be it solid or liquid has been a major source of pollution to water resources. The protection of watersheds from indiscriminate dumping of waste should be enhanced. Suitable disposal methods should be selected and applied depending on the nature of waste, domestic and related waste, inert waste or hazardous waste etc in order to protect both surface and groundwater sources. As various disease vectors are water borne or water associated, water in fulfilling its primary role as a supporter of life can become the very means by which disease pathogens and toxic materials can be transmitted to humans and spread, severely undermining the health of society. From the wider environmental perspective, polluted water may not support aquatic life and in water courses of an international nature may be the source of conflicts between member states.

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INTEGRATED WATER RESOURCES MANAGEMENT

The core of sustainable water resources management is the balance between supply and demand of water related goods and services. The management is based on an understanding of the nature of the water resources system and of the role of various players and stake holders. Water Resources Management integrates by definition all aspects and functions related to water. The term Integrated Water Resources Management in decision making takes full account of various aspects that may include: _

- (a) All natural aspects of the water resources system: surface water, groundwater, water quality and its physical behaviour.
- (b) All sectors of the national economy that depend on water (all water uses) hence the complete mix of inputs and outputs related to water.
- (c) Relevant national objectives and constraints (Social, Legal, Institutional, Financial, Environmental).
- (d) Institutional hierarchy (National, Provincial, Local)
- (e) Spatial variation of resources and demands (upstream-downstream interaction etc)

Sustainable use of water resources takes many forms. These may be distinguished as follows:-

- Physical sustainability (balanced demand and supply)
no mining.
- Environmental sustainability (No long term negative or irreversible effects)
- Financial sustainability (cost recovery)
- Social sustainability (stability of population, stability of demand, willingness to pay)
- Institutional sustainability (capacity to plan, manage and operate the system)

A quick examination to establish how far Zambia is applying concepts of Integrated Water Resources Management and Sustainable Water Resources Management reveals the following:-

- a) In our water development projects particularly for water supply we rarely take into account all natural aspects of water resources nor do we consider the conjunctive use of water sources. Projects are usually designed for either surface or groundwater.

- b) Water development projects are designed and implemented with one beneficiary or user. The good example is the construction of dams. These may be constructed to meet either hydropower generation requirements or water supply for domestic/industrial or irrigation purposes. There are very few exceptions where the dam is multipurpose.
- c) In the absence of a Water Policy, Zambia has continued to provide services in water sector without full cognizance of the overall national objectives and constraints. There is a limited value in having a water supply and sanitation strategy which is not part of a total development strategy. The provision of water to developing communities should ideally be integrated with programmes for provision of shelter, basic health care, education etc. Tackling individual components in isolation has led to implementation of incompatible initiatives, duplication of effort and wastage of scarce resources.

With respect to institutional hierarchy, a lot of co-ordination is required. However if, co-ordination is not formalized, any attempt to introduce it on ad hoc basis leads to unjustified delays in the provision of vital services.

- d) On issues of physical sustainability of water supply, water resources management is mainly focused on supply management which ensures that enough water is made available to meet demand. This is done without taking into consideration whether the growth of demand could continue indefinitely. The total potential of the source (particularly for groundwater) is usually not known and the general belief and practice is that scarcity would be overcome by deepening the well or borehole. However modern practices in water supply call for demand management in order to control and limit the amount of water used.

LEGAL AND INSTITUTIONAL FRAMEWORK:

It is a well recognised fact that water is a commodity which does not lend itself to easy regulation or control. This is because water touches the lives of all people and the economic well being of all enterprises. As a result, many organisations feel called upon to play a role in its management. Some are principally concerned with policy formulation, others with implementation and yet some with both. Consequently the water sector in Zambia has been characterised by a diffuse institutional framework. In the absence of effective coordination links, the fragmentation has been most persistent cause of poor management in as far as development of water resources is concerned. This has also obscured the formulation and implementation of a sustainable national water strategy.

Two major legislations are available for the management of water resources in Zambia. These are the Water Act and the Environmental Protection and Pollution Control Act.

The regulation and apportionment of public water is administered through the Water Act. The Water Board under the Water Act has powers to issue rights to use public water. This Act however, has inherent weaknesses in that it:

- (a) has no authority to issue and control the use of public water on portions of the water bodies which constitute the boundary between Zambia and her neighbours; and
- (b) distinguishes between public and private water. In this regard, private water includes ground water and any water found in a swamp or stream wholly within the boundaries of single landowner. Such partitioning is not in harmony with the principles of integrated water resource management. In this regard, the above mentioned weaknesses are being addressed in the proposed revision of the Water Act

The Environmental Protection and Pollution Control Act was enacted in 1990 to provide for the protection of the environment and the control of pollution. The Act also established the National Environmental Council, an advisory body to the Ministry of Environment and Natural Resources.

CONCLUSION:

The message in this paper is that nature is our joint responsibility and we must utilize it in such a way as to support ourselves without destroying the natural environment and the basis of future generation's livelihood. In order to answer questions on how to reconcile, our concern as human beings with concern for nature, we must use integrated environment management as a means to achieving sustainable development. The objective of environmental management is not purely conservation but rather the optimal management of all resources in order to obtain the maximum net benefit. The principle of sustainable development hinges on our ability to balance benefits intended against the damages produced.

In our efforts to provide water related services and facilities, we should take cognasence of the fact that we do not operate in a vacuum. There are several interactions with other stake holders within and outside the sector. The role of government in regulating and coordinating activities of various users and protectingb their interests is paramount. It should also be recognised that the management of of water resourceshas particular characteristics in that it is a mobile resource which occurs in many manifestations in the hydrological cycle. Impacts on the resource may affect communities far away from the point of pollution. This is very prevelent in river and lake systems. In the case of ground water, pollution may not be easily detected until the water is consumed. This may happen after so many years and under such circumstances it is very difficult to trace the source of pollution.

WATER RESOURCES MANAGEMENT AND ENVIRONMENT

Paper 8

Sustainable technology, operation and maintenance

by

Mr. O.M. Chanda

REPUBLIC OF ZAMBIA

MINISTRY OF ENERGY AND WATER DEVELOPMENT

DEPARTMENT OF WATER AFFAIRS

**SUSTAINABLE TECHNOLOGY AND
OPERATION AND MAINTENANCE**

A paper presented at the
National Workshop On Community Management In Water Supply and
Sanitation Programmes by:

Osward M. Chanda

MOSI-0-TUNYA
7 JULY 1994

1.0 INTRODUCTION:

In recent years and within the framework of the International Drinking Water Supply and Sanitation Decade (1981 - 1990), the Government and donor organisations have tended to concentrate on providing facilities for as many people as possible. However, development of maintenance systems has lagged. Many newly built water supply systems have fallen rapidly into disrepair and have abandoned by communities unable to keep them functioning. This is attributed to both the agencies and funders who are always in a hurry to have results on the ground and often ignore the important issues of community participation for sustainability. A typical example of this is the Japanese funded groundwater programme in Southern province. The technology choice has to be based on the capacity of the benefitting community and the capacity of the implementing agency to operate and maintain the completed system at an affordable cost.

Government Programmes, which are often adhoc, fall prey to insufficient consideration of local capacities and conditions. Local communities are sidelined in the selection of technologies, but are given those inappropriate, unaffordable systems to operate and maintain. Of course this leads to a very high failure rate of systems and very high costs for the agency to operate and maintain facilities. For instance during drought and short-term donor programmes where funds are available for a limited period.

2.0 SUSTAINABLE TECHNOLOGY.

Most of the technologies in use in Zambia in the water and sanitation sector have been developed abroad. In individual countries it is imperative that each technology is tested for appropriateness and sustainability in the local conditions before application. This must also be done in Zambia. The following factors must be considered as a measure of appropriateness:

1. The service level selected has to be appropriate for discussed with and agreed upon by the community.
2. The technology need to be suited to the local conditions and operable by local staff.
3. Expertise and skills for constructing, operating and maintaining the facility need to be available as close as possible to the community. Resources are needed to develop these capacities where they are required (or the facility may lapse into disrepair).

4. Materials, spare parts and equipment need to be readily available for maintenance and support services at affordable prices.
5. Appropriate Technology has the from all involved: different preferences by any one actor will initiate against its proper maintenance.
6. A strong Water Supply institution, with well- trained and available Supporting staff at National, Provincial and District level.
7. Social, Political, and economic environment have to be enabling for the management of the technology.

2.1 TECHNOLOGY SELECTION:

The operation and maintenance requirements of the technology chosen must be affordable, socially acceptable and technically feasible for the users and the agency. The existing technical types of water supply systems and their condition, functioning and use, need to be assessed prior choosing the new technology. Involvement of users in decision-making about the service level and type of technology may lead to higher coverage and better use of facilities.

Institutional setting where users and local authorities are involved as partners, will allow for better operation and maintenance and will greatly contribute to improvement of the function of the system.

To reach a sustainable operation and maintenance system of the facilities the technology selection process has to be participatory, i.e. the community needs to be intensively involved.

How should an ideal technology selection process look like? One could see it as a step-wise process:

- 1 The process need to be initiated by community request, which is an indicator of the felt need.
- 2 Once the request for support is made, the process begins by identifying all the technological alternatives available for providing the service. Within that set there will usually be some technologies that can be readily excluded for technical or social reasons. For example, some technologies may require institutional support that is infeasible given the institutional social environment.

- 3 Once these exclusions have been made, one is left with the range of technically and socially feasible alternatives. For those technologies cost estimates are prepared that reflect their real resource cost to the economy.
- 4 Least-cost solutions for each technology are selected.
- 5 On the basis of these economic costs and discussions with planners financial costs are prepared for all least-cost solutions.
- 6 The final step in identifying the appropriate sanitation technology must test with the eventual beneficiaries. Those alternations that have survived technical, social, and economic tests are presented to the community with their attached financial price tags.
- 7 The users decide the service level they are willing to pay for.

2.3 ANALYSIS OF SELECTION DATA:

Once the data on the technology has been gathered the success of the facilities will depend on the analysis and interpretation of the results. The required conditions for a technology must match the available conditions in the community. If an initial service level is chosen based on community expectations this can be tested for appropriateness. The areas that need careful consideration include:-

1. The initial service level assumptions made.e.g. between improved traditional source and piped water with house connection.
2. Water resources availability, which may influence the service level chosen.
3. The energy sources available and its reliability in connection to the quantity of water required and the ability to pay of the local community.
4. Waste water drainage need to be well studied before any implementation otherwise, it may result into serious health risks.
5. Technical resources, available (i.e. skills and materials both skilled and semi skilled staff required for the particular technology.
6. Best Organisational structure to sustain system, and what are the different actors at all levels.
7. Capital Resources available for the desired service levels, and technology selected.
8. The Recurrent resources available for the chosen technology to sustain system.
9. Community choice of the technology and service level must be analyzed in view of their per capital income and other social, economic and environmental considerations.
10. The selection of appropriate service levels should only be arrived at after discussion and consultations with all the actors, particularly the Communities.

3.0 OPERATIONS AND MAINTENANCE.

Once the appropriate technology has been settled on, the operations instructions must be made available and explained to the users, in the language they understand. Further support in the operating of equipment may be required from time to time depending on the technology chosen. The operation requirements need to be identified and responsibilities divided among and agreed upon by the parties of the schemes. The required skills to operate and maintain facilities in the community, the available skills and training needs need to be identified early in the technology selection process. These skill capacities in the community have to be developed, or the private sector or the water agency has to come in for services.

Sustainable operation and maintenance of facilities is affected by formulation of projects, planning of projects, definition of responsibilities for maintenance, assessment of costs and potential contributions, involvement of users and local authorities, role of women in user organisations, and evaluation of projects.

Then factors are interrelated and need to be examined from a development perspective. Concentrating on one issue, e.g. supplying a lot of spares without repair capacities does not lead to better maintenance; all issues need to be systematically addressed.

A operation maintenance system needs to be flexible to allow adaptation to changes in the situation, such as population growth increase in water demand and service levels number of systems to be maintained.

The operation and maintenance system has to ensure and monitor performance of water supply systems in a clearly defined geographic area on the basis of agreed standards. Larger rural piped water supply systems need to have autonomy to generate and manage its own financial, material and human resources, and clearly define the duties and responsibilities of those involved. There should be sufficient flexibility within the system to allow for economic social and demographic development.

Regardless of the technology chosen, people will manage, operate and maintain an improved water supply only if they value it. It must provide an appreciable improvement over existing traditional sources in terms of greater convenience and better water quality. It must be well designed and water points must be sited in consultation with the community.

3.1 Problems in Maintenance of Rural Water Supply System.

The major causes of maintenance problems in rural water supply are attributed to lack of maintenance capacities and lack of finance. Other general problems include; lack of responsibility on the part of the users; lack of spare parts and materials; magnified by the many different brands of one technology due to lack of standardization; lack of capable manpower; poor financial management by local bodies; lack of monitoring, feed-back; poor operation; lack of water during dry periods; inadequate communication; lack of transport; insufficient revenues. Many problems have occurred due to poorly constructed wells, boreholes standposts and storage reservoirs. Specific problems could be identified for the different systems, and energy sources.

3.2 APPROACHES TO MAINTENANCE.

Three main approaches to maintenance have been identified:

- the technical approach
- the organisational
- the systematic approach

3.2.1 Technical Approach

This is primarily based on maintenance capabilities and it is based on the understanding that the maintenance problems could be prevented by installing very sturdy and robust system. Of course this approach has had its failures in the field which is indicative that technology improvements alone are not sufficient to ensure reliable functioning of rural water supply systems. The technology needed is that which allows for village-level operation and maintenance (VLOM), that is pumps which can be maintained and repaired by local caretakers with occasional support from agency staff.

However, even a technology, which can easily be maintained at village level, needs to be properly introduced by involving the users from the beginning and continued support from outside.

3.2.2 Organisational Approach.

In this approach the responsibilities are shared by local communities and relevant government agencies in a decentralised maintenance system. The success greatly depends on technical, management of human and material resources.

The decentralization of certain responsibilities reduces maintenance costs but requires a technology which can be operated and maintained at Community level. Further, back-up services for the village caretaker and supply of spare parts need to be ensured.

A number of issues need to be agreed upon before implementing a programme: The location of maintenance tasks to be carried out, availability of sufficient financial, technical and manpower resources, for preventive maintenance and repairs. Further agreements need to be reached on village contributions, support services and government subsidies prior to implementation.

This approach has often not been successful due to too little emphasis placed on local environmental conditions, local resources for maintenance, and affordability of technology.

3.2.3 Systematic Approach.

This approach to maintenance combines both the technical and organisational concepts but also takes into account environmental conditions, affordability and users involvement. In projects where this system has been tried out, community level financial Management and bottom-up planning are considered as key conditions for the success and sustainability of the systems.

The comprehensive systematic approach seems to be the most viable approach to maintenance, telling from the growing success of these and similar efforts, by projects.

4.0 CONCLUSION

Through sustainable technology selection and operation and maintenance of water supply systems is increasingly being recognised as a major problem, many systems are still being constructed without due consideration to maintenance. There is little or no commitment from all the actors in the water sector to testing and trying-out technologies in different localities. This is further strengthened by the fact that donor agencies are prepared to finance the construction of water supply systems but are themselves not committed to long-term support to the maintenance of these facilities.

In various programmes, government agencies become involved in the maintenance system, and gradually assumed to varying extents the tasks and responsibilities involved. However, because maintenance was not planned and maintenance requirements not taken into account, inappropriate types of technology and maintenance systems have been selected.

Due to lack of financial resources and efforts to reduce cost, government expects users to take a share in the maintenance tasks, or take over the facilities, very often without adequate higher level support. In general the users are not involved in decision making on the technology to be used.

Current thinking on maintenance is developing towards a more systematic approach which takes into account environmental conditions, affordability and users involvement. To make a lasting impact on the often urgent needs, water supply strategies must be based on sustainable and replicable programmes and must take into account of the pace at which resource constraints can be overcome. Human resource development takes time to produce results and institutional changes can only be accomplished gradually.

This approach aims to develop a maintenance system for a technology which is suitable, affordable and culturally acceptable in the specific situation of the region or country concerned. Key factors which need to be examined in order to develop the most suitable maintenance system include: technology choice, institutional arrangements and legislation, logistics, financial viability of the maintenance system, manpower development. The involvement of users and local governments in the decision making process is a basic condition for successful maintenance. Consensus on these points and formal agreements need to be reached before new facilities are implemented.

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Paper 9

Policy and institutional issues for water supply and sanitation

by

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GOVERNMENT OF THE REPUBLIC OF ZAMBIA

WATER SUPPLY AND SANITATION SECTOR

WATER SECTOR DEVELOPMENT GROUP

**POLICY AND INSTITUTIONAL ISSUES FOR WATER SUPPLY
AND SANITATION**

Paper presented to the Workshop on Community Management in Water
Supply and Sanitation programmes
Hotel Inter-Continental, Livingstone

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08 July 1994

ABSTRACT

Water Supply and Sanitation as a service continue to be below satisfactory levels. One of the many reasons for this is lack of clearly defined responsibilities in terms of management of community water supplies. While the trend in recent years has been towards community management, this has not been supported by policy being put in place. Community management in this case being a term emphasizing local involvement, community empowerment, cost recovery, community ownership and responsibility for operation and maintenance.

This paper outlines some basic problems affecting the water supply and sanitation (in general) in Zambia. What comes out very clearly is the lack of clearly defined guidelines, strategies and policies. Lack of definition of responsibilities and roles of the many players in the sector. Government has not been watching the situation deteriorate. It has and is taking very bold steps to re-organise the water supply and sanitation sector in the country so that the levels of service delivery may be improved.

Proposed institutional framework for water supply and sanitation have been outlined in the paper including proposed policy statements. The proposal is that regulatory functions of the water supply and sanitation be handled by a statutory body termed the National Water Supply and Sanitation Council (NWASCO). NWASCO will be chaired by the Ministry of Energy of Water Development.

Government recognises that ultimately local authorities have to provide social services within their boundaries. This includes water supply and sanitation hence the need to decentralise provision of water supply and sanitation. This paper further suggests creation of Council Owned Regional Companies (CORCs). This will help water supply and sanitation functions be done in a commercial environment while maintaining the interests of the community being served.

It is important to note that rural water supply with its own unique problems will need to fall within the mentioned proposed management system i.e. CORCs, NWASCO.

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1.0 INTRODUCTION

According to the Census survey of 1990 the estimated population of Zambia was 7.8 million. 4.2 million live in rural areas while 3.6 million live in urban areas. Out of the 3.6 million people 53% (1.9 million) live in low cost areas. These are areas whose municipal services are supplied with community management approach.

About 3.7 million people do not have access to safe and adequate drinking water within a convenient distance from the users dwelling. These are certainly very alarming figures especially with the realisation of the dangers that go with lack of safe water and sanitation.

Deficiencies in water and sanitation are a significant and growing problem, substantially lowering the quality of life for many people and creating dangerous health hazards. High morbidity and mortality from diarrhoea diseases and parasitic infections are particularly critical in densely populated peri-urban areas where over **one million** people reside. The consequences can be devastating, as illustrated by the recent outbreaks of cholera in some parts of the country. Government cannot afford to turn a blind eye to the alarming realities of these problems. Problems related to the supply of water and sanitation have been identified. Government is taking very bold decisions towards resuscitating the sector. Sector policies are being developed and institutional framework is being put in place.

2.0 PROBLEMS RELATED TO WATER SUPPLY AND SANITATION IN GENERAL

Over the past decade there has been a growing realisation by the Government of the poor performance in the provision and sustainability of the water and sanitation services. This largely stems from lack of adequately trained manpower, lack of co-ordination of institutions involved in the water supply and sanitation sector and inadequate finance due to poor management and unrealistic tariffs and inadequate planning. In most urban centres as a consequence, shortages of water supply, low water pressure, poor water quality and lack of sanitation services have been quite prevalent. In the smaller towns and rural areas consumers have suffered quietly from a steady deterioration of water supply and sanitation services. The major sector problems are as listed below:

1. There exists **no overall sector policy or strategy** to guide sector organisations in the performance of their tasks, severely limiting their effectiveness. The Ministry of Energy and Water Development (MEWD) has taken a first step by developing a water policy. The section on water supply is being amplified by the Water Sector Development Group.
2. **Water Resources Management** is the responsibility of the same Government unit also responsible for a large number of water supply functions. The effect of the potential conflict of interest (responsibility for sector policy and executive function for part of the sector) results in some of both functions being addressed less than adequately.

3. **Financial Problems** are the result of economic hardships that Zambia has been facing over a decade. In addition, a lack of clear financial sector policies has had adverse effects on the availability of funds both from internal and external sources. Tariff adjustments have not kept pace with rising costs in the sector, thus increasing dependency on Government subsidies. The sector is largely (more than 85%) financed through external assistance and is not financially sustainable under present conditions.
4. **Lack of sustainability of water supplies in small towns and in rural areas** is caused by the social and traditional attitude of looking at water as a cost free service. As a result, rural water supply suffers from inadequate cost recovery. Community participation in the construction, operation and maintenance of their water supply facilities has been often ignored in favour of a centralised approach, keeping costs at unaffordable levels.
5. **Scarcity of human resources** is a serious impediment to the sectors development. Lack of staff both in required quantity and quality has restricted the operational capacity of local authorities leading to almost complete breakdown of services.
6. **Organisational Issues: Lack of an adequate institutional framework.** Unclear definition of responsibilities between various organisations within the sector resulting in poor co-ordination of planning management, of Government institutions and non-Governmental activities and sometimes duplication of the efforts.
7. **Operations and Maintenance Problems: Inadequate capacities, equipment, transport, chemicals and lack of control of preventive losses, lack of cost recovery at the community level** have given rise to operation and maintenance problems.

3.0 GOVERNMENT EFFORT

A lot of studies have been undertaken regarding improvement of the sector but little has been achieved in improving it. In spite of the so many recommendations the previous **administration regrettably chose not to implement the almost unanimous recommendations for sector improvements. Not surprisingly, the sector is in disarray, unable to provide its customers with an adequate supply of safe water and appropriate sanitation facilities.**

Aware that without rapid improvements in all social services the citizens of Zambia cannot become productive members of society and **will be unable to improve their standard of living, the Government has initiated major efforts to overcome past neglect and promote improvements.** Among other sectors, water supply and sanitation services are seriously deficient both in terms of the **number of people receiving those services, and the quality of the service they receive.** Recognising the need to achieve long-term improvements in the sector's performance, and to improve the sector's attractiveness for foreign investments, the Government created an inter ministerial committee "**Programme Co-ordination Unit**"(PCU).

4.0 SECTOR PRINCIPLES and POLICIES

Experiences within the sector indicate that there are some basic principles which are the foundation of success in the efficient provision of water supply and sanitation services. The principles which have been adopted for Zambia by the Cabinet include:

1. Separation of Water Resource Management from water supply and sanitation.
2. Separation of regulatory and executive functions.
3. Devolution of authority to local authorities and private enterprises.
4. Full cost recovery in the long run.
5. Human Resource Development (HRD) leading to more effective institutions.
6. Technology appropriate to local conditions.
7. Increased GRZ priority and budget spending to the sector.

Policies instruct sector organisations on how the principles are to be applied. A Draft National Water Policy (NWP), dealing with water resources aspects as well as urban and rural water supply and sanitation, has been prepared by the Ministry of Energy and Water Development. The water supply and sanitation policies required further elaboration by PCU.

Some of the outline policies proposed to implement the above principles are discussed below;

- a) **Government is devolving authority for the provision of, inter alia, infrastructure services to local authorities in an effort to increase their participation in the nation's development; to bring decision making power closer to the local community, to increase their participation in the service delivery process and thus to make it more responsive and efficient, and to wean the sector from central Government financial support. This policy will specifically establish the local water and sanitation service provider's power to operate and provide services in the manner of an autonomous commercial enterprise, and to delegate such tasks to the private sector, if such delegation could improve service delivery efficiency.**
- b) **To promote the acquisition of knowledge and skills by all sector staff to perform their work efficiently to acceptable standards; to understand their and their organisation's role in the provision of water supply and sanitation services; to prepare them for advanced tasks and promotion; and to provide a working environment, remuneration and benefits to attract and keep good staff.**

- c) **To ensure the long term sustainability of water supply and sanitation services, to ensure the financial viability of executive enterprises; to provide service at affordable costs to all consumers, including the economically disadvantaged. Fundamental to long term sustainability of water supply and sanitation services is the recovery of the costs from the beneficiaries of such services. At national level, guidelines on the establishment of tariffs and fees for the collection of the cost of providing the services will be provided.**
- d) **To optimise the effectiveness and long term sustainability of investments by the use of technologies, systems and methods which are appropriate to local conditions, i.e. technologies which are least cost economically, financially affordable, are socially acceptable and within the capacity of the community served to operate and maintain (either in kind or in cash), and maximise the use of local labour and material.**

5.0 INSTITUTIONAL FRAMEWORK

Before discussing the proposed institutional framework it is important to understand the functions within water supply and sanitation which formed the basis under which the proposals were made:

Functions of water supply essentially consists of four broad functions:

- 1) Policy making (Central and local, financial, economic, environmental, health related , subsidies)
- 2) Regulation (economic, environmental, water quality, effluent discharge quantity, service quality and delivery, design standards)
- 3) Investments (planning, financing and execution)
- 4) Operations (production and treatment, distribution, commercial operations and consumer relations, repairs and maintenance).

5.1 THE ROLE OF GOVERNMENT

A great deal of inefficiency within the sector has been derived from Government playing almost all the roles in WSS, i.e. from policy making to operations. Political authorities often make the mistake of controlling day-to-day management of water and sanitation services rather than concentrating on results. Greater accountability can be derived if political authorities focus on policy-making, establishing regulatory regimes that provide incentives for achieving goals and sanctions for serious failures, and giving entities that are responsible for investment and operations enough autonomy to control outcomes.

Various options were considered in trying to arrive at what has now been felt to be the more effective institutional framework. The proposed institutional framework of the sector is graphically presented in the organisation chart fig. 1 and discussed in detail below:

5.2 REGULATORY FUNCTIONS

Various options were considered for the framework of the regulatory functions. The PCU selected a Statutory Body for the following reasons:

- a) **The water supply and sanitation sector has functions across several ministries and governmental organisations. Its regulatory function should therefore give all stakeholders an opportunity to participate in the decision making process.**
2. **Potable water is a basic need with both economic and social implications and its administration should be apolitical.**
3. **Regulations should foster financial and technical efficiency in the sector, thus independent and professional decision making is essential.**

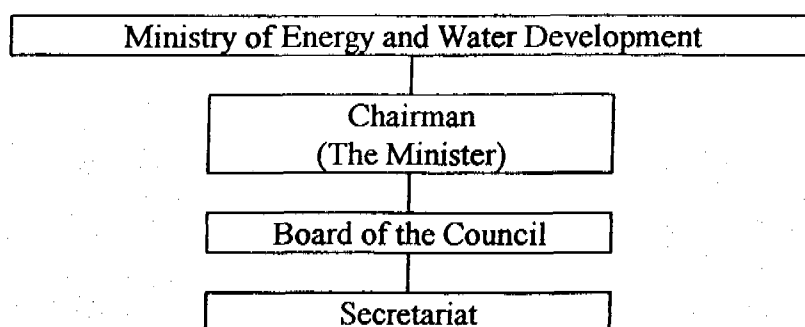
The National Water and Sanitation Council (NWASCO) is the proposed name for the regulatory body, and will be constituted with an inter-ministerial Board and a secretariat. NWASCO will be responsible for the regulatory functions of the water supply and sanitation sector and will provide technical assistance for the improvement of the capacity of regional/local water supply and sanitation organisations. All water supply and sanitation activities, public or private, including ministries with executive water supply and sanitation functions, will be governed by NWASCO regulations.

The UNICEF financed Community Management and Monitoring Unit (CMMU) will become part of the NWASCO and assume the additional role of monitoring the impact of rural water supply and sanitation activities. Technical assistance to help councils in regions not served by a council owned regional water company will be provided by a Management and Operations Support Unit (MOSU) which will eventually be added to NWASCO (once funding is secured). The specialists now staffing the WSDG will become the Policy and Planning Unit (PPU). The HRD specialist of the WSDG will eventually be provided with staff to form a small training unit. The NWASCO Board will be chaired by the Ministry of Energy and Water Development (MEWD).

In many ways the functions of the NWASCO are similar to those mandated by Cabinet to the PCU, and its secretariat, the WSDG. Also, the PCU draws its membership from similar sector organisations to those proposed for NWASCO. Under this organisational arrangement, the existing PCU will form the basis of the NWASCO Board, and WSDG will become the NWASCO technical secretariat. This will maintain continuity in implementing and sustaining the sector reorganisation.

In preparation for its conversion to NWASCO, the PCU Board will invite additional members to double its membership. The new members will represent stakeholders outside Government organisations, including suitable NGOs, representatives of executive organisations, consumers and the private sector, to ensure that NWASCO decisions and regulations are broadly representative of all stakeholders. In addition, the Environmental Council of Zambia (ECZ) will be invited to become a member of the Board in view of its crucial role in setting pollution control standards.

The organisational arrangement of NWASCO is summarised as follows:



5.3 EXECUTIVE FUNCTIONS

The executive functions consist of the financing, planning, design, implementation and operation and maintenance of water supply facilities, including cost recovery through tariffs and fees; consultation with and participation of the user, particularly in peri-urban and rural areas; compliance with all pertinent rules, standards and regulations promulgated by regulatory agencies; human resource development; and the provision of technical assistance where such help is needed. The type and intensity of these activities depends on whether the organisation has national, regional or local responsibilities. The proposed devolution of the responsibilities is described below.

5.3.1 NATIONAL

At the national level, MLGH will be responsible for the programming of investments in accordance with priorities established by NCDP and criteria and standards established by NWASCO, the channelling of external and GRZ funds to the sector, and the monitoring of the performance of regional and local organisations in the utilisation of investment funds, including procurement of goods and services.

5.3.2 REGIONAL/LOCAL

After considering several alternative organisational scenarios, the PCU concluded that a Council Owned Regional Company (CORC) would be the most effective means to overcome present institutional and service delivery deficiencies.

5.4 COUNCIL OWNED REGIONAL COMPANIES

5.4.1 SERVICE AREA BOUNDARIES

For the moment, the most appropriate service area boundaries appear to be those of the already existing and defined political regions because communities which are beneficiaries of the system are already grouped based on the political boundaries. In the future, watershed or river basin boundaries may be considered.

5.4.2 FUNCTIONS

The CORC will have the following functions:

- 1. Investment planning; sourcing of funds, and priority setting.**
- 2. Design and construction of water supply and sanitation schemes. This includes any rehabilitation works except for minor extensions which may be done by the local unit.**
- 3. Human Resource Development at all levels of personnel in the region.**
- 4. Financial management (including tariff setting) and implementation.**
- 5. Technical assistance to local operating units (authorities, city and district councils, sub-district authorities, private enterprises, co-operatives and other NGOs) for functions undertaken by local units.**
- 6. Monitoring of performance of local units.**
- 7. Implementing corrective measures, but not taking over local unit operations, unless requested to do so by local authorities or at the request of NWASCO when local unit is incapable to meet performance standards.**

The Board of the CORC would be composed of representatives of participating councils (the owners), and of other stakeholders, including those representing interests in agriculture, environment, health, etc.

Council departments responsible for water supply and sanitation services will become local units of the regional company and will be responsible for operation and maintenance of urban and rural facilities, construction of small extensions, meter reading, collection of bills, and the development and implementation of community participation based projects. The regional company will provide training and technical assistance and will also provide central purchasing of materials, meter repairs and other functions more efficiently handled by the company. In the exercise of their obligation to provide this service, a council, in consultation with the CORC management, may choose to use a council department (with separate accounts), create a statutory body to which it would entrust this work, or contract a private entrepreneur to provide these services.

In addition to responsibilities for urban and rural township piped water supply, the regional company(CORC) will provide co-ordination and facilitate planning of village point water supplies and sanitation.

Health and hygiene education would remain a responsibility of the primary health care system at community level.

5.5 COMMUNITY WATER SUPPLY AND SANITATION

In this section community water supply refers to rural (point water supplies and small piped watersupplies for population of up to or around 5 000), stand post water supplies(mainly in peri-urban areas of the larger towns) and any similar type of supplies which can easily be managed on community level.

As stated in the introduction more than 53% of the Zambian population lives in rural areas. A further 25% lives in peri-urban areas bringing the total to 78%. This shows a very critical situation because rural and peri-urban water supplies management is very poor. The two supplies may have different technologies but the management problems hence solutions are similar. There is need to emphasise on community participation in the management of these systems.

The recommendations given here for future framework of community water supply and sanitation are encouraging the use of the community in all phases of the projects. Community management which is emphasizing local involvement, cost recovery, community ownership and responsibility for operation and maintenance has been seen to be necessary elements for future interventions if sustainability is to be achieved.

Rural and peri-urban water supply (point source and stand pipe supplies) and sanitation has its own unique problems which need special attention. Community water supplies call for well co-ordinated intersectoral approach which allows each ministry/organisation to maintain its own interest in the sector. For many years rural water supply and sanitation projects have not been very successful for reasons similar to those which negatively affected urban systems. Some additional reasons are:

1. Lack of standardisation on pumping technology and design.
2. Insufficient emphasis on community participation.
3. Logistical problems in district Headquarters of Sector Ministry and Department relating to transport, manpower etc.
4. Lack of co-ordination amongst the many organisations involved in RWS. These include not only government ministries and departments, but also donor agencies, NGOs and private enterprise.

To overcome these problems, action at national and regional and local level is required.

5.5.1 NATIONAL LEVEL

At National Level, the Community Management and Monitoring Unit (CMMU) will become a unit of NWASCO and be responsible to guide the development of water supply and sanitation. The responsibilities include:

1. **Setting guidelines for RWS project implementation, i.e. community participation, including issues related to ownership, financial obligations, control, accountability e.t.c.**
2. **Strengthening the technology standardisation efforts already initiated by CMMU.**
3. **Serving as a co-ordinating unit with NGOs, Donor agencies interested in the sector as well as clearing house for RWS projects.**

5.5.2 REGIONAL LEVEL

At Regional Level, within the CORC there must be a unit responsible for rural and peri-urban water supply and sanitation. This unit will be staffed with technical and social science specialists with experience in community mobilisation and participation and the selection and implementation of technologies appropriate for rural and peri-urban communities and affordable by them. The unit will work closely with the District Water, Sanitation and Health Education (DWASHE).

The unit will be responsible to develop and implement projects which have been developed with community participation, can be implemented and operated by the community with minimal outside input, and include health education components. In short, the unit will be an enabler and supporter rather than an operator.

5.5.3 FINANCING

There is proposed a Sector Devolution Trust Fund which will in an initial time be funded by Government and managed at CORC level. It is expected that with time this fund will be run on a revolving basis. It is proposed that communities contribute towards provision of water supplies hence the need for the revolving fund. CMMU will need to develop clear guidelines on how rural and community water supplies can contribute and benefit from the revolving fund.

5.5.4 OWNERSHIP

It is a generally accepted approach that ownership of the rural water supplies and small piped supplies be vested in the community. This may not easily apply in peri-urban areas. This ownership therefore calls for a clear management structure, defining roles of the community as far as funding is concerned.

6.0 CONCLUSION

This paper has given very bold proposals which have far reaching implications on the Department of Water Affairs and Local Authorities. The proposals result in DWA relinquishing some responsibilities and means to implement them. However, GRZ decentralisation policies would, in any event, require implementing this decision, such as transferring assets that have been in the Department for many years to councils (where they legally belong), and transferring staff in accordance with new institutional arrangements.

Compensating for this will be the clear responsibility in MEWD to formulate policies, standards, regulations and guidelines for not only water resources development but through NWASCO also water supply and sanitation. This separation of regulatory and executive functions will result in a more efficient sector, more rationally and effectively managed through better policy guidance and co-ordination.

The MLGH will assume full executive responsibility for the sector, simplifying the administration of the sector by local councils, which by GRZ decision are under the jurisdiction of MLGH. MLGH will oversee and monitor the financing of capital works of councils and the regional water supply and sanitation institutions created to help councils better perform their tasks, but will not build or operate any facilities, again following GRZ decentralisation policies and Principle 3 promulgated by Cabinet.

As a conclusion there will be need for support to be derived from all the stakeholders in this re-organisation process. Without the support then these attempts will forever be a pipedream.

PROPOSED INSTITUTIONAL LINKS BETWEEN CORCs, DWASHE COMMITTEES AND COMMUNITY WATER COMMITTEE

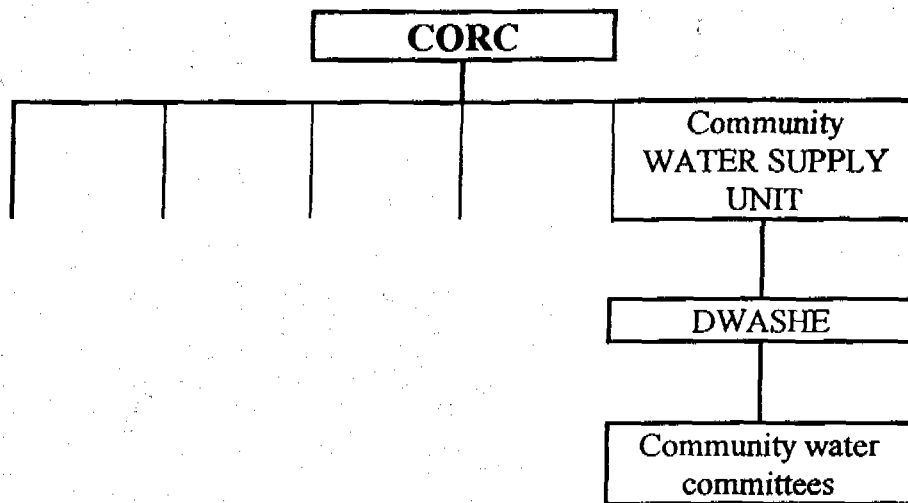
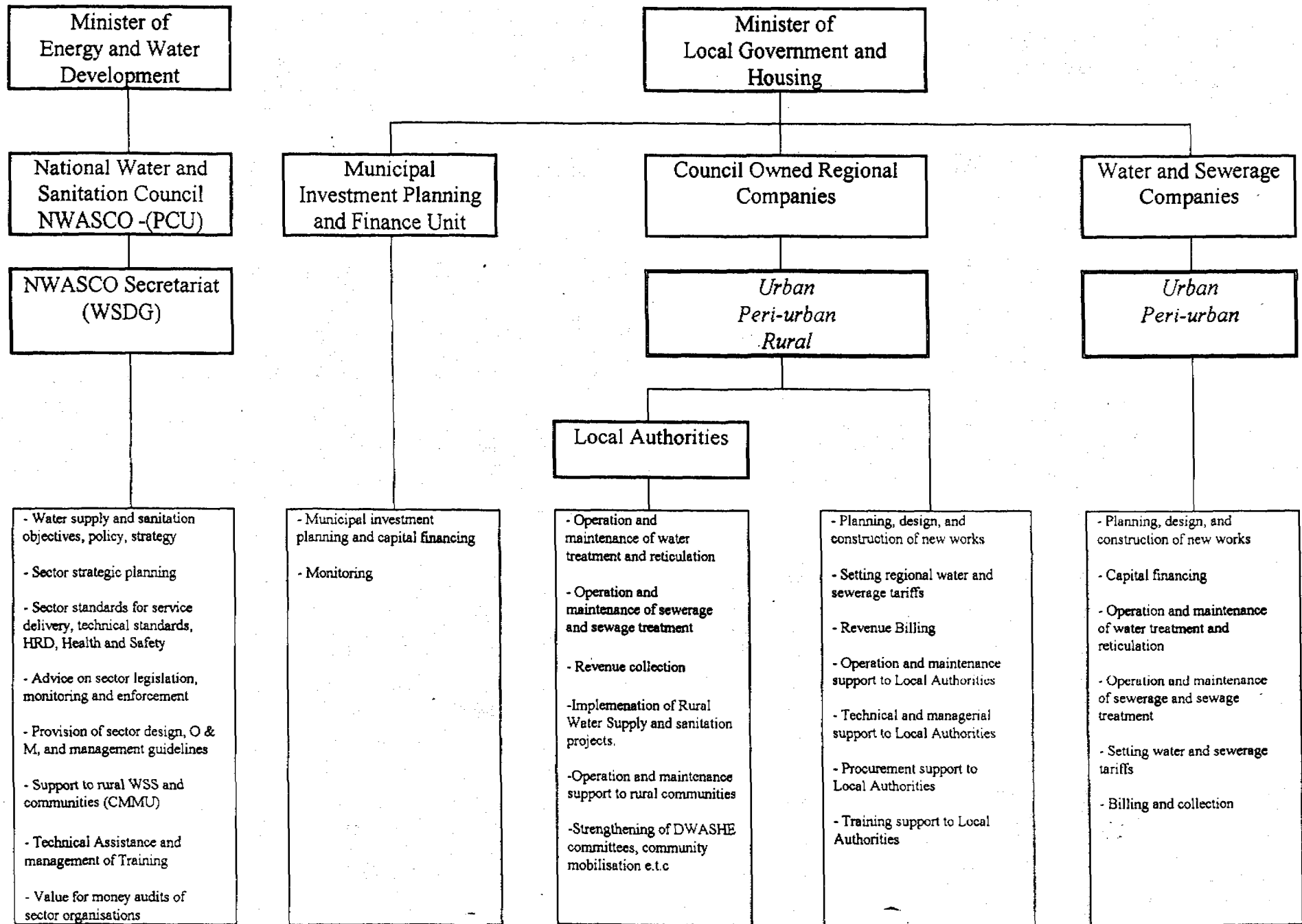


Figure 1. Proposed Organisational Arrangements for the Water Supply and Sanitation Sector



Reports on Project Experiences

Report 1

Water Aid and the Gwembe South Development Project

by

Mr. Tony Yates

**PROJECT REPORT PREPARED FOR THE NATIONAL WORKSHOP ON COMMUNITY
MANAGEMENT IN WATER SUPPLY AND SANITATION PROGRAMMES JULY 1994**

SUBMITTED BY: TONY YATES
Resident Engineer
WaterAid
Box 660269, Monze. (Tel/Fax 032 50136)

PARTNER ORGANISATIONS:
GWEMBE SOUTH DEVELOPMENT PROJECT (GSDP).
MONZE CATHOLIC DIOCESE DEVELOPMENT EDUCATION PROGRAMME (DEP).

PROJECT LOCATION:
SINAZONGWE, MONZE AND MAZABUKA DISTRICTS, SOUTHERN PROVINCE.

INTRODUCTION

WaterAid is a British NGO supporting local organisations throughout Africa and Asia to develop effective water supply, health education and sanitation programmes based on community involvement in all phases of projects. In April 1994 WaterAid set up an office in Monze, Southern Province, to support the water and sanitation programmes of two local partners, GSDP and Monze Diocese DEP (Chivuna Parish).

Both programmes are still in the planning phase and we have just finished evaluating the two project areas to prepare our work programme. This paper can therefore only summarise what we intend to do and our approach to the work, as so far we have no results to present.

GENERAL PROJECT APPROACH

a) Overall Objectives

In common with all WaterAid programmes we have two main objectives. First is to advise on the implementation of integrated, community based projects, involving water supply, health education and sanitation, in which the role of women is recognised and promoted. Every project should be sustainable at village level. Secondly, and equally as important, is to build up our partner organisations to function effectively in future with only WaterAid financial support and still be able to continue the implementation and support of their programmes.

b) Implementation

Community participation often means telling a community to have a water committee and to pay for maintenance, without involving them in decision making or giving the support and follow up necessary for villagers to understand what is being asked of them. This approach is often due to a lack of importance being given to the role of community development workers and donor pressure to achieve a certain number of projects without thought to maintenance and follow up in the longer term.

Our first priority therefore, is to ensure the programme has dedicated staff to work with communities. It is essential that

all project staff should understand the concepts behind community involvement, the meaning of empowerment of village people and the importance of long term follow up. Training will be given to all appropriate staff in these subjects

Individual communities will be involved at all stages of a project. Community members must take up various roles and will be trained in the activities expected of them. Contact will be made initially through a series of village meetings to discuss the relevant issues. These initial village meetings will be attended by the community workers, project technical staff and health department staff, so that a community can at once see the integration of the three components.

The responsibilities of the village and of the project will be discussed and agreed before any work takes place. Villagers will be involved in baseline surveys to plan projects and in all phases the community workers will give advice and support. A health education programme will be run at the same time as the water programme using villagers trained in basic health and hygiene issues. Following the completion of construction and training, support will be continued through regular follow up visits.

Government departments and District Council will be involved as much as possible and kept informed of all activities. For training and follow up of health workers we are involving district health departments. In Sinazongwe District we have started to hold meetings at the district council to include council officers, counsellors, Water Affairs, Health Dept. and other donors. It is hoped that this forum will be formalised into a District WASHE committee to coordinate the work of all donors in the district. We hope to encourage the formation of such committees in each district where we are working.

DETAILED DESCRIPTION (GSDP programme)

a) Village selection

Villages for the first year of projects have been chosen as much as possible on need. Water points in the area, distance women are walking in the dry season and waiting times were considered. Also the commitment of villages has been taken into account, villages which come to request projects and have already started to organise themselves are given priority. Partner organisation priorities have also been followed. We have liaised with the District Council and other donors to prevent duplication of project villages.

b) Project staff

The GSDP water programme has a manager and two technicians, one for wells and one for boreholes. The Programme manager is to receive training in management and planning of community based water and sanitation programmes at the University of Harare. There are no community workers on the water programme at the moment and we are currently advertising for two local people to take up these positions. We intend to put all the staff through the "Training for Transformation" programme to get a good foundation in participatory methods of working.

The choice of ordinary pit latrines or VIP will be given with an explanation and costing of both types. Users will be required to build a good superstructure from materials of their own choice.

e) Follow up

Community development workers, technical staff and the health technician will continue regular follow up of villages in the programme. This will take place at regular intervals for at least two years or until the village can continue alone. The sanitation programme and health education will continue until villagers want to stop.

CONCLUSIONS AND RECOMMENDATIONS

It is hard to conclude anything from the project as we have not yet started to implement any work. However, some observations and ideas from experience in other WaterAid projects in Africa:

1. It is vital that the government of Zambia prepare and issue a National Water Policy outlining the role of communities as soon as possible. A great problem is that of water provision being used as a political vote winner and of different donors having different approaches. If a clear policy is in place it will help to prevent individuals from promising water projects or giving equipment without full community involvement. Communities are often blamed for not being involved in projects when at the same time they are being given conflicting messages from different organisations and individuals.

2. Full account of long term maintenance of hand pumps and the ability of communities to do maintenance and buy spare parts has to be given priority. With the widespread use of India MkII hand pumps in Zambia which are not easily maintained by their users, it is often the District Council or Water Affairs who are left to do maintenance. This is completely unacceptable unless these departments are given far more resources. Communities often wait months or even years for pumps to be repaired.

I would encourage more discussion about the use of Afridev hand pumps which do not require lifting gear or heavy tools for their maintenance. If spare parts are made available for sale, a village community can do all the necessary maintenance for many years unless there is a major failure of the rising main or pump rods. These can easily be replaced by hand, but the replacement cost may be high, as with any other pump.

3. Donor and implementing agencies should give more priority to long term support and follow up of their projects. It is not realistic to expect village communities to take responsibility for their projects unless given long term support. A few hours of "community participation" is not enough, follow up is vital.

4. All projects should employ dedicated community development workers and give training in community based approaches to all field staff. Technical staff often do have good communication skills which can be made use of, but there should be dedicated community workers to give communities the necessary time and support they need to develop management skills.

The community workers will be given additional training as they develop in their role. The community workers will be local Valley Tonga people.

c) Technical input

We are concentrating on hand dug wells to be fitted with Afridev hand pumps, hand augured tube wells where conditions allow (using a Vonder rig and fitted with an Afridev pump) and repair/deepening of existing wells. The programme will continue its maintenance programme of boreholes and hand pumps. Pumps beyond repair will be replaced with Afridev pumps.

d) Community roles.

After village meetings every village will be asked to choose six people (3 men, 3 women) to form a Water Committee. This committee will be the managing body and will receive training as to their role and responsibilities. The training will be held in their village by the project community workers. The Water Committee will be the group to motivate and organise the rest of the community throughout the project.

Each village will be asked to choose two women to be trained as pump caretakers. They will assist in the installation of the hand pump and be given training by project staff on routine maintenance and repair of Afridev hand pumps. The community will be asked to collect K10,000 to buy the spanner for the pump and the spare parts kit for the first year. Further spare parts will be held by the project and sold at cost to villages each year. We are not encouraging bank accounts, but explaining that the pump must be overhauled every year and certain parts replaced. The full cost of a spare parts kit is around US\$20 and must be purchased each year using money collected in the village.

Communities will be required to provide all labour and local materials. They must also construct a fence around the water point to keep out animals. In well digging the community will dig down to the water level then project staff will come with the necessary equipment to line the well and install caisson rings below the water level. Villagers will be expected to provide labour and assist in concrete work and well lining.

d) Health Education/Sanitation

Each village will be asked to choose two people (one man, one woman) to be trained as village health education workers. They will receive one week of training initially in health and hygiene aspects of water supply and how to give health education to their own communities. A further one week of training will be given after 6-9 months which will include latrine construction. If no government trained Community Health Worker is present in the vicinity we will also fund someone to be trained in the full 6 week government syllabus. All training will be given by district health staff and an Environmental Health Technician from the district has been seconded to the project to coordinate and follow up health education and sanitation activities. After an initial period of health education a latrine building programme will be started. Those families wishing to receive assistance will be asked to dig and line the pit, the project will contribute cement to make latrine slabs.

Report 2

Irish Aid: Rural Water Supply Project

by

Mr. V. Ngulube

IRISH AID ZAMBIA
NORTHERN PROVINCE DEVELOPMENT PROGRAMME

P.O BOX 410221, KASAMA, ZAMBIA
TELEPHONE NO. 221530,222095
FAX NO. 221260

PRESENTATION TO WORKSHOP ON EXPERIENCES BY VARIOUS ORGANISATIONS/
PROJECTS ON COMMUNITY EDUCATION AND PARTICIPATION IN RURAL WATER
SUPPLY AND SANITATION PROJECTS TO TAKE PLACE ON 4TH - 8TH JULY
1994 IN LIVINGSTONE

- 1.0. NAME OF ORGANISATION: NORTHERN PROVINCE RURAL WATER SUPPLY
PROJECT
- 2.0. ADDRESS: P.O BOX 410221, KASAMA
TELEPHONE NO. 221530. 222095
FAX NO. 221260
- 3.0. NATURE OF WATER SUPPLY: WATER WELLS EQUIPPED WITH WINDLASS,
CHAIN AND BUCKET.
- 4.0. GEOGRAPHICAL LOCATION: THE NORTHERN PROVINCE OF ZAMBIA
- 5.0. KIND OF COMMUNITY PARTICIPATION: PROVISION OF LABOUR.
INVOLVED IN SITING, DIGGING TO WATER AND RESPONSIBLE
FOR ALL MAINTENANCE AND SO REPLACEMENT OF DAMAGED AND
MISSING PARTS.

1. Brief History and Introduction

The Irish government through the Bilateral Aid Programme is involved in a development programme which started in Kasama with the agriculture and later water project. At present, the programme covers rehabilitation and construction of primary schools, construction of improved ventilated pit latrines and wells with community involvement. The rehabilitation and construction of new wells started in July 1983 and to date the project is still going on with a 3 year project to construct 100 wells in Kasama. The project was extended to Mbala district in 1992 for the construction and rehabilitation of 130 wells and this year is being extended to Isoka and Nakonde districts where 100 wells are going to be rehabilitated and new ones constructed. These wells are being constructed on a community participatory basis in schools, villages and rural health centres.

1.1. The objectives of the project are:-

- (1) To provide to the rural communities of the recipient districts a sustainable source of safe drinking water through a comprehensive health education and community management capacity building.
- (2) To develop the capacity within line departments with a view of providing a sustainable service after the donor withdraws.
- (3) To help make a base for the formulation of a water master plan for the province.

1.2. Personnel Composition and Organisation

The Northern Province Development Programme comprises five projects namely:

1. The Northern Province Rural Water Supply Project
2. The Sanitation Project
3. The Primary Schools Project
4. The Health Project
5. Compound Upgrading Project

The programme is headed by an Irish Co-ordinator and each project is then headed by a manager who is either Irish or Zambian. The day to day running of the project and planning is in the hands of the manager who has a project assistant manager and or a project supervisor under him. Then there is a foreman and several site supervisors at each construction site.

The administrative wing has the co-ordinator followed by the administrator, secretaries and typists, accounts and stores staff. The workshop has its own manager with a supervisor and foreman under him. Then the mechanics electricians and plumbers fall under the foreman. Each project has its own vehicles and drivers.

The Irish government provides technical assistance and finance while the Zambian government has seconded or attached staff from the department of Water Affairs, the Ministry of Health and department of community development.

2.0. Approach

2.1. Project Formulation

Project proposals are put forward after the District Development Coordinating Committee has come up with some areas which need attention or through the studies which are carried by various sociologists and consultants who carry out evaluations of the projects. Through the recommendations and findings certain felt needs come out strongly and a proposal is made. A proposal is made after consulting the local authority through the development committee and the recipients of the aid. This is then submitted to the funders, the BAP.

2.2. Project Implementation

Village Selection and Well Siting Procedure

A review of the project was carried out in 1987. This identified problems in village selection and siting procedures. A consultant from the University of Zambia, Dr. Mwape was contracted to take a survey of the wells constructed during this first phase. Problems regarding well site selection and community involvement came up in the survey and reiterated the problems as identified in the review. As a remedial measure the consultants recommendations were taken and enlarged and a site selection procedure adopted in phase II starting in 1988.

2.2. The procedure is as follows:

1. Submission of requests from village headmen through concillors to the council.
2. The council submits priority list to project
3. Using forms filled in by councils and health assistants the project prioritises the list on ward by ward basis.
4. A survey team conducts a survey of each village on the list. Data from surveys is recorded as per survey checklists and each village is awarded points as per the scoresheet.
5. The findings of the surveys together with recommendations are submitted to the council.
6. Council on examination of lists gives permission for work to proceed. The council has if necessary the right to reprioritise the list.

7. Site selection is carried out by villagers in consultation with survey team.
8. Digging equipment is sent to the village and work commences.

2.3. Implementation

Meetings are held with the villagers to educate them on the importance of forming a village well committees before commencement of work to ensure maintenance and management after completion and handover of the well. The committee comprises of six or more people with half or more women and selected by voting.

The functions of the committee are:

- a) To organise the villagers to dig up to water level
- b) To carryout maintenance of well and hold meetings
- c) Raise funds for maintenance
- d) Reporting major breakdowns and soliciting for help and other relevant tasks.

The community is motivated to carryout activities to make their well sustainable by carrying out simple maintenance and raising funds to buy spares for the well. A vehicle for this purpose visits the catchment areas on a daily basis according to a programme drawn up in consultation with the health assistant for each area.

Catchment area meetings for VWC's are held and members of VWC's are collected to a central point where health hygiene, discussions of fund raising activities are carried out, formulation of rules as a guide for the safe keeping of wells and other matters are discussed with project staff. Problems in maintenance and buying of spares are also discussed. Spares have been upon request distributed to health, centres and are sold at economic prices. VWC's are however free to purchase their spares from shops or the project. A vehicle for health education brings in windlasses which require welding at an economical rate. Committees can buy spares using agricultural produce if they are unable to raise money for spares. The project buys these and sells them. The health assistants have been provided with motor bikes to facilitate their movement to nearby villages for education and motivation.

Education for the sustainance of these wells is a continuing process. Signs or indicators are there to show that people have accepted these wells as their own as can be seen by the number still working. A case in point is the number of chains stolen in 1991 and 1992 which have been replaced. A total of more than 45 chains were stolen and these have been replaced by VWC's and spare chains and buckets bought. Total length of 700 metres of chain was bought and 79 buckets acquired in the year 1992 alone.

Quarterly meetings are held with health assistants from catchment areas where problems are ironed out and better methods of tackling these are formulated.

2.4. Evaluation

A number of project reviews have been carried out starting with the first review in 1987 for the first phase. Several other reviews were carried out in the second phase and one is to be carried out this year.

Consultants from Ireland have been involved in the reviews. Sociologists from the University of Zambia have been engaged in the evaluation of the project. Dr. Mwape was the first to be involved and carried out a study of the water project and identified successes and failures of the project. He later in 1991 carried out another evaluation. From this and the review carried out by consultants from Ireland it was recommended that integration with government departments should be able to help to make the project sustainable. It was noted that the technology adopted in the construction of wells was appropriate. Another evaluation was carried out by the Provincial Planning Unit in January 1990. The latest evaluation was also carried out in 1993 by Mulima Mooto on women participation. All this is in addition to studies carried out by project staff.

3.0. Results

To date 320 wells have been constructed in Kasama in Mbala and 5 in Nakonde.

3.1. Two types of wells are being constructed in Kasama i.e. the improved traditional well and the cylinder or bucket pump adopted from Zimbabwe. The latter we have modified by using local hardwood poles for uprights thus eliminating the wooden bearings. Usage of the more common 6" PVC borehole casing pipes rather than the 5" PVC borehole casings has been adopted. This meant that the augers and all the complementary equipment had to be enlarged to 8". All the equipment for drilling cylinder wells is locally manufactured at Mupepetwe Engineering and contracting Company.

3.2. In 1991/92 there was a sudden increase in stolen chains and buckets. This was solved by education of VWC's and getting them to formulate rules on well usage and payment of new spares by use of farm produce and other like methods.

Wells mostly dug early in the first stages started drying up. This is being corrected by ensuring a minimum of 6 metres of water in the well when completed.

The response from some health assistants concerning mobilization and education of the villagers has been poor. This is being corrected by using other social workers from community development and self motivated community health workers. Motor cycles have also been bought for some.

officers to increase the coverage of areas.

Construction problems have also been experienced and this is being corrected by training programmes of drilling crews and adoption of better well construction methods.

3.4. Indicators of sustainability as earlier stated are the number of stolen items replaced by VWC's the number of wells still working and being kept clean, the number of fallen in buckets and retrievials and though not yet clean the reduction in people suffering from diarrhoeal diseases.

4.0. Conclusion

4.1. The successful adoption of the bucket pump and modifications so carried out could prove useful to other projects especially in suitable locations and for smaller populations.

4.2. The lesson learnt in making sure wells have enough water after completion and use of generators and pumps to achieve this could also prove useful to other projects.

4.3. Another experience learnt is the use of farm produce and the use of contract forms for the purchase of items.

4.4. The use of self motivated community health workers as health educators to ensure sustainability is another lesson for other projects.

PREPARED BY: MR. VINCENT NGULUWE

Report 3

Rural Water Health Project (RWFH)

by

Messrs. L. Nkata and E. Beatings

PAPER TO BE PRESENTED AT THE POST PROJECT WORKSHOP ON PSSC PROJECT

1. INTRODUCTION

1.1 Project Area

The Project is presently operating in the three northern districts of North Western Province, namely: Kasempa, Mwinilunga and Solwezi Districts. In early 1985 the Project started construction activities in Kasempa, construction activities in Solwezi commenced in the beginning of 1986 and in Mwinilunga at the end of 1993.

1.2 Project Background

The Department of Water Affairs (DWA) with assistance from the Netherlands Government has been constructing hand-dug shallow wells in Kasempa and Solwezi Districts, since 1984.

Following extremely low levels of rainfall in 1982, DWA, on request of the Provincial authorities, prepared a proposal for a drought relief programme. The Netherlands Government through the Netherlands Development Organisation (SNV) agreed to support DWA in implementing the programme by providing staff and funds under the Drought Contingency Project (DCP). The Project was funded by contributions of Zkw 50,000 from the Zambian Government and Zkw 553,000 (then approximately Dfl 1,299,550) from the Netherlands Government.

The present Rural Water for Health Project (RWHP) is the successor of the DCP which lasted from 1984 through 1987. In the three years of DCP a total of 89 wells were constructed in Kasempa and Solwezi.

RWHP-I ran from 1988 through 1990 and during this period a total of 109 wells were constructed in Kasempa and Solwezi. This first phase was funded by contributions of Zkw 150,000 from the Zambian Government and Dfl 4,435,000 from the Netherlands Government.

From 1990 up to the end of 1992 the Project was in the process of attracting new funds for another extension of three years. In the beginning of May 1993 an official approval was received from the donor for the continuation of the Project with a second phase covering the years 1993-95. During those three years the Project will phase out of Kasempa and move to Mwinilunga. It has been estimated that the Zambian Government will contribute Zkw 31,143,000 and the Netherlands Government Dfl 3,540,100 to the second phase.

For the period 1993-95 a total of 150 wells are targeted for construction - 66 wells in Mwinilunga and 84 wells in Solwezi.

1.3 Project Objectives and Goals

The principal social and economic objective of the RWHP is to provide safe and adequate drinking water facilities at affordable recurrent costs with the aim to improve health and living conditions of the rural population in Kasempa, Mwinilunga and Solwezi Districts of the North Western Province.

Except for the general development objective given above the following four operational objectives can be summarised as:

1. Assist communities in the establishment of their own improved water supply facilities. During the three year implementation period of the Project a total of 150 new and improved wells will be completed. A break down of physical well construction targets is shown in Table 2.

Table 2 Physical Well Construction Targets

Year	Number of Wells			Number of Beneficiaries		
	Mwi	Sol	Totals	Mwi	Sol	Totals
Hand-Augured Wells	18	24	42	2000	3000	5000
Hand-Dug Wells	48	60	108	10000	12000	22000
Totals	66	84	150	12000	15000	27000

2. Ensure that the completed facilities have maximum potential of being sustainable in the long run. Improvements in the health situation can only come about if the water facilities are being sustained. The proper operation and maintenance of the facilities by the beneficiaries is therefore a must. The Project and after that the Users Support Programme will assist communities to sustain their own facilities.
3. Maximise potential health benefits and living standards from the improved facilities. Many of the health problems in the three districts are to a great extent due to inadequate water and sanitation services. Therefore, the health situation can be improved by constructing safe water facilities and promoting proper sanitary facilities. However, those changes alone are not enough to drastically improve the health of the people. A change in personal hygiene practices, healthier diets and an improvement in general living conditions are other important factors. The Project has embarked on an intensive health education programme with support from extension staff from the Ministry of Health and the Department of Community Development.
4. Assist the Department of Water Affairs in strengthening its institutional capacities. The Project can only play a minimal role by exerting indirect influence in this field mainly through the development of manpower.

1.4 Organisation

The Project operates under the Provincial Office of the Department of Water Affairs (DWA) in North Western Province. As such DWA has the overall responsibility for implementing the Project. The Provincial Water Engineer is therefore formally responsible for the Project. However, with the Project operating almost independently from the department most responsibilities and management decisions are taken by the Project's management team. DWA has become increasingly more involved in the Project due to the increasing number of its staff seconded to senior and sub-senior posts within the Project.

1.5 Personnel Composition

The Project is composed of two main categories of staff: Project employed and seconded staff. The seconded staff come from the Department of Water Affairs, Ministry of Health and Department of Community Development as well as from the Netherlands Development Organisation (SNV). The seconded staff take up all the senior and sub-senior positions within the Project. The three government departments are cooperating in the execution of the Project.

2. APPROACH

2.1 Project Formulation

The Project has developed the following Project policy:

1. RWHP assists communities to construct their own water facilities. RWHP does not construct wells for communities.
2. Every community in the area where RWHP is operating is allowed to apply for assistance. RWHP assesses those applications and prepares a priority list of qualifying communities. Not all communities qualify for assistance.
3. The communities which qualify must make an initial financial contribution towards the construction of the well. Furthermore the community provides free labour for construction as well as providing storage spare for equipment and materials and accommodation for Project staff.
4. RWHP provides all tools and materials, locally not available, the transportation of those materials, and the skilled workers such as construction foremen and engineers.
5. The community decides on the location of the well in consultation with the extension worker and RWHP staff.
6. The community elects a village water committee which will be responsible for the construction and operation and maintenance of the well. Women should be equally represented in the committee and should be allowed to actively participate in making decisions.
7. Two village caretakers will be selected from among the committee members before construction starts. These village caretakers will receive on-the-job training during construction.

8. RWHP conducts ward meetings, promotion meetings, village water committee training courses, village caretaker training courses and other training courses and workshops to organise and strengthen the community to carry out their new tasks and responsibilities.
9. When the well has been completed it belongs to the people and not to DWA/RWHP or any other government department. This implies that the responsibility for upkeep and maintenance of the facilities lies solely with the community.

2.2 Project Implementation

1. Involvement of Other Institutions: Except for the Department of Water Affairs the Ministry of Health and the Department of Community Development are involved in Project execution. See also section 1.5.
2. Project Execution Strategies: The strategies used in Project execution have been outlined in Section 2.1 where the Project policy is explained. The Project is undertaking the following activities to meet the objectives described in Section 1.3.
 - 2.1 Assist communities in the establishment of their own improved water supply facilities. During the three year implementation period a total of 150 wells - 108 hand-dug and 42 hand-augured wells - will be completed. Table 3 gives a detailed breakdown.

Table 3 Physical Well Construction Targets

Year	Number of Wells Targeted						Totals
	Mwinilunga			Solwezi			
	Hand-Dug	Hand-Augured	Sub-Totals	Hand-Dug	Hand-Augured	Sub-Totals	
1993	10	-	10	20	6	26	36
1994	18	8	26	20	8	28	54
1995	20	10	30	20	10	30	60
Totals	48	18	66	60	24	84	150

- 2.2 Ensure that the completed facilities have maximum potential of being sustainable in the long run. During the second phase of the Project the potential of sustainability will be maximised by:
 - a. maximising users' commitment by following consistent selection criteria stringently;
 - b. maximising users' capability to carry out operation and maintenance tasks by organising training programmes for VWC's - both new and existing - and village caretakers;
 - c. minimising maintenance requirements by improving standards of construction by conducting refresher courses for construction foremen and by frequent supervision; and

- d. developing a Users Support Programme in cooperation with the participating Government Departments to secure continued back-up support to the communities.
- 2.3 Maximise potential health benefits and living standards from the improved facilities. Greater emphasis will be given to increase the levels of public health. This will be achieved by:
 - a. selecting villages with greatest potential for health improvements;
 - b. ensuring acceptance, functioning and use of facilities by maximising the communities' involvement;
 - c. continuing to improve the community support visit programme for completed well sites - including a comprehensive health education component - which is in a continuing process of being developed; and
 - d. conducting workshops for Project staff and extension workers to carry out the new health education component.
 - 2.4 Assist DWA in strengthening its institutional capacity. The Project will continue to assist DWA in strengthening its capacity to plan, implement and support water supply and related health activities. This will be done by:
 - a. ensuring that the Project works closely with DWA, so that senior staff are involved in all policy decision matters;
 - b. involving DWA staff in all Project matters;
 - c. facilitating training courses and orientation and exposure trips to similar projects; and
 - d. transferring individual responsibilities from SNV seconded to DWA staff.
3. Selection Criteria: The selection criteria used for assessing priorities for self-help well requests is given in Annex I. The main ideology behind the selection criteria is to assess communities' interest, need, and most importantly, their ability and willingness to take up responsibility for operation and maintenance. The main selection criteria are:
 - 3.1 Communities with a minimum of 40 households: This criteria has been set to decrease the initial investment cost per beneficiary as well as to ensure that the community will be able to raise the required cash for annual recurrent costs. A high number of households is important since it will decrease the recurrent costs per capita. Communities smaller than the minimum of 40 households will be considered for assistance for hand-augured wells.
 - 3.2 Communities who agree to contribute an initial cash deposit: This financial contribution is equal to the estimated annual recurrent costs for operation and maintenance. This amount has to be made available before actual construction starts. At May 1994 prices this amounts to Zkw 20,000. This is one of the best ways to measure the interest of the community and their ability and willingness to pay for water. The money thus collected will be used to establish a maintenance revolving fund.

Another problem was the selection of communities. In the past a list of proposed well locations originally prepared by the District Councils was used by the Project. Experience showed that the need for a protected well and the recognition of this need by the communities themselves varied greatly among the locations included on the lists. Since proper selection in the initial stage is vital to safeguard future sustainability the selection criteria and procedures have been improved substantially since 1991.

3.3 Successes

The Project has succeeded in formulating a realistic implementation policy which ensures careful selection of communities who are really interested, and able and willing to take up responsibilities for operation and maintenance. The Project has also succeeded in a significant improvement in the quality of well construction through regular training programmes of different Project staff.

3.4 Sustainability Indicators

Some of the more obvious and pragmatic indicators are:

1. Many wells, constructed several years ago, are still being used. A good example are the wells constructed in Kasempa.
2. In general wells are kept clean and are well maintained.
3. Well users are able to raise funds for well parts and come to the Boma to purchase these parts or to get their well items, such as windlasses, repaired.
4. Well users have greatly benefitted from the health education sessions and are able to safeguard their wells against contamination and misuse which may otherwise have had a direct bearing on causes of some diseases and an increase in maintenance costs, respectively.

4. CONCLUSIONS

For a community-based project to be successful the following issues are essential:

1. The selection of benefitting communities should be carefully done through adaptation of realistic project policies and adhering stringently to pragmatic selection criteria.
2. The communities, both men and women, should be involved as much as possible in all the different stages. Any development intervention should be as much as possible "community-based".
3. The communities should be well prepared to take up their responsibilities through meetings and training courses.
4. The sustainability of provided water facilities should be guaranteed by the adaptation of a comprehensive and pragmatic community-based operation and maintenance system whereby the responsibilities are handed over to the beneficiaries and an effective back-support system integrated in the existing government structure is provided.

5. The communities should be given continued support to adequately impart skills needed for operation and maintenance activities as well as to disseminate health education.
6. The extension staff of other government departments, who live with the communities, should be involved to give most of the required support to the benefitting communities. This support is cheaper, easier and long lasting.
7. The choice of technology should be one which is easy to establish (construct) and operate, and affordable to maintain, replace or repair by the benefitting communities.
8. The construction of good quality water facilities will greatly reduce operation and maintenance costs.
9. The provision of health education and sanitation promotion by developing an active health education component.

Solwezi, July 1994

Lenor Nkhata
Erick Baetings

ANNEX I

CRITERIA FOR ASSESSING PRIORITY FOR SELF-HELP WELL REQUESTS

- Notes: 1. To be applied by project staff in conjunction with completed application well assessment survey forms.
2. Criteria are listed in descending order of importance.

Priority shall be given to:

1. Communities where the number of benefitting households lies between 40 and 60, if the minimum of 40 households can not be met then hand-augured wells are to be considered.
2. Communities who agree to contribute an initial cash deposit equal to the estimated annual recurrent cost before construction starts.
3. Communities who agree to take full responsibility for operation and maintenance.
4. Communities with the greatest need based on:
 - a. distance in terms of travelling time to present source(s);
 - b. water quantity of present source(s); and
 - c. water quality of present source(s).
5. Communities in which sufficient voluntary labour is guaranteed.
6. Communities in which an extension worker is active.
7. Communities with schools and health centres.
8. Communities with past experience of cooperating in self-help projects.
9. Communities with no likelihood of political or ethnic composition problems.

Report 4

Rural Water Supply Project

by

Mr. Pitcher

RURAL WATER SUPPLY - CENTRAL PROVINCE

INTRODUCTION:

The Rural Water Supply Project operating in the Central Province is funded by the K.F.W. - German Aid Programme for Zambia. The financing is from a loan from the German Government, which is administered by the KREDITANSTALT FUR WIEDERAUFBAU, in Frankfurt. The project management is carried out by:

Gauff Ingenieure,
Consulting Engineers
P.O. Box 32817
LUSAKA.

The Site Office is in Kabwe, i.e.

The Project Engineer
P.O. Box 80982
KABWE.

The Management Staff comprises the following:

Project Engineer
Hydrogeologist
Maintenance Expert and the Procurement Officer, stationed
in Lusaka.

PROJECT AREA:

¹⁹⁸⁵
The Rural Water Supply Project covers the whole of the Central Province, i.e. Serenje District, Mkushi District, Kapiri-Mposhi District, Chibombo District and Mumbwa District.

TARGET:

The main objectives of the project are the improvement of the standard of living, in the rural areas, and to give access to good and safe drinking water as well as to reduce water related diseases in the rural areas.

TECHNICAL ORGANISATION:

The organisation of the project is carried out as follows:

- Excavation is carried out with the self help concept, that all digging works are carried out by the well user community, under the supervision of the Consulting Engineer's technical staff.
- All concrete works carried out through self help.
- Handpumps are fitted by Consulting Engineer's technical staff.
- Washing places are constructed by the local populace
- Cattle troughs where required are constructed by the local populace, with contributions for cement and stone and sand made by themselves.
- Drilling of boreholes is carried out by the project with all casings provided by the Project.

Before any water points are drilled or dug, a Motivator visits all the possible locations, has meetings with the well users, and forms well committees, to manage the water points. After the above motivation has been carried out, and the water points agreed upon, the wells are dug or boreholes drilled as per the locations chosen.

PROJECT IMPLEMENTATION:

The Rural Water Supply Project in the Central Province is geared to synchronize the maintenance of all water points into the District Council administration. The wells/boreholes are handed over to the respective District Councils. Thereafter, a maintenance team comprising of 2 Pump Fitters are trained for 1 year and thereafter taken into the respective district councils establishments.

COST RECOVERY:

Spares are provided for a duration of five years, added to this 2 Nos. Honda 110 Motorbikes plus the necessary tools are supplied to each district council. A Rural Water Supply revolving Account is opened and all funds obtained from repair works are banked into this account. These funds are later used for the replenishment of spares requirements. The cost recovery component involves the payment by the well users for all repairs made, i.e. the spare parts are costed, and the fuel costs and labour costs are included in a call up fee charge. This system is working very well, and all the districts have a Rural Water Supply Revolving Account. All the districts purchase their own spares and funds and are absolutely self reliant, i.e. the Rural Water Supply section of the councils do not draw any funds from the respective councils to carry out their works.

PROJECT AREA SELECTION:

The selection of water point areas are determined by:

- a) Population density
- b) Type of facility- that is Rural Health Centre, or school and then
- c) Any other.

A list of required water points are presented to the consultants by the respective councils, however, the choice of water points is done by both the councils and the Consultants.

OBSERVATIONS:

The maintenance concept was began in december 1988, first in the Serenje district, and thereafter in the Mkushi, Kapiri-Mposhi, Mumbwa and Chibombo districts.

The main constraints have been the attitude encountered from various district councils. Several of the Councils have indicated a, lack of interest in absorbing the pump fitters into their establishments.

There has also been difficulty in ensuring that all transport supplied is used exclusively for the Rural Water Supply department and by Rural Water Supply personnel. However, in general the programme is working successfully. The councils have to be encouraged to help in providing transport, when required for repairs, that require extra, riser mains.

CONCLUSION:

The major constraints are the lack of seriousness and the Lukewarm reception given to the programme by several of the district councils. Motivation has been found to be the most important criteria in the whole programme. This motivation should hinge on educating the people to ensure that the well committees continue operating, not only when there is adequate water supplies but also when there is a drought, whereby the committee mobilize the well users to help deepen the wells on their own, and not wait for help from either the donors or the Zambian government.

RURAL WATER SUPPLY SECTION

LIST OF SPARE PARTS NEEDED AS AT MARCH '94

<u>DESCRIPTION</u>	<u>No.</u>
1. Solid Conversion Head	25
2. Handle Pins.....	25
3. Chains	29
4. Lower Valve Guides	20
5. Washers	250
6. Bearings	50
7. Bolts M12 x 40	100
8. Bolts M12 x 20	100
9. Rubber Seat Small	100
10. Rubber Seat Large	100
11. Nuts	250
12. O-Rings	100
13. Hex Complings	100
14. Filters U.P.V.C	10
15. Pipe Sockets	50
16. Cylinders	10

Report 5

**Community Management in the Japanese-aided Project
for the rural water supply development**

by

Mr. A.G. M'kandawire

NOTE ON THE ASPECT OF COMMUNITY MANAGEMENT
IN THE JAPANESE GRANT AIDED
PROJECT FOR THE RURAL WATER SUPPLY DEVELOPEMENT

A.M'KANDAWIRE, PROJECT MANAGER

(PAPER PRESENTED IN THE WORKSHOP ON COMMUNITY MANAGEMENT
IN WATER SUPPLY AND SANITATION PROGRAMMES HELD AT
LIVINGSTONE, ZAMBIA)

4th - 8th JULY, 1994

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- 1 INTRODUCTION
- 2 DESCRIPTION OF THE PROJECT
- 3 PROJECT FORMULATION AND CRITERI USED
- 4 COMMUNITY PARTICIPATION
- 5 CONCLUSION AND RECCOMENDATION

TABLES

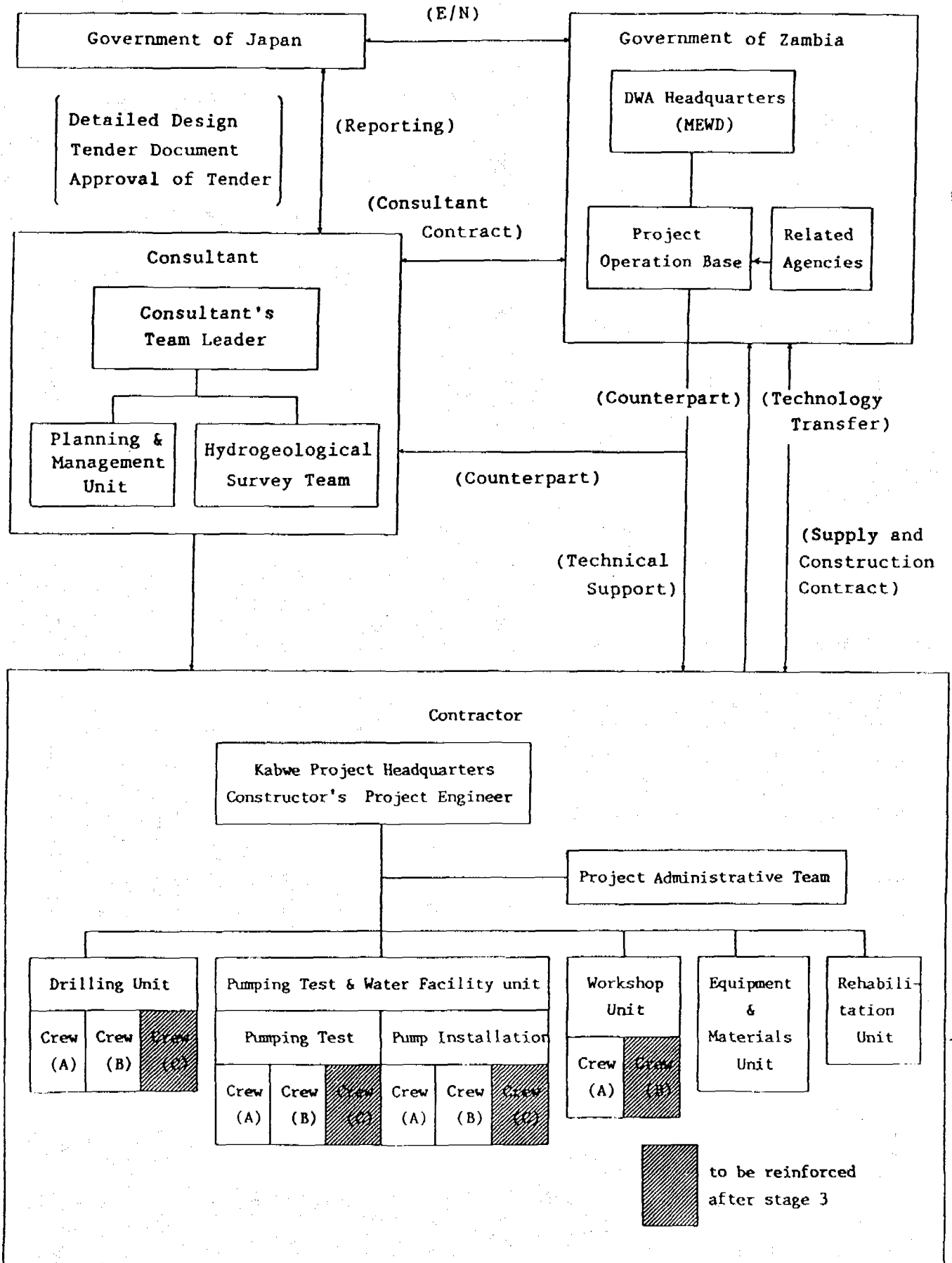
- 1 IMPLEMENTATION SYSTEM
- 2 ORGANISATION CHART OF THE JAPANESE PROJECT TEAM
- 3 IMPLEMENTATION PROGRAM

1 INTRODUCTION

1.1 Background of the Project: In the past, Japanese assistance to water supply sector was extended in two phases in 1985 and 1988 under the title 'Groundwater Development Project in the Republic of Zambia' in which two hundred and twentytwo borehole facilities were completed and rehabilitation of one hundred sites were carried out in the Southern Province. The success of this project prompted the Zambian Government in 1990, to request the Government of Japan for a grant aid to develop the groundwater resources for the rural communities in Lusaka, Central and Copperbelt Provinces. The Government of Japan positively responded to this request and a basic design study was carried out in late 1990 and a report presented in April 1991. It was decided to construct two hundred new boreholes and rehabilitate one hundred existing boreholes and supply of equipment and material for groundwater development such as two drilling rigs, materials for construction of boreholes, survey equipment, handpumps, support vehicles and tools and equipment for repair and maintenance and in addition the installation of depot for storage and sustained maintenance.

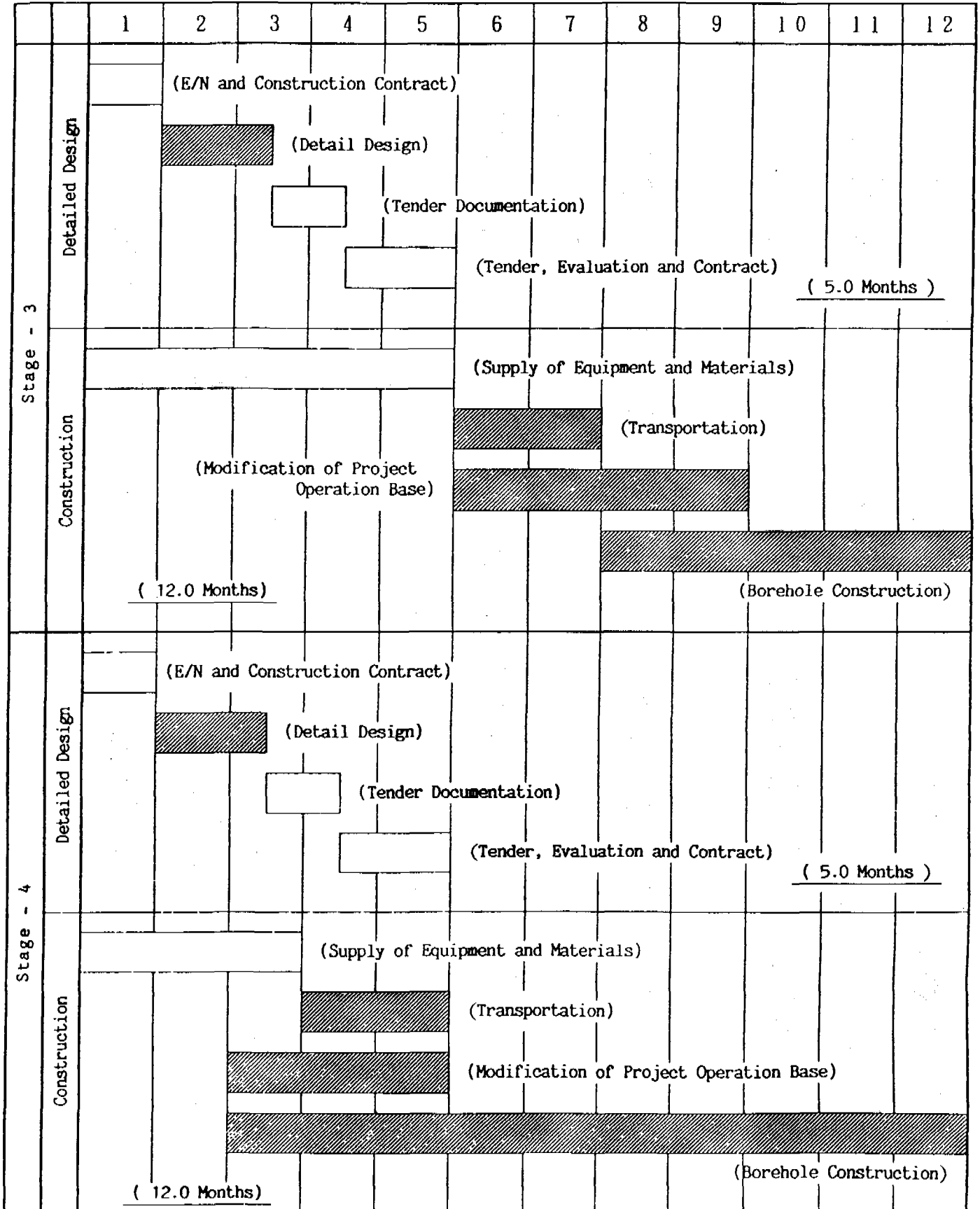
The Department of water affairs established the Drought Relief Programme in April 1992 requesting urgent support from the donor countries to combat the severe drought conditions in Zambia. The onset of the present project coincided with this and DWA requested the Government of Japan to revise and to accelerate the implementation schedule and increase the number of sites. Accordingly JICA carried out an implementation review in early 1993. As per the revision the implementation schedule was reduced to four stages from five stages and the total number of boreholes was increased to two hundred and twenty and the number of boreholes to be rehabilitated was increased to one hundred and sixty. In view of the cutting down on the period and increase in the number of boreholes it was decided to provide another drilling rig. A summary of the implementation schedule is appended.

IMPLEMENTATION SYSTEM



IMPLEMENTATION PROGRAM

ZAMBIA
 JAPAN



2. DESCRIPTION OF THE PROJECT

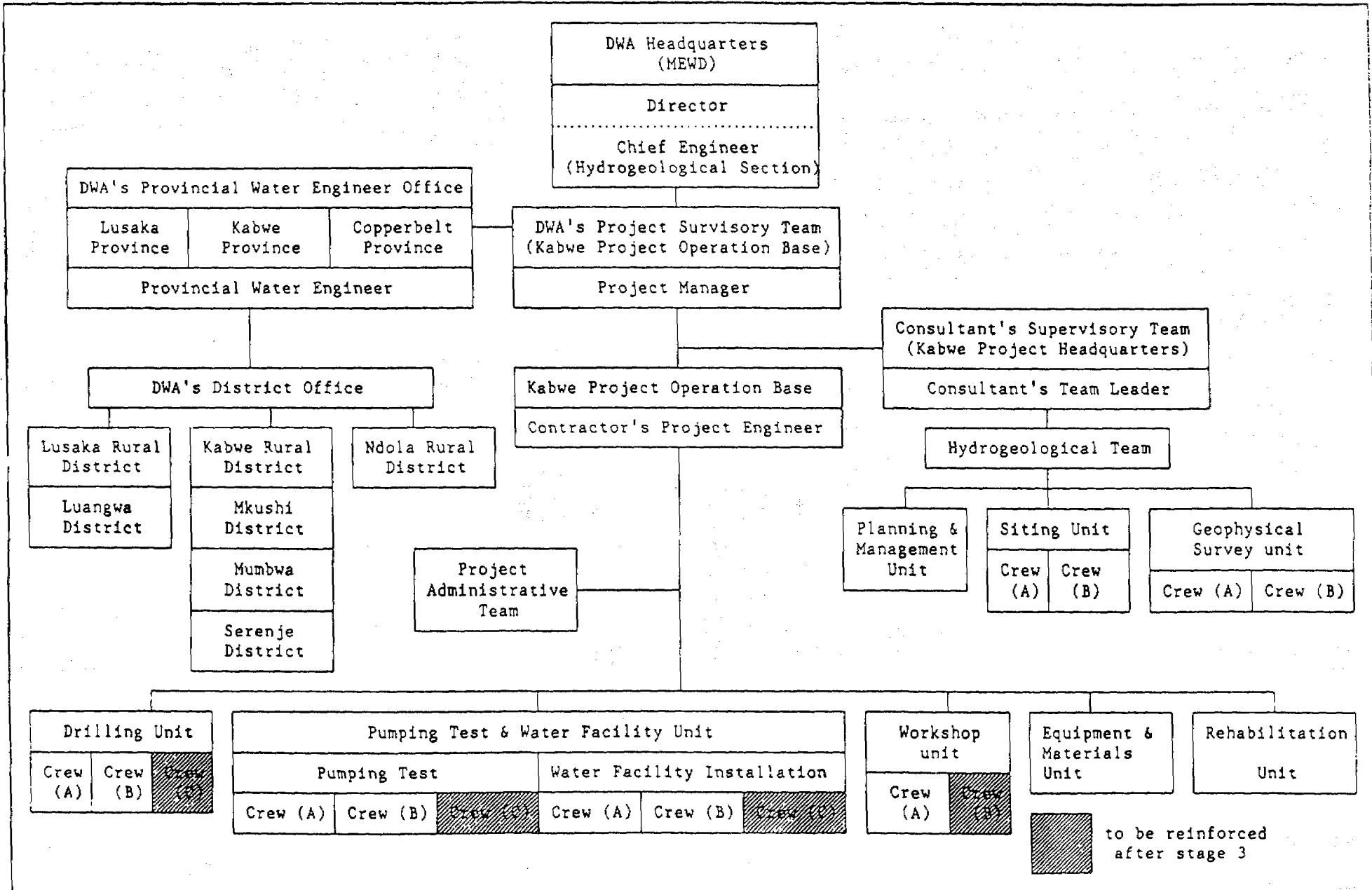
Under the Fourth National Development Plan the Government of Zambia had given considerable priority to the rural water supply sector, to increase rural water coverage. This project aims to contribute to the Government's efforts to provide clean and safe water to the rural populace in keeping with the Plan of Action of the United Nation's International Drinking Water Supply and Sanitation Decade.

The organisation of the Project is mainly composed of the Project Manager representing the Department of Water Affairs, Contractor's Project Engineer and Project Administrative team headed by the Administrative Manager, in this Case Nissaku Company Ltd and the Consultative Supervisory Team from Japan Techno Ltd, headed by a Team Leader. More detailed information is shown in the in the organisation chart overleaf.

The major components of the Project are;

- i Construction of boreholes and appurtenant facilities at 220 sites and
- ii Rehabilitation of existing borehole sites in one hundred and sixty sites in seven districts in three Provinces.
- iii Procurement of three drilling rigs and equipment and material required for the construction and rehabilitation of the above including equipment for geophysical exploration.
- iv Technology transfer to DWA staff with regard to groundwater resources development, installation of rural water supply facilities and their operation and maintenance.
- v Construction of depot for management of execution of the Project and for the repair and maintenance of the material and equipment provided.

ORGANIZATION CHART OF JAPANESE PROJECT TEAM



3. PROJECT FORMULATION AND CRITERIA USED

The four stages in which the project has been planned to be executed, both for facilities of new boreholes and rehabilitation works of existing borehole was based on the following criteria:-

(I) FACILITIES OF NEW BOREHOLES

As for facilities of new boreholes, the emphasis was on the following aspects:-

- (a) Project site
- (b) Type of water facility
- (c) Unit supply rate
- (d) Served population
- (e) Appurtenant facilities to boreholes

(a) PROJECT SITES

The sites are chosen through the consultation with Department of Water Affairs as well as the local authorities of the respective Districts, taking into consideration the priority of the Zambian side and the analytic results of the field survey. A careful selection was given to the sites where there are such public interests such as educational institute, health care centres, agricultural development centres, local key posts etc., and where no sanitary water sources currently exist or those water sources that easily get dry during dry season.

(b) TYPE OF WATER FACILITY

Borehole type water sources were decided to be employed for the project since this type of water source can be supplying stable and safe drinking water even in the dry season. The water facilities are designed to be installed with standard handpumping units, concrete floor and drainage easy to operate and maintain and also suitable to the size of rural villages of the population of two hundred (200) (in normal conditions) to 1,500 dwellers (in dry season).

(c) UNIT SUPPLY RATE

It is targeted to supply water at the rate of 30 litres per day per capita complying with the World Health Organisation's standards. It is, however, targeted at the rate of 5 litres per day per capita during emergent season of dry spells meeting the criteria for drinking water only.

(d) SERVED POPULATION

The way pumping rate of a handpump is considered to be approximately 750 litres per hour. The pumping hours are conventionally confined to ten (10) hours a day from dawn to sunset in the area. Accordingly, the served population planned at one site can be served with a single borehole equipment with a handpump is as follows:-

(i) ORDINARY SITUATION

$750\text{lit}/\text{hour} \times 10 \text{ hours divide by } 30\text{lit}/\text{day}/\text{capita} =$
250 persons.

(ii) DRY SPELLS

$750\text{LIT}/\text{hour} \times 10 \text{ hours divide by } 5\text{lit}/\text{day}/\text{capita} =$
1,500 persons

(e) APURTENANT FACILITIES TO BOREHOLES

It is recommended to install a drainage facility consisting of concrete drain floor, drain ditch and soak away in the surrounding area of the borehole to prevent the waste water seepage from the surrounding area. The concrete drain floor is to be reinforced concrete to safeguard against cracks.

(2) REHABILITATION OF EXISTING BOREHOLES

With regards to rehabilitation of existing boreholes consideration was in the following:-

- (a) Project sites
- (b) Rehabilitation works.

(b) REHABILITATION WORKS

The rehabilitation works of the existing borehole with water facilities are to be focused on the replacement of damaged pumps with new ones and improvement of surrounding water environment to enhance the supply of stable and sanitary water.

STRUCTURE OF NEW BOREHOLES

The design of the structure of new boreholes was based on the drilling depth of boreholes, their diameter, casing and well screens and cementing and gravel packing.

i DRILLING DEPTH

It is planned to have an average depth of 60m, based upon such prevalent hydrogeological conditions of the project area as the distribution of hard rocks of gneiss, schist and granite of geoelectric prospecting conducted over the area.

ii DIAMETER OF BOREHOLES

The diameter of boreholes is determined to be 4 inches or 6 inches (100mm or 155mm) according to the planned populations to be served at the sites. The later size of 6 inches is selected for sites where hydrogeological conditions are favourable and where the water demand is expected to increase in the near future, so that handpumps can be driven by power driven pumps.

iii CASING AND WELL SCREENS

For the construction of a typical borehole of 60m depth, the well screens shall be of the average length of 12m per borehole which corresponds to 20% of the total depth of the borehole based upon the analysis and prospects of the local hydrogeological conditions in the project area. Accordingly the casing pipes shall have the average length of 48m per borehole which corresponds to 80% of the total depth.

4. COMMUNITY PARTICIPATION

In the Project for the Rural Water Supply Development in the Republic of Zambia under the Japanese Grant Aid Programme, the following procedure is followed with regard to the involvement of the community;

1. A village selected by the Basic Design study Team from the list of Villages prioritised by the District Council and submitted through the Provincial Water Engineer is visited by the consultants along with the survey team and the officials from the Department of Water Affairs. The team meets the village Headman and elders and discuss with them about the proposed borehole for the village under the Japanese Grant Aided programme. It is explained to them that the proposed borehole is a gift from the people of Japan through the Government of Japan, the cost of which comes from the Japanese Tax payer's money. It is also impressed upon the villagers that the well will be the property of the village and that they need to take care of this protected point water supply.
2. Then a survey is carried out involving the villagers and a location for drilling is chosen in consultation with the villagers. Then the village Headman marks the location approved by the survey team. At this stage the villagers are encouraged to form a village committee.
3. At the time of site transfer a team consisting of officials from the Department of Water Affairs, the consultants and the contractors visits the site and meets with the villagers in preparation for work.

The officials from the Department of Water Affairs communicate with the village committee about their responsibilities. In certain cases after the completion of works a water committee consisting of six or more villagers, among whom at least three are women, is formed. Then the Department of Water Affairs provides orientation and maintenance of the handpump and also explains to them about sanitation and health aspects.

4. Preparation of the site involving bush clearing, cutting down trees if need to, levelling the ground and laying the access road are carried out by the villagers prior to mobilisation.

5. When the drilling team arrives in the village for the work, the villagers provide security for the equipment and technical personnel in the drilling camp through the day and night.

Particularly provided by the village Headman, two or three villagers to guard the camp are. While the drilling is in progress, villagers are given casual jobs to assist in other works. Borehole drilling is a specialised job and as such participation in drilling requires special training which a casual worker picked up from a village can not provide. Further adequate safety measures are to be taken at the drill sites. Hence participation of the villagers in borehole drilling is not encouraged. This situation is different from that of the hand-dugwell scheme carried out by the Germans in the Central province, where villagers participate in actual digging of a well over a period of a month or two while borehole may be completed sometimes in a week's time. However, at the time of

the construction of the wellhead villagers are encouraged to assist in the construction work.

7. After the completion of works the villagers are encouraged to form a water committee composed of six or more villagers, among whom at least three are women. Then the department of Water Affairs provides orientation and maintenance of the Handpump and also explains to them about sanitation and health aspects.

8. Subsequently, the Department of Water Affairs hands over the boreholes with water facility to the villagers through the respective District Councils. At this time the tools for operation and maintenance are handed over to the Water committee by the project.

9. From this stage the Japanese project overseers the maintenance of the Water facility provided working closely with the Water committee for a year. Any maintenance problems beyond the village level is brought to the attention of the project by the Water committee through the District council/Department of Water Affairs and are attended to by the Technicians from the Japanese project.

5. CONCLUSIONS AND RECOMMENDATIONS

Stages 1 and 2 of the implementation can be described to have been successfull both for construction of new boreholes and rehabilitation of the existing ones,

It can be noted that the targeted number of boreholes to be constructed has been achieved , inspite of security problems and accident in which a rig was involved. Though in the case of rehabilitation due to nonavailability of adequate number of sites, there had been a setback. As for community participation, the exercise faced certain setbacks such as,

- a. Lack of adequate funds for the personnel going into the field to motivate villagers and
- b. Security risks along border areas like Mkush, where the Project is operative. There is need to guarantee security for ther personnel involved in this exercise. But the work has gained momentum and work is in progress.

As for community participation, the effective perfomance of the Water sector in Zambia has problems associated with the operation and maintenance of facilities mainly due to lack of funds logistics. These problems need to be addressed effectively. However to overcome this setback, certain measures to be taken at different levels are being proposed:

- c. The villagers who are the beneficiaries of the project are generally charged with the responsibilities, such as keeping the surroundings borehole clean, errecting a protective fence to keep the cattle away and carrying out routine maintenance of the handpump such as tightening and greasing of the movable parts. It is the responsibility of the village Water committee to collect a nominal amount from the villagers toward the

maintenance of the handpump. This apart from generating funds from the village towards maintenance, will also creat a sense of ownership and responsibility towards the facility provided.

- d. As an implementing agency the Department of Water Affairs in co-ordination with the District council need to allocate adequate funds to meet the cost of major repairs of the installations provided. Action is to be taken based on the complaints from the Water committee through the respective District councils. The requests are to be reviewed and assistance provided within the system.
- e. Since lack of adequate funds to buy the spares is pointed out as the major setback the donors are advised to make provision for a follow up scheme after the succesfull completion of the project and provide consumable items and spares required for three to five as the the case may be.

Report 6

**Strategies, approaches and experiences
in rural water supply and sanitation**

by

Mr. M.S. Mwanza

**WORKSHOP ON COMMUNITY MANAGEMENT IN WATER SUPPLY AND
SANITATION PROGRAMMES**

MOSI-O-TUNYA HOTEL, LIVINGSTONE, 5th - 8th JULY 1994

**PAPER ON STRATEGIES, APPROACHES AND EXPERIENCES IN RURAL
WATER SUPPLY AND SANITATION**

M.S. MWANZA, TDAU/UNIVERSITY OF ZAMBIA

1.0 INTRODUCTION

In the 19th and early 20th Centuries, the "Sanitary Revolution" played a fundamental role in reducing sickness and death from infectious diseases in industrialised countries (Preston and Van de Walle, 1978). It has generally been assumed that improvements in water supply and sanitation conditions have a similar role to play in reducing the high level of morbidity and mortality that prevail in many poor countries today. This presumed impact on health was the main impetus behind the declaration of the United Nations "International Drink Water Supply and Sanitation Decade" and the inclusion of basic water supply and sanitation facilities in the "primary health care" package.

It is common knowledge that Zambia still faces serious problems of water supply and sanitation both in urban and rural areas. Communities suffer from inadequate water supply for domestic, livestock and crop irrigation, and they lack efficient methods of solid and liquid waste matter disposal resulting in poor sanitation and pollution of the environment. The net effect of these poor public health is frequently reflected in epidemics of diseases associated with unclean drinking water and poor sanitation.

Although there is a general agreement that water supply and sanitation facilities do play a role in health, there is a disagreement on the priorities that should be given to the sector as a whole or to specific activities within the sector. Improved information on the impact of different levels of specific water supply and sanitation activities and different mixes of these activities are thus needed for two purposes. First, planners have to decide how resources should be allocated between water supply and sanitation programs. Second, once the level of resources available to the water supply and sanitation sector is set, planners have to decide the appropriate allocations to specific water supply, sanitation and hygiene education activities, and the level of services to be provided.

2.0 TDAU EXPERIENCE, STRATEGY AND APPROACH

TDAU (Technology Development and Advisory Unit) is an organisational part of the University of Zambia. TDAU develops, adapts and takes care of extension of technology appropriate to the local situation.

2.1 EXPERIENCE

Recognising the problem that the country faces in the area of sanitation and water supply, TDAU has over the years developed a project plan on rural water supply and sanitation. It appeared to TDAU that there is a demand for water pumps for domestic, livestock and small scale irrigation water supply purposes in Zambia.

Through a programme of research, development and testing, TDAU proposed to identify the most appropriate technology choices for a broad spectrum of rural water supply scenarios. The Unit proposes to produce a handbook to assist projects, communities and individuals assess their water requirements and environment, to select the most suitable site and equipment, and to correctly install, operate and maintain the system. To date the Unit has tested eight hand operated, two animal powered and a wind powered water pumps both in the laboratory and in the field. Some of these have been redesigned and adopted for commercialisation.

In addition to rural water systems, extensive and much needed efforts are being directed at improving the sanitation sector.

2.1.1 Objectives

The overall objectives are:

- to reduce the proliferation of the wide variety of rural water supply systems in Zambia by the selection of a small number of the most appropriate systems suitable to satisfy the different requirements in the sector; domestic use, animal consumption and irrigation
- to produce a handbook covering all aspects of rural water supply systems; appraisal of environment; selection of most appropriate equipment and site; installation, operation and maintenance

2.2 STRATEGY

The following is the route by which TDAU aims to satisfy its objectives:

2.2.1 Review of Existing Technologies

Objectives:

- To review existing technologies available for rural water pumping and storage
- To conduct a literature survey on information available on experience with rural water supply in the Southern African Region
- To qualify each alternative with advantages, disadvantages, cost, maintenance, locally made or imported, suitability for rural/small workshop/ mass production, reliability, etc
- To categorise the environment where each of the alternative is best suited, e.g pumping capacity, pumping head, domestic/animal/irrigation supply, etc

Pumps to be included:

- Manual pumps/lifters, deep and shallow well
- Animal powered pumps
- Electric/Diesel pumps
- Wind pumps
- Hydraulic Ram pumps
- Solar pumps

Water Storage:

- Dams
- Cisterns/Water harvesting tanks

2.2.2 Survey of Existing Water Supply Systems Installed in Rural Zambia

Objectives:

- To determine what systems are installed throughout Zambia
- To estimate the quantity of each system
- To determine what percentage are operational
- To obtain reliability data on systems installed
- To identify common problems encountered
- To collect data on special tools required for manufacture, maintenance and repair

2.2.3 Selection of most Appropriate Systems

Objective:

- To select from the large number of possible alternatives in rural water supply equipment a small number of the most suitable, with a target of 2 or 3 alternatives for each major category - deep or shallow well, irrigation or domestic use, etc

2.2.4 Pilot Trials

Objectives

- To test a representative sample from the proposed choice of equipment in field conditions
- To determine procedures for equipment and site selection based on genuine community involvement
- To establish the levels of operation and maintenance support required, specifically where local maintenance and repair can be carried out and where specialist skills or support is required
- To identify any major shortcomings in the equipment, e.g. difficult to manufacture, operation or maintenance, reliability problems, etc, and if necessary modify the selection of equipment
- To propose possible design action to remedy or improve performance, reliability, ease of manufacture etc

This will be achieved through the installation and monitoring of selected systems in rural areas. Laboratory testing of some equipment will be done where possible.

2.2.5 Final selection of most Appropriate Systems

Objectives

- Using the data gathered in (2.2.1) to (2.2.4), to finalise a recommended list of the most appropriate systems suitable to satisfy majority of needs, including tools required for operation and maintenance
- To identify and contact the equipment suppliers in order to establish ground rules for quality, after sales service etc
- Preparation of specifications for selected equipment

2.3 APPROACH

2.3.1 Target Groups

The target groups of the research is the rural and peri-urban population of Zambia, of whom less than half have access to safe water. The foremost beneficiaries will be women, since the main burden of water collection falls on them, and the large number of subsistence farmers who require improved water supply for irrigation. Ultimately the entire target communities would benefit from both the income and nutrition improvements generated by increased food production and health improvement resulting from safe water sources.

To achieve the foregoing objectives, it has been TDAU's wish and desire that the target group has full participation and contribution towards project execution right from the on-set of the project. This genuine community involvement will determine the success and failure of the technology.

3.0 CONCLUSION

The result of deriving a limited number of recommended water supply systems will make it possible to reduce the proliferation of equipment currently seen in rural Zambia and other African Countries. The approach that TDAU proposes details the elements that the Unit believes are necessary to promote technology development and adaption in rural and peri-urban water supply in Zambia.

The proliferation accentuates the problems of maintenance and repair, with every system having its own individual problems. Reducing the number of variants will likewise lead to some standardisation, improved availability of spare parts, reduced diversity of operation and maintenance tools and also in the skills and skilled personnel necessary to keep the equipment operational.

POPULATION DISTRIBUTION BETWEEN URBAN-RURAL

■ *RURAL
POPUL.
A. (4.2
Million)*

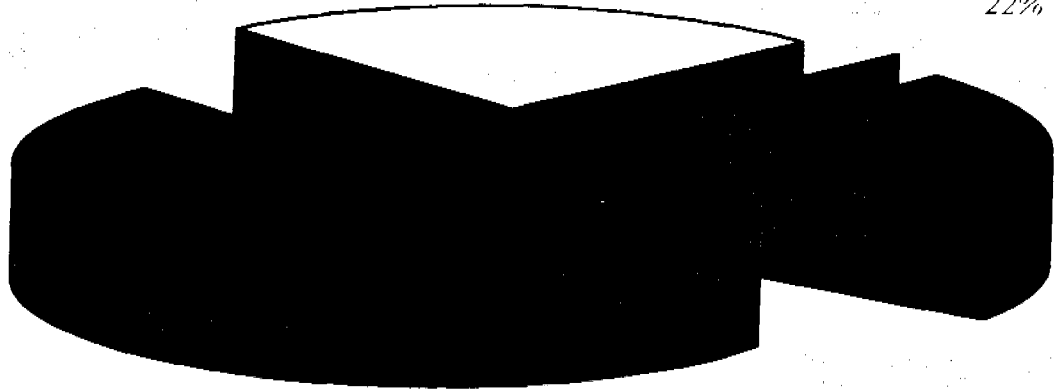


■ *URBAN
POPUL.
AT. (3.6
million)*

URBAN, RURAL & PERI-URBAN

*PERI-URBAN(1.9
million)
24 %*

*URBAN (1.7
Million)
22%*



*Rural (4.2
million)
54%*