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papers

“Theme: Promotion & Sustainability of Water and Sanitation Programmes”

Training Research and Networking for Development (TREND)

Kumasi, Ghana

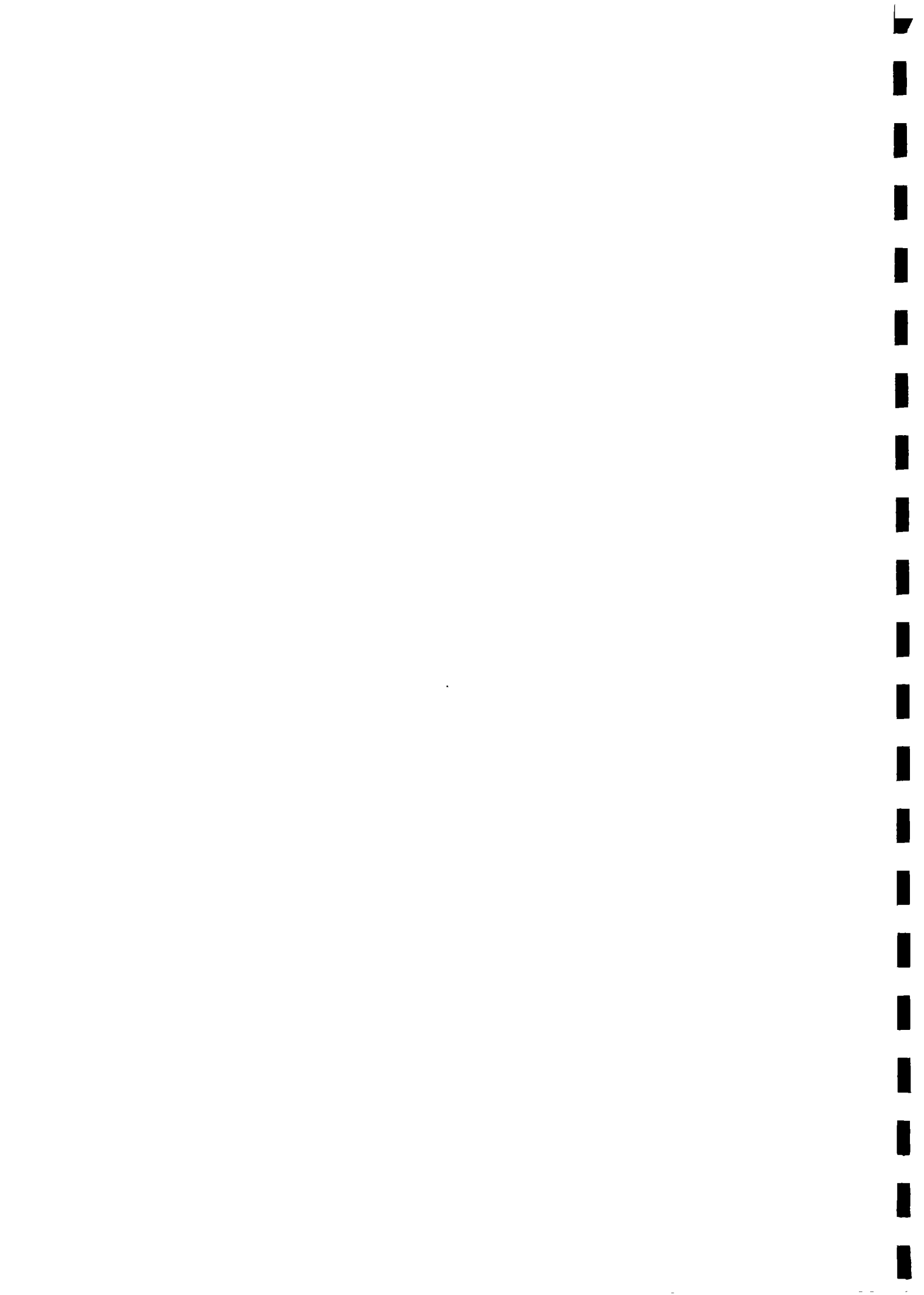
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8th Africa Conference, Accra, Ghana

ABSTRACTS

Of Conference Papers

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COMMUNITY BASED, DEMAND DRIVEN SECTOR INITIATIVES SHOW SUSTAINABLE CAN THEY BE?

by

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The paper critically examines strategies, focusing on Ghana and Uganda, where projects are stated to be Community Based and Demand Driven.

The degree to which this is desirable, attainable or even defensible is examined, and the question of whether these approaches may be an abrogation of governance responsibilities is posed. Focus is on the primary objectives of enabling provision of infrastructure with future sustainability. Consequently, realistic approaches must encompass compromise and conflict resolution between the demands and requirements of all stakeholders.

The roles of the various players are examined, specifically with regard to the conflicting needs of the communities, the Private Sector, the Supporting Institutions, Political Influence, Government and External Support Agencies.

Technical standards are assessed against frequency and cost of maintenance and the different requirements of centralised versus beneficiary based private sector maintenance are identified. The beneficiaries rights in technology choice are discussed.

The intention is to provoke discussion on the roles of all actors, by suggesting a model using a broader based approach of negotiation at all levels for attaining sustainable multi-sectoral infrastructure development.

Is sustainable development through **Community Based, Demand Driven** initiatives really possible or is a **Broad Based, Negotiation Driven** approach closer to reality?

MANAGEMENT TRAINING FOR SUSTAINABILITY OF WATER AND SANITATION PROGRAMMES

by

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This paper summarises the Network for Water and Sanitation (NETWAS) experience to build capacities by helping managers, planners and communities in Africa to use updated knowledge and effective methodological management tools to plan for long term sustainability in their projects. Project organisation, institutional, infrastructural and educational factors will affect sustainability and replicability. It is therefore important that these are addressed in the preparation of water and sanitation programmes. There is a general shortage of trained staff at all levels to implement these programmes. Of particular importance is the development of appropriate training courses which focuses on real problems affecting African countries.

NETWAS has gradually built its capacity through the assistance of the International Water and Sanitation Centre (IRC) in the Hague to run the course on Management for Sustainability in Water and Sanitation projects. This course has been jointly organised by IRC and NETWAS since 1994 as a regular course with participants coming from Ethiopia, Kenya, Uganda, Namibia, Tanzania, Malawi, Lesotho, Zambia, Ghana, Mozambique, Somalia and Zimbabwe. This also includes the training of management teams of various community water projects. It is now two (2) years since NETWAS started offering this course. There is now a need for an evaluation of the impact on management and sustainability of water projects in places where water and sanitation sector staff have benefited from this training.

NETWAS has also offered this training specifically for sector personnel in Uganda, Sudan and Kenya. The importance of involving beneficiaries in all aspects of management has been realised as an element of sustainability of water and sanitation projects and this is given special emphasis in the training programme.

The general view of the various participants after the course was that they felt better prepared to manage their projects.

**COMMUNITY-BASED HYGIENE AND SANITATION:
THE SCHOOL AS AN ENTRY POINT**

by

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A National School Health survey conducted in 1991 in Ghana revealed that factors affecting the health of the average Ghanaian School child include poor environmental sanitation, poor hygiene conditions, lack of hygienic sanitation and water facility and inadequate knowledge on health/hygiene education.

It is against this background that the Volta Rural Water Supply and Sanitation Project, a ten year project which aims at contributing towards improvement in the living and health conditions of the rural population in the Volta Region has identified the school as an entry point for its intervention.

The project assumed that since schools are located in communities it is logical to inculcate proper sanitation and hygiene practices in pupils and use them as agents of behaviour change and thereby maximising the benefits of the provision of water and sanitation facilities to communities. For example the Ghanaian school child will normally take home to his parents and siblings new things learnt from school especially things that can be done at home.

In a bid to implement the programme the project has collaborated with the Ministries of Health and Education to develop a curriculum guideline on hygiene education for schools; train 200 school health co-ordinators in participatory methods, child-to-child approaches and hygiene education. The Project has also promoted improved sanitation in these schools.

Two years after the introduction of the programme in selected schools have seen the formation of school health committees, construction of improved sanitation facilities, introduction of hygiene education in the schools daily syllabus and the general improvement of sanitation and hygiene situations in the schools.

**COMMUNITY MANAGEMENT OF OPERATION AND MAINTENANCE:
CHALLENGES TO SUSTAINABLE WATER AND SANITATION
DEVELOPMENT**

by

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The Volta Rural Water Supply and Sanitation Project has as its main focus of facilitating the sustainable operation and maintenance of facilities and processes in line with the national strategy for the water and sanitation sector.

The project's principle of planning for sustainability of the systems include the need for communities to contribute towards both the capital and recurrent cost. It also involves WATSAN committees with the support of community members taking the responsibility of managing the completed systems. It follows that the community structure must evolve mechanisms for operation and maintenance.

The Project since its inception has handed over completed water and sanitation facilities to a number of communities for operation and maintenance. This paper, through case studies examines community management and operation of these facilities with special attention to the experiences so far in community participation, role of women and the problem of revenue collection.

The paper identified the practical issues encountered so far in operation and maintenance which could enhance or affect the long term sustainability of the process. Some of these include; community transition from open and free access to payment for water, the free rider problem, unwillingness to pay for no apparent reason and soico-cultural factors. Lessons are drawn for consideration and recommendations suggested which could enhance sustainability of operation and maintenance.

HYGIENE EDUCATION AND SUSTAINABILITY OF WATER SUPPLY AND SANITATION INTERVENTIONS

by

TOM KAYAMBA MWEBESA

Provisions of Water Supply to rural areas is an important function that involves the State, Local Authorities the Private Sector and the Communities. The Health and development of the rural communities depend on adequate and wholesome Water Supplies. In view of the exploding population, improved lifestyles and rapid urbanisation, the issue of supplying and sustaining good quality water is assuming challenging dimensions in Uganda both in Urban and Rural areas. The provision of water supplies in Urban areas is a responsibility of the National Water and Sewage Corporation (NWSC). In other Towns it is the responsibility of the Directorate of Water Development (DWD).

Uganda is endowed with many sources of water supply. These include Fresh water lakes, Rivers (Nile originates in Uganda) Wetlands and Underground water sources. But to make a water source safe and dependable is a difficult task. Up to day most people take availability and wholesomeness of water for granted, some parts of the country (the grazing dry lands of Nyabushozi, Baale and Karamoja) the Water Supply is not enough and draughts aggravate the situation. The sources once protected sometimes are neglected due to various factors - Boreholes (salty/minerals), springs-located in valleys. In this Paper the discussion is based on rural water supplies which are a responsibility of Local Authorities and communities supported by NGOs.

**IMPACT OF ALTERNATIVE SANITATION TECHNOLOGY ON THE LIVES
OF SOUTH AFRICAN WOMEN**

by

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The paper focuses on Soshanguve, a township outside Pretoria, which is using alternative sanitation system. The area under discussion is a site and service scheme with water and sanitation provided as part of the government housing policy. The toilet is designed for easy integration into a full water portable sanitation system. In the absence of sewerage treatment plants and bulk connection, the toilet operates on the basis of tap water to flush. The system has been in existence for four years and the families have been fetching water from the common stand pipes to flush the toilet.

The paper argues that there is differential impacts of such a system on men and women due to the functional structuring of society. The case of Soshanguve illustrates how a technological innovation can have negative impacts on women and the fact that technology is perceived to be gender neutral does not necessarily translate into gender equity. The testing of technology can no longer be limited to technical efficiency or economic viability, but its impacts on sectors of society and gender must be tested. The paper further argues that decision making during the planning phase on any project must include women as active participants and beneficiaries. Projects that tend to overlook this simple principle may unintentionally result in hardship for women.

**DISTRICT LEVEL MANAGEMENT OF WATER SUPPLY AND SANITATION
IN GHANA
LESSONS FROM THE VOLTA RURAL WATER SUPPLY AND SANITATION
PROJECT (VRWSSP)**

by

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A properly organised system of promoting and supervising the establishment and management of water supply and sanitation facilities is crucial to guaranteeing the sustenance of such vital social service programmes.

This system requires the creation of the relevant institutions and structures and the establishment of the most appropriate relationships among them in order to ensure their effective functioning.

In the Volta Rural Water Supply and Sanitation Project, the District Assembly, the District Administration, the District Water Supply and Sanitation Management Committee and the District VRWSS/DANIDA Project Office have been identified as the key institutions whose nature and level of interaction would determine the degree of efficiency achieved in programme implementation in a particular district.

This paper seeks to examine the appropriate relationship that should exist among these institutions in order to ensure successful programme implementation.

Further, it draws upon the experience of the VRWSS/DANIDA Project and highlights the rational basis of the composition of the District Management Committee, nature of working relationships among its members and the challenges they have to contend with in their management, monitoring and supervisory roles.

Finally, the paper examines the nature, level and relevance of training/education required to make the District Water and Sanitation Management Committee an impactful institution.

BUILDING DISTRICT OWNERSHIP AND MANAGEMENT OF WATER AND SANITATION PROGRAMS - APPROACHES AND STRATEGIES

by

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Many projects including the Community Water and Sanitation Program (CWSP) have identified the district as the point of implementation of water supply and sanitation programs. There are many good reasons for District Assembly involvement in water and sanitation -- the current decentralisation program gives them overall responsibility for development in the district; they are already involved through donor assisted rural development program like the EU Micro Project and their own activities through the Common Fund; and the district is the appropriate level on the decentralisation structure where effective co-ordination of delivery efforts can take place. Experience from some of the projects has been various levels of complaint about districts not committed to the programs -- some of the symptoms cited are: Low awareness about CWSP by DA members and staff; project not discussed at sub-committee meetings; and limited support for the DWSTs. Could it have been that some of the approaches tend more towards implementing water and sanitation projects in the districts rather than implementing a district's water and sanitation program?

This paper defends the position that encouraging districts to take ownership of water and sanitation programs calls for approaches and strategies which are similar to the concept of community ownership and management (COM). District Ownership and Management (DOM) and COM are very much related. It follows that the process of building and achieving one may be applied in the other. Just as COM requires a community to identify its problems and take the necessary steps to resolve it, so also does DOM require that the district identifies its problems, makes important decisions, plans, identifies action areas and takes steps to implement the identified actions in order to solve the problem. And just as COM involves segments of the community, so also does DOM need to get the full participation of the DA -- the leaders, the Assembly Persons, the relevant sub-committees and the administrative set-up.

The crux of DOM is the DA takes responsibility for running the project and CWSD provides the support. In doing this, two processes need to be put in place -- generation of district interest and sustaining the process. After the initial contacts with the DA leaders, the project waits for the DA to make contact. This is to ensure that the DA has some basic interest and to introduce the element of demand into the process. CWSD then holds about two days session with the DA sub-committee responsible for water and sanitation, the heads of relevant decentralised departments and the Development Planning and Budgeting Unit. The sub-committee then presents the proposal to the full house for debate and decision. On acceptance, the DA signs a Memorandum of Understanding with CWSD and the program is launched. During implementation, the CWSD then embarks on a DA training program to consolidate the process - DA members are trained in basic project information, animation and communication skills and bottom-up planning; and sub-committee members in systems and procedures for program delivery.

**COMMITMENT OF LOCAL AUTHORITIES TO WATER AND
SANITATION PROGRAMMES: OBSERVATIONS FROM SOME
DISTRICT IN THE BRONG AHAFO REGION.**

by

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The sustainability of physical facilities is the primary goal of the Community Water and Sanitation Program. The program also seeks to maximise coverage with limited resources, evolve locally acceptable systems, as well as increase local skills and abilities to maintain facilities and undertake additional construction activities even when external funding ceases.

There is a shift from dependency on government for provision of water and sanitation facilities to decentralisation and devolution of responsibilities to communities and District Assemblies among others. In this regard, communities and districts are actively involved early in planning and construction of water and sanitation systems.

However the program embodies a demand-driven approach with some basic conditions for example to enable a District Assembly to participate in the program. This includes:

- assignment of office space to the DWST
- recruitment of permanent DWST staff of suitable calibre
- establishment of a sanitation fund (about \$3,000)
- assignment of an operating budget for the DWST

The initial commitment of the District Assembly to the program is therefore seen in meeting the above conditions. But the sustenance of this commitment is what is vital to the sustainability of the CWSP.

This paper highlights a few observations made as regards the above conditions and their effect on the sustainability of the sanitation component of the CWSP with particular reference to some districts in the Brong Ahafo region.

It also makes recommendations for discussion upon which new strategies and policies could be formulated to put in place remedial actions to re-direct the implementation of the program for better results.

**AUDIENCE-BASED MESSAGE DESIGN FOR COMMUNITY HYGIENE
EDUCATION: AN EXPERIENCE FROM THE KUMASI HEALTH
EDUCATION PROJECT, KUMASI, GHANA.**

By

**SOLOMON PANFORD
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The assertion that education enhances hygiene behaviour has come to stay. However, the determining factor of this consequence lies in all aspects of the communication process.

Message design is one of the most important aspect of the whole communication process if behaviour change is to be achieved. At any rate, it is the process or procedure through which messages are designed that determines its susceptibility to effect change.

The communicative success of messages designed, therefore depends on how well the designers of the mediated production listen to their audience. This audience-based approach implies making the audience the sender or source of the message as well as the receiver.

The involvement of community members in all aspects of hygiene education especially in 'Message Design' cannot be over emphasised.

The Kumasi Health Education Project, (assisted by the ODA between 1991 and 1994), is a small unit which has produced a range of participatory health education materials for the Kumasi Metropolis using the aforementioned audience-based approach to message design.

This paper discusses audience involvement in message design and how this was done effectively by the Kumasi Health Education Project. It enumerates a systematic approach to the steps taken by the unit to involve community members in designing messages and for that matter materials for communicating with the community. It then brings out some of the problems encountered in this initiative, lessons learnt and then recommends issues towards the future.

WATER DEFLUORIDATION

by

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The presence of fluoride in drinking water may be beneficial or detrimental to public health depending on its concentration. Fluoridation of drinking water to a level of 1 mg/l has been shown to reduce dental cavities among children. No known deleterious effects of drinking defluoridated water have been observed when the concentration of fluoride is kept within prescribed limits. However, when water supplies contain excessive fluoride concentrations, the teeth of most young consumers become mottled with a permanent black or grey discoloration. Children who have been drinking water containing 5 mg/l or more fluoride are invariably afflicted and for many, the enamel becomes so severely pitted that they eventually lose their teeth. Bone changes and crippling fluorosis may also result from the long-term consumption of water containing 8 to 20 mg/l fluoride or from a total intake of 20 mg of fluoride per day for 20 years or more.

Many groundwater in the Republic of South Africa are unfit for human consumption because they contain more than the maximum allowable limit of 1.5 mg/l fluoride recommended by the South African Bureau of Standards for potable water. The fluoride concentrations vary from about 2 to 20 mg/l with levels up to 10 being fairly general. Some industrial effluents also contain high fluoride concentration levels (approximately 4 to 20 mg/l).

A number of methods can be used for the removal of fluoride from water. These can be divided into three categories - those based upon the addition of chemicals to cause precipitation or co-precipitation during coagulation; those based upon ion-exchange or adsorption and those based upon membrane separation.

The chemical methods include the use of lime, magnesium, aluminium, sulphate and poly-aluminium chloride. Theoretically, lime can reduce fluoride to no lower than 8 mg/l while aluminium and magnesium sulphate can reduce fluoride to lower than 1.5 mg/l. Cases have been demonstrated where aluminium sulphate could reduce fluoride from 30 mg/l to less than 3 mg/l and from 5 mg/l to approximately 0.5 mg/l. However, excessive and costly dosages are required and a sludge disposal problem also arises. A case has been demonstrated where polyaluminium chloride could reduce fluoride from 19 mg/l to 2.4 mg/l.

Adsorption methods include the use of activated alumina, activated carbon, strong-based anion exchange resins, bone char and tricalcium phosphate. Of these methods, the activated alumina process appears to be the most attractive because alumina is somewhat specific for fluoride and has a relatively high fluoride

**SOLAR WATER PUMPING:
A RELIABLE ALTERNATIVE FOR WATER SUPPLY IN PERI-URBAN
AREAS OF DEVELOPING COUNTRIES**

by

T. MAHAMADOU, CREPA-OUAGADOUGOU, BURKINA FASO

Burkina Faso is one of the West African countries with long dry season and a rainy season characterised by high uncertainty of rainfalls. In the shanty towns in the suburb of large cities such as Ouagadougou, handpumps supply water. Because of the growing demand of water, the authorities replaced some of them by diesel-powered driven pumps. Unfortunately, the high replacement costs of the equipment and the maintenance problems of such system make it difficult to manage.

At present, these suburbs have no electrical grid or water supply network. Sector 28 of Ouagadougou is one of them. For this reason, CREPA and the University of Ottawa initiated a water and sanitation programme. For the first time in Burkina Faso, a solar water pumping unit has been installed in an urban area.

We performed an economic comparison between the solar pumping system and five other options technically able to supply the same daily flow rate. The results show that solar pumping is more cost effective than four of the five comparative options. A management committee has been set up and trained to manage the sale of water. The earning of this sale of water will be used for development activities in the area.

EFFECTIVE USE OF WATER & SANITATION FACILITIES: EXPERIENCES IN THE WESTERN REGION OF GHANA.

by

D. KOMLADZEI

The water and sanitation programme for rural communities in Ghana was launched in 1994 with three main objectives one of which is to:

- ensure sustainability of facilities through community ownership and management, community decision-making in the design of facilities, active involvement of women at all stages in the project, private sector provision of goods and services, and public sector promotion and support.

Although some progress has been made since 1981, which year represents the beginning of the water decade, some approaches adopted for implementation do not guarantee sustainability.

This is due to inadequate focus on skills transfer for capacity-building at the community level.

This paper hopes to outline a view on the idea of skills transfer at the community level which reflects on certain strategies to achieve

1. water and sanitation development at the communities' own pace; and
2. empowerment for sustainability.

SANITATION PROMOTION IN RURAL AND LOW INCOME URBAN AND PERI-URBAN AREAS: EXPERIENCES OF BURKINA FASO

by

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Water supply and sanitation (WSS) situation in rural and peri-urban areas of developing countries is precarious. For this reason, CREPA has set up two new sanitation promotion strategies. In rural areas, the strategy adopted is based on the "joint and several guarantee" of the beneficiaries. This system is experimented in Imiougou village. The activities are carried through the village youth association, ZAKA, which receives from CREPA a certain number of latrine slabs.

A list of applicants is then written. ZAKA distribute the slabs to the 10 firsts applicants under two conditions: have the dug; and got the construction materials ready. For the next 10 villagers on the list to get their slabs, the first persons who received the slabs must complete their construction. This creates a constant pressure of the rest of the village on the persons with slabs. An evaluation of the activities is done quarterly in the village.

In urban and peri-urban areas, the strategy used is the "loan/savings" system. The facilities proposed in this programme are latrines, wash-house together with soakaway, and soakaway. This is set up in Sector 10 of Ouagadougou. Everybody in sector 10 may have access to this system provided that they:

- fill in an application form and submit it with \$2.00 US fees
- pay a guarantee depending on their income
- make the first payment

Only then, the construction can start. The rest of the payment can be done weekly, monthly, or quarterly (for retired persons).

**PROMOTION OF RURAL SANITATION IN GHANA:
The Brong-Ahafo Experience**

by

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This paper describes a demonstration project designed to promote sanitation alongside the supply of water in rural Ghana. The institutional structure of the project within the local government system and the Ghana Water and Sewage Corporation is outlined and the financial and maintenance procedures for qualifying districts are presented, including cost-sharing arrangement with beneficiaries (neighbourhoods and households) and the District Assembly Sanitation Fund. Technical issues are highlighted also (design, technology choice, materials, skills).

Observations about the performance of demonstration districts over the past two years are made based upon the direct experience of the author in Central Ghana (Brong-Ahafo). Problems in the public latrine program and the newer household latrine initiative are presented. Where the public awareness efforts have been more thorough, communities have responded by bearing the full cost of the sanitation facilities. In other cases, the demonstration efforts have been constrained by inadequate cost-sharing, poor supervision, bureaucratic sabotage and the loss of skilled artisans.

**FOLLOW-UP : A NECESSARY COMPONENT FOR SUSTAINABILITY OF
THE LATRINE CONSTRUCTION PROGRAMME
A CASE STUDY IN ASHANTI REGION OF GHANA**

by

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Part of the sanitation component of the CWSP was to equip artisans with the necessary knowledge and skills to enable them construct latrines in their communities on request. This is achieved by organising training workshops for these artisans from the various districts where the Project operates. The workshops are in two parts, each lasting four and six days respectively.

The first part discusses the software aspect of the sanitation programme and the second part the hardware aspect where the artisans are taken through the various stages in the construction of each type of the VIP latrine - Mozambique non-reinforced and the Rectangular reinforced slab types, after which they are left on their own to apply whatever skills they have acquired for their own economic benefits as well as act as agents of change in their own communities.

Hitherto, there have been no on-the-job coaching for the artisans after training and it is disturbing to note that the drop-out rate of the trained artisans have been quite high. Thus, the Project's ultimate objective of maximising health benefits by integrating water, sanitation and health education is becoming an elusion as the sanitation component is lacking far behind.

The situation is not that useless, as a follow-up on newly trained latrine artisans in the Amansie West and Bosomtwe-Atwima-Kwanwoma Districts of the Ashanti Region, where each artisan is coached to construct at least each type of the latrine facility, revealed that most of the artisans forgot the basic procedures for the ring beam and slab construction one month after the training

There is thus a lack of confidence on the part of the artisans to aggressively pursue the programme, let alone approach interested persons who may wish to acquire the facility.

This paper discusses:

- Observation during the follow-up and
- Impact after follow-up

COMMUNITY PERCEPTIONS OF THE MOZAMBIQUE SANITATION PROGRAMME

by

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By December 1995 it is estimated that 170,000 improved latrines have been sold benefiting more than 950,000 people in the peri-urban areas of cities in Mozambique. To assess the impact of the programme from the communities perspective two cities; Maputo and Chimoio were selected for the study. The focus of the study was to:-

- identify the attitude of the beneficiary population regarding the Improved Latrine, including:- technical aspects - economic aspects - to what extent has the community benefited from the project; and
- question the latrine beneficiaries to determine if they feel that there has been an improvement in family health.

A total of 896 people took part in the study (Maputo 588 and Chimoio 308). In Maputo 30 meetings were held and in Chimoio 18 meetings was held. All the meetings were facilitated by the Animators from the programme. Participatory methods and tools were used with communities for assessing community perceptions of the programme and health status.

In the assessment of community satisfaction with type of excreta disposal in their bairro, all those with the improved latrine said they were satisfied because the improved latrines were easy to clean, safe, and can be used by children and were durable.

AN APPRAISAL OF SEWERAGE MAINTENANCE IN GHANA

by

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In many planned urban areas of Ghana conventional waterborne sewerage can offer a convenient method of excreta disposal but high initial capital outlay and high costs of operation and maintenance has not made this possible, so far. Where conventional systems have been provided lack of adequate operation and maintenance has been the single most important cause of deterioration. Inadequate maintenance has led to blockage of sewers, breakdown of pumping stations and treatment facilities with sewers punched and sewage diverted to open drains and surface streams. The systems are thus used to terminal ruin and then require substantial rehabilitation (often reconstruction). In low-income urban areas with high population and housing densities on-site systems are not cost-effective. Septic tanks if installed in such areas fill too often and the cost for desludging become prohibitive. Septic tanks in such areas are ingeniously punched and their contents discharged directly into open drains. This paper identifies why a comparatively well constructed conventional sewerage system in Tema (a well planned low- to medium populated city) in Ghana failed and suggests how a recently constructed simplified sewerage system in Asafo (a high population density suburb of Kumasi, Ghana) can provide sustained use if appropriate operation and maintenance management strategies are pursued.

PROMOTING VIPs IN RURAL COMMUNITIES

by

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KOFORIDUA, GHANA

Studies in the 1970s gave a strong indication that the Ventilated Improved Pit (VIP) latrines were best suited for rural areas. VIPs were therefore used widely in the rural areas of East Africa and have therefore been improved by a number of External Support Agencies (ESAs) and Non-governmental Organisations engaged in rural water supply and sanitation projects in developing countries. This was for a number of reasons such as use of little available water, affordability, durability, amenability to local materials in superstructure construction etc.

Although the advantage of the VIPs outweigh other excreta disposal facilities like the traditional pit latrine, improved communal pit latrine, sanplat and the modern water closet in the rural areas, scepticism over its design and other misgivings, mainly social, have prevented its immediate and wide adoption among rural folk. In spite of these, some water and sanitation projects have chalked successes, albeit with some problems, in the promoting of the household VIP latrine.

The paper attempts to examine from a sociological perspective the advantages of the VIPs, factors militating against its ready acceptance and suggests strategies by which it can be promoted to solve one of the main sanitation problems (safe excreta disposal) in rural Ghana.

THE USE OF PARTICIPATORY APPROACHES IN DESIGNING COMMUNITY BASED WATER AND SANITATION PROGRAMMES

BY

**ODURO DONKOR
PRONET**

A growing awareness of the failures of conventional development approaches in meeting the needs of the rural poor has led to the exploration of alternative approaches to assist communities finding effective solutions to their own problems.

Recent experiences gained by ProNet in working with small communities to develop and initiate some development projects has shown that working closely with communities to define their own problems, analyse them and also assisting them in developing clear statements of the problem to be addressed is crucial.

An essential ingredient for project success is understanding community need and perception. This requires information and data collection within the community. This can only be done using participatory approaches and must cover the technical and social feasibility.

A feasibility study carried out by ProNet for Plan International in the Bawjiase and Asesewa area of the Eastern and Central Region provides an interesting case study in which both social and technical feasibilities for a water, health and sanitation programme were tested using participatory techniques.

The paper will outline methodology, time frame, results and draw some interesting conclusion regarding communities ability in articulating its needs.

THE MOVEMENT FROM DIDACTIC TO PARTICIPATORY MATERIAL PRODUCTION AS A TOOL FOR SUSTAINABILITY

by

**SILAS QUAYE
PRONET**

Over the last four years, ProNet has adapted the participatory approach in the production of health education materials in support of WaterAid sponsored water and sanitation programmes. This approach is most fancied because it provides problem solving opportunities.

The presentation will be on an analysis of the transition process of the material.

- Status of materials between 1989 - 1992
- Move to participatory materials 1993 - 1996
- Move to community involvement in design and production 1996
- Lessons learnt from this transition

The premise is from the fact that as the 20th century gradually draws to a close, development agencies and social groups have intensified efforts to improve the conditions of the poor. Water and Sanitation is among the top priority areas earmarked. Within this sector health and hygiene education, is considered an integral part.

Health education can be implemented through a phase system where it stands on its own or as an integrated programme where field workers especially at district and community levels are the focus of all development work. Within this are various components such as the message, the implementation structure, and the processes in terms of what activity comes first and what follows.

Although all these approaches are considered when designing a health and hygiene programme. It is essential to note that the way the message is presented to the target group is equally important.

The presentation will emphasis that to maximise the use of the participatory method, it must be applied at all stages and levels of implementation.

PARTICIPATORY HYGIENE EDUCATION: THE COMMUNITY DECIDES

by

**ALBERTA AKORFO NYAKU
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P. O. BOX 508, HO**

The role of Communities in development programmes in developing countries is often ignored and overlooked by development planners with the notion that communities have very little or nothing to offer in the assessment of their own needs. This notion has resulted in non-acceptance and under utilisation of many projects intended to improve the living condition of rural communities in some developing countries.

The Volta Rural Water Supply and Sanitation Project, a ten year project, which aims at contributing towards improvements in the living and health conditions of the rural population in the Volta Region recognises the communities as owners and partners of the project and as such is making all efforts to involve the communities in decisions that affect the planning and development of the project. This the project believes will facilitate the ability of communities to assess their present conditions and make decisions that require clear considerations of alternatives and priorities about the future.

Strategies for the application of community based participatory programmes have been developed by the project and are being implemented especially in the Hygiene Education component. Some of the participatory activities being undertaken include identification of community based groups, involvement of women in Water, Sanitation and Hygiene education and awareness creating activities, joint action planning with community/group representatives and formation and training of Water and Sanitation Committees.

The Strengthens and weaknesses of VRWSSP's participatory strategy is being assessed through regular monitoring of behaviour changes and health promotion programmes that emerge from community initiatives.

SARAR: THE MISTRESS OF CHANGE IN DISTRESS

A CASE STUDY ON THE SINKING IMAGE OF THE SARAR PARTICIPATORY METHODOLOGY IN GHANA

**OLIVER FRIMPONG
COMMUNICATIONS EXPERT, TREND**

The SARAR participatory technique was first introduced into Ghana in the early 1990s to staff of the Training Network Centre (TNC) at the University Of Science and Technology by Mr. Ron Sawyer, a PROWESS external consultant. The funding and executing agencies of the Centre's programme, the World Bank and the United Nations Development Agency (UNDP) selected the SARAR as the most appropriate participatory methodology for the Centre's human resource development training activities. As to what criteria the two bodies used for the choice of the methodology, it was and still difficult to explain. But one fact remains indisputable. The TNC staff and subsequent beneficiaries of the methodology found in SARAR a real participatory technique upon being field tested, after a ten-day workshop. For a time the methodology kept a high profile. However this situation did not continue for long. The SARAR technique has now rolled down the hill and is now in the doldrums. A number of reasons is accountable for this. This paper attempts to trace these reasons and make suggestions for the revival of interest in the methodology to make it sustainable and effective for the sector's human resource development in Ghana.

THE ROLE OF RESOURCE CENTRES IN PROMOTING WATER AND SANITATION PROGRAMMES

by

**ERIC BAAH
PRONET**

The United Nations Water and Sanitation decade has come and gone. Post-mortems have shown that the centralised method of providing services to communities is not sustainable. Sector practitioners are now calling for a more professional and pragmatic approaches to water and sanitation programmes.

Thus water and sanitation programmes should be demand driven that is, beneficiary communities should be supported to conceive why they should have improved water and sanitation systems; they must have access to a menu of various options to make informed choices (facilities which they will have to manage on their own).

Sector practitioners will need training and information services to keep abreast of the appropriate technologies and to improve upon their capacity to provide people centred services. Data must be made accessible to promote sustainable strategies for water and sanitation programmes.

The need for district based Resource Centres for information dissemination, expert advice, training and research thus becomes necessary. This paper, which based on a needs assessment survey conducted by the writer for ProNet, will focus on the current level of demand for Resource Centres, what users expects from these Centres and how they can be managed with user participation.

**THE PRIVATE SECTOR IN COMMUNITY AND SANITATION
PROGRAMME IN GHANA: THE CASE OF PARTNER ORGANISATION IN
BRONG AHAFO REGION**

by

**KWAME FREMPAH-YEBOAH
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SUNYANI/BRONG AHAFO REGION**

In order to ensure the sustainability of water and sanitation facilities provided, the community water and sanitation programme (CWSP) in Ghana was designed to work through the private sector with the effect of increasing implementation capacity, leading to more widespread and sustainable coverage as well as increasing employment opportunities.

Specifically, it is central to the CWSP approach to contract:

- Partner Organisations (POs) to assist communities in developing their own capabilities, provide technical assistance and deliver hygiene education.
- Hand-dug Well and Borehole contractors to construct hand-dug wells and boreholes respectively
- Water supply consultants to design and construct rural pipe systems
- Latrine artisans to construct household latrines
- Hand pump and spare parts suppliers to supply pumps and pump parts respectively
- Area mechanics to provide maintenance and repair services
- Trainers (SBDUs, TREND, COWATER etc.) to provide services in human resource development

This paper attempts to discuss the 'Partner Organisation Idea' in respect of its

- Structure/Composition
- Functions
- Links with other role players in the CWSP and
- Public sector support required

An attempt is also made to bring out gaps created and their implications (in the course of implementation) on sustainability of facilities to be provided.

The paper does not however seek to present a blueprint of solutions to the problems faced by the POs, rather it gives recommendations which needs further considerations and discussions.

**HUMAN RESOURCE STRATEGIES AND CRITICAL PROBLEMS IN
PROJECT IMPLEMENTATION FOR THE SUSTAINABILITY OF WATER
AND SANITATION IN GHANA**

by

**BONIFACE GAMBILA ADAGBILA
TREND, PRIVATE MAIL BAG, UNIVERSITY POST OFFICE, KUMASI**

It is one thing embarking on a water and sanitation project providing the needed facilities and another thing ensuring that they are well utilised and remain lasting for and to the benefits of the beneficiaries. Water and Sanitation interventions of any kind cannot be done on the assumption that once initiated will remain a permanent and useful functioning facility. Every water and sanitation programme, to benefit the beneficiaries, need to be seen to be sustainable and remain as such since water is dear to our lives and has no substitute.

The Ghanaian experience and elsewhere, show that human resource is most essential for the initiation, management, control and propelling of all other factors to ensure the permanence of water programmes. Human resource therefore require effective and workable strategies for the promotion of sustainability of water programmes.

In view of the fundamental need for human resource to deal with such water programmes there is the other need to simultaneously identify critical problems in the implementation of projects that retard progress and reinforces the diminishing rate of sustainability. The article here focuses on problems encountered in the design and implementation of water and sanitation projects.

The concerns expressed here aim at directing out attention to resolving the most critical and common problems which, though not the only serious difficulties faced in the water sector only, but occur frequently enough to consistently impede the progress of water programmes.

Like most problems they are not all equally amenable to change; while some others may sometimes be virtually intractable. Nevertheless, awareness of their existence is a step in the right direction.

These problems centre around political, economic and environmental constraints, institutional realities, personnel constraints, technical assistance shortcomings, decentralisation and participation, timing information systems, differing agendas, sustaining project benefits.

**GENDER CONSIDERATIONS IN TRAINING FOR COMMUNITY
MANAGEMENT OF WATER IN THE ASHANTI REGION OF GHANA**

BY

**JESSIE SENA KUMA
TRAINING AND MANAGEMENT OFFICER
COMMUNITY WATER & SANITATION DIVISION
KUMASI**

The Community Water and Sanitation programme in Ghana is based on community management of facilities. In this respect communities participate in the planning implementation and evaluation of the delivery of water facilities. This process is aimed at community ownership and sustainability of the facilities.

Gender considerations in the training of Watsan committees for the purposes of management of facilities is the result of the different roles of men and women and also the awareness that most women on the committees are illiterate compared to their men folk. The calls for an appraisal of the training activities for Watsan committees.

The paper will present a brief on gender as a concept, definition of community management and the training activities of the partner organisations involved in the training of the Watsan committees. The aim will be to determine the extent of gender considerations in the planning and implementation of training activities.

The aim of the paper is to generate discussion on the training approaches at the community level in water and sanitation and make gender part of the agenda for the sustainability of a programme in which women more than men will utilise the facilities.

EMPOWERMENT OF WOMEN AND THE SUSTAINABILITY OF WATER AND SANITATION PROGRAMMES

BY

**EDWARD KWEKU THOMPSON
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The WHO's charter of "Health for all by the year 2000" awakened a global concern for the eradication of diseases, alleviation of poverty and unemployment and the promotion of the general well being of man. In the wake of this concern access to potable water, good sanitation and hygiene practices have been identified as a panacea for myriad health hazards plaguing mankind.

For the majority of the peoples of the world, who live in the rural areas in the third world countries or in the ever-growing urban slums in the developing countries, access to safe water and decent sanitation is a far cry. This situation has been compounded by the fact that, investments hitherto put in the water and sanitation sector have not yielded the desired results. Why? Because many water and sanitation sector have not involved the beneficiaries in the planning, operation and maintenance of the facilities with the result that communities continued to rely on contaminated sources or are unable to repair the facilities when they break down. The scenario has led to the quest for the adoption of many strategies geared towards the sustainability of water and sanitation programmes. Of these community ownership and management (COM) approach seems to stand out and is being pursued by many Donors, Government and Non-governmental Agency (NGOs) especially in the developing countries in Africa including Ghana

Through this approach, communities have been led to take control of the operation and management of their own water supply and sanitation systems with remarkable results in terms of health with concomitant socio-economic and financial benefits.

INSTITUTIONAL DEVELOPMENT OF COMMUNITY MANAGEMENT GROUPS FOR RURAL WATER SUPPLY AND SANITATION

by

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Water and Sanitation projects in Kenya have over the last decades been largely supply-driven, based on Government/donor capital investments. The low level of sustainability in many such projects has given way to a new strategy, that involves the communities/users.

The present strategy aims at community ownership of rural water supplies, meaning that water supplies are initiated, managed and owned directly by the communities.

The Problem

The question today is to clarify whether community groups, who sign hand-over agreements that will give them responsibility, authority and control of facilities, will need legal recognition of the community "structure" as an autonomous body with legal rights, different from today's typical arrangements. One can illustrate the situation, by mentioning that community groups, operating and maintaining a water facility, can not own the facilities because the groups are not registered as legal entities under the Laws of Kenya.

There is, therefore, urgent need to look carefully into issues of the legal status of the self-help groups managing water and sanitation projects and their ownership rights related to assets, properties and investments.

The objectives of raising the above issues is to improve the foundation for sustainability of community managed rural water supplies.

The assumption is that legal status of community groups and stated ownership of assets and properties will facilitate the sustainability of water facilities.







AN APPRAISAL OF SEWERAGE MAINTENANCE IN GHANA

LUKMAN Y. SALIFU, KUMASI METROPOLITAN ASSEMBLY, Urban IV Project

Mr. Lukman Salifu is a Sanitary Engineer for Kumasi under the MLGRD/World Bank-Urban Environmental Sanitation Project (Urban IV). This paper is a reprint from the 2nd West Africa Water & Environment Conference (Water Africa '96) with important additions on Water Tariff structure and Research needs.



AN APPRAISAL OF SEWERAGE MAINTENANCE IN GHANA

LUKMAN Y. SALIFU*, KUMASI, GHANA.

ABSTRACT

In many planned urban areas of Ghana conventional waterborne sewerage can offer a convenient method of excreta disposal but high initial capital outlay and high costs of operation and maintenance has not made this possible, so far. Where conventional systems have been provided lack of adequate operation and maintenance has been the single most important cause of deterioration. Inadequate maintenance has led to blockage of sewers, breakdown of pumping stations and treatment facilities with sewers punched and sewage diverted to open drains and surface streams. The systems are thus used to terminal ruin and then require substantial rehabilitation (often reconstruction). In low-income urban areas with high population and housing densities on-site systems are not cost-effective. Septic tanks if installed in such areas fill too often and the cost for desludging become prohibitive. Septic tanks in such areas are ingeniously punched and their contents discharged directly into open drains. This paper identifies why a comparatively well constructed conventional sewerage system in Tema (a well planned low- to medium populated city) in Ghana failed and suggests how a recently constructed simplified sewerage system in Asafo (a high population density suburb of Kumasi, Ghana) can provide sustained use if appropriate operation and maintenance management strategies are pursued.

INTRODUCTION

Ghana - Urban Development

Ghana is situated in sub-Saharan Africa surrounded by Côte d'Ivoire, Burkina Faso, Togo and the Atlantic ocean. About half of Ghana's total GDP is non-agricultural, in industry and services; these largely urban based sectors of the national economy have been the most dynamic in recent years. Comparative country data show that economic development and urban growth are closely linked. That per capita incomes are consistently higher in urban areas, and that urbanization increases with economic growth more rapidly at lower income levels than at higher ones.

Ghana has a GNP per capita of about \$430 (1994) and about one-third of its population urbanised. Economic growth in Ghana will thus bring about a transition from a predominantly rural to quasi-urban society and strain an already inadequate infrastructure base.

Deficient urban services -- water supply, sanitation, urban roads, and others -- is a major constraint on urban productivity in Ghana. Mobilizing more public and private capital for investment in urban infrastructure is a major need, along with using financial and institutional resources more efficiently. The huge gap between investment requirements and actual funds likely to be available highlights the tremendous importance of (i) cost recovery through beneficiary contributions and local taxes and (ii) use of appropriate design standards supplemented with cost-effective operation and maintenance management strategies.

Tema: is Ghana's primary port, handling about three quarters of all goods shipment. Tema also houses a bulk of heavy industries including refinery, boat building, cement production, the smelting of aluminium and steel and the production of finished metal goods.

Tema is the only city developed from the cradle by government and thus have planned infrastructure. It is also the only city in Ghana with a comprehensive sewerage system. Inadequate provision of maintenance, however, has led to the deterioration of the system with discharge of sewage into drains and water courses. The system is being currently rehabilitated under an IDA-supported Urban II project with the provision of a new treatment facility -- aerated lagoons.

Kumasi: Kumasi, located 300 km northwest of Accra, is the second largest city in Ghana and the capital of the Ashanti Region. The metropolitan area covers 150 km² and is made up of four districts. Kumasi has been the cross-roads between the northern and southern sections of Ghana since its establishment as the heart of the Ashanti Empire around the turn of the eighteenth century. The city is now a budding industrial centre with formal industries in timber, food processing (including beer brewing and soap manufacturing, together with informal activities in woodworking, light engineering, vehicle repair, footwear, furniture manufacture and metal fabrication.

Kumasi has a unique housing pattern with well defined contiguous sectors. This feature lend itself to sanitation planning and four sanitation planning areas have been identified; tenement, indigenous, new government, and high cost. These have been defined on the basis of predominant housing characteristics and spatial continuity.



The simplified sewerage system in Kumasi is located within a tenement area. These areas have the following basic features: (high density), most residences are in 2-3 story buildings having 20-30 rooms shared by 10-20 families (40-100 persons). Plot sizes are about 30 m by 30 m and houses tend to be built to the edge of the property and have a central courtyard. Population densities in the tenement area are between 300 to 600 persons/hectare. The tenement buildings within the Central Business District (CBD) of Kumasi are typical of older sections of the city and have mixed use for domiciliary and commercial purposes.

EVALUATION OF SEWERAGE SYSTEMS - ACCRA, KUMASI & TEMA

Table 1 lists sewerage schemes identified in the cities of Accra, Kumasi and Tema. All the systems were constructed employing conventional principles and all, apart from the very new Asafo system and packaged plants (Labadi Beach Hotel and Golden Tulip Hotel), are malfunctioning to varying degrees.

CURRENT OPERATIONAL PRACTICES - TEMA AND KUMASI

Sewerage management in Ghana is currently undertaken by several agencies although the prime responsibility for sewerage is vested in the Ghana Water and Sewerage Corporation by Act 310, 1965. However, with decentralisation Metropolitan and Municipal Assemblies will want to assume more and more responsibility for sewerage management, LI 1614, Establishment Instrument of Metropolitan Assemblies enjoins them to construct and maintain sewerages.

Tema a survey was carried out in 1994 to ascertain the state of the Tema sewerage system and identify main problems. The system is under a very poor state of repair mainly due to lack of programmed maintenance. Currently the Tema Development Corporation (TDC) owns, operates and maintains the sewerage system, although the Tema Metropolitan Assembly (TMA) is expected to assume these roles in the future.

In practice around 95% of the sewers suffer from sand depositions. Approximately 40% of these pipes suffer a loss of cross-sectional area greater than 50%. Thus at least half of the original flow capacity has been lost in these pipes; and consequently the so-called "self-cleansing velocity" or "minimum tractive force" is not achieved and further deposition occurs.

In addition to loss of capacity, the problem is exacerbated by the addition of bulky materials via the WC into the sewer. These lead to blockages which can take between 8 and 20 weeks to clear from the moment they are identified - backflow from WC bowls, or the emergence of sewage either into surface water drains or from inspection chambers is often the moment it is recorded. Thus householders contact the direct labour department of TDC and the complaint logged. Due to a large backlog of work, complaints are not attended to systematically.

Three distinct catchments drain to different pumping stations which have emergency overflows from their wetwells into local water courses. Two of the pumping stations work sporadically due to pump maintenance difficulties and the emergency overflows become the main outlet from the pump stations.

The third pumping station, which mainly serves the industrial area catchment is non-operational due to theft and vandalism. The sewage flow is discharged directly into a surface stream. This watercourse passes through agricultural and residential properties, so poses a severe threat to local public health. The potential incidence of heavy metals and toxic chemical contamination exists.

The rising mains that emerge from the 3 pumping stations are designed to pass for around 1 km under pressure, before the effluent flows under gravity, through a grit collection chamber, to a short sea outfall. The 3 pipes are badly corroded in section and sewage escapes into the environment via watercourses. A grit collection chamber, which has become disused over the 10 years, because of the problems of the pumping stations and rising main discussed previously, has been rehabilitated 6 months prior to the inspection. The grit chamber is an open chamber, constructed from mass concrete (20 m x 35 m x 3 m; W x L). It contains a dry weather flow channel, and a crude concrete flow attenuation device at the downstream end. To effectively operate this chamber requires persistent grit removal attention which the current management arrangement is not possible to provide.



Table 1: SEWERAGE SYSTEMS, ACCRA, KUMASI & TEMA
A SNAPSHOT OF CURRENT STATUS

CITY/ LOCATION OF SYSTEM	TYPE OF FACILITY	YEAR	MANAGEMENT RESPONSIBILITY	FINANCING FOR O & M	CONDITI
Accra					
<i>Accra Central Scheme</i>	Con./Sewer Outfall(Sea)	1973	GWSC-ATMA	Sewer Tariff/Govt. Subvention	Low-connection. Damaged C
<i>37 Military Hospital</i>	Conventional/ Activated Sludge	1972	Min. of Defence/MOH	Govt. Subvention	Broken sewers/reconstruction
<i>University of Ghana(UG)</i>	Con./Trickling Filter + Activated Sludge	1967	Health Services, UG	Govt Subvention	Damaged Filter. Reconstruct
<i>Achimota School</i>	Con / Trickling Filter	1968	Education Service	Govt. Subvention	Damaged Filter. Reconstruct
<i>Burma Camp</i>	Con./Trickling Filter + Waste Stabilization Pond	1972	Ministry of Defence	Govt Subvention	Damaged Filter Reconstruct
<i>MATS, Teshie</i>	Con /Trickling Filter	1972	Ministry of Defence	Govt Subvention	Damaged Filter. Reconstruct
<i>Labone Estates</i>	Con. /Activated Sludger	1974	PWD	Sewer Tariff/Govt.	Damaged Filter/Reconstruct
<i>Ministries (Accra Beach)</i>	Con /Activated Sludge	1972	PWD	Govt Subvention	Damaged. Reconstruction
<i>State House</i>	Con./Activated Sludge	1974	PWD	Govt. Subvention	Damaged. Reconstruction
<i>Mental Hospital</i>	Conventional/Trickling Filter	1971	MOH/PWD	Govt. Subvention	Damaged Reconstruction
<i>Accra High School</i>	Conventional/Activated Sludge	1970	GES/PWD	Govt. Subvention	Damaged Reconstruction
<i>Roman Ridge</i>	Conventional/Activated Sludge	1973	PWD	Govt Subvention	Damaged. Reconstruction
<i>Dansoman Estates</i>	Con /Communal Septic Tanks	1975	SHC/AESC Hydro	Min of Works & Housing /Govt.	Septic Tanks need Rehab.
<i>KorleBu Teaching Hosp</i>	Con./Imhoff Tank + Trickling Filter	1954	MOH/PWD	Govt. Subvention	Rehabilitated 1990
<i>Presec School</i>	Con./Activated Sludge	1976	GES/PWD	Govt. Subvention	Damaged, need rehab/refit
<i>Teshie/Nungua Estates</i>	Con /Activated Sludge	1977	SHC/AESC Hydro	MWH/Govt.	Damaged, need Rehabilitat
<i>Trade Fair Site, Labadi</i>	Con /Activated Sludge	1972	PWD	MWH/Govt.	Damaged , need Rehabilita
<i>Labadi Beach Hotel</i>	Packaged Plant	1992	Beach Hotel Ltd	Hotel Tariff	Functional
<i>Golden Tulip Hotel</i>	Packaged Plant	1993	Golden Tulip Hotel	Hotel Tariff	Functional
Kumasi					
<i>Teaching Hospital/City Hotel/4BN Barracks</i>	Conventional/Trickling Filter(1956 - 1962), Oxidation Pond (1962 -	1956	KATH/KMA	Min of Health/Govt Subvention	choked /punched sewers/si Reconstruction required.
<i>University Campus(UST)</i>	Conventional/Trickling Filter	1967	Health Services (UST)	Govt. Subvention	Damaged Trickling filter/t
<i>Ahinson/Chirapatre/Kw also Low-Cost Housing</i>	Conventional/Communal Septic Tank-Filter Beds	1975	AESC Hydro/SHC	Community	Communal Septic tanks o of filter
<i>Asafa</i>	Simplified Sewerage/Waste Stabilization Ponds	1994	KMA/Contractor	Tariff/KMA	Functional
Tema					
<i>Planned Communities & Industrial Estates</i>	Conventional/Chemical Treatment (1996 -, Aerated Lagoons)	1973	Tema Devp Corp.	Tariff/TMA	Damaged Pumping station sewers Rehab New Aera (May 1996, 95 % compl

KMA- Kumasi Metropolitan Assembly; AESC - Architectural & Engineering Services Corp ; MOH - Ministry of Health; GES - Ghana Education Service. MWH Ministry of Works & Housing; PWD-Public Works Department; UST-University of Science & Tech; KATH - Komfo Anokye Teaching Hospital, UG - University Ghana, TMA - Tema Municipal Assembly.



Asafo Simplified Sewerage :

The Tema sewerage system discussed above, and indeed all sewerage systems in Ghana so far, has been designed as a conventional system. Simplified (or shallow) sewerage was identified as the least cost option for the Asafo tenement area -- the initial capital outlay were lower compared to conventional and small-bore sewerage,

Table 2: Comparative Initial Investment Costs for the Asafo Tenement Area, Kumasi Ghana

Type of System	1991 Costs(₵)
Simplified Sewerage	147,709,514.00
Conventional Sewerage	278,495,102.00
Small-bore Sewerage	283,406,423.00

Source: ABP Consulting Engineers, Ghana

Annual maintenance costs also follow the above order.

Simplified (shallow) sewerage is appropriate for high population density areas. In Asafo shallow sewers work because;

- o the location of kitchens, bathrooms, privy rooms and yard taps ensure that all household wastewater - excreta, toilet flush wa and sullage are intercepted easily;

- o facilities for ablution are generally laid at the back of the tenement buildings and hence sewer pipe lengths for house connections are shortened,

- o smaller diameter pipes are used (100mm - house connections; 150 mm Block sewers, 300 mm-trunk sewers to waste stabilization ponds). Transport of deposited solids by tractive force is enhanced,

- o the tenement houses are re positioned rear-to-rear in a block and allow only pedestrian and light-weight vehicular traffic (eg. motorcycles) hence sewers were laid in shallow trenches since imposed loads are low - a minimum level of cover of 0.5 m non-trafficked areas and 1.0 m below trafficked areas were used;

- o as few of the sewer lines traversed under heavily trafficked streets within Asafo proper, the above depths of cover were sufficient in conjunction with PVC pipes. PVC pipes offer the advantage of longer lengths, and so few joints and thus avoid poorly made joints to initiate blocking;

- o the high population per dwelling in Asafo (average 63 persons) induce high frequency of flush volumes and achieve the successive waves of wastewater which provide adequate traction along the length of the sewers;

- o the gently sloping nature of the Asafo area plus the high frequency of generation of waves of wastewater allowed the laying small diameter sewers at flat gradients without pumping to the waste stabilization pond system,

- o the provision of simple grit/grease traps behind kitchens eliminates bulky materials and ensure that households provide the first-step routine maintenance by removing trapped grit thus inducing little maintenance on the sewer laterals and reducing maintenance costs further.

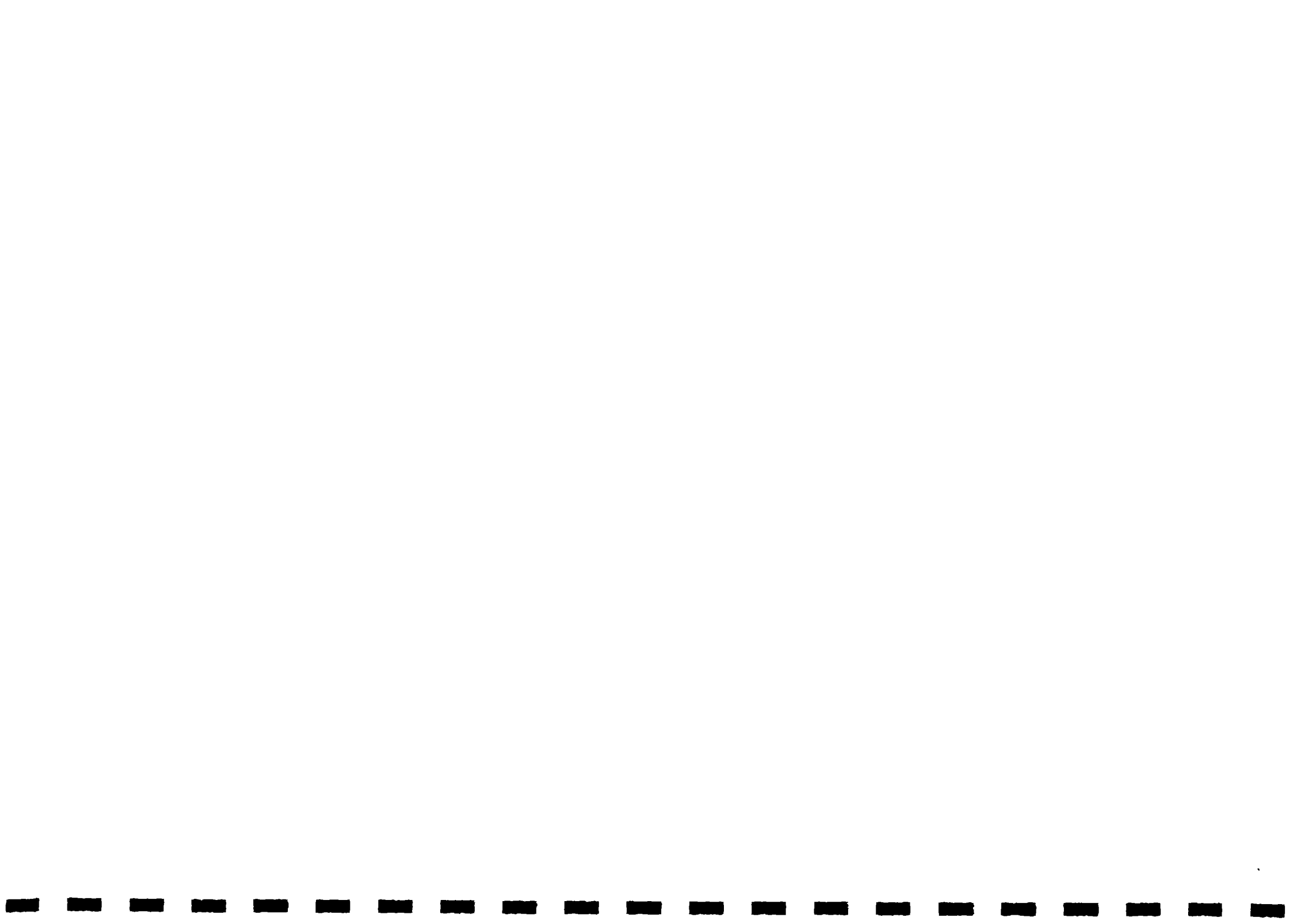
- o expensive manholes which contribute up to a third of conventional sewerage costs are replaced with shallow "simplified" inspection chambers(boxes). In Asafo, each house is provided with a Connection chamber (or inspection box) between the house and the sewer service line. All sewers or drains enter this chamber thus providing household oversight of blockages if they do occur;

- o manholes at major changes in direction or gradient are replaced by "simplified" underground chambers

PROPOSED RESPONSIVE OPERATION & MAINTENANCE MANAGEMENT STRATEGY

Maintenance management procedures for sewerage systems and its attendant allocation of costs have been identified as one of the factors which has influenced unsustainable use of such systems in Ghana

The Asafo simplified sewerage system require little maintenance; routine removal of grit and grease from traps and rare removal of blockages from house connection chambers are passed on to households. However, the long term sustained performance of the whole sewerage system require that a responsive operation and maintenance management scheme be put in place. The following propositions seek to ensure this,



- o responsibility of operating and maintaining of the system will be vested in the Kumasi Metropolitan Assembly-Waste Management Department (KMA-WMD). Routine maintenance will be shared between the community and the (KMA-WMD);
- o the Asafo Community will be entrusted with the maintenance of house connections and block sewers. 4 Housing Block Committees will be created to receive complaints and ensure their resolution;
- o the KMA-WMD will be responsible for external street sewers and the waste stabilization pond system,
- o the KMA will consult GWSC and seek a declaration of the sewer section of Asafo as a Connection Area as stipulated under the Water and Sewerage Regulation, 1978, LI 1233 in exercise of powers in section 14 of GWSC Act of Establishment, Act 310 1965;
- o the KMA with powers conferred on it by the Local Government Act 462, 1993 and Establishment Instrument LI 1614, will pass bye-laws reinforcing the declaration of the Asafo Tenement Sewerage Connection Area;
- o the KMA-WMD will depend on GWSC's capability to apply sanctions (service disconnection for non-payment of tariffs) and seek a water-consumption-indexed sewerage fee (about 25% of water bill) to be applied in the Connection Area
- o a private contractor will be employed to offer sewerage operation and maintenance and also for collection of a single Water/Sewerage Bill for the Connection Area. The GWSC shall receive its full fee on water plus a portion of the sewerage tar in lieu of administration charges,
- o the contractor shall be paid by the KMA-WMD on a negotiated contract fee plus a commission for above 85 % collection, the KMA-WMD shall retain the surplus from the sewerage tariff in an Asafo Sewerage Improvement Fund for trunk sewer and waste stabilization pond maintenance including periodic desludging of anaerobic ponds.

ADDENDUM

Since July 1996 when this paper was first presented a number of significant issues have come to the fore. The Pilot Asafo Sewerage Scheme which was commissioned barely 1½ years ago received media attention (see newspaper clip) due to slopes and embankments being overgrown with wild grass and the facultative and maturation ponds engulfed with macrophytic plants. Apparently The problem or lack of any "maintenance culture" to provide for sustainable O&M management seem not to have changed since the construction of the oxidation ponds to serve KATH in 1966 !

The KMA has responded to the foregoing by signing a Maintenance Services Contract with a contractor in mid-October 1996. At this stage that when only a third of the projected 320 houses in Asafo have connected to the system, the city authority may have to pay for maintenance of the system for the next two years. Obviously, a more responsive and sustainable Operation and maintenance arrangement should involve beneficiaries paying for O&M costs

A careful appraisal of the Asafo area seem to suggest that water tariffing policy may influence households' willingness to connect to sewerage systems, especially where a "let's wait and see whether it would work" attitude is adopted. Households connected to the system have noticed a jump in Water Bills in order of magnitudes not expected

For an ITN conference such as the current one, it is the considered opinion of the author, that the following Research areas be given some consideration (use of Asafo is for illustration only, as the prevailing circumstances may not be different from those other urban areas of third world countries);

The Pilot Asafo Franchise Water and Sewerage Management Scheme: as the first of its kind in the sub-region (indeed in Africa) and the typical conditions of low-income high density areas of developing countries, the Asafo sewerage scheme has been studied carefully to provide dissemination material for practitioners in the field. To achieve this, the following issues have come up on field interviews, interactions with public officials and study of sample water bills by the author,

- o the KMA-WMD and GWSC should jointly institute the above pilot project for sewerage maintenance and water tariff collection;
- o a private contractor will be employed to offer sewerage operation and maintenance and also for collection of a single Water/Sewerage Bill for the Connection Area. The GWSC shall receive its full fee on water plus a portion of the sewerage tar in lieu of administration charges;



o the contractor shall be paid by the KMA-WMD on a negotiated contract fee plus a commission for above 85 % collection; the KMA-WMD shall retain the surplus from the sewerage tariff in an Asafo Sewerage Improvement Fund for trunk sewer and waste stabilization pond maintenance including periodic desludging of anaerobic ponds.

The Effects of Water and Sewer Pricing on User Costs: the Asafo tenement area of Kumasi depicts inequity in the rate form applied by the Ghana Water and Sewerage Corporation (GWSC). The GWSC employs the **Increasing Block** rate structure in which case - the price per unit increases by steps with the amount purchased. There is an incentive to conserve water as use increases and the GWSC offers "Lifeline" rates for minimum consumption (less than 3,000 litres per month at ₵2,431.00). But this particular kind of rate form indicates how "the poor in their great numbers pay more for the rich in their less numbers who pay less".

The number of households per dwelling is so high in Asafo that metered premises fall in ranges higher than normal for residential properties. A water-tariff-indexed Sewerage Fee of 35%(proposed by GWSC) will add more to the cost per household in places like Asafo. Indeed, households who have connected are in effect paying about 4 - 6 times more than those in high cost areas of Kumasi.

One solution to this inequity is the demarcation of tenement buildings into metered sections so as to reduce total consumption and hence reduce rates. However, the monthly rent for metres may not bring about any meaningful savings.

It may be necessary to investigate the effects of different rate structures as part of the proposed pilot project. The economies of scale offered by larger water usage tenement households make such premises candidates for lower rates. In effect the implementation of a **Declining Block** rate structure(with a cut-off point) which is opposite to current GWSC rate policy is what may be equitable for residents in Tenement Areas like Asafo.

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AUDIENCE -BASED MESSAGE DESIGN FOR COMMUNITY HYGIENE EDUCATION: An Experience From The Kumasi Health Education Project, Kumasi, Ghana.

A Paper Prepared For 8th ITN Africa Conference 25th -29th Nov,1996

Presented by SOLOMON PANFORD. Graphic Designer, TREND

Introduction

One aspect of the communication process which is normally the reservoir of the communicator, is message design. However, for hygiene educational purposes, this should not always be the case. If meaning really lies in the mind of the receiver as the message goes, then the involvement of the receiver in the design of the message becomes imperative. To be able to communicate meaningfully one has to study and know his audience very well. Hence, to be able to reach the rural community, we should be aware of certain salient characteristic features of the people.

The Rural Community

A community can refer simultaneously to neighbourhoods, villages, districts, towns and even cities. Communities and for that matter rural communities may differ in character, interests and behaviour as well as having a different set of beliefs and values. The location and history of the community account for all these.

The rural community is perceived to be generally uneducated; possessing knowledge of general character; a pool of raw and crude people of extreme inferiority complex; people living in individual and compound houses grouped together in communion, sharing knowledge, grief, problems, happy moments etc. of their neighbours.

However, some of these generalisations may not hold for all rural communities. Within the rural setup there is an internal communication system in operation, and it is this system that determines the attitude and actions of the individual in the community. The internal system has a normative, steering effect on his decision making. He does not take decisions in isolation from his immediate community members.

MESSAGE DESIGN

Message design is a key factor in the whole communication process if behaviour change is to be achieved. At any rate, it is the process or procedure through which messages are designed that determines its susceptibility to effect change. The communicative success of messages designed, therefore depends on how well the designers of the mediated production listen to their audience. This audience-based approach implies making the audience the sender or source of the message as well as the receiver. The involvement of community members in all aspects of hygiene education especially in 'message design' cannot be over emphasised.



The Kumasi Health Education Project is a small unit which has produced a range of participatory health education materials for the Kumasi metropolis using the audience-based approach to message design.

Audience Involvement in message design: basic steps

The Kumasi health education Project (KHEP) makes use of systematic, step by step approach to develop participatory health education materials for schools and the community within the Kumasi Metropolitan area in the Ashanti Region of Ghana

The experience is that, to be able to reach the rural communities comfortably, the media of communication chosen should be one which they can readily associate with. This obviously was identified to be 'popular media'. Popular Media entails all forms of traditional folk media including story telling, drama (popular theatre), songs, pictures and so on. Although an attempt has been made to use all these for hygiene education, the focus has been on pictures or visuals (like flipcharts, flashcards, sorting cards, discussion posters etc.) and projected aids like slides and videos.

The selection of appropriate media, the frequency of presentation, the pictures, words, gestures, characters, and settings chosen; and whether it should be in a serious, comical, dramatic or farcical form, all depends on the age, sex, race, occupation, education and religion of the audience. Through studies and surveys the KHEP came to know its audience very well. The steps involved in message design, as applied by the KHEP may be discussed below.

Seven steps to effective Message Design/Materials Development

1. Needs assessment

Community needs are assessed to identify areas which need some hygiene education. This is normally based on data collected from the hospitals, and field visits to the communities. This then brings out the topic or area to tackle. It is obvious that at times, for some reasons topics are selected by external bodies (Which is not the best anyway). In any case, whether the topic is selected by a funding agency, a domestic politician or a community organisation, facts must thoroughly be checked in order not to mislead or misinform the masses exposed to that particular message, nor hammer areas which may already be saturated. It is very important not to isolate the audience from the topic since it is the audience that matter.

2. Idea Development Workshop

A workshop is organised to discuss appropriate messages based on the chosen topic. This workshop brings together technical experts, health professionals, opinion leaders and a sampled segment of the intended audience and the graphic designers/ illustrators.

At this forum contributions are invited from the participants on appropriate messages, pictures, settings etc., taking cognisance of the topic in question. These are compiled and given to the artist after the workshop.

3. Prototype sketches and message formats



The artist then develop preliminary sketches and message formats based on the message concepts put together at the workshop. Message formats are not necessarily done by artists; Assistance may be sought from Health professionals and other people with specialised interest in respective topics.

4. Review Workshop

When the preliminary sketches are ready, a second workshop is organised, bringing together the same people who participated in the Idea Development workshop. The sketches and message formats are then put up for review by the people. This is when necessary corrections are pointed out to ensure that they conform to the ideas developed earlier.

5. Review of Prototypes

The artists sit down to put to shape the prototype sketches. All necessary corrections are made at this stage. sketches and message formats are refined.

6. Pretesting or Input evaluation

This is when prototypes of illustrations and message formats are pretested on a sample of the audience to find out whether the chosen approach is working; pictorial accuracy and how they are perceived by the audience. This is also to check how well the production performs with the audience on crucial criteria such as attention, comprehension, novelty, utility and credibility, before mass production. Prototypes are pretested also with some gate keepers to solicit their support. Community health workers and the artists conduct the pretesting. Pretesting is a crucial stage in the message design process. To ensure maximum involvement of the audience, pretesting is done in three consecutive stages:

- a. Pencil stage
- b. Line drawing (inking) stage
- c. Colouring stage

After each stage materials are reviewed (additions and omissions made) to suit the reactions of the audience. we don't try to impose our sketches and ideas on the audience. we rather listen to them and do it the way they prefer.

The pretesting procedure can indicate whether the audience failed to understand crucial terms or failed to appreciate specific illustrations or drawings. Whether they don't like the faces of the characters or sets chosen. Modifications are therefore made to suit the pretest findings and then final production follows.

7. Mass Production and Distribution

After the final review, what follows is mass production and distribution. The artists do colour separation and then the work is sent to the printers for mass production.

It is important to note that real power is given to the community or audience at every step especially - idea development and pretesting.

Our primary responsibility is to respect and promote the welfare and human rights of all categories of people affected by decisions, programmes or research in which we take part. It is our ethical responsibility to bring to bear on decision making our own or that of others, information concerning the actual or potential impacts of such activities on all whom they



might affect. It is our responsibility to assume, to what extent possible, that the views of groups so affected are made clear and given full and serious consideration by decision makers and planners, in order to preserve options and choices for affected groups. (Mody 1991 p91).

PROCESS EVALUATION AND PROCESS MONITORING

Physical exposure, attention, comprehension, and implementation levels are monitored after message distribution begins. This feedback indicates whether our decisions regarding media, content and form are working under real world conditions. things we look for include whether the messages are physically available in reception situations where they have a good chance of being read, heard, or observed; and if mesasage is available, whether it is being attended to , comprehended and used.

SUMMATIVE IMPACT EVALUATION

The impact evaluation of hygiene education in terms of its intended goals (eg. changing behaviours) is very essential. Summative impact evaluation is therefore conducted, a period after materials have been ditstrubuted.

It should be mentioned that the above steps, if well followed in any message design endeavour, and through whichever media, there is some surety that intended goals will be met.

LIMITATIONS/PROBLEMS ENCOUNTERED

1. Cost

Although the laborious nature of this system makes it somewhat expensive, it ensires good quality materials. ('Quality costs less'- It is said.)

2. Community's attitude

Some communities may be suspicious of outsiders, perhaps because of past experiences.

3. Attitude of some Health workers

Community entry is a skill to be learnt. The ill attitude of some health workers towards community members tend to render them repulsive.

4. The colonial system

The Top-Down nature of the colonial system has culminated in some communities being apathetic. This stems from the people are used to 'government providing everything'.

5. Needs Assessment

Most needs are assessed based on data collected from hospitals. Thus the malaria infested area is bound to be bombarded with messages about malaria. Meanwhile, the root cause or problem might be - the unaffordability of weeding implements.

6. Idea Development Workshop

The bringing together of people from diverse fields vis-a-vis the community members at times inhibits the contribution of the community members. People normally can't



comfortably express themselves when they are in the midst of 'experts' and 'professionals'. Thus separate workshops may be organised for each group, but this will increase cost.

7. Prototypes Sketches

Inability of artists to transform ideas developed into appropriate visual images.

8. Pretesting

- (i) Sample audience segment may not be representative enough of the mass audience.
- (ii) Those who conduct pretesting may lack experience
- (iii) Respondents may not give honest responses because they do not wish to offend
- (iv) A persons response to a picture after an initial, one-off exposure may be very different from his responses after he has seen the picture a number of times or even after seeing it in a different form, for instance in pencil drawing or colour.
- (v) Low visual perception of rural people
- (vi) Certain problems of misinterpretations arise not during pretesting but after final production.

VISUAL PERCEPTION- The way people see pictures

There seem to be an assumption that pictures are some kind of intellectual or cross cultural language which everybody understands. however, the ability to read pictures is the result of an informal educational process.

People interpret pictures in different ways, depending on a number of things related to who they are, where they live, what they do etc. We cannot assume that people understand whatever pictures they see (Haaland 1984 p15). The degree to which people understand pictures may depend on the following;

1. Literacy level
2. Previous exposure to and experience with communication materials
3. Social, cultural and religious beliefs and practices
4. The relevance of the material to the situation of the audience
5. If the subject is threatening
6. The length of the materials
7. Convenience/time of the respondent
8. Colours
9. Language
10. Complexity in presentations eg. superimpositions, Perspectivity, Foreshortening etc.

FUTURE TRENDS

The experience at Kumasi Health Education Project has exposed some thoughts which in effect streamline the way forward, in terms of message design/materials production. The following may be taken into consideration.



1. Needs Assessment

It is very essential for needs to be assessed from the grassroots level with the rural community or the intended audience. Visits should be made to the rural community to research on 'what to say' and 'how to say it' in the people's own way, for it to be said that - 'People tend to hear what they want to hear' and 'the eye sees what it knows'..... 'Knowledge is ours only when we can think of it for ourselves, not when we have merely understood while someone else did the thinking'.

Secondly, the participation of identifiable people and groups in the audience should be encouraged. These may include - Community leaders, Town or Village committee leaders, Traditional rulers, Opinion leaders, Religious leaders, Economic leaders, Women groups and other such local organisations. Participation should however not be limited to only certain aspects of a developmental endeavours but rather throughout the entire project from planning to evaluation stages.

2. Visual Materials

Pictures for community hygiene education should

1. show familiar situations (i.e. use local examples)
2. not be so simple that they suggest a predetermined solution
3. not show 'solutions' only 'problems'
4. encourage people to make causal corrections between different elements
5. usually not contains words
6. there should be no distracting details
7. it should touch people's feelings or emotions, but not arouse fear in the audience

In conclusion, it should be noted that, senders do not control what and how much is actually communicated; rather, the receiver does. The more message designers tailor their productions to the needs of their diverse audiences, using the idiom of the audience the better the chance of achieving intended goals.

As Mody (1991 p50) puts it

"No matter how much money an organisation may spend to hire the best trained producers of posters and broadcast programmes, no matter how much foreign exchange it may spend to import expensive equipment and trainers, the organisation that excludes the audience from the message design process is doomed to being merely an information distribution organisation. It will have no capability to reach an identity of meaning with the audience".

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**COMMITMENT OF LOCAL AUTHORITIES:
Observations from some districts in the Brong Ahafo Region of Ghana**

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For

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THEME:

Promotion & Sustainability of Water and Sanitation Programmes



COMMITMENT OF LOCAL AUTHORITIES:

Observations From Some Districts in the Brong Ahafo Region of Ghana.

By

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ABSTRACT

The sustainability of physical facilities is the primary goal of the national Community Water and Sanitation Program (which was launched in 1994) The program also seeks to maximize coverage with limited resources, evolve locally acceptable systems, as wells as increase local skills and abilities to maintain facilities and undertake additional construction activities even when external funding ceases.

There is a shift from dependency on government for provision of water and sanitation facilities to decentralization and devolution of responsibilities to communities and Local Authorities (District Assemblies) among others. In this regard, communities and districts are actively involved early in planning and construction of water and sanitation systems.

However the program embodies a demand-driven approach in with some basic conditions have to be met to enable a District Assembly to participate in the program. This includes:

- *recruitment of permanent District Water and Sanitation Team (DWST) staff of suitable calibre*
- *assignment of office space to the DWST*
- *establishment of a sanitation fund (about ₵5 Million) and*
- *allocation of an operating budget for the DWST*

The initial commitment of the Local Authority (District Assembly) to the program is therefore seen in meeting the above conditions. But the sustenance of this commitment is what is vital to the sustainability of the CWSP.

This paper highlights a few observations made as regards the conditions for participation in some districts in the Brong Ahafo region of Ghana after about 2 years of program implementation. It also looks at their effect on the sustainability of the sanitation component of the CWSP.

It also makes recommendations upon which new strategies and policies could be formulated to put in place remedial actions to re-direct the implementation of the program for better results.

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1. INTRODUCTION

1.1 Background

With the declaration of the International Drinking Water Supply and Sanitation decade in 1980, safe water and improved sanitation have come to more people who never had it before. The provision of water and sanitation facilities to rural communities has since been high on the agenda of various developing countries including Ghana, whose rural development schemes dates back to about 25 years ago.

But the centralised nature through which these earlier programs were implemented led to their poor performance and failure. Further experiences have also demonstrated that service provision of local demands does not favor highly centralized decision making and in most cases, they have not been efficient and sustainable.

In 1988 therefore, the Ghana Government introduced the policy of decentralization to shift away from dependency on central government for provision, operation and maintenance of water and sanitation facilities towards greater self-reliance by beneficiary communities. This was because it had been identified that one of the causes of the failure of earlier water and sanitation programmes was the centralization of its implementation. That is the lack of community involvement in the planning, design, construction, operation and maintenance of water and sanitation systems provided for rural communities.

1.2 The National Community Water and Sanitation Program (CWSP)

Taking a cue from previous programs, the National Community Water and Sanitation Program (CWSP) being implemented by the government of Ghana with assistance from the International Development Association (IDA) has inherent policies to ensure the success and sustainability of water and sanitation facilities to be provided. The program is based on a strategy in which individual communities plan and manage their water and sanitation facilities, the private sector provides goods and services for planning, construction and maintenance and the government facilitates the process. To get their commitment and maximum participation, it also embodies a demand-driven approach in which local authorities (district assemblies) and communities take full responsibility for the identification of water and sanitation needs, and the planning and management of facilities so provided.



2. IMPLEMENTATION MANAGEMENT

2.1 Institutional Structure

In line with the decentralised nature of the programme, an institutional structure has been put in place with clearly defined roles for the key players overseeing its implementation. The overall program implementation is the responsibility of the Community Water and Sanitation Division (CWSD) of the Ghana Water and Sewerage Corporation (GWSC). At the regional level, the CWSD has employed a multi-disciplinary Regional Water and Sanitation Team (RWST) of specialists in rural water supply technology, low-cost sanitation, training and management and hygiene education to manage the programme. Specifically, they are to provide training and technical assistance, through a District Water and Sanitation Team (DWST), to participating local area (districts) in the regions and facilitate the participation of the private sector namely Partner Organizations (POs), Contractors, Area Mechanics and Latrine Artisans. Each local authority (district assembly) is to establish and employ a permanent DWST consisting of skills in community development, hygiene education, sanitation and water supply to manage water and sanitation activities in the district as a sign of its preparedness to participate in the program.

Whilst the water component is to be managed by the local area (district) with much support from the RWST, the sanitation component is the responsibility of the individual districts. The management of the sanitation component is therefore the direct responsibility of the local authority through the DWST.

2.2 Conditions for District Participation

To further ascertain the commitment and desire of a local authority (district) to participate in the programme, there are other conditions to be met such as:

- providing an office space for the DWST,
- establishing a sanitation fund of at least ₵5 million for pre-financing the construction of demonstration household latrines.
- and allocating an operating budget for the DWST.

The Project however provides start up stationery and essential logistics to ensure the smooth take off of the programme in each of the participating districts.

2.3 Sanitation Delivery

For the sanitation component, artisans are trained to promote and construct household latrines for individuals who are prepared to contribute to the cost of constructing the sanitation facility. The project assists such householders with a grant of ₵60,000 from the sanitation fund (local authorities pre-finance and are reimbursed after construction is complete) after an application for a construction grant is made to the local authority. The DWSTs verify these applications and then a contract is signed between the beneficiary, artisan and local authority for the latrine to be constructed for the beneficiary.



These artisans, after their training, are coached by the DWSTs on-the-job until such a time that they can work on their own without sacrificing the quality of their output.

3. Problem Statement

The issue is not the initial commitment to the above conditions set for participation, but the upkeep of this commitment in ensuring that the DWST staff are well motivated and committed to performing their functions and that there is always money in the sanitation fund to pre-finance household latrine construction and adequate logistical provisions for the smooth day-to-day operations of the programme. This is a vital attitude which if maintained by the local authorities will go a long way to ensure the sustainability of the CWSP.

The observations made from the seven local authorities (districts) participating in the programme from the Brong Ahafo region of Ghana are presented below. Their effect on the sustainability of the sanitation component of the CWSP are discussed in the context of the conditions set for participation.

4. OBSERVATIONS FROM SOME LOCAL AREAS

1. All the seven local authorities have been able to provide office accommodation for the team and four have employed typist/secretaries to assist the team.
2. Some of the staff were not selected through any formal interview to assess their willingness and readiness as part of getting staff of the right calibre. Apparently they were just offered the job on a silver platter.
3. The staff are lowly motivated and are always expecting some form of motivation which has never been forthcoming.
4. Out of the seven districts, only 14 % (all technical men) are permanent staff of the local authority with the remaining 86% being staff of the local administration (ie. non-permanent staff of the local authority)
5. Some local authorities still do not see the DWST as an integral part of it but recognizes them as Project staff of the CWSP.
6. The DWSTs were not able to verify applications for construction grants in several communities hence the construction of some demonstration latrines in uncompleted and uninhabited houses.
7. There are excessive delays in the release of construction grants to artisans for the construction of demonstration household latrines.
8. There is fall-out of a large number of project trained artisans
9. The momentum of the sanitation program is very slow (i.e. the average number of latrines constructed per artisan per year is 7 instead of the projected 20)

These observations are discussed under the conditions set for the participation of a local authority in the programme.



5. CONDITIONS FOR PARTICIPATION IN THE PROGRAMME

5.1 Assignment of office space to the DWST

It is not surprising that this condition has been met by all the districts participating. Traditionally, local authorities have provided office accommodation for all its decentralized departments and moreover it is one condition which must definitely be met if the program is to take off at all in the local area.

5.2 Recruitment of permanent DWST staff of suitable calibre

5.2.1 Permanent Staff

Only 14% of the DWST members (technical men - water supply and sanitation technician) in the seven districts are permanent staff of the district assembly with the remaining 86% (community mobilization and hygiene education officers) being staff of the local administration and 'non permanent' staff of the local authority.

A study of the local authority system shows two staff structures. The local administration staff and the local authority staff. The local administration comprise core staff with specialized functions such as the Coordinating Director, District Chief Executive, Community Development Officer, Environmental Health Officer, District Planner, District Budget Officer and the Births and Deaths Registrar to mention a few. These personnel are employees who have their representation in the various ministries at the national level and are seen as central government staff and therefore receive their salaries and remuneration from national coffers or central treasury. There is also the local authority staff who are made up of the assemblymen and women, laborers, watchmen, revenue collectors and typists etc. These are permanent employees of the local authority and they receive their salaries from the local authority coffers.

However the *condition* for participation is the *employment of a permanent DWST staff by the district assembly (local authority)*. Why should two (or some) of the members of the same team performing the same functions be employed by different structures and paid from different sources?

It is also interesting to note that whereas the Local Government Act (462) enjoins the district assemblies to absorb all decentralized departments and place them under their structure, the Central Government has accepted to take full responsibility for the payment the salaries of the local administration staff and have since implemented their decision.

Who then should be the employer of the technical men of the DWST? How far are we decentralizing? Perhaps the predicament of the technical men is a reflection of how far we are decentralizing or the preparedness of the local authorities to assert themselves as main stakeholders for the implementation of the project at the local area level. Are the local authorities committed to the project if they cannot attract permanent staff of suitable calibre and put them on the same remuneration level as their teammates?



5.2.2 Lowly Motivated Teams

It was observed that the level of motivation of the teams were very low and in particular the technical men who were dissatisfied with their level of remuneration. They are always expecting some form of motivation from the project or somewhere which has never come to them. They expect to be treated as project staff whose job nature is slightly different from the other permanent staff of the local authority. If they are permanent staff then they shouldn't expect to be given any preferential treatment over the other departments of the district assembly.

But can there be any form of motivation for the team as with other projects? Otherwise then the question posed here is; has the local authorities made any efforts to let central government recognize the specialized functions being performed by the technical men so as to include their names in list of staff on central government payroll?

5.3 *Establishment of a Sanitation Fund*

5.3.1 Delays in the release of construction grants

A follow-up on trained artisans revealed an average fall out rate of 36% per year. When contacted, artisans attributed their exit from the programme to the excessive delays in the processing and release of construction grants. It was alleged that the fund had been used elsewhere hence unavailable at the time of demand.

The local authority (district assembly) is to establish a fund of at least 5 million purposely for sanitation. This fund is to be a revolving fund for pre-financing the construction of household latrines. How come the fund was not disbursed whilst it was known that such a fund had been set up and existed in the books purposely for pre-financing the construction of household latrines? What could the money have been used for? Are such assemblies committed to the programme at all? What can be done to ensure that the money does not only show in the sanitation fund account books but is also available when needed for its intended purpose? Who should be the signatories to the fund to ensure that it is not misapplied? What controls can be put on the management of this fund without reverting to a form of centralization by the project?

5.4 *Assignment of an operating budget for the DWST*

As at October 1996, the observation from some local areas was that some trained artisans were yet to sign their first contract for latrine construction since their training in September 1995. It was also observed that for some communities in some districts, the DWSTs could not follow-up to verify the application for construction grants. The DWSTs attributed their inability to get contracts signed and verify applications to the break down of their project vehicles and failure of all attempts to solicit assistance from the local authority to make alternative arrangements.



The local authority (district assembly) is supposed to operate a budget for the DWSTs like any other department in the local authority. But most authorities are yet to fit the DWST properly into the local authority system. They see the members of the team as project extension staff and not as permanent employees of the local authority. If the local authorities are *committed* to the project then they will really operate a budget for the DWST and could always make alternative arrangements to make the team mobile, a thing which is very essential to the performance of their duties.

What can be done to ensure that such an operational fund for the DWST is really established and used for its intended purpose?

6. EFFECT ON SANITATION COMPONENT OF CWSP

The effects of these observations on the sanitation component of the programme are categorized and discussed below.

6.1 *Permanency of staff*

- It is ironic that the technical men in the team are the ones who are the permanent employees of the district assembly (local authority). They are the least motivated due to their level of remuneration from the district assembly compared to their colleagues on the team. Since they are in a team, their attitude affects the others. Their role in the sanitation component need not be over emphasized. They have the direct responsibility of coaching trained artisans to ensure practical and continuous application of new knowledge and skills in latrine construction until self-sustaining levels are developed. The direct result is that these artisans are denied this regularly and intensively coaching as should have been the case. Their output cannot be said to be of the highest quality. This undoubtedly has a direct bearing on the sanitation programme since the collapse of one such facility could spell the doom of the whole programme.
- Again the 'non-permanent' staff of the district assembly (local authority) have a lackadaisical attitude to the project. They hold the view that they can always go back to their mother organisations even if the programme collapses because they are on secondment to the project and are not under any obligation to go the extra mile to ensure the sustainability of the project. The sanitation component if not the whole programme requires a team whose members are full of vigour and determination owing to the challenges involved in its implementation. Thus their attitude has contributed in no small way to the slow pace at which the construction of household latrines is gathering momentum after almost two years of implementation.



6.2 Fall out of artisans

- The fall out rate of trained artisans is very high in just two years and does not augur well for the programme. This is because the sustainability and replicability of the household sanitation facilities depends on the number of demonstration latrines put up within the project period. It depends on peer pressure from the several households who will be able to put up demonstration facilities. The consequences of their drop out is a decrease in the number of pilot demonstration latrines reducing the chances of replicability and endangering sustainability. It also costs so much to train these artisans and their fall out will be a waste of our limited national resources.

7. RECOMMENDATIONS

Some suggestions are made to some of the questions raised during the discussion of the observations. They may need some further discussion to bring out remedial steps to re-direct the programme implementation.

7.1 Permanent Staff

The issue of who employs the DWST (whole team) should be given a second look. If we are thinking of decentralization and community management, then the local authority (district assembly) and not the local administration must be their employer. Otherwise, representations should be made by the local authorities and the project to the sector ministry to recognize the specialized functions being performed by the technical men and place them as such.

It is also obvious that the local authorities (district assemblies) have not employed technical men of the highest calibre. What could also be done will be for the district assembly to employ technical men of suitable calibre and who are on the same remuneration scale as their other teammates.

7.2 Establishment of a Sanitation Fund

The alleged misapplication of the fund can be traced to the fact the local authority (district assembly) is the only signatory to the fund. The control measure could be the introduction of an external signatory in either the RWST or DWST. We should however ensure that we don't interfere with decentralization and community management for that matter.

7.3 Assignment of an operating budget for the DWST

The local authorities (district assemblies) should be made aware that the DWST is part of the assembly system and that they are not project staff. They should be involved a little bit more than what pertains now.



8. CONCLUSION

To conclude I wish to state again that these recommendations must be carefully considered so as not to introduce more bottlenecks in the implementation of the programme. So long as we do not have an enduring city, there are bound to be obstacles in any such human endeavour. Let us therefore look forward to that city - heaven - which is to come very soon.



Community Based, Demand Driven Sector Initiatives

How Sustainable Can They Be?

A paper presented
by
Graham Jones and F. Mawuena Dotse

for the

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Community Based, Demand Driven Sector Initiatives How Sustainable Can They Be?

Graham Jones and F. Mawuena Dotse

1 INTRODUCTION

1.1 Most projects in the developing countries are defined as following the principles of being **Demand Driven and Community Based**. In Africa, two of the countries at the forefront of this approach are Ghana and Uganda. Whilst the basic principle of putting power and even ownership into the hands of the beneficiaries is generally accepted as a recipe for ensuring that the services provided will be sustained, the design of projects, the limitations of flexibility in financing and implementing agencies, and the lack of resources in the institutional support structures pose a threat to the long term sustainability of these initiatives. This paper looks at the conflicts that are inherent due, amongst other things, to the limitations of flexibility of the various parties involved in the process.

1.2 So let us look at some of the problems and conflicts that can affect the sustainability of such initiatives, and then look at possible strategies to minimise or overcome them:

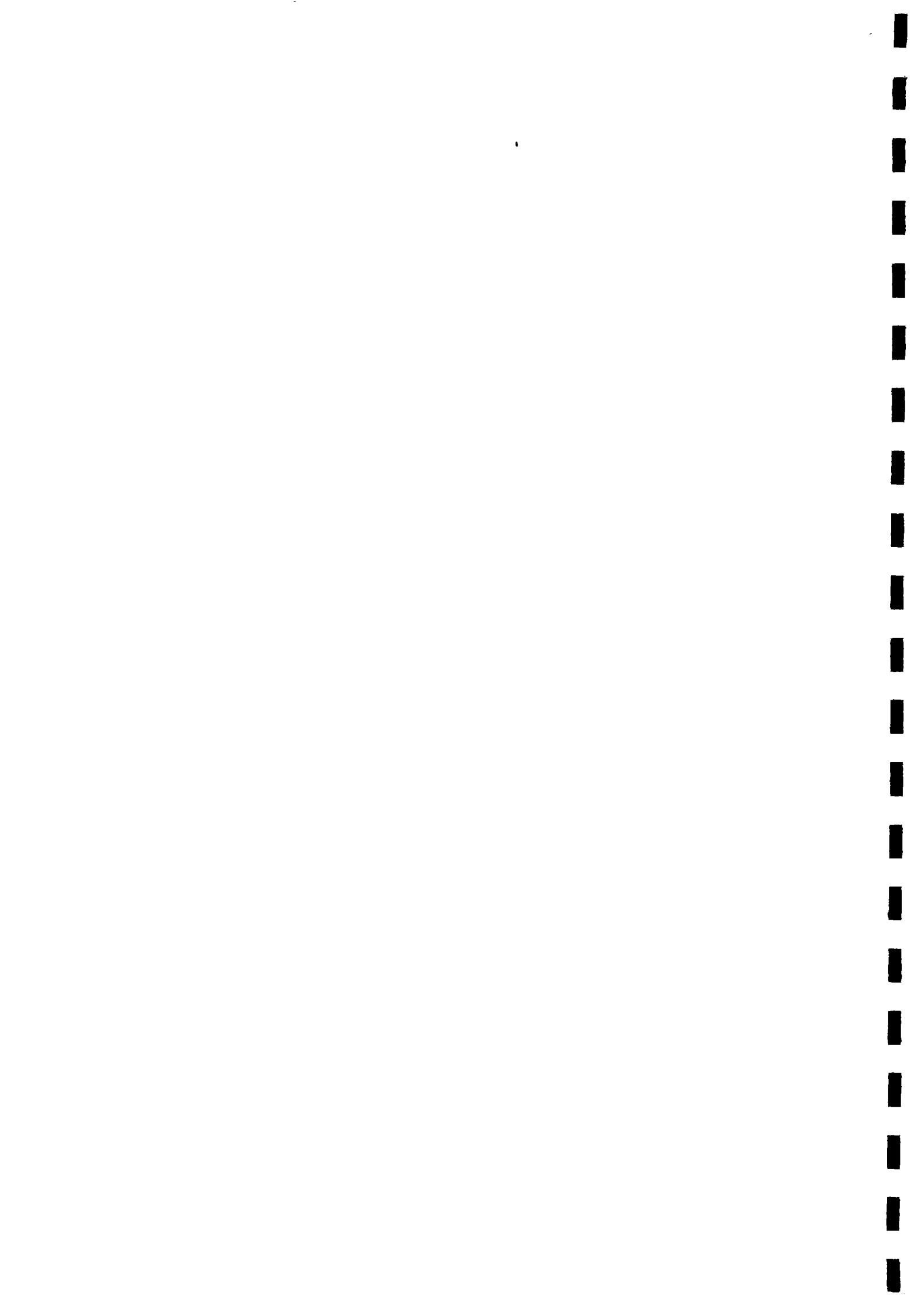
2 PROBLEMS AND CONFLICTS

2.1 Ownership and Willingness to Pay

2.1.1 Generally, people consider that it is a government responsibility to provide basic services which people should pay for, either through general taxes, or by tariffs for the services provided. In the past this has been fraught with difficulties for a combination of reasons:

- beneficiaries either believe, or have been promised, that basic services should be provided free;
- the benefits of the services compared with the costs are not recognised by the beneficiaries as being of value (e.g. the rejection of paying for safe borehole water and a preference for the traditional and often unsafe free source);
- governments have not been able to raise tariffs sufficiently to ensure consistent and good services, or the ultimate replacement of infrastructure;
- beneficiaries are not inclined to pay for inconsistent and poor quality services, particularly when they don't understand the reason for the level of the tariff. There is often suspicion about where the money goes.

2.1.2 Consequently, the current move is towards provision of services to be owned by the beneficiaries. This is heavily subsidised by the government (usually to the tune of about 95%) and the communities are expected to raise their contribution to demonstrate a willingness to pay and to engender a sense of ownership. In addition, they are required to take on the total responsibility for operations and maintenance, and if possible for the ultimate replacement of the facilities. This approach however does raise some serious problems and conflicts:



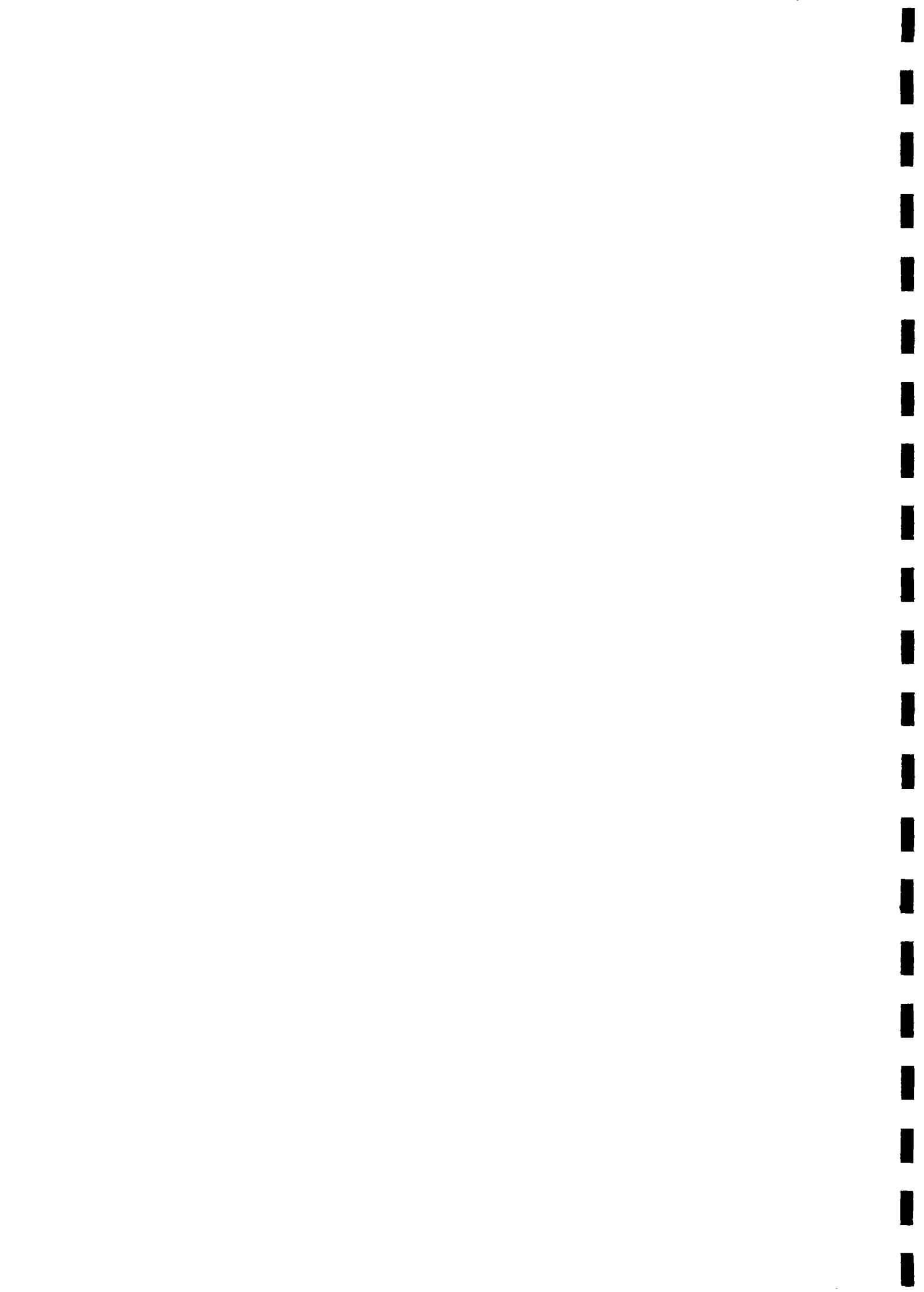
PROBLEMS AND CONFLICTS

OWNERSHIP AND WILLINGNESS TO PAY

- a) It is clear that the concept of the community being required to take on ownership and operational responsibility is not either community based or demand driven. It is rather a matter (rightly) of national policy. Therefore, the community has to be persuaded to accept this with the rights and responsibilities it entails. Doubtless, to ensure they get the services provided, they will confirm acceptance, but in the longer term, will the commitment last?
- b) Is there a legal framework to permit the beneficiaries to actually own the facilities, or is only a sense of ownership and responsibility desired? If, for example, a community does not legally own a small piped water scheme for their village, and then they construct, at their own expense, an extension to a new multiple standpost, who then owns the new works? Such considerations of role and responsibility should be clearly spelt out in a beneficiaries agreement signed by all parties.
- c) If the responsibility of government is to provide basic services, shouldn't it be the government who pays for the ultimate replacement of the services particularly when beneficiaries cannot afford such a burden, and any long term savings will depreciate?
- d) How should the money raised as a capital contribution be used? Should it be a payment to the contractor, on the principle of engendering a real sense of ownership? Should it be placed as an opening deposit on a beneficiaries O&M account? Or should it be deposited into a centralised revolving fund to be utilised for ultimate replacement of services?
- e) How can a project ensure that the community contribution does reflect a genuine commitment by a community to maintain the facilities once provided, in terms of both amount and method of collection? How can sponsorship by a benefactor (such as a politician seeking support) be recognised and counteracted?
- f) Particularly in marginalised low income, high density pen-urban areas, the target beneficiaries often have no real stakeholding in the locality, in that they often do not own land or even have any rights of tenancy. How can they be expected to contribute to infrastructure which, in the worst analysis, improves the value of the landlords land and may lead to their being forced to leave through eviction or increased and unaffordable rental charges?
- g) Often, even within the same project area, interventions in the same sector are taking place with completely different and often conflicting conditionalities being placed upon the beneficiaries. This can lead to at a minimum confusion, and at worst a total rejection of the project.

2.2 Flexibility in Implementation

2.2.1 Ideally, to ensure success and sustainability, the beneficiary communities are involved in the complete planning process from the beginning. This ultimately is meant to lead to solutions that they want, are tailored to their needs, they can afford and are willing to maintain, and managed in a way that suits their culture and local environment. However, this approach also raises problems and conflicts:



PROBLEMS AND CONFLICTS

FLEXIBILITY IN IMPLEMENTATION

- a) Community participation in the complete planning and design process requires considerable effort and input from the communities themselves. To some degree this is usually prescriptive in that, like the raising of their contribution and acceptance of ownership and responsibility, they are required to form a WATSAN or similar committee who represent the community as a whole. This committee, its structure, functions and activities are often defined in detail, leaving the community little opportunity to propose alternatives from within their existing formal or informal structures. The project and the beneficiaries are therefore deprived access to the benefits of these resources.
- b) Once the promotional and community mobilisation activities have started, it is vital that the process continues smoothly as possible to the objective of provision and handover of services. However, the commitment of funding for the project is often not made until communities have completed the process of planning and design, and even raised their contribution. While such a conditionality for disbursement may well be reasonable, to expect communities to put in so much effort with no guarantee of services if they do meet the conditions is patently unfair.
- c) For a truly community based participatory decision making process to work, the solution to their problems, the cost and the other environmental implications cannot be accurately defined until the community have completed the planning process facilitated by those responsible for implementation. Consequently, the degree of coverage and how the funding will actually be spent cannot be defined in advance. This is in direct conflict with the requirements of most funding agencies who have to present to their management detailed proposals of how the funding will be spent, with clear budget limitations for the various project components. This leads to a prescriptive initiative which does not allow for the real needs of the communities and the consequences of the intervention. For example, one project may allow 95% of its funding for "hardware" for water and 5% for on site household sanitation. This makes no allowance for situations where on site sanitation may be untenable, or the drainage and other consequences of the water provision that may be found in the reality of implementation.
- d) A project will be defined to serve a number of communities within limited funding. If the solutions that emerge from the participatory process are more expensive than estimated in setting the budgets, then fewer communities will benefit. Therefore, unless the progress is monitored carefully and the work phased, there is a danger of commencing the process in some communities and not being able to complete the work.

2.3 Technology Choices and Community Awareness

2.3.1 Often communities are not aware of the implications of the various technology choices that may be available to solve their problems. These implications can include the costs for operations and maintenance; complexity for maintenance and the technical and managerial skills that need to be available; the environmental impact; and the income generating opportunities that may result. Here are some of the problems and conflicts associated with this aspect.



PROBLEMS AND CONFLICTS

TECHNOLOGY CHOICE AND COMMUNITY AWARENESS

- a) Simple technology choices often only can meet a current need with no provision for the future increase in demand. Typical examples include point source water supplies which may have limited future use in a peri-urban area which is subject to increased urbanisation and expansion of the town. A lack of provision for the future can also be an obstacle for future economic development, since most entrepreneurs seek locations with established and effective infrastructure capacity.
- b) There is often a lack of recognition of possible resources and solutions within the communities that can not only solve the problems to be addressed, but also can provide income generating and poverty alleviation opportunities in the communities.
- c) The combination of demand for household pit latrines with point source water supplies to provide a typical basic service level of 20 litres/cap/day to up to 300 people ideally within a distance of 250-500 metres, can be a recipe for pollution and disease, particularly in the case of hand dug wells and springs.
- d) Some funding can tie the supply of items to those from a particular source, or to a particular type. This can threaten sustainability if the mechanisms for the communities to get spare parts and servicing facilities are not ensured. Quite often, the market may be too small to attract private sector services to meet these needs.
- e) Some projects, for various reasons, limit the choices to communities to a degree which deprives them of more appropriate solutions, this being a basic conflict between the project design and a sustainable intervention. An example is where a project is limited to the provision of point source water supplies by hand dug well or borehole. For some of the communities within the project area who are willing and able to meet all the conditions, the more appropriate and sustainable solution may be a protected spring, a small gravity scheme to a standpost, or a small solar powered piped scheme, and these cannot be provided.
- f) Whilst the communities may be trained to maintain their facilities, the technology used must also include access for the community to spare parts and services beyond the user level. Consequently the technology level should be such that there is a reasonable market for private sector provision of spare parts and services unless a government agency takes on this responsibility. If the technology level is so high that the item requires no services for five or six years, then there is no market sufficient to sustain the private sector. Sustainability, dependent upon private sector provision, is therefore a careful balance between quality and cost of product versus the need for sufficient servicing to maintain the private sector.

2.4 The Balance of Roles

2.4.1 To lay all responsibility into the hands of the communities would be an abrogation of responsibility by all other parties. Consequently, when examining community based, demand driven initiatives, it is important to develop a clear understanding and agreement of the various roles of the players, some of which may well be in conflict.



PROBLEMS AND CONFLICTS

THE BALANCE OF ROLES

- a) If the traditional leaders, local government bodies and opinion leaders are not involved in the process of participation at local level, and do not have an agreed role, there is a serious danger that they can actually obstruct the initiative. Definition of roles needs to be made and agreed by the community as a whole, including representation by these bodies.
- b) All the stakeholders with a role have to be equipped with the expertise and resources to meet their responsibilities effectively. Thus targeting assistance to only the target beneficiaries to the neglect of the essential infrastructure support can jeopardise the sustainability of the intervention.
- c) Conditionalities need to be explained and agreed to by all parties.
- d) If the government does not take a strong role in defining a common framework for all participatory projects then conflicting conditionalities will emerge within sectors and even within project areas.
- e) External Support Agencies (ESA's) should collaborate and agree with the government on the form and framework of common interventions, particularly with regard to development of the private sector provision of materials and services. Vital to this is the need to build in flexibility into the financing mechanisms to balance the conflicting needs that (i) communities should not be expected to mobilise funds and participate in detailed planning and design without guarantees for funding afterwards, against (ii) the ESA recognising that the actual intervention cannot be fully defined until this process is complete
- f) Some services are not appropriate to the private sector. Consequently there must be continued support from government in these areas.
- g) The development of private sector provision takes time. A strategy of transition needs to be developed by those involved in policy making with active participation by the private sector.

3 CLOSING REMARKS - OPENING FOR DISCUSSION

3.1.1 In the preceding four areas of concern, we have identified some, but not all of the problems and conflicts inherent in what we refer to as **Community Based and Demand Driven** initiatives. From many of the aspects covered above, we feel that a more appropriate terminology would be **Broad Based and Negotiation Driven**.

3.1.2 The purpose of this paper has not been to try to prescribe answers, but more to focus attention on some of the broader issues and consequences. On the participatory principle of this conference, we hope that together we can all get a little closer to defining a model approach which can reconcile some of the conflicts. Perhaps we should also be prepared to re-assess whether, in certain circumstances, the supply driven and centralised systems of project planning may still be more appropriate Or is this blasphemy!!



TITLE OF PAPER

COMMUNITY MANAGEMENT OF OPERATION AND MAINTENANCE: CHALLENGES
TO SUSTAINABLE WATER AND SANITATION DEVELOPMENT

PAPER PRESENTED AT THE 8TH ITN AFRICA CONFERENCE
25TH TO 29TH NOVEMBER, 1996, ACCRA, GHANA

BY

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CWSD-VOLTA RURAL WATER SUPPLY AND SANITATION PROJECT

HO, GHANA



Introduction

The experiences of the International Drinking Water and Sanitation Decade have indicated that a bottom-up approach involving communities in the operation and maintenance of water and sanitation facilities is a sine quo non for sustainable water and sanitation programmes.

More recently the National Community Water and Sanitation Programme (1994) has moved towards a community management approach. The main idea behind the approach is to develop the capability of the communities to independently and voluntarily manage their facilities.

The Volta Rural Water Supply and Sanitation Project, a DANIDA supported project, since its inception in March 1993 has been implementing a community management strategy with the main focus of facilitating the sustainable operation and maintenance of facilities in line with the national strategy for the water and sanitation sector. The project has handed over completed water and sanitation facilities to a number of communities for operation and maintenance. This paper through case studies examines community management of operation and maintenance (O & M) of these facilities with special attention to experiences so far in community participation in the management process.

Project Strategies for a sustainable O & M

Project strategies to establish a sustainable O & M system include the promotion of: community participation and management of facilities, active involvement of women, private sector participation, affordable technology, hygiene education, monitoring and evaluation.

Community Participation

For effective community participation, some sort of organisation at the community level is important. Communities which apply for project assistance are helped to form WATSAN committees. The WATSAN committees are community representative organisations which see to the O & M of the facilities. The WATSAN committees are involved in the selection of technology options, selection of site for public standposts or pumps, the location of sites for latrines, selection of caretakers and area mechanics, the organisation of hygiene and user education programmes, community meetings, revenue generation and preparation of Facilities



Management Plan (FMP).

The training and human resources development inputs help to prepare the WATSAN committees, the caretakers, area mechanics, contractors, and community based organisations (CBOs) to contribute towards a sustainable O & M system. Participatory methods of training are emphasized as part of the community management approach.

Women and Community Management

The project recognises the important role of women in O & M. The project emphasized that at least 50% of WATSAN committee members should be women and at least one of the two caretakers at every waterpoint should be a woman. Women are being encouraged to take management positions in the WATSAN committees, and also offer themselves to be trained as latrine artisans and area mechanics. Various training and communication materials (charts, posters, puppetry materials) have been developed to reverse the stereotype roles of men and women. Experiences so far indicate that women involvement in O & M is high as a number of them are appointed as caretakers. Many of them are appointed in the communities to be responsible for keeping the pump sites clean and in communities which have in place a revenue collection mechanism, women are in the centre of these activities. Women are presently offering themselves to be trained as latrine artisan. They are given special attention to help them acquire the needed skills. Generally, their membership of WATSAN committees is encouraging. The project's expectation of having 50% of committee members as women is yet to be achieved.

Technology Options

The project places great value on the provision of affordable and maintainable facilities to target communities. Communities are given the chance to select the type of technology which they can manage, maintain and is appropriate to their environment. The appropriateness of the technology becomes clearer to community members after the District Water and Sanitation Teams (DWSTs) have presented the feasibility report to them.



Presently, the project provides the following water systems; hand drilled wells, hand dug wells, boreholes, spring protection, piped gravity systems, electric pumping system, ferrocement rainwater catchment, GWSC pipeline connections and borehole rehabilitation. To standardize the use of hand pumps the project approves the installation of two main hand pumps; Modified Indian MK II for deep wells and Nira pumps for shallow wells.

In terms of sanitation facilities, the project provides 2 to 10 seater KVIPs to institutions like schools, clinics, and health centres. And for households latrines, the choice ranges from sanplat with vent pipe, mozambique lined/ unlined, VIP, to one seater KVIP.

Hygiene Education and Sanitation

Hygiene and user education is given to the WATSAN committees, caretakers, women groups, community based organisations (CBOs) and school children through the project's schools health programme to ensure proper use of the facilities and practice of good hygiene behaviour.

Private Sector and Spare Parts Distribution Outlets

A sustainable O & M system must strive on the availability of spare parts at affordable prices and accessible to the communities. To ensure this, spare parts distribution outlets are to be established in the twelve district capitals in the region. The private sector involvement is therefore paramount in this regard and falls in line with the national water and sanitation sector strategy.

To date however, it has not been possible to operationalise this aspect of community management of O & M - establishment of spare parts distribution outlets in the districts. This is for the very simple reason that spare parts are not available in the designated hardware stores in the district capitals over three years of project implementation. This state of affair can be blamed on the inability of the private sector to stand up to the task to accept the



favourable conditions offered to companies to accept the task of the supply of hand pumps and spare parts to the designated distribution outlets in the districts. The response to this offer was negative. Of late, one company has been selected through competitive bidding to supply hand pumps and spare parts.

Project Experiences with O & M at the community level

Project strategy for sustainability of O & M include the need for communities to contribute as much as possible towards both the capital and recurrent cost. It involves WATSAN committees with the support of community members taking the responsibility for managing the completed systems. It follows that the community structure must involve mechanisms for operation and maintenance.

Experiences so far indicate that the majority of the communities are very enthusiastic and responsive, both to the contribution towards the capital cost of facilities, WATSAN training and for hygiene education. However, monitoring visits made by the writer to a number of communities in the Ho and Hohoe districts revealed the following experiences with O & M in project communities.

It is noticed that a few of the communities have put in place effective revenue collection mechanisms. One of such communities in the Ho district has put in place a system of revenue collection in which women in turn are assigned the responsibility of collecting user fees of C10.00 per bucket and C20.00 per big headpan at the water point on monthly basis. This arrangement is operating effectively to the satisfaction of community members. Monies collected are banked at the Commercial Bank in Ho, the district capital. This community has only one hand pump and with a population of about 150 inhabitants. The system seem to be effective and the response and cooperation from community members is superb. Another community in the Hohoe district with a gravity water supply system had over one million three hundred cedis in its WATSAN account. The money was raised during the construction period through the levy system and special donations from citizens living in and outside the community. The WATSAN committee decided to invest one million in the purchase of a



treasury bill, which it did. Presently, with this investment, community members no longer pay any user fees. These two examples illustrate the attempts made by a few communities to institute a sustainable operation and maintenance regime.

While these two examples among others show positive development for the O & M system in the region, it is noticed that the enthusiasm of many communities seem to go down once the facilities are in place. In a majority of cases, the community members find it difficult to contribute towards recurrent cost and in most cases the WATSAN committees could not put in place any revenue generation mechanism.

Two cases, drawn from Ho district will best illustrate the challenges facing O & M in many communities with completed water facilities in the region. Though details of the experiences in the region vary, the problems are the same- unwillingness to pay for O & M, lack of commitment to the O & M idea and low moral of caretakers and WATSAN committee members.

Case Study 1: Tsinyo WATSAN Committee

Tsinyo is a community in the Ho district and about 40 kilometres from Ho the district capital. This community was the first to get a gravity water supply system from the project in the district. The community has four water points with a male and female caretakers. Before the construction, the community depended on a spring which is about three hundred meters from the community. The water was free and an open access.

During the period of construction, community members were enthusiastic and contributed both time, effort and money for the early completion of the project. The contributions made by the community for project assistance was through the levy system. Citizens of the community both home and abroad were levied which they willingly paid. The community has a ten person WATSAN committee (7 males and 3 females). The community members gave them the needed support during the period of construction. The completed facility was handed over to the community in October 1994.



Challenges to the Tsinyo WATSAN

It is two years since the facility was handed over to the community for O & M and the WATSAN committee recounts some of their experiences in the management of the facility

- 1. The majority of the community members are not willing to pay the C200.00 levied on every household per month. As at the end of August this year only 15 households out of a total of 80 households in the community paid fully their C200 per month.*
- 2. Some important community members are equally not paying for the use of the water. With this situation, the WATSAN chairman remarked, whom do I report a defaulting community member to when people who should preside over these issues have refused to pay themselves?*
- 3. The majority of community members do not come for communal labour, especially when they are called to weed the path to the catchment area and around the pipelines leading from the catchment to the reservoir in the village.*
- 4. The caretakers claim the payment they get back for their sacrifices is insult from some community members when they are enforcing O & M bye-laws. The caretakers who are occasionally insulted by some community members want to give up their tasks. One of them said, " after all, I am gaining no monetary reward from the work, I better quit to safe my life and the life of my children". She believes that community members who are against her could through spiritual means (by the use of juju) harm her or her children.*
- 5. WATSAN committee meetings were frequent during the construction period, but become a problem after the facility was handed over to the community. The last meeting the committee*



had was in May, 1995 after the formal commissioning of the project in May the same year. The committee could not meet as at August, 1996 when the writer visited the community.

Key Issues

Investigations conducted by the writer to identify the causes for non-payment revealed the following:

- a. Community members see no reason to contribute for maintenance after they have contributed so much towards the construction of the system.
- b. Some community members claim they are feeling reluctant to pay because the water that has been developed belonged to them.
- c. Some of them claimed they are not used to paying for water since the water they had was free and open access. This situation suggest that the transition from open and free access to payment for water is creating the problem.

Case Study 2- Torgorme WATSAN Committee

Torgorme is the first community to benefit from the project in the Ho district. The community have been provided with four hand pumps. There are two male caretakers selected by the WATSAN committee. Additionally, a woman each living near the pumps are made to be responsible for the general cleanliness of the pump sites. The community members pay C20.00 per big headpan and C10.00 per bucket for the use of the water at the water points. The revenue collectors at the pump sites are women. The compensation for their work is non-payment for the use of the water. The WATSAN claim they made a lot of money (C3,000.00 per day) through the sale of the water especially in the dry season. The revenue collectors and



caretakers being aware of the revenue from the sale of the water are demanding payment for their services. The WATSAN committee is reluctant to meet their demand. This is causing dissatisfaction. Of late the pumps have started developing problems. The flow of water from one of the pumps located at the central part of the village is slow. Water has to be pumped several times before a bucket is full. Another pump, a Nira pump, pumps water with black rubber particles depositing at the surface. This means the cup washer is damaged and needs replacement. The caretakers cannot carry out this work because they have not been trained since the pump was installed about two years ago. And since they have not been trained they do not have a tool box. The WATSAN committee have contacted the EHA in the zone to inform the District office but had no response. The caretakers and the WATSAN are getting frustrated.

Challenges to Operation and Maintenance

Based on the two case studies presented in this paper, the major challenges facing the O & M system in the region can be summarized as follows:

1. *Problem of revenue collection:* The majority of communities have problem contributing towards post construction recurrent cost. The reason identifies are;
 - a. Unwillingness to pay for no apparent reason
 - b. Socio-cultural factors- the communities since time immemorial have water as an open access and free. The transition from non-payment to payment is a situation they are resisting. It can be viewed as an external imposition.
 - c. Inability of the communities to understand the need to generate revenue to reduce the downtime in the event of any break down of the facility. Some of them claim they will start to get money when the system breaks down. Preventive maintenance is a bother to them.
 - d. Community members feel the water system belongs to them. They have put in money,



effort and time in its construction so there is no need to continue with the contribution after its construction. They need some time before they think of further contribution.

2. WATSAN committee members and caretakers fear making enemies in the communities should they enforce rigorously bye-laws they have developed with the community.

3. *Superstition*- This is also preventing the WATSAN members from carrying out their works satisfactorily. A number of caretakers and WATSAN committee members fear that should they enforce bye-laws to the letter, they will make a lot of enemies and moreover any community member could use spiritual means (juju) to harm them and their children. This fear is having a negative effect on their job performance.

4. *Insult from community members*- The insults that caretakers and WATSAN committee members receive from some community members is a demotivating factor. Insults like "get out of my way, since when have you become a `samasama' person" (an environmental health personnel). This is making it difficult for the number of caretakers and WATSAN committee members to be committed to the task.

5. *Conflict with traditional leaders*. A number of WATSAN committees especially the chairpersons are not having the desired support from their chiefs. In a few cases the chiefs feel the WATSAN committee chairpersons are usurping their powers. In the case of a community in the Hohoe district, the Chief told the WATSAN chairperson that he wanted to make a claim to his position. The chairperson as a result of this has resigned his position thus putting the committee in jeopardy. In a situation of this nature the legitimacy of the WATSAN committee is questionable.

6. *The free rider problem*. This a major problem in any collective action. In a majority of the communities, only few community members pay for the use of the water and equally a few of them attend communal labour, especially communal labour meant to weed the path to the catchment area and weed around the pipelines in the case of a gravity water systems.



7. *Unavailability of spare parts*- Three years after the start of the project there is not a single spare parts distribution outlet.

8. *Non-payment of caretakers and WATSAN committee*. A number of caretakers and WATSAN committee members feel they should be compensated for the work they are doing. The question one will like to ask is: how can the commitment of the majority of WATSAN committee member and caretakers be sustained over a long period of time in the face of this demand?

What Can Be Done?

Even though the project has put in place mechanisms to ensure effective O & M system, it is becoming increasingly clear that there are some teething problems which need immediate attention. The case studies suggest that involving communities in decision-making and bringing the management process closer to them does not mean their willingness to come in agreement and comply with rules and regulations they have made themselves to govern the O & M system. This raises the issue of the human factor in collective action especially the provision of public goods.

It is because of this that the question "what can be done?" is relevant in the context of the issues raised. The problems identified which are mainly human problems suggest that the human factor has to be taken seriously in the development of any successful O & M regime at the local level. It should be noted that community management of operation and maintenance is not the management of facilities but the management of human beings.

I will at this stage attempt to suggest some strategies that could be adopted to redress the issues raised. In short, this implies emphasis on strengthening the organisational and support structures which are in place. The bottom line here must be the following:

1. Trust building- the trust element in any organisation at the local level increase members orientation towards the organisation and allows them not to question all actions taken by the



leadership on behalf of the community. Corrupt practices create a crises of confidence and trust and this will lead to community members alienative behaviour. The WATSAN committee members will have to be transparent in all their dealings and give period feed back to community members on their performance. The field staff will have to periodically remind the WATSAN committee of this aspect of their job.

2. Facilitation of the choice of committed WATSAN committee members- The field staff will have to help the community members to choose persons who are ready to sacrifice time, effort and if possible money for the development of the WATSAN committee. The voluntary aspect of the work need to be stressed. Furthermore community members will have to be well informed about the community management approach. The problems identified suggest that a majority of communities do not still understand the community management idea. The field staff in collaboration with the WATSAN committees will have to organise community meetings to explain the community management idea in a more participatory manner. This call for the development of participatory techniques which can better drive home this idea of community management.

3. Development of a community based monitoring system- This system put the WATSAN committees and other selected community members in the centre of the monitoring process. It is an empowering process where the communities are encouraged to act more autonomously by assuming ownership and responsibility for the facilities and develop local capacity to observe, identify and solve problems.

4. Provision of a clause, for example, in the WATSAN constitution which creates room for fresh elections to be conducted after three years of service as a committee member. Presently, there is no provision in the WATSAN constitutions for fresh elections to be held after some years of stewardship. With this clause, fresh members with new ideas and zeal could be elected to become committee members.

5. Frequent visits by field staff to WATSAN committees with completed facilities at least twice in a month. The visits will allow the field staff to monitor closely O & M issues and



suggest immediate solutions. The communities need more extension and follow-up support and encouragement after the facilities have been handed over to them.

6. Introduction of different revenue generation strategies. Communities will have to be introduced to other ways of revenue generation to meet local needs. The field staff have to discuss the various options with the WATSAN committees to meet the demand of community members so as to reduce the incidence of unwillingness to pay and the free rider problem.

7. Contractors and installers responsible for the training of caretakers will have to be monitored to ensure that they impart the requisite skills to the caretakers and also supply them with the needed tools. Special training will have to be organised for the female caretakers to ensure they are well qualified for the task.

9. All advocates of community management of O & M have to accept that there is the need for new support structures both from government and the private sector. The private sector will have to be encouraged and supported to take up the task of the establishment of designated spare part shops and ensure that the parts are always available and at affordable prices. This could not be achieved without the commitment of the government in creating the enabling environment, for example the provision of credit facilities with favourable repayment conditions.

Conclusion

While emphasizing the need for a sustainable O & M regime, we must not lose sight of the challenges new ideas face. The transition from open and free access to payment for water coupled with change in hygiene behaviour are

the difficult challenges any O & M system should expect. The human factor is thus an important issue to be taken seriously in any attempt to establish a sustainable O & M regime. However, with the creation of an enabling environment coupled with continuous education, training and the needed technical and extension support we shall overcome.



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Title: Community Perceptions of the Mozambique Sanitation Programme

By December 1995 it is estimated that 170,000 improved latrines have been sold benefiting more than 950,000 people in the peri-urban areas of cities in Mozambique. To assess the impact of the programme from the communities perspective two cities; Maputo and Chimoio were selected for the study. The focus of the study was to:-

- identify the attitude of the beneficiary population regarding the Improved Latrine, including:- technical aspects - economic aspects - to what extent has the community benefited from the project; and
- question the latrine beneficiaries to determine if they feel that there has been an improvement in family health.

A total of 896 people took part in the study (Maputo 588 and Chimoio 308). In Maputo 30 meetings were held and in Chimoio 18 meetings were held. All the meetings were facilitated by the Animators from the programme. Participatory methods and tools were used with communities for assessing community perceptions of the programme and health status.

In the assessment of community satisfaction with type of excreta disposal in their bairro, all those with the improved latrine said they were satisfied because the improved latrines were easy to clean, safe, and can be used by children and were durable.

Successes of the programme

When asked the successes of the programme the communities in Maputo and Chimoio identified three key areas of success. These were; improved technology, health benefits and the affordability of the latrine.

Summary of the successes	Responses	%
Technology	63	48%
Health	27	21%
Economic	24	18%
Social	9	7%
Other	8	6%
Total	131	100%







How to improve the programme

When asked how the programme could be improved, communities from both cities indicated that there was a need for more information, both on the programme and in health and hygiene education.

Improvements	Responses	%
Information	96	73%
Marketing	17	13%
Transport	11	9%
Technology	8	6%
Total	132	100%

Perceptions of common diseases

In our discussions with the community on diseases they identified diarrhoea and malaria as the most common diseases in their bairros. When asked to identify the types of diarrhoea communities responded that dysentery (bloody diarrhoea) as the most common. From the responses it would appear that Chimoio has experiences more severe outbreaks of diarrhoea than Maputo.

Types of diarrhoea identified (Maputo)

Types of diarrhoea	Responses
Bloody diarrhoea	25
Normal diarrhoea	21
Diarrhoea with stomach ache	1
Cholera	2
Breast feeding while pregnant	2
Diarrhoea with vomiting	8
Diarrhoea with mucus	5
Types not known	3
Yellow diarrhoea	1
Green diarrhoea	1
Total	69



Types of diarrhoea identified by community (Chimoio)

Type of diarrhoea	Responses
Dysentery	18
Cholera	18
Bloody diarrhoea	16
Diarrhoea with water	14
Normal diarrhoea	10
Diarrhoea with mucus	7
Diarrhoea with vomiting	2
Diarrhoea with black faeces	1
Total	86

Most common causes of diarrhoea

We asked communities in both study areas to identify the causes of diarrhoea and then to give us what they thought were the most common causes of diarrhoea in their communities. The following tables for Maputo and Chimoio show a clear difference in understanding the causes of diarrhoea. The communities in Chimoio linked all causes of diarrhoea to poor hygiene, poor water supplies and poor sanitation.

Most common cause of diarrhoea (Maputo)

Most common cause of diarrhoea	Responses
Contaminated food	16
Breast feeding while pregnant	8
Poor hygiene	3
Not known	2
New moon	2
Flies	2
Introduction of solid foods to baby at an early age	2
Poor use and maintenance of the latrine	2
malnutrition	2
Contaminated water	1
Eating sand	1
Not recorded	1
Lack of food	1



Consumption of cold food	1
Changes in the weather	1
Total	45

Most common causes of diarrhoea (Chimoio)

Most common causes identified	Responses	%
Poor food hygiene	13	27.7%
Drinking unboiled water	9	19.1%
Lack of latrines	7	14.9%
Drinking contaminated water	5	
Poor hygiene	4	
Poor use and maintenance of the latrine	3	
Flies\ lid on latrine	2	
Refuse	2	
Poor siting of wells and toilets	1	
Lack of hand-washing	1	
Total	47	

It is recommended that participatory methods and tools be introduced to communities and used extensively in the promotion of health and hygiene education. We would propose that they be used as a process for changing health behaviours that used together with other methods, for example drama groups would maximise benefits.

Where communities in some bairros identified; soil types, high water tables and flooding complicating the use of the improved latrine it would recommend that technologies be developed or adapted to suit community needs.

Communities expressed a need for themselves to be more involved in the programme and suggested there maybe a role for them in developing skills to build the compete latrine, mobilising communities and promoting the programme. Communities also suggested that the programme should promote working in groups to increase coverage and reduce costs.

With the communities acceptance of the improved latrine technology and the communities willingness to become more involved in the programme and the communities identified need for more information on health and hygiene education it would seem that the Mozambique sanitation programme has a chance to become sustainable.



COMMUNITY WATER SUPPLY MANAGEMENT

BY

Grace N Nkambule
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INTRODUCTION

South Africa gained its democracy on 27th April, 1994. Before this day everything was controlled by those in Power (The minority - white). The trend was that whites must have all the water. If their needs were satisfied they were only supposed to share the purified water with people in the established townships like Soweto. The reason for this was that such townships were played a role of providing labour. (The townships were labour camps for the white masters).

Moving away from the central cities gave a totally different picture. All the farms were situated next to rivers or had rivers passing through their farms. The farmers had the sole rights to all the water.

South Africa is 60% rural. The average rainfall is 120mm and the average evaporation is 400mm. The majority of blacks were situated in the rural areas next to the white owned farms. The black people had to walk for up to 10km to collect a maximum of 25 litres of water per time.

In the apartheid era, there was no such a thing as community water supply and people were not involved in the water supply projects and the management thereof. The coming in of the new government saw a total turn over of issues. People were to be involved in projects that affected issues that concern them from planning through implementation to the management of the project.

The Old Structure of Governance

Central Government



Provincial Government



Local Government

This Structure paralysed the black communities. The advent of democracy left black communities overwhelmed by the pressing needs and the need to be able to do things in an effective way. Community development had to be done very intensively.



- A. One of the challenges facing the community development officers were the standards set by the Reconstruction and Development Programme (RDP) which is adopted by the government. Two of the five principles of RDP were:
- (1) All previously disadvantaged communities must be actively involved in their projects.
 - (2) The provision of purified water must not be less than the standard 25 litres per person per day.
- B. Rural women formed part of the disadvantaged communities. Traditionally, it was not acceptable for a woman to sit in a meeting with men. This was also another challenge. The third challenge was to get people to be involved in the decision making of national issues with water services provision being part of them.
- C. About 26m people did not have water in 1994. Political pressure and social needs put pressure on service providers like the Department of Water Affairs, NGOs, and the Water Boards to come up with a quick workable and acceptable solution to the problems.
- D. Prior to 1994, the black communities especially in the townships adopted a culture of non-payment. The Rural people never paid for any services because they did not have services.

The money to be used to provide services was in a form of loans. The financial houses (Banks, etc.) wanted a guarantee that the loans would be paid back by the communities.

- E. A structure of management had to be devised so as to be able to communicate with the communities on how the needs were to be met, any limitations and what was expected of the communities especially the payment of services.

THE NEW STRUCTURE

Stage 1 (Planning and Implementation)

(Project Steering Committee)

1. Formed out of the few community leaders to
 - plan for the project
 - help organise to original meetings with the communities
 - in the case of the Water Boards (in the Northern Province) help get signatories from the households to commit themselves to paying for services.
 - implement construction
 - monitor labour involvement
 - monitor progress of the project
 - keep the community updated

The PSC is a temporary structure.



Stage 2: Operations and Maintenance

The Water Services in the rural areas are still at a bulk level with a few standpipes per reservoir. The structure formed for Operations and Maintenance is permanent. The councils still do not have the capacity reticulation. The old structure (apartheid) was top-down and not acceptable. For the new structure to be acceptable it had to start from bottom-up.

The Levels of Management

Central Government



Provincial Government



Local Government



Central Water Committee + 1 Councillor



Village/Reservoir Committees

This decision making structure is acceptable and effective as:

- a. the community takes decisions about local issues and refer them to the local government
- b. they are involved in the implementation of projects in their areas without the interference of the government
- c. they set tariffs, collect funds and deal with defaulters.
- d. the Water Committees are a link between local government and the community
- e. The local council gets involved at a higher level
 - help with conflict management and dispute resolution
 - negotiations for project funds
 - monitor projects at a higher level.
 - set developmental plans and policies at local level
 - implement policies set at central government level
- f. the provincial government monitors the local government. This new structure is working very well in areas where it is established as the community elected the people. The elected



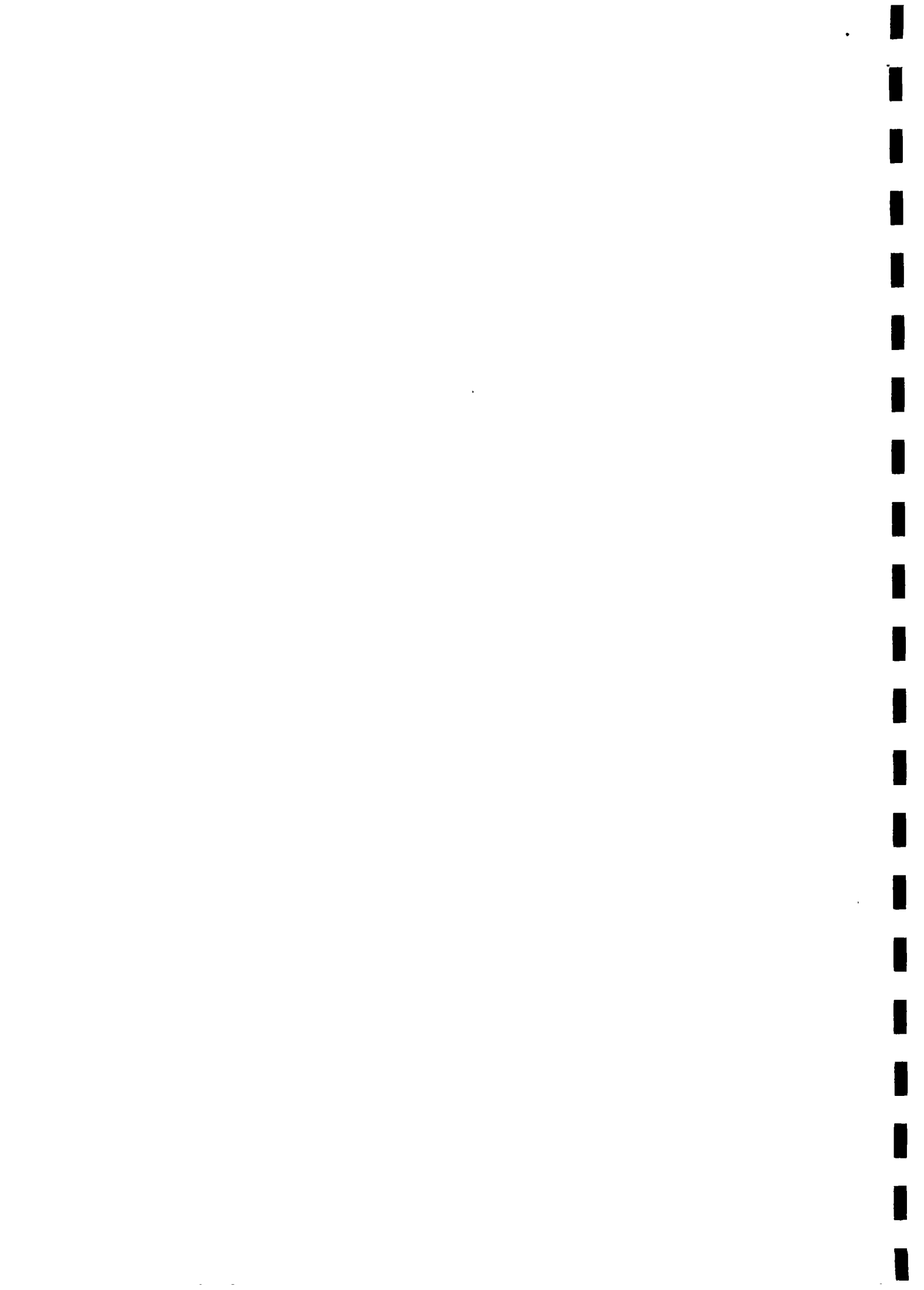
people feel accountable to the community more than to the government. The community supports and co-operates with the elected people because they form a structure which is acceptable to them.

TRAINING AND CAPACITY BUILDING

After the formation of these structure, the people found themselves with roles and functions they could not perform. After discussions with the Minister. It was felt that there was a need to establish an ITN Centre in South Africa to take care of the Training and Capacity Building of the Community Water Supply and Sanitation Management Structure. (INSTITUTE OF COMMUNITY WATER SUPPLY AND SANITATION). Whilst, the minister and the Institute's task team were still working on the establishment of the centre different organisations involved with service provision in this sector started working on training modules. Since everybody was doing his own thing the aim is to also have the institute standardising and accrediting the training.

Some of the courses to be offered will cover

- a. political management of Watsan Councillors and Water Committees)
- b. the office administration/finance
- c. the technical field (Operations & Management)



**FOLLOW UP - A NECESSARY COMPONENT FOR SUSTAINABILITY OF THE
LATRINE CONSTRUCTION PROGRAMME.
(OBSERVATIONS IN SIX DISTRICTS IN ASHANTI REGION)**

ABSTRACT

(Amadeus Mensah Akorli, Civil Engineer. TREND).

Ghana now has a National Strategy/Policy with regards to the Community Water and Sanitation Project (CWSP) for the supply of water and sanitation facilities to rural communities.

Part of the sanitation component of the CWSP was to equip artisans with the necessary knowledge and skills to enable them construct latrines in their communities on request. This is achieved by organising training workshops for these artisans from the various districts where the project operates. Topics covered during the workshops include: Project Outline, Health/Hygiene Education, Excreta Disposal Technologies, Construction Grants and Construction Contracts, Entrepreneurial Skills and Marketing Techniques. They are also taken through the various stages in the construction of the various types of the VIP latrine - The Mozambique non-reinforced and Rectangular Reinforced types. It is expected that the artisans will apply whatever skills they have acquired during these training for their own economic benefits as well as act as agents of change in their own communities.

Previously, there have been no on-the-job coaching for the artisans and it is disturbing to note that the drop-out rate of the trained artisans have been quite high in some of the districts. Thus the Project's ultimate objective of maximizing health benefits by integrating water, sanitation and health education is becoming an illusion as the sanitation component is lacking far behind.

The situation is not that useless, as a follow-up on newly trained latrine artisans in two of the six districts of the Ashanti Region, revealed that most of the artisans forgot the basic procedures for the ring beam and slab construction one month after the training. There is thus a lack of confidence on the part of the artisan to aggressively pursue the programme, let alone approach interested persons who may wish to acquire the facility. This paper discusses:-

- 1. Observations during the follow-up*
- 2. Impact after follow-up.*



INTRODUCTION

The lack of safe sanitation facilities in our rural communities had led to the situation where people defecate indiscriminately without the least thought of the consequences. This state of affairs could be attributed to ignorance and lack of knowledge about the diseases that are spread through such practices.

Governments all over the world especially in the developing countries have recognised this state of affairs and have been doing a lot to rectify the situation. The government of Ghana is no exception. With financial assistance from the World Bank, DANIDA and other donor agencies, a National Community Water Supply and Sanitation Programme is being pursued

The national strategy is for

- Individual communities to plan and manage their own water and sanitation facilities
- The private sector to provide goods and services for planning, construction and maintenance and
- The government to facilitate the process

Thus a demand driven approach based on active district and community participation is envisaged with women playing active roles as planners of their own water schemes.

There is a full scale demonstration of this in four regions of the country, namely, Brong Ahafo, Ashanti, Western and Northern regions.

With regard to the sanitation component, the Project would support the provision of various types of household and public latrines for rural communities, schools and health clinics. It is expected that as many as ten thousand latrines would be built under this component for demonstration purposes. These demonstration latrines will serve to introduce domestic latrines to rural communities where they are little known or used. It will create contacts between communities and qualified latrine artisans whom individual householders can subsequently approach. The ultimate objective is to establish a market for latrines, with buyers and suppliers acting independently of any continued public support. The project expects to achieve this by establishing a private sector capacity to respond to the resulting demand by training individual artisans. The trained artisans would be authorized to prepare contracts with individual households for latrines paid in part by a government grant to encourage people to demand for the facility.

The projected delivery of household latrines is 100 per district per year.

Artisan Training Workshops

This is a three stage process. During the first stage artisans with skills in masonry and/carpentry are invited for screening. They are asked a wide range of questions including knowledge of project, educational background among others. Between 15 and 25 of them are selected for the second stage of the training - the software aspect. Topics treated during this first part are;

- Project Outline
- Health and Hygiene Education
- Excreta Disposal Technologies
- Introduction to the VIP Latrine



- Construction Contracts and Grants
- Entrepreneurial Skills and Marketing Techniques

The third stage - the hardware aspect is the practical training workshop. Topics treated during this stage are;

- Design and Construction Procedures for Ring Beam and Cover Slabs
- Step by step construction of each component of each type of the VIP latrine
- Cost Estimation of the latrines

Each district is divided into zones and at the end of the practical training, a minimum of ten artisans are selected per district with at least an artisan for each zone. Sometimes the District Assemblies make special requests to the Project for permission to train more persons because of the district's large size. In such situations more than ten are trained. After the training the artisans are expected to promote and market the facility within their various zones. The situation on the marketing of the latrines is not as pleasant as one may want to believe.

Follow Up

As is normal of any training, there must be a follow up so as to;

- have feedback on effectiveness of training
- give a one-to-one on the job coaching to the trainees
- offer after training counseling to the trainees
- give the trainees moral support and
- evaluate performance, skills and on-the-job behaviour of participants.

In the past there were no follow ups after training. This has led to high drop out among the artisans and a low delivery of latrines in those districts. A look at the table below reveals what pertains in four districts where there were no follow ups - Amansie West, Sekyere East, AhafoAno South and Adansi East as compared to the situation in Amansie East and Bosomtwe-Atwima-Kwanwoma (BAK) districts where there were follow ups.

Situation before Follow Up

*** % Drop Out**

As is evident from the table, percentage drop out is quite high in the four districts with Ahafo Ano South recording the highest of 100%. Latrines constructed as indicated in the table were done by the District Water and Sanitation Team members.

*** Possible Reasons**

- Large number of artisans during practical training which encourages idling. Quite a number of them assumed that by watching they could perform all the activities at a later date on their own since they are already master masons.
- lack of confidence to market the facility
- low moral as the expectation of most of them were that they were going to be on the payroll of the district assemblies.
- disappointment over the amount they have to charge on each completed latrine which was determined after estimating the cost of labour for constructing each component.



* *Effect*

- Only artisans who were active during the practical training have the confidence to market the latrines
- The community members become skeptical about the project as the passive artisans do not make any effort to promote the latrines.
- The project suffers as the projected number of latrines per district per year is not realised

* *Low Delivery*

From the table it is only Adansi East that recorded a high output of 78% which is quite commendable. Two of the district recorded below 40% and one just above 50%

* Possible Reasons

- Only few artisans are in production
- Those in production's activities are concentrated around their immediate communities.
- More distant communities within their zones may not be easily accessible thus he may have to stay in such a community for a number of days to complete a number of structures. This will lead to an increased production cost.
- Delays in the release of subsidy by district assemblies for completed latrines.
- Artisan have to deliver a set of five application forms before the subsidy would be released.
- Non-availability of logistics and low incentives to DWSTs

* *Effect*

- Low output of latrines
- The message about the latrine programme may not have reached far for others to request.
- The artisan may consider this situation as unprofitable since he has some limit within which he has to charge for his services
- This is a disincentive to the artisan as the community begin to look upon him with mistrust.
- This leads to frustration of the artisan if demand is not high.
- A disincentive to the DWSTs and they begin to look upon the project with lukewarm attitude.

Situation After Follow up

Method of Follow Up

- A message is sent to the artisans through the DWSTs at least two weeks before the follow up.
- Community entry approaches were adopted. The chiefs and elders are first consulted to inform them about purpose of the visit to the community.
- There is a one-to-one coaching of the artisan in the construction of the ring beam and cover slabs.
- The artisan is assisted to construct a few more.



- The artisan is counseled on the economic benefits he will derive by pursuing the project. He is also promised further training in KVIP latrine construction if he performs well.

Observations During Follow Up

- Most of the artisans forgot the basic step-by-step procedures in the construction of the latrine
- Lack of confidence to market the facility as interaction with some community members revealed that they had no knowledge about the project.
- Skepticism from some community members as remarks from them indicate that the project was a ploy by government to win favour for votes especially so being an election year.
- Artisan gains recognition in the community due to the presence of the facilitators.

Effects

** % Drop Out*

The two districts in which there were follow ups recorded low drop out, 5% and zero respectively for Amansie East and BAK. Even the artisan that dropped out was banned from operation because of his insubordination and indifference during the follow up.

Possible Reasons

- Improved skills and increased confidence of the artisan.
- High moral, boosts image of artisan.
- Demonstration latrines constructed during the practical training workshops are few and concentrated around the district capitals, hence the few structures that are constructed in the artisans community during the follow up serves as samples to the community.
- There is then increased enthusiasm from the community to acquire the facility thus making the artisan to be in business.

Latrine Delivery

This was recorded between two to three months after training. Projections for one year assuming the delivery continues as at present will mean that Amansie East will record 92% output and BAK will record as high as 240%. The number of latrines per trained artisan per year in the two districts where there was follow up was also highest except for Adansi East. Even then considering the number of uncompleted structures in Amansie West compared with that of Adansi East shows that the follow up have had a positive effect on the delivery situation.

** Possible Reasons*

- Almost all the artisans are in production
- Demand for the facility may have increased
- The two structures, Ring Beam and Cover Slabs that were constructed during the follow up serves as a bait for the artisan to complete three more so as to satisfy the condition to receive the 50% subsidy for the beneficiary.



Lessons Learnt

- Training without follow ups is incomplete. The desired impact expected of the trainees will not be realized.
- Follow up results in a Trainer-Trainee relationship which induces enhanced performance of the trainee
- Follow up helps the trainer to have feedback on training and thus do review on training where there is a need for.
- Follow up enhances the trainees image as well as increased recognition in the community.
- There is increased enthusiasm from community members about the project which results in increased demand.
- The high incidence of dropout is minimized after follow up.

Recommendations

For the success of the CWSP, *one immediately after training*

- There must be frequent follow ups not only to where the artisan resides but also to areas within his zone which are quite far away from his place.
- There must be refresher courses to upgrade the skills of the artisans.
- Subsidies must be released in time so as to increase the confidence of the beneficiaries on the whole project.
- DWSTs must be equipped with the necessary logistics and be motivated so that they can perform the roles expected of them more efficiently.

Conclusion

For the latrine programme to be effective and on course, there should be frequent follow ups so that investments made in these sectors could be maximized. ~~One should however be not too optimistic as the issue of logistics to DWSTs is far from satisfactory.~~



Table 1: Progress in Latrine Construction Programme in Six Districts in Ashanti Region

District	No. of Months After Training	No. of Artisans Trained	No. of Artisans Still in Construct-ion	% Drop Out	No. of Latrines Under Construction	No. of Completed Latrines	Latrine Delivery/Yr	No. of Latrines/Artisan/Yr
Amansie West	17	20	6	70	18	76	54	3
Sekyere East	16	16	4	75	7	49	37	2
Ahafo Ano South	13	10	0	100	18	38	35	4
Adansi East	13	10	6	40	22	85	78	8
Amansie East	3	19	18	5	79	20	92	5
Bosomtwe-Atwima-Kwanwoma	2	16	16	0	12	40	240	15

Source: CWSD, DWSTs Ashanti Region



NATIONAL URBAN RECONSTRUCTION AND HOUSING AGENCY

REGISTRATION NO. 95/04248/08
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ABSTRACT

IMPACT OF ALTERNATIVE SANITATION TECHNOLOGY ON THE LIVES OF SOUTH AFRICAN WOMEN

Nonhlanhla Mjoli-Mncube, Deputy Chief Executive Officer, National Urban Reconstruction and Housing Agency (NURCHA); Coordinator of Women for Housing Association; Johannesburg, South Africa:

Paper for Presentation at the 8th ITN Africa Conference in Accra Ghana, 25th-29th November 1996 ; Theme: Promotion and Sustainability of Water and Sanitation Programmes.

The paper focuses on Soshanguve, a township outside Pretoria, which is using alternative sanitation system. The area under discussion is a site and service scheme with water and sanitation provided as part of the government housing policy. The toilet is designed for easy integration into a full water portable sanitation system. In the absence of sewerage treatment plants and bulk connection, the toilet operates on the basis of tap water to flush. The system has been in existence for four years and the families have been fetching water from the common stand pipes to flush the toilet.

The paper argues that there is differential impacts of such a system on men and women due to the functional structuring of society. The case of Soshanguve illustrates how a technological innovation can have negative impacts on women, and that the fact that technology is perceived to be gender neutral does not necessarily translate into gender equity. The testing of technology can no longer be limited to technical efficiency or economic viability, but its impacts on sectors of society and gender must be tested. The paper further argues that decision making during the planning phase on any project must include women as active participants and beneficiaries. Projects that tend to overlook this simple principle may unintentionally result in hardship for women



IMPACT OF AN ALTERNATIVE SANITATION SYSTEM ON THE LIVES OF WOMEN IN SOUTH AFRICA

Nonhlanhla Mjoli-Mncube (Deputy CEO, NURCHA; Coordinator, Women For Housing)

*Paper to be presented at the ITN Africa Conference, 25th - 29 November 1996,
Promotion & Sustainability of Water and Sanitation Programmes.*

September 1996

ABSTRACT

BACKGROUND INFORMATION

This study of socio economic impacts of alternative sanitation systems on the lives of residents of Soshanguve TT, North of Pretoria, is part of a broader research on the socio economic impacts of alternative sanitation systems in South Africa. The research focuses on the costs, perceptions and attitudes of recipient communities towards alternative sanitation systems. While the study does consider the technology, its efficiency and its focus; it however goes beyond the technological consideration and seeks to understand replicability and desirability of the systems from a developmental perspective.

The research is funded by the Water Research Commission. The present paper deals with Soshanguve, specifically women of Soshanguve and their experience of the sanitation systems. Soshanguve TT is one of the site and service schemes introduced



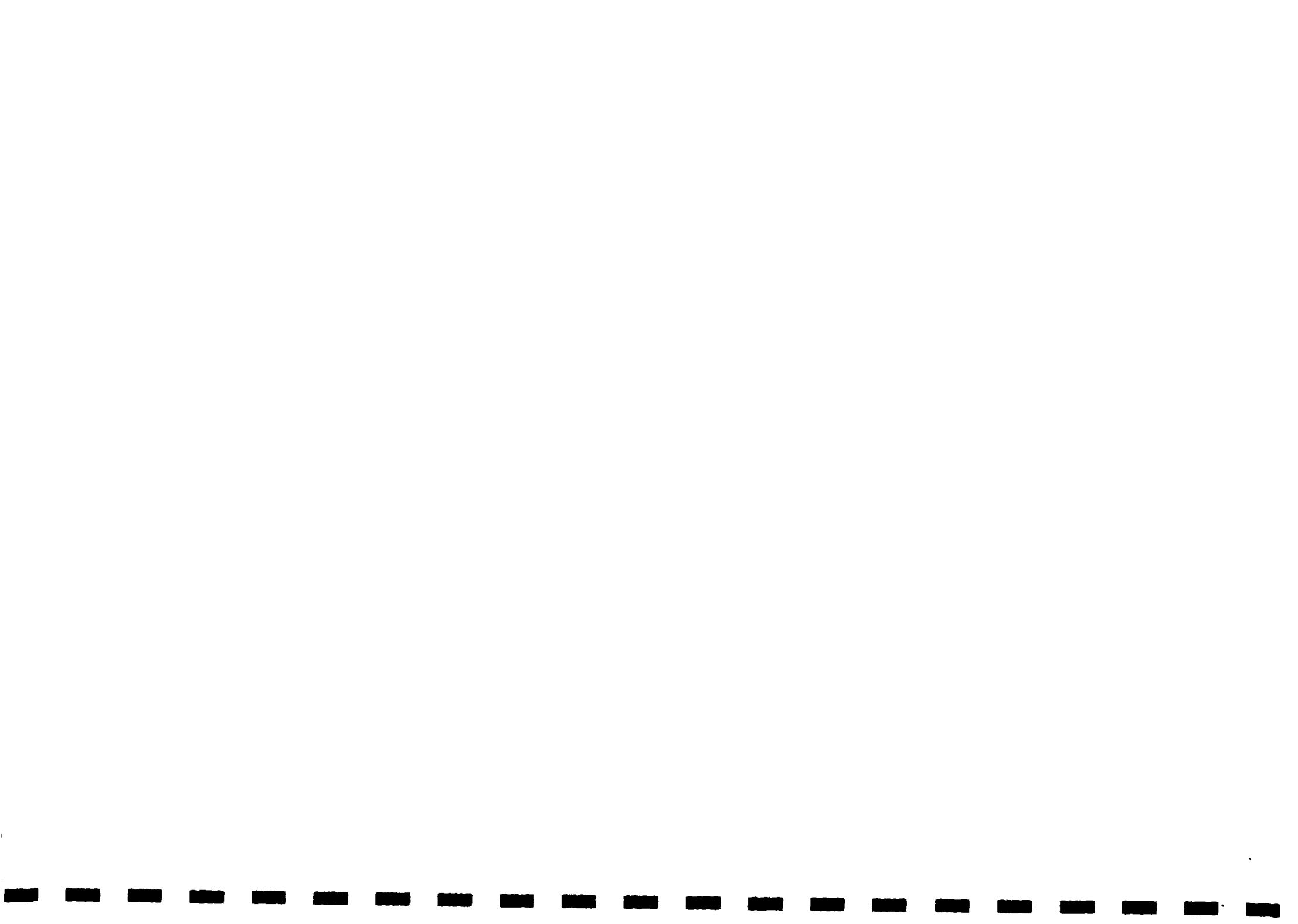
by The Independent Development Trust (IDT) in the early 1990's. The schemes are characterized by delivery of services in the form of roads, water and sewerage. Soshanguve TT has gravel roads and the communal water stand pipes that are shared by roughly twelve families. The toilet is an Aqua Privy system that requires water to be filled into the bowl after every use, the effluent flows into a soakaway and the sludge should be emptied periodically.

The general research methodology is both quantitative and qualitative surveys. The quantitative elements of the study are still in progress. This paper is a result of several workshops with different groups within the community including women; as well as focus groups with women. The workshops included a general community group; women's focus group; the blind; a focus group with disabled; a focus group with the community and health workers; and a workshop with businesses and churches (businesses included spaza shops, shebeens and general dealers).

This paper explores women's experiences and perceptions of the alternative sanitation and its impact on the quality of their lives. Introduction of new technologies seldom takes into account gender impacts or perspectives from both sexes that can potentially enrich developments. The study underlines the need for gender sensitive approaches to planning and the need to include women in community decision making processes.

INTRODUCTION

For most poor urban communities the number one priority in their lives is housing. Imagine then our surprise when we conducted a normal urban development workshop with the residents of Soshanguve, and it became clear that housing was neither number one or number two in their most urgent priority. In the short term all the residents of Soshanguve want is a sanitation system that reinforces their right to privacy and human dignity. In most cultures making use of ablution facilities is an individual and completely private activity. For most women, the present sanitation system is an intrusion into their most intimate lives. To an average urban dweller going to the toilet hardly constitutes a stressful situation, one goes, flushes



the toilet and forgets about the importance of the facility in their lives. Now compare the same scenario with a Soshanguve dweller:-

- First she needs to go to the communal tap down the street to fill the bucket with water
- Then she goes to the toilet
- Then she pours the water into the bowl and flushes the toilet
- If she has young children or visitor then she goes to the common standpipe to refill the water for the next user
- If she has visitors this means a trip to the common standpipe to fill the bucket after every use, after all one cannot expect visitors to be asking for a bucket before using the toilet
- For pregnant women, children and those with stomach ailments, the alternative is to keep a potty, otherwise the process of fetching water from the stand pipe, day and night becomes dangerous and tiresome.

THE ISSUES SURROUNDING THE SANITATION SYSTEM IN SOSHANGUVE TT

The major issues surrounding the toilet systems can be clustered under the following broad headings:-

1. The design and location of the toilets
2. The maintenance problems
3. The cost implications
4. Perceptions around hygiene and health

1. THE DESIGN AND LOCATION OF THE TOILETS

For most women, consultation in the planning and design of their environment remains an unfulfilled dream. While the first group of women who moved from Winterveld informal settlement to Soshanguve TT knew that their 'flush' toilets



were going to need water from the common standpipe, they did not realize the implications of this information with regard to their time and family responsibilities. What struck them as odd was the location of most of the toilets in such a way that they face the street. For the women in the workshop the location and orientation of the toilets is considered unsafe and exposed. Toilets are usually private places, located away from the main dwelling, and affording the family a secluded area for ablutions. In Soshanguve the toilets face the public space, for some households it is impossible to go to the toilet without passerbys or neighbours observing you.

The question of safety and security is a concern for most women. The fact that anyone can observe them going to the toilet and can actually accost them disturbs them. At night it is dangerous to use the toilet, especially if the woman still has to go to the stand pipe for water. Potential rapists and robbers are able to watch the toilet and then plan their attacks accordingly, they wait for the women to come to the stand pipe to refill the bucket.

The toilet is designed like a normal flush toilet, which means that one cannot flush sanitary pads down the toilet, however the outside toilet lacks the advantage of an inside flush toilet where one can privately dispose of sanitary pads. In this system the women has to go to the toilet to take off the pad, then she has to come back to the house either to wash it or to burn it. In a culture where menstruation is never mentioned in public or in the company of males, this violation of privacy was felt to be the major indignity. Family members can see her clutching a plastic bag with the sanitary pad, bringing it from the toilet and thus publicising her menstrual cycle. The women believe that menstruation defines their womanhood, and the struggle with the disposal of the pads makes them feel ashamed; and dreadful of a process that is as natural as life.

Soshanguve garbage men tend to scavenge the garbage bins, if they find a sanitary pad in the garbage bin, they belittle the women of the family, as well as spread rumors about the women's lack of self respect and respect for the men she expects



to dispose of her blood. The male garbage collectors have informed the women that the municipality prohibits the disposal of pads in garbage bins. All the women in the workshop have never questioned this information and are quite embarrassed to raise it with the civic organizations and the councillors. There was general agreement from the older women and the men that no 'decent' women would leave her blood to be collected by men.

The issue of disposal of sanitary pads is a major problem that is dreaded by the younger women. Some mentioned that in Winterveld, where they originated, sanitary pads could be thrown down the pit latrine and be forgotten.

The size of the toilets is also a major concern for the residents. The toilet structure is made up of four pieces of corrugated iron, and a door. Besides the fact that any woman who is more than sixty kilograms in weight, finds it difficult to close the door, pregnant women almost find it impossible to squeeze into the toilet. For women accompanying their young ones to the toilet, they have no choice but to keep the toilet open while waiting; to the disgust of passerby and neighbours. All residents mentioned that if they had been consulted they may have even paid the difference to allow them a bigger toilet. In most cases there is only one room and a kitchen, a bigger toilet could have afforded a private area for washing. Women were generally more dissatisfied with the toilet since they tend to use it more, sit on it more, or accompany the young. On the other hand men were concerned about the size, but they did mention that when urinating they stand and face away from the door, so for them the problem is minor.

2. MAINTENANCE PROBLEMS

When residents moved into Soshanguve TT they were told what was allowed or not allowed into the toilet. Except for one or two people, there seems to be common



understanding of the guidelines for use of the toilet. However all the attendants have experienced the following problems with the toilet:-

- *Filling up of the toilet*- Although the toilet is supposed to fill up once every two years, all workshop attendants have had to drain their toilets at least every six months. The toilet overflows and black worms come out of the seat when it is ready for draining.
- *Draining* involves opening up the storage tanks, scooping all the liquids out, digging a hole in your garden and then disposing of the smelly liquids. The smell impacts on all the neighbours so most draining is done at night time. Some families will not dig the hole but throw the liquid on the streets or on other people's gardens. This causes a lot of tension between neighbours as well as within the household given the undesirability of the tasks. In most households this is a woman's job, including digging the disposal hole.
- Those who can afford have requested the *maintenance truck* to come and pump out sludge, but the officials insist that they need at least twenty families to make it economically viable. Since toilets do not fill up on the same day it makes it impossible to use this service.
- When the toilet is full and *the worms come out*, it is impossible to use the toilet, there is a general concern about the worms infecting children with diseases.
- There is a tendency for *some individuals to use other people's toilets* to delay the fill up; or sneaking in to use the toilet while theirs is full. The intruders always leave the toilet dirty because they cannot fetch the water for flushing for fear of discovery.
- The researchers were taken to two different families that were draining their toilets on that particular Sunday. Both families had sent the children away, they felt that *the smell* was too strong and the contents of the toilet were not meant to be seen by the young.
- In both cases the women were draining the toilets, both of them work during the week, and felt that *draining the toilets at night would expose them to danger*.



3. COST IMPLICATIONS

The major costs associated with the toilets are associated with women's time, hiring a man to dig the drainage hole for women, and the normal costs of toilet paper. The major complaint was that irrespective of the kind of paper one uses, the toilets still fill up fast, especially during the rainy season. The toilet paper costs R1.50 each in the Spaza shops, without giving the benefits it does for normal flush toilets. The design of the toilet forces residents to spend money on toilet paper, but the benefits are outweighed by the flush toilet and the pit latrine. One woman stated that the pit latrine was backward and rural, but she could use other paper, and she did not have to take a bucket every time she needed to use the toilet. For women, the time spent fetching water is considerable.

The other cost is that of draining the toilet. One either employs a person to drain and dispose or just to dig a hole. The costs are considered high, so some families employ a digger and then drain themselves. Some women felt that draining was a private business which is better left to the family. For the blind and the disabled, the cost could not be avoided. For both the blind and the disabled there was the added costs of employing children to fetch water from the common standpipe to enable them to use the toilet. One disabled man who lives alone waits outside to call on any passerby to fetch him water when the kids run away from him.

4. PERCEPTIONS AROUND HEALTH AND HYGIENE

In general all residents at the workshops perceived the toilets to be unhygienic, dehumanizing and unnatural. One old man stated that he never thought he would have to see the day when he has to fetch water from the tap like a child, and almost make an announcement about his intended use of the toilet. (Most men do not bring water to flush after urinating). Women associated a lot of their vaginal infections to the unclean toilets, and the ever existing smell. The nursing sisters at the workshop



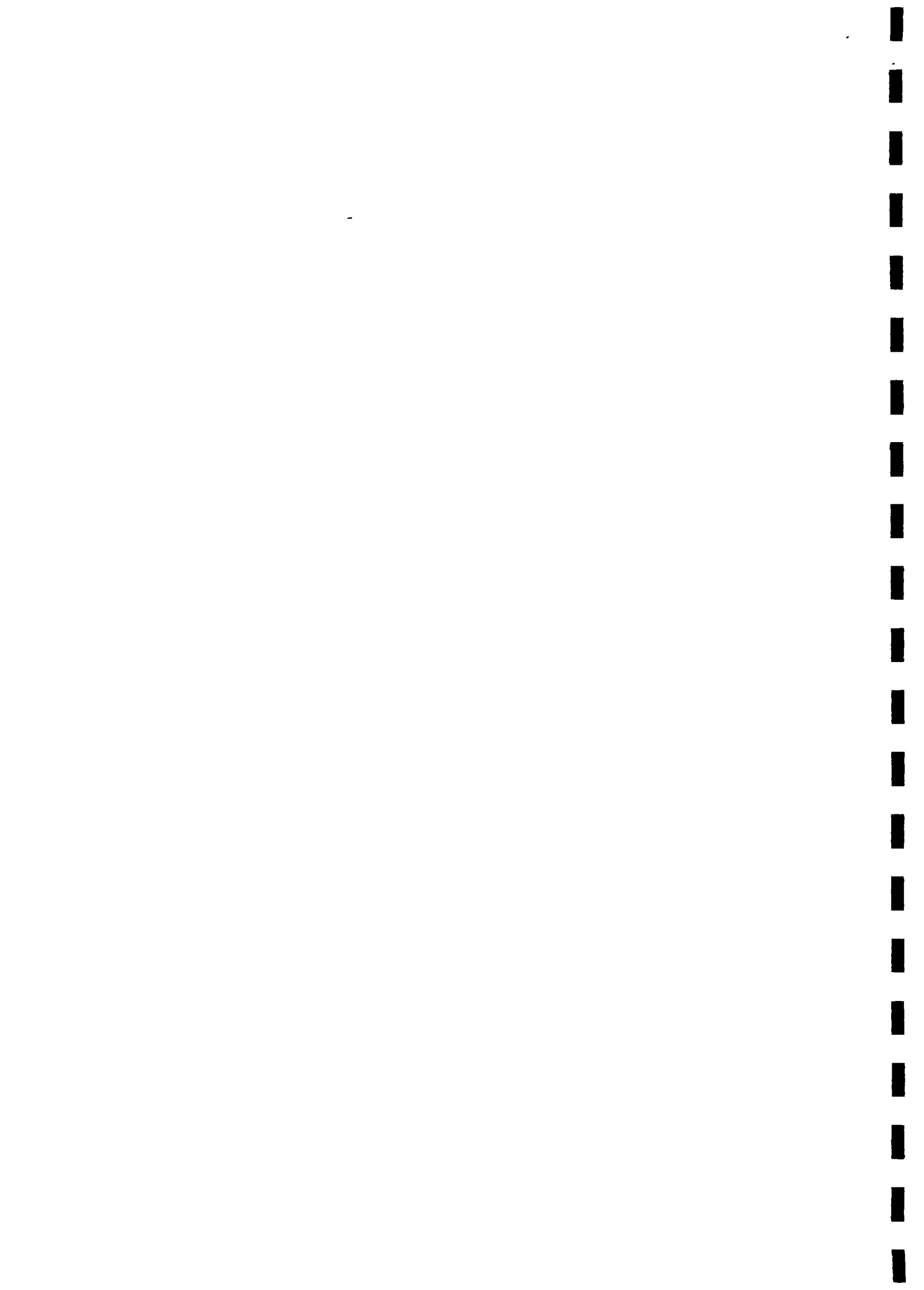
confirmed this view, however we have not yet been able to interview the two local doctors.

Some parents do not allow the young to use the toilet, but kept a potty for them to use and then flush the contents down the toilet. It is difficult to tell when the toilet is about to fill except when the worms come out, the fear is therefore that the kids may sit on top of a full toilet. Residents perceived themselves to be worse off than either rural or urban folks. Rural people do not have to sort their own sewerage into liquids and solids for disposal, all they need to do with the pit latrine is to deodorize it. Urban communities just flush and walk away.

CONCLUSION

For Soshanguve residents, lots of time is spent on activities associated with using the toilet, maintaining the system or attending to its problems. They would rather pay an extra amount to get the toilets upgraded. For women though an undesirable responsibility is added. The married women and the middle aged women have become the professional drainers of toilets. They feel that they cannot allow their children or their unmarried daughters to do such a task. Some stated that no man would marry a woman who has been an official toilet drainer for her family, surely that women would have *isinyama* (undesirable to the opposite sex). For these women consultation in the design and introduction of a new technology would have enabled them to make an informed decision. At the moment they feel cheated, they believe they thought they were improving their lives by choosing such a system, but instead it has reduced them to sewerage drainers.

Introduction and practice of gender sensitive planning is critical to the creation of sustainable human settlements. The Soshanguve case study is a clear illustration of how consultation can exclude women and thus have results that are detrimental to women's well being. The challenge is for planners and other project implementors



to ensure that women are part of the community structures they consult with. In the Soshanguve case both men and women agreed that IDT did consult with the civics and other community structures. The male leadership however were unaware of the gender impacts of the sanitation system. Some civic members who were consulted heard about the women's problems for the first time during these workshops.

The study confirms previous findings by most gender researchers that male and female perceptions differ, and that their experiences of similar events may also differ. The negative impacts of this system are experienced more strongly by women. This may be resulting from the fact that most of the activities associated with the system fall within the women's domain. In a situation where a disgusting chore have to be performed, then the power dynamics within a household come to play. The most powerful members of the family are not required to perform the task. In most cases the husbands and the mother in laws are able to use their power within the household to dictate that the wife or the daughter in law performs the task. The reverse is not true, in fact there are women wh have been assaulted by their husbands when they refused to drain the toilet.

Women's nurturing responsibilities makes it impossible for them to ignore an overflowing toilet. In most cases they feel that they have a responsibility to keep their families safe and clean. Some women cannot stand the disintegration of their environment, without acting. This happens at the family level and also at the community level. The churches rely on women to come and help with the problem. It is therefore critical that planning takes into account women's nurturing, productive and community building responsibilities when planning human settlements and facilities. The women in this community are further burdened by the problems associated with the lavatories in their performance of their productive, reproductive and community building activities. Without an active recognition of the triple roles of women in our approach to planning, women will continue to be delegated to the level of servitude and subservience; where they feel worthless and powerless. There are cases in Soshanguve where women felt that the task would



bring stigma to their husbands and their children, so it was better that they do it themselves as they are already old.

NOTE:

The research was conducted by the author and Uhuru Madida, a civil engineer specializing in water and sanitation systems.



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BRIEF CV

Nonhlanhla Mjoli-Mncube holds a *B.A. degree from University of Fort Hare, Masters in City and Regional Planning from University of Cape Town*; she is also a *SPURS fellow from Massachusetts Institute Of Technology (MIT) in the USA*. She has done several *management programmes mostly in Washington State University in the USA*.

Her working experience includes being the *deputy Chief Executive Officer* of a national housing finance guarantor company with guarantees worth R250 million; *directorship* of BDA, a Murray and Roberts housing company; *Management* of an economic survey research centre (SESRC) at Washington State University in the USA for 5 years; working as a *Town and Regional Planner* for the Natal Planning Commission, Transkei government and City of Pietermaritzburg.

She is the *founder and coordinator of the Women and Housing Group which is involved in the development and financing of women contractors as well as general empowerment of women around housing*. She sits on some company boards, is involved in preparation of several policy documents for housing and development, she has also been part of the government negotiating team on the *United Nations Habitat Agenda*. She has presented several papers in South Africa and overseas, and is presently doing funded research for *USAID (CUSSP); Swedish Development Agency, Water Research Commission; and SABBACO (South African Black Technical and Allied Careers Organization)*. She has worked as a housing and gender consultant previously, clients include *Development Bank of Southern Africa, Several Corporates in the Wadeville area, Murray and Roberts Engineering, SETPLAN, Women's Organizations, SABBACO, CUSSP and others*.

She has won several scholarships and awards. Her work with the African Student Organization in the USA, included planning and implementing cultural events and performances including more than 40 African countries, and coordinating fund raising dinners for more than 500 guests. This event became a yearly event in Washington State University and Idaho State University, with tickets selling out months before the event. She was recognized for this contribution.

Through NURCHA she has enabled women contractors to get bridging finance loans from the banks, have assisted other women projects to get funding from foreign donors to get construction skills. Her involvement with women includes advising several women's groups on projects and funding.

She is married to Dinga Mncube and has two children.





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INSTITUTIONAL DEVELOPMENT OF COMMUNITY MANAGEMENT GROUPS FOR RURAL WATER SUPPLY AND SANITATION - - AN OVERVIEW.

Background:

Water and sanitation projects in Kenya have over the last decades been largely supply-driven, based on Government/ donor capital investments.

Traditionally, the supply- driven projects left the communities as mere passive bystanders. Planners selected communities to receive services on the basis of need (or other criteria) rather than demand for service. The level of service provided was based on what projects could afford rather than what consumers were willing to pay for an improved service

When implementers had completed their work, projects were left to the community, which was not sure what to do or what the responsibilities of different parties were. This unclear situation has brought many of these types of projects to a standstill, because responsibility for maintenance of equipment and infrastructures is unclear

The low level of sustainability in many such projects has given way to a new strategy, that involves the communities/users:

The intensity of community involvement has thus increased over time from mere **community participation** (that included information sharing, consultations and labor, material and cash contributions), to **community management** of mainly the day to day operations and maintenance of a water supply that could be owned by government or another party.



The present strategy aims at **community ownership** of rural water supplies meaning that water supplies are initiated, managed and owned directly by the communities.

In order to improve sustainability of water and sanitation projects, it has been agreed that there should be more **focus on community demand** for service, and projects should be **community managed**. Therefore, communities (beneficiaries or users) have to take an active part in all aspects of the project, i.e. initiation, design, implementation, maintenance, supervision, monitoring and evaluation.

Community management of water and sanitation projects raises such issues as community eligibility for services, technological choices, cost sharing mechanisms, willingness to pay, O&M, management rules, consumer satisfaction among others. Many of these issues are today commonly included in projects, although not always in a coherent and consistent fashion.

Community self - help groups in Kenya.

Community based organizations in the rural areas are today seen by many as an important vehicle for improving the sustainability of water and sanitation projects.

“The basic thrust behind self -help initiatives in the development of rural water revolves around the localized felt needs and interpretations of practical and possible solutions to meet those needs in the light of known resources.... Self - help water development takes place within the countries’ political and administrative structure. Any organized group must be officially approved and registered under the Ministry of Culture and Social Services, the Societies Act, Company Act or any other relevant act for organized groups. While registration confers official recognition to the groups, it is essential for the registered groups to be approved by the Locational, Divisional and District Committees. Further, fundraising must be approved by District Commissioner..”¹

Communities are typically required (as part of the project design) required to form a management committee, consisting of both men and women. Some of the committees have rules on how to manage the project in the form of Bye-laws, Constitution or Agreement) These rules govern management, financial and social aspects (e.g. penalties). Many community groups have rules that are not followed because the rules have been imposed on the community, often as a condition for receiving assistance

It has been noticed that “community participation” is sometimes based on an existing social structure that may be based on a few (sometimes one) local community leader, who may be the “self-appointed” speaker for the community

¹ Self-Help Initiatives in Kenya’s Water Sector by G. Wambui Gichuri, BER Consultants, Oct. 1995



The problem:

The question today is to clarify **whether** community groups, who sign hand-over agreements that will give them responsibility, authority and control of facilities, will need legal recognition of the community "structure" as an autonomous body with legal rights, different from today's typical arrangements.

One can illustrate the situation, by mentioning that community groups, operating and maintaining a water facility, **can not own** the facilities because the groups are not registered as legal entities under the Laws of Kenya

Ownership of land is a difficult issue. The communities do not have ownership certificates to the land they use for the project in the form of title deeds (sometimes because there are no title deeds). Therefore, there is a risk that they can lose the land because the owner wants to use it for alternative purpose. On the other hand local, clan, tribal or traditional "agreements" are usually in place, giving the right to the community to use a certain piece of land for the project.

As most community groups are not legal entities.

They can **not sue nor be sued**

They can not enter into any legal **contract or agreement**

They can **not have access to credit or loan facilities** with banks and other financial institutions

They can **not insure** the properties, since insurance companies require ownership certificates of the properties

They do **not have most rights or obligations** (e.g. tax payment or audits) vis a vis the general society

There is, therefore, urgent need to look carefully into issues of the **legal status** of the self-help groups managing water and sanitation projects and their **ownership** rights related to assets, properties and investments.

The **objective** of raising the above issues is to improve the foundation for sustainability of community managed rural water supplies.

The assumption is that legal status of community groups and stated ownership of assets and properties will facilitate the sustainability of water facilities.



Issue no 1:

Legal status and registration of community water groups:

The present basic "status" of the majority of community based water and sanitation groups is that they are usually organized by and registered under the Ministry of Culture and Social Services as "self-help groups".

There are about 23,000 such registered self-help groups in Kenya, many of them being women groups dealing with income generating activities. The Ministry HQ (MCSS) has no central register of the groups since registration is de-centralized to district level. Some 3,000 to 5,000 of these groups handle water supplies.

The MCSS' official Nairobi has explained that registration with the Ministry gives the group "the right to assemble, to be organized and somewhat recognized". It was not explained what this statement really means.

This type of registration is said to originate from the community. The application goes through the Government machinery to the DDC (District Development Committee) for decision. Registration is done by MCSS's representative in the district.

Even if there could be different options under which groups can register, "most prefer to register as self-help water projects, largely to formalize their existence and to qualify for external assistance.

This registration is, however, inappropriate being largely suitable for welfare organizations. . . . The existing legal framework urgently requires revision to give strength to self-help water groups"²

Graduation from such a self-help-group to the next level of legal status, is possible but has not been encouraged by either the Government or the donors. MCSS is not actively working on transforming these groups to autonomous bodies with legal rights.

It is not clear whether community groups are satisfied with the present situation, whether they feel being in a potentially vulnerable situation, whether they know of the options to upgrade their status or if they have been discouraged to apply for higher status.

The options available to community groups for registration under Kenyan Laws other than the MCSS option include.

- a) **Association** (a non-profit making organization) under General Societies Act,
- b) **Cooperative Society** under the Cooperative Act
- c) **Limited liability Company** under Companies Act
- d) **Non-governmental organization** (NGO) under the NGO Act
- e) **Water undertaker** under the Water Act.

Every option has its own set of regulations, indicating the rights and obligations of the organization and its members.

² Wambui Gichuri, Oct 1995



Field examples:

1. *Murugi Mugumango project is a gravity piped water scheme in Meru district started as a community self-help project, funded by Canadian Hunger Foundation. It received management assistance from Technoserve. As part of the conditions for receiving assistance, the scheme was registered under the Societies Act, Cap. 108 by the Registrar of Societies in 1984.*

The society has approved by-laws and is a non-profit making Association.

The society has a legal status according to the Laws of Kenya, which implies that it can:

- * sue or be sued in a court of law*
- * sign legally binding contracts or agreements*
- * employ staff*
- * own properties*
- * open bank accounts*
- * apply for credit facility or loan*
- * but it must also have its accounts audited, read to and approved by members in an Annual General Meeting and sent to Attorney General's office once a year. Thus the fiscal and managerial accountability is better ensured through this type of registration.*

The society has once been sued in court of law by a member but it won the case by proving its legal status and showing documents that proved that they had the right to do what they had done to this member.

2. *Ngorika piped water scheme, in Nakuru district, is another example. It was started just after Kenya's Independence in 1963 by people from all over Central province who settled on newly divided plots.*

Ngorika started as a self-help water group in 1973.

Technoserve consultants assisted the group from mid-1980s' but requested that they registered under the Societies Act, Cap 108. It is officially named :Ngorika Water Society (although it is a non-profit making Association).

The "society" has been able to reorganize the management along commercial lines and has enforced its by-laws and regulations by virtue of its status. It no longer suffers from illegal connections because of the heavy penalties it can apply.

The registration under Societies' Act has been fundamental to the success of the project.

There is need to encourage community groups, operating water and sanitation services, to seek information and be aware of the options available to improve their legal status.



Issue no 2:

Ownership of water supply projects:

In line with the issue of having legally recognized community managed groups is the issue of ownership of the actual assets

If it is meant that the community should own the project with all its assets, it is necessary to look at this aspect in detail due to issues related to.

a) Land ownership

b) **Legal implications** of the community owning (taking over) project infrastructures that an NGO/ donor has invested in, sometimes through the Government.

In Kenya today many rural water projects are being “handed over” to communities. To what extent “handing over” also includes real (legal) ownership of assets is not clear.

In many demand- driven projects, where communities participate in the investment costs and take responsibility for operation and maintenance, it is assumed that the communities (because of their involvement) get a “**sense or feeling of ownership**”, that will ultimately increase the likelihood of a project being sustainable.

It is necessary to **define “Ownership”** since the term can mean:-

Real ownership in a legal sense

Having access to or having the right to use e.g. land by an agreement of some kind with the owner

The term ownership could mean different things whether it relates to the land or to physical installations.

Field examples:

In the Murugi Mugomango project, the manager notes that the community - through the society - owns the property, consisting of water intake structure, pipes, storage tanks and office buildings.

The society has elected Trustees, who are the custodians of the society's assets.

Asked to provide documentary evidence of the ownership of the assets, the manager admits that the society does not have any written documents which state the ownership of the land or of the different structures.

The same structures are not and can not be insured because an insurance company will request proof of ownership before they can insure the property.

As the offices were put up through funds from GoK and the community together, it is unclear who owns this property?

Who is responsible if assets are lost through fire, theft or mismanagement?



Who shall replace assets?. It is likely that the Trustees could be in a vulnerable position.

Tharaka scheme (from Annual Report 1994/95):

Beneficiaries are involved in all stages This is expected to make them more responsible with respect to O&M.

225 water group committees are registered with MCSS.

153 have bank accounts.

8 water facilities have been handed over (to communities).

Certificates of ownership have been issued

Land issues need to be sorted out. There are claims and counter-claims over land .

Kwale project (from Annual Report 1994).

Certificates of ownership (with project logo) have been issued to groups that are registered by MCSS. There is "agreement" concerning land. Groups have bank accounts.

At one site, the borehole was placed in the secretary's compound by some irregularities in the siting. He now decides who has access to the borehole.

In another place 8 out of 9 committee members are illiterate.

Kefinco (Transfer Plan 1994):

Assets are operated by communities but owned by GoK. Sigomere project was handed over to the water committee. Agreement has been reached between the Program and the community.

By-laws are not followed. They were prepared by the Program.

An Umbrella Water Users Association has been created to give technical assistance. It operates more or less like a cooperative society ("consulting company").

The intention is to transfer 15 Ministry operated/managed water supplies to communities. Communities will become registered Water Undertakers (who are authorized by the Ministry to draw water, manage water and sell water) Final Project Report, 1996.

Land easement, is a crucial factor that determines communities' acceptance and management of water facilities, but it is a long procedure. Only 154 easements had been registered at the end of the project out of a backlog of 1,600 due to problems of land transfers, inheritance, adjudication and succession.

In western Kenya (Kefinco area) there are the following data available on "Community management status for water points" (Final Project Report, 1996):

2,744 operating water points

2,744 are registered (with MCSS)

1,406 land eased and public

1,338 not land eased

966 with bank accounts

1,778 without bank accounts



1,631 with no good records (financial)
1,478 without by-laws
1,648 with in-active committee

The general performance of the community water supplies is quite low. "Most of the CWS are in a pathetic situation". Only 7 out of 18 (studied 1995) have an average grade of more than 2.5 (on 5 points' scale). Tariff levels and other charges, revenue collection, financial management and reporting are the critical problems....but " Since most of the systems are new, their condition and service levels are quite good".

Among the Lessons Learned, the Kefinco Final Report mentions:

1. *"Some sponsors and well-to-do people financed community projects which were implemented on their land. In some cases it become difficult for the community to utilize those facilities and this left the community with low spirit, no ownership and leadership problems. As a result the number of beneficiaries per water point has ... been reduced from 250 persons to only one family.."*

2. *"Studies indicated that the poorest of the poor did not benefit from the Demand Driven Approach.... The approach gave more advantage to a few enlightened individuals..."*

3. *" More care and consideration is taken in water points run by a family .. This is because the ownership is easily understood.."*

4. *"It has been difficult to change implementation committees to management committees. They have become powerful and influential... since the constitutions are ignored and decisions manipulated by leaders..."*

Some of the many recommendations in the Kefinco Final Report are:

a) *"Land easement of the source of water... should be acquired before the project is started, as Letters of No Objections have proved to be inadequate in legal land cases".*

b) *"Constitutions should be strictly followed".*

c) *"Each water supply should have its assets well documented so that auditing ... can be done annually".*

d) *"There has to be legal protection for the management committee in setting tariffs and other regulations".*



The **National Policy Paper** for the Water Sector has not yet been finalized but is expected to include elements of the new community management approach when it is finally approved.

It will include the statements regarding government gradually handing over water supplies to local communities and the creation of an enabling environment for full participation of communities.

There is need to find ways to formalize the issue of ownership of assets in the community managed water and sanitation projects for sustainability purpose.

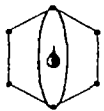


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A PAPER ON MANAGEMENT TRAINING FOR
SUSTAINABILITY OF WATER SUPPLY
AND SANITATION PROJECTS

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ABSTRACT

This paper summarises the Network for Water and Sanitation (NETWAS) experiences to build capacities by helping managers, planners and communities in Africa to use updated knowledge and effective methodological management tools to plan for long term sustainability in their projects.

Project organisation, institutional, infrastructural and educational factors will affect sustainability and replicability. It is therefore important that these are addressed in the preparation of water and supply and sanitation programmes. There is a general shortage of trained staff at all levels to implement these programmes. Of particular importance is the development of appropriate training courses which focuses on real problems affecting African countries.

NETWAS has gradually built its capacity through the assistance of the International Water and Sanitation Centre (IRC) in the Hague to run the course on Management for Sustainability of Water Supply and Sanitation Programmes. This course has been jointly organised by IRC and NETWAS since 1994 as a regular course with participants coming from Ethiopia, Kenya, Uganda, Namibia, Tanzania, malawi, Lesotho, Zambia, Ghana, Mozambique, Somalia, Zimbabwe and South Africa. This also includes the training of Management teams of various community Water Projects. It is now two years since NETWAS started offering this course. There is now a need for an evaluation of the impact on management and sustainability of water projects in places where water supply and sanitation sector staff have benefited from this training.

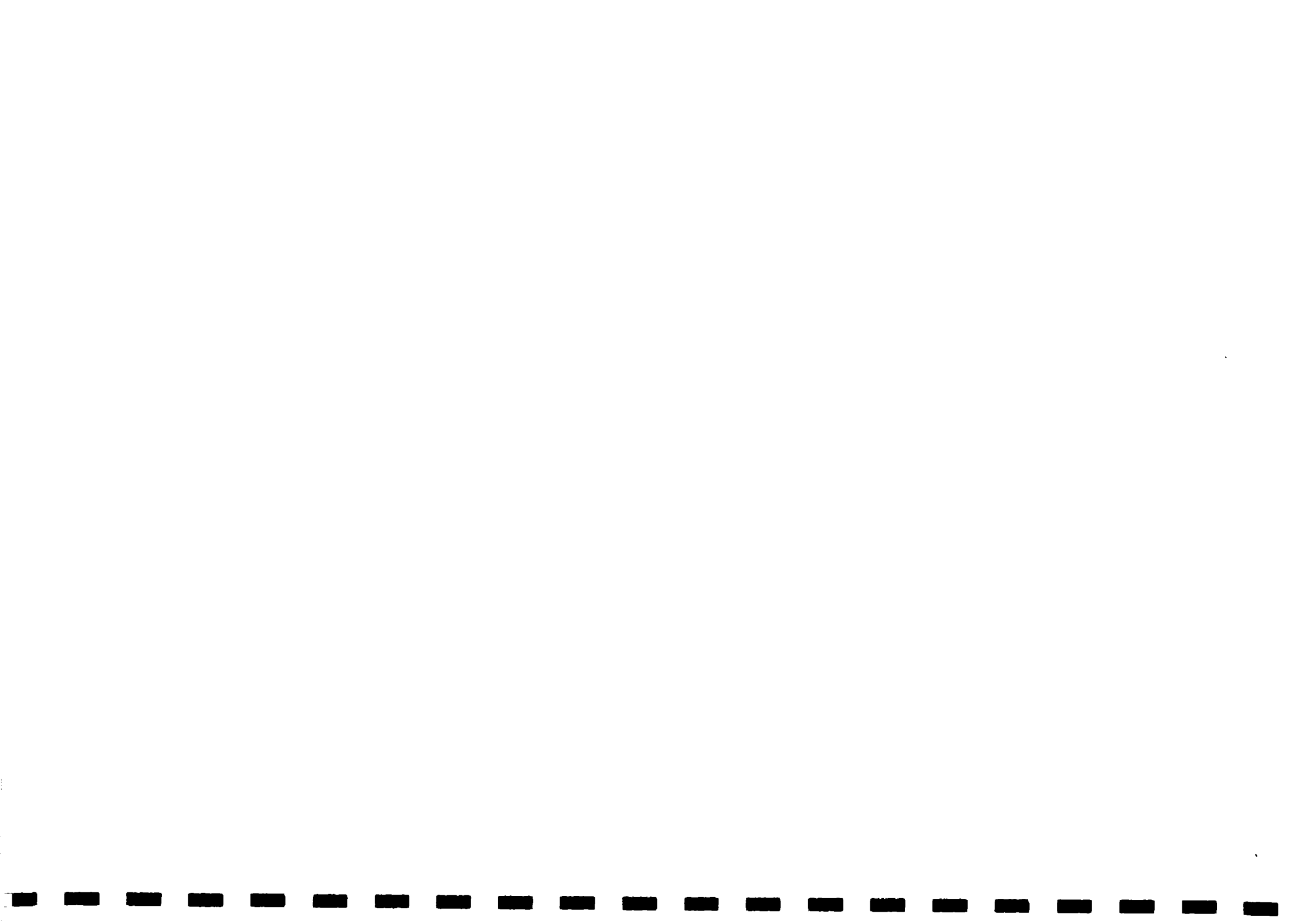
NETWAS has also offered this training specifically for sector personnel in Uganda, Sudan and Kenya. The importance of involving the beneficiaries in all aspects of management has been realised as an element of sustainability of water supply and sanitation project and this is given special emphasis in the training programme. The general view of participants after the course was that they felt better prepared to manage their projects.

INTRODUCTION

Over the last decade the rate of implementation of rural and peri-urban water supply and sanitation programmes has increased considerably, and millions of people are now being served more adequately.

However, the long-term sustainability of the improved facilities needs to be ensured. Consequently, project managers, planners and senior staff and water committees need to address this issue.

NETWAS' capacity to organise courses in Management for Sustainability of Water Supply and Sanitation Projects was developed with the assistance of The International Water and Sanitation Centre (IRC) in the Hague, Netherlands.



COURSE ON MANAGEMENT FOR SUSTAINABILITY IN WATER AND SANITATION PROGRAMMES

COURSE OBJECTIVES

- Enable participants through a problem-solving exercise, to identify key issues for sustainability
- Upgrade participants knowledge on how issues like community participation, O & M and sanitation affect the sustainability of their projects
- Enable participants to improve performance in management tasks like project planning and monitoring
- Motivate participants to use gained knowledge and skills to improve sustainability of their projects;
- Assist participants in access to information

COURSE PROGRAMME

Part 1: Planning for sustainability

Part 11: Sustainability issues in the sector

Part 111: Individual strategy development

COURSE METHODOLOGY

Course methodology is entirely participatory and uses Lectures, group exercises, sound slide shows, video films & field visits. Since 1994 NETWAS has organised various courses either in collaboration with The IRC or individually, especially in its management training for Community Water Committees.



TRAINING COURSES HELD

REGULAR COURSES

Regular courses have been held every year since 1994. Fifty Participants have already been trained from the following countries:

Kenya	Ethiopia	Namibia	Tanzania
Malawi	Lesotho	Zambia	Ghana
Mozambique	Somalia	Zimbabwe	South Africa

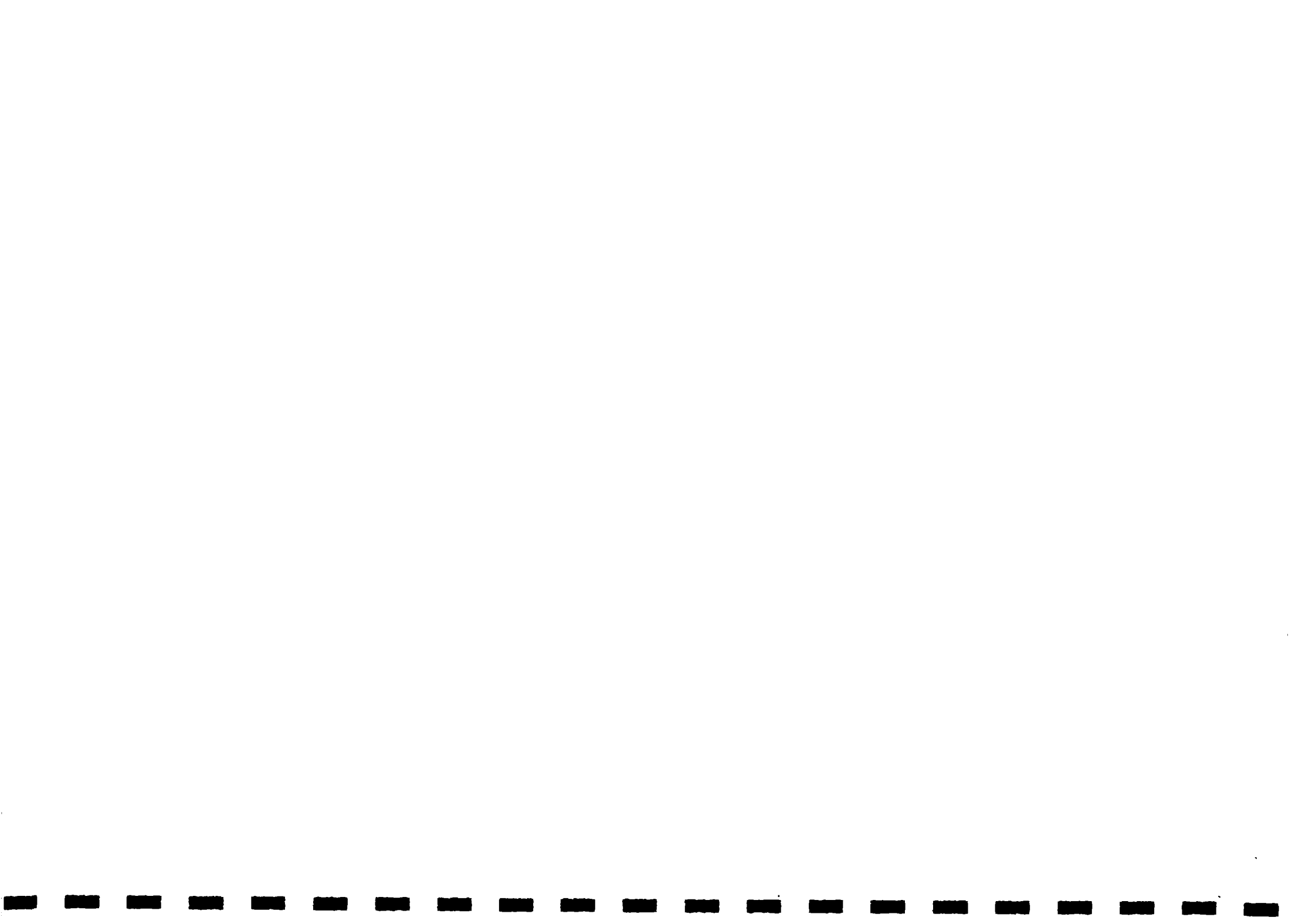
In addition, NETWAS was contracted to conduct the courses shown in table 1.

Table 1. Tailor-made Courses conducted by NETWAS

Training Carried out	Year	No trained
o WES staff from the various regions of Sudan	1996	19
o WES staff from the various regions of Uganda	1995/1995	33
o Water Supply and Sanitation staff of Southern Sudan	1996	28
o Two Water Committees of Community Water Projects in Kenya	1995/1996	36

A. MANAGEMENT FOR SUSTAINABILITY COURSE, HELD IN WAD MEDANI, SUDAN

One of the courses, NETWAS was contracted to conduct (Table 1 above) is the management for Sustainability Course in Water Supply and Sanitation (MFS) for Sudan. Participants were WES project managers drawn from the various regions of The Sudan



PARTICIPANTS FEARS AND EXPECTATIONS

■ Expectations:

- Making good relations with others
- Acquiring more knowledge
- Able to exchange views
- To gain more knowledge
- Better coordination after the training
- To become better manager/planner
- A good course expected
- Learn new technologies

■ Fears

- Not learn much
- Women participants may be few
- The course might be a waste of time
- Will not understand the training
- Training might be too short
- The course might be too long

END OF COURSE EVALUATION

◆ Length of the Course

- Far too long 0
- Too long 0
- Just right 3 (17%)
- Too short 14 (78%)
- Far too short 1 (6%)



◆ Did the course achieve its objectives? (Table 2)

Table 2. Course objectives

Objectives	Completely	Largely	Partly	Hardly	Not at all
a) Identified key-issues through analysis	12(71%)	3(18%)	2(12%)	0	0
b) Gained knowledge on impact of these issues on sustainability	9(50%)	8(44%)	1(6%)	0	0
c) Able to better perform management tasks	8(47%)	8(47%)	1(6%)	0	0
d) Motivated to improve project sustainability	9(50%)	8(47%)	1(6%)	0	0
e) Identified information sources and collected information	7(39%)	10(56%)	1(6%)	0	0

USEFULNESS OF THE COURSE (Table 3)

Table 3. Usefulness of training course

Very useful	14 (78%)
Useful	4 (22%)
Of some use	0
Of limited use	0
Not useful	0



IMPORTANT ISSUES NOT TACKLED IN THE COURSE:

- ◆ Decentralisation
- ◆ Equipment in relation to climatic conditions

WAYS TO IMPROVE THE COURSE

- ◆ Course should be increased to 5 five weeks
- ◆ A second phase of the course is necessary to strengthen techniques of management
- ◆ Extension of the course to one month

GENERAL COMMENTS BY THE PARTICIPANTS AT THE END OF THE COURSE

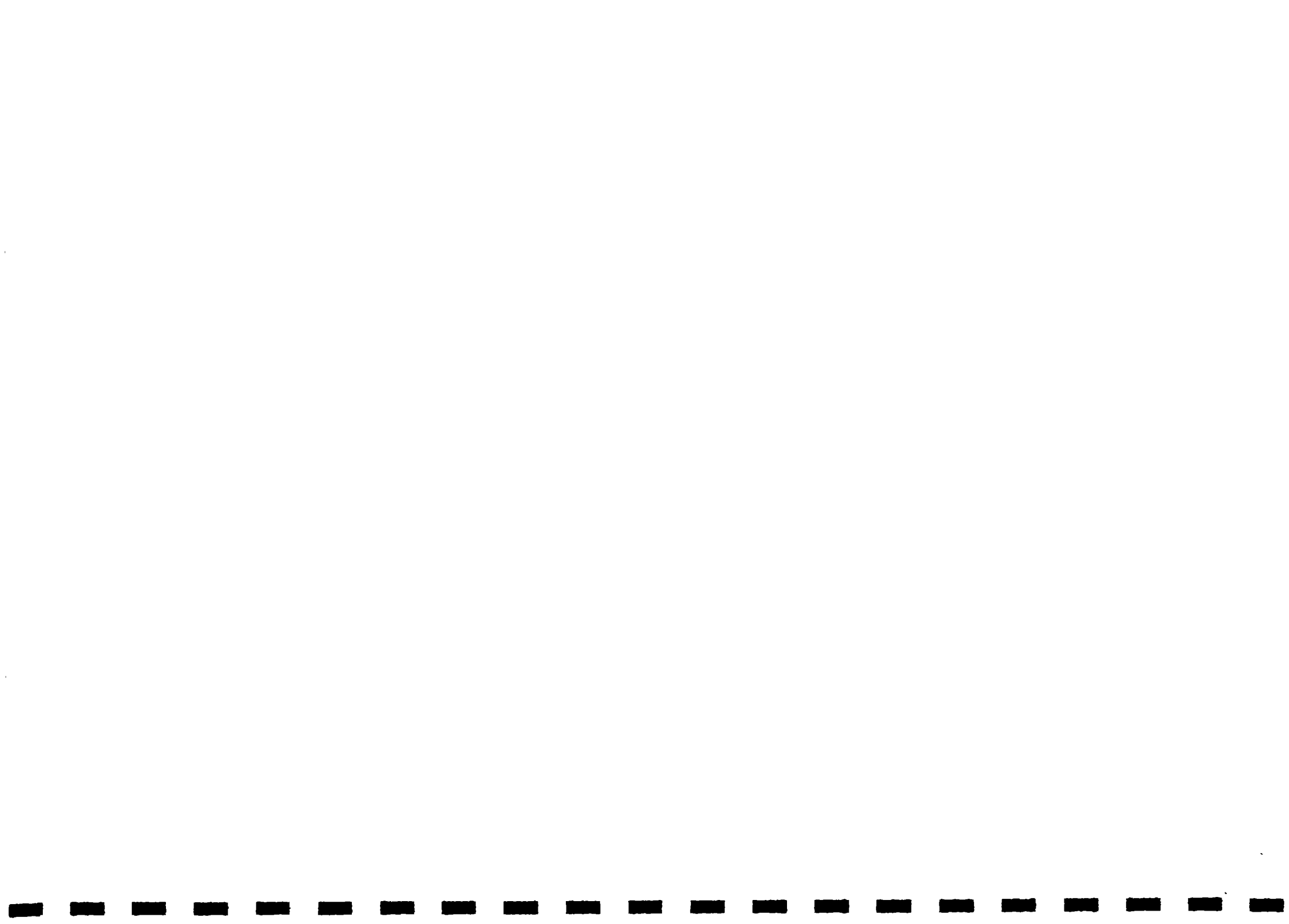
- ◆ The course was excellent and useful
- ◆ We learnt a lot in a short time
- ◆ The course was relevant to our needs

CONCLUSION

- ◆ The comments are remarkably similar in most of the courses. Since it is now two years since NETWAS started offering these management courses, there is now a need to determine their impact on management and sustainability of Water Supply and Sanitation programmes in the continent.
- ◆ We have received some feedback either from clients or from participants. However, a more determined and systematic study is necessary if improvements are to be made for sustainability of Water Supply and sanitation programmes.

B. TRAINING OF COMMUNITY WATER COMMITTEES AND "THE MULTIPLIER EFFECT"

NETWAS was contracted to train a Community Water Committee of the Muthambi 4K Water Project in the Meru area of Kenya, early in 1996. The first phase of the training was conducted from 14th - 19th April 1996. The second



phase was conducted in August 1996 and the third phase will be conducted in December 1996.

BROAD OBJECTIVES

- To uplift the living conditions of the community through development of sustainable rural water supply projects.
- To train management committees for full and independent community management of their water project.
- To enable the beneficiaries to be responsible for the operation and maintenance of their projects.

THE TRAINING PROGRAMME

The training programme was divided into three phases:

Phase 1

- ◆ Effective leadership
- ◆ Role of management committees
- ◆ Community mobilization and participation in development
- ◆ How to conduct effective meetings
- ◆ Effective time management
- ◆ Project management and sustainability
- ◆ Identification and utilization of resources
- ◆ Human relations
- ◆ Water resources management
- ◆ Effective communication

Phase 2

- ◆ Team building
- ◆ Decision-making
- ◆ Group dynamics
- ◆ Participatory project monitoring & evaluation
- ◆ Gender issues and concern in water supply and sanitation sector
- ◆ Environmental health
- ◆ Budgeting
- ◆ Community management & finance



- ◆ Stores management
- ◆ Hygiene education
- ◆ Fund Raising

Phase 3

- ◆ Operation and Maintenance:

This involves imparting of O&M skills to beneficiaries for effective O&M of their projects.

PHASE 1

For purposes of this paper, phases II and three are not reported. Detailed analysis is only available for Phase 1. Phase II was completed recently and Phase 3 will be conducted in December 1996.

After phase 1, the community members held a series of seminars to raise awareness and understanding as well as educating the community (beneficiaries) on various aspects relating to community participation and sustainability of their water project. Seminars were held at the locational, sub-locational and subunits level in conjunction with the Provincial Administration set up in the country.

AWARENESS RAISING SEMINARS CONDUCTED BY TRAINEES

1st Seminar - 11 June 1996

Locational Seminar

Place: Mutantani Chief's Office

Community Leaders Present:

- Chief of Muthambi Location
- 4 Assistant Chiefs
- Councillor Muthambi Location
- Chairman of the Ruling Party(KANU)

Facilitators:

- Project Chairman:
- Project Treasurer:
- 2 Committee Members

Participants:

Women - 72



Men - 98

160

TOPICS COVERED:

■ Community Participation

◆ Participants were introduced to the meaning of community participation:

◆ Participants learnt that community participation meant:

- Full involvement in trenching
- Supporting the project in cash and that projects fail when not supported by the community during the planning and implementation stages

◆ Participants were informed that their contributions will be as follows:

	Ksh.	US\$
Membership Fee	100	2
Share Capital	2,000	36
Meter Deposit	3,000	54
Connection/Fitting	2,500	45
Labour contribution	4,500	80
	<u>12,100</u>	<u>217</u>

■ SUSTAINABILITY AFTER THE DONOR PULLS OUT

Participants were informed that SIDA will pull out at the end of June after completion of the intake, building of sedimentation and storage tanks as well as the main line. The community is expected to contribute towards completion of the project.

◆ Future plans:

- Building alternative intake in Nithi River
- Develop an agricultural demonstration farm at Kanoro in Kandugu sub-location



- o Building an office block at Marima Market
- o Opening a store at Marima for pipes and water fittings

These measures will also contribute to employment creation and income generation.

■ **CONTRIBUTIONS:**

Participants were informed that their contributions would be Ksh.7,600 (US\$135) per person at the end of donor assistance.

■ **TIME MANAGEMENT:**

- o Time is a resource which cannot be recovered once used or wasted.
- o Time needs to be used wisely.
- o Time means doing work that brings highest benefits.

■ **SUSTAINABILITY**

- o Participants were informed about the need for meters.
- o Funds needed to maintain project after completion.
- o Money released would be used to pay salaries and fund-raising activities highlighted in future plans.

■ **HUMAN RELATIONS**

- o Good human relations important at this period.
- o The community should show love and understanding by listening to others.
- o Success depended on how they behaved themselves as there were saboteurs in their midst.

■ **EFFECTIVE COMMUNICATION**

- o People should discuss their problems freely including their expectations with themselves and members of the management committee.
- o Members should make sure they are listed at every fora.



■ **WATER RESOURCES**

- Tauru water project was expensive.
- Iriga had many streams and land was suitable for gravity flow.
- Community urged to guard against soil erosion and destruction of forests.
- Prevent farming in water catchment areas.

■ **OPERATION AND MAINTENANCE**

- ◆ Reason for meters was to regulate flow:
 - To facilitate adequate charging for use.
 - To generate funds.
 - To maintain project after completion
 - Employment creation
 - Economic development and poverty alleviation

■ **SUBUNITS SEMINARS**

Table 4. Sub-Units Awareness Seminars

Date	Sub-Units	Participants
1. 24.6.96	Nkumari & Kauni	56
2. 25.6.96	Nkandoni	23
3. 1.7.96	Kathungue	38
4. 29.7.96	Kaigani	39
5. 29.7.96	Kimuri	52
6. 31.7.96	Gichue-kariani	76
7. 9.8.96	Ikindu	34
8. 14.8.96	Iriga/Muguju	32
9. 19.8.96	Karigini	56



■ **COMMUNITY RESPONSE TO THE SEMINARS**

- Participants freely interacted with the committee.
- They asked questions, and made suggestions.
- They have shown confidence in the project.

At the end of the seminars, the communities were sufficiently sensitised to make contributions as shown in table 5.

Table 5. Community Contributions

ITEM	NO OF PEOPLE (K. Shillings)	AMOUNT COLLECTED
Entrance Fee	65	4,600
Share Capital	66	38,930
Meter Deposit	74	222,984
Connections	78	209,909
Total Collected		476,527 (\$8,991)

Members have also contributed in farm produce

- ◆ 5 Members transferred several kgs of farm produce to the projects account with Muthambi farmers society and is gaining momentum.
- ◆ 3,344 kgs were transferred and valued at Ksh.360,000 (US\$ 6,429).



REMARKS BY THE CHAIRMAN OF THE MUTHAMBI 4K WATER PROJECT TO NETWAS ON BEHALF OF HIS COMMITTEE

- ◆ The Water Project Committee and the entire Muthambi population benefitted immensely from the NETWAS training.
- ◆ More advanced management training in managing water project is desirable.
- ◆ The Committee is willing to raise awareness and train the community.
- ◆ The committee's aim is to have a successful water project which will be the pride of Muthambi location at large.

CONCLUSION

It is generally felt that with the Water Committee now armed with this management training, and with the snowball effect that we are presently witnessing, the necessary ingredients are being put in place to ensure sustainability of the benefits of this project.

GENERAL CONCLUSION

- This management training is contributing significantly to the sustainability of Water Supply and Sanitation Programmes/projects through these training as evidenced by the use with which our past trainees have put their acquired knowledge.
- Participants generally felt better prepared to handle various management tasks after the course, and indeed several of the trainees have been elevated to more senior positions and given more responsible positions.



**THE PRIVATE SECTOR IN
COMMUNITY WATER AND
SANITATION PROGRAMME IN
GHANA**

**THE CASE OF PARTNER
ORGANIZATIONS IN BRONG AHAFO
REGION**

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PROGRAMMES.



THE PRIVATE SECTOR IN COMMUNITY WATER AND SANITATION PROGRAMME IN GHANA: THE CASE OF PARTNER ORGANIZATIONS IN BRONG AHAFO.

INTRODUCTION

Experience worldwide and in Ghana has shown that water supply and sanitation facilities provided directly by institutions without the active participation of the end users are often not properly operated and maintained and hence unsustainable. The factors contributing to this are many and varied. One of them is the fact that ownership and control of such facilities is not vested in the end users.

However, evidence exists to show that most communities are willing and be able to actively participate in the provision of improved water supply and sanitation facilities. They can do this by contributing substantially to the planning, funding, implementation, operation and maintenance of improved facilities. The problem however is that, these strengths of communities are often unorganized, and hidden and thus not available to play a dynamic role in the provision of facilities. External support is therefore needed to mobilize and empower user communities to take the lead in the above activities and take on full responsibility for long term operation and maintenance.

In this direction, the Community Water and Sanitation Division (CWSD) in Ghana through the Community Water and Sanitation Programme (CWSP) has been designated to work through the private sector which has the effect of increasing implementation capacity leading to more widespread and sustainable coverage as well as increasing employment opportunities. Specifically, it is central to the CWSP approach to contract:

- Partner Organizations (POs) to assist communities in developing their own capabilities, provide technical assistance and deliver hygiene education.
- Hand dug Well and Borehole contractors to construct hand-dug wells and boreholes respectively.
- Water supply consultants to design and supervise rural and small town piped systems construction with the active participation of communities.
- Latrine artisans to construct household latrines.
- Hand pump and spare parts suppliers to supply pumps and pump parts respectively.
- Area mechanics to provide maintenance and repair services.
- Trainers (SBDUs, TREND, COWATER etc.) to provide services in human resource development.

This paper attempts to discuss the "Partner Organization Idea" in respect of its

- Composition and Nature
- Functions
- Links with other role players in the CWSP and
- Public sector support required.



An attempt is also made to bring out gaps created in the course of implementation and their implications on sustainability of facilities to be provided.

The paper does not however seek to present a blueprint of solutions to the problems faced by the POs, rather it gives recommendations which need further consideration and discussion.

STRUCTURE AND NATURE OF A PARTNER ORGANIZATION (PO)

WHAT IS A PO? A PO, under the CWSP concept, is supposed to be a locally based organization (NGO or commercial) under contract to provide planning and organizational services support to communities to enable the communities plan their own water supply and sanitation facilities.

STRUCTURE/COMPOSITION OF A PO

A PO is made up of the following:

1. Management Board
2. Administrative staff
3. Team Coordinator
4. Field staff.

FUNCTIONS

Partner Organizations are engaged to take up the Community Water and Sanitation Division's project preparation contract which includes assisting communities to plan, finance construction, and operate and maintain their own water supply and sanitation facilities and to provide focused hygiene education to help the communities take advantage of the facilities to improve their health.

Specifically, POs undertake activities in the areas of:

- Publicity, disseminating project information
- Community mobilization, ensuring women and minority group involvement in planning, establishment and or strengthening of Watsan committee, facilitate community needs assessment.
- Participatory planning, providing technical assistance in facility options and service levels that communities want, can afford and can maintain.



- Facility Management Plan (FMP) preparation, assisting communities to prepare FMPs, indicating proposed design, expected cost and management/financing plan.
- Facilitating Hygiene Education and environmental action programme.
- Follow up, consolidating Watsan committee and supporting the establishment of community management.

LINKS WITH OTHER ROLE PLAYERS

The POs have Links (directly or indirectly) with all the role players in the CWSP. However, their links with the DWST, the RWST (Regional Water and Sanitation Team) and the SBDU (Small Business Development Unit) are more frequent.

It is the SBDU that identifies and trains the POs. They also give the POs on-the-job support through monitoring of their activities. The DWST supervises and supports the POs activities. The RWST links the POs through its management of the project preparation contract, its participation in PO training's as well as its on-the-job support for DWSTs.

PUBLIC SECTOR SUPPORT

Although the public sector has shifted from provider to facilitator, in order to ensure more wide-spread and sustainable coverage of facilities, the public sector (CWSD) promises to make equipment and materials required by POs available under lease/buy arrangement, the cost of same reimbursed through deductions from contract payments.

WHAT IS ON THE GROUND

COMPOSITION AND NATURE

In Brong Ahafo, there are presently four (4) POs operating in seven (7) districts. One (Wenchi Village Water Project) is a religious organization already doing this type of work, combining it with borehole construction. Due to lack of small village or district level associations oriented towards self help activities, the three others were formed by groups of interested people to take up the project preparation contract.

With the exception of the Wenchi Village Water Project, the three other POs namely, Bureau of Rural and Urban Mobilizers (BRUM), Accelerated Grassroot Development Network (AGRADNET) and MAROD Rural Foundation (MAROD) have the following characteristics.



- Each of them is made up of at least twelve (12) members of staff with at most five (5) of them designated field staff. It is the latter who actually perform the PO functions in the project preparation contract.
- Many of their staff members are on secondment from other organizations and as such their loyalties are still with the parent organizations. Their total commitment to the CWSD work is therefore not fully guaranteed.
- The groups are adhoc in nature in that they came together to register as a body only for the purpose of taking advantage of a created opportunity i.e. the CWSD's Project Preparation Contract.
- Consequently, CWSP contracts are the only sources for their survival as a group.

✓ It is observed that the above is affecting the work of the field staff who many at times are not able to follow their work plans. If the CWSP continues to rely on 'adhoc POs' like those in question, the foundation they will lay in the communities will not be strong enough to ensure sustainability in future.

FUNCTIONS

Regarding the role they play, one cannot over emphasize their importance. They

- provide basic information on CWSP
- organize community meetings
- promote a gender sensitive process
- facilitate Watsan committee formation
- train Watsan committees
- facilitate technology choice
- facilitate preparation of FMP
- facilitate hygiene education and action programmes etc.

✓ The effect of all the above is that, communities are motivated to take up full and effective participation in planning their facilities, thereby creating a sense of ownership and further motivation for long term operation and maintenance.

Due to lack of equipment and requisite training for the POs however, the POs have a few setbacks in areas of

- identifying sites/location with high potential for handdug wells
- making of testholes in areas which give rise to doubts
- flow measurement of springs
- preparation of engineering design of selected options including layout, approximate
- capital and operation and maintenance costs.



✓ An observation made under the role the POs play however is that, all the functions they play as indicated above, and basically what all the PO contract is about, is performed directly by only the field staff and their co-ordinators, usually four or five in number. The implication here is that the establishment of the PO management board and administrative staff as well as the SBDUs whose job is to identify and train the POs are all there because of the four or five field staff and the work that they do on the field, and as such the management is top heavy.

LINKS

The numerous links of the PO's with other role players has in many ways increased communities' confidence in the PO's. The regular change of faces show how important the programme and for that matter the POs are. Communities therefore view with seriousness whatever they discuss with the Pos.

On another hand however,

- the POs see themselves as being supervised by too many groups, the DWST, RWST and the SBDU. This at times frustrates them.
- The SBDU and the POs see themselves as partners in the private sector as against the RWST and DWST as partners in the public sector. This leads to some kind of cold war between the Non governmental (anti-government?) and governmental (pro-government?) organizations: Between the SBDU and the RWST at the regional level and the POs and the DWSTs at the district level.
- Consequently, the POs tend to see themselves accountable only to the SBDUs since they were identified and trained by them.
- Between the DWST and RWST, also, the DWSTs see the RWSTs as programme staff who are better motivated. This situation has psychologically not motivated the DWSTs enough. They are therefore either lax in the work they do or exploit situations.
- Between the PO and DWSTs, the DWSTs see the PO as a highly motivated group than they themselves who are supervisors. To compensate for this, the DWSTs try to lord themselves over the POs, thus policing them for them to see "who is to supervise who".

PUBLIC SECTOR SUPPORT

The general observation is that, the public sector has not been able to meet deadlines in the procurement of equipment and materials required by the POs i.e. motor bikes, training manuals etc.



This has both short term and long term negative effects on the quality of the work of the POs. In the short run, it creates distortions and inconsistencies in their work programmes. This has the potential of weakening the long term sustainability foundation they are laying in the communities.

It must be mentioned here that experience so far has shown that one pick-up vehicle, instead of three motor bikes would be more efficient in the POs work considering the nature of existing roads especially during the rainy season.

RECOMMENDATIONS FOR FUTURE CONSIDERATION

The following recommendations are made not as a blue print of solutions but rather as issues for food for thought.

There is the need for well equipped and committed PO field staff who will perform the PO functions on full time basis. In this direction,

- Public sector support for POs should not only be prompt but in addition be increased. This can be considered along the lines of comparing the support provided to institutions at the regional level and above vis-a vis those to institutions at the district level and below.
- In terms of mobility in particular, consideration should be given to providing one pick-up vehicle for the PO field team instead of three motor-bikes.
- To ensure stability and consistency of PO activities, reliance on bigger and established organizations as POs instead of "ad hoc POs" should be investigated.
- The need to reduce the number of PO management board and administrative staff and hence expenditure should be looked into. Reliance on only one or two POs per region which will maintain their management board and administrative staff and spread over the region with field staff in the districts can be considered. In this direction, the CWSP can avoid establishing SBDUs in the regions but still rely on their services as and when needed as with, for example, TREND and COWATER.
- Alternatively, given the project preparation contract to the SBDUs directly so that they spread over the project districts with field staff engaged by them may be considered.
- Whichever form the PO takes, there is the need for its management to regularly visit the field in order to appreciate the problems of the field staff.
- The need to provide the necessary training and equipment to enable POs perform their functions adequately should be considered. Otherwise, there is the need to redefine their functions as stated in the project preparation contract



- To encourage team spirit among the role players, especially between the DWST and the PO.
 - Both should attend relevant training sessions together.
 - Team building workshop need to be organized for them.
 - DWSTs and POs should do or discuss their workplans together.
 - District Ownership and Management notwithstanding, the need for the donor and Central Government Financing to provide some kind of motivation for the DWSTs, should be considered.

CONCLUSION

From the foregoing discussion, it is obvious that the private sector, and for that matter the PO plays a very important role in ensuring sustainability of water and sanitation facilities provided. It is therefore the view of the writer that further consideration be given to the issues raised, in particular the nature of POs contracted and public sector support. It is hoped that the necessary changes here will go a long way to enhance the confidence of POs and other district level role players whose role it is to lay stronger and sustainable foundation upon which community ownership, management and control would be built to ensure long term community operation and maintenance.



PROMOTION OF RURAL SANITATION IN GHANA BRONG AHAFO EXPERIENCE

1. Introduction

In line with the need to promote sanitation alongside water supply in the rural sector, the Ghana Government implemented the Community Water and Sanitation Programme late 1994

This paper describes the implementation of sanitation in the rural areas of the Brong Ahafo Region with particular reference to the Wenchi District. The sanitation programme is essentially a demonstration one designed to provide a few units in each of a large number of communities.

A district qualifies for the community water supply if it accepts the sanitation component as well. And before the water supply component starts, the sanitation component should have begun. The sanitation component promotes domestic latrines for communities, communal latrines for schools, markets and clinics in rural areas.

Institutional Structure

At the District level of the CWSP is the District Assembly which is accountable to the community members in the district; they supervise and manage the District Water and Sanitation Teams (DWST). DWST are managers of the programme at the District Level.

Partner Organisations are contracted to strengthen community organisational capacity, lead the planning and design process, and establish community operation and maintenance capability.

Latrine artisans are trained under the CWSP to construct household latrines in their communities. The Regional Water and Sanitation Teams are the overall supervisors and promoters of the programme at the Regional level

2. Promotion of Sanitation

The promotion of sanitation starts from the District assembly orientation where district assemblymen (who are the community's representatives at the District level) are encouraged to send the news on the need for individuals in their constituencies to apply for latrines. They were also charged with the responsibility to nominate masons and carpenters in their constituencies to be trained as latrine artisans.

District water and Sanitation Teams and the artisans are supposed to promote (market) the programme.



Partner Organisations, who are specially engaged to promote, mobilize and train communities involved in the water supply programme in hygienic practices, also help in promoting the sanitation component.

At the same time, whenever the members of the Regional Water and Sanitation Team go to the communities, they also encourage individual householders to apply for latrines.

3. Conditions for Domestic Latrine construction

A District assembly qualifies for the Water Supply Programme if it accepts and opens a Sanitation Fund of not less than three million cedis (¢3,000,000.00) 2000 USD. The greater the amount a District assembly deposits for the sanitation component, the better its chances of joining the programme. The Sanitation Fund, is to be used to pre-finance the programme.

Applicants fill in a Latrine Construction Form supplied by the programme, and distributed to artisans by the DWSTs. Artisans give this form to prospective householders interested in household latrines and are ready to contribute half of the cost of a latrine either in cash or in kind. Completed forms are returned to the DWSTs who pass them on to the District Assembly for approval and funding. The District Assembly first gives 25% of the cost to the artisan to buy cement, roofing sheets, vent-pipes and nets. These are referred to as "imported" materials because they are not easily available in the rural areas. After completion of the construction, the District Assembly pays the second 25%. The amounts paid by the District Assembly to artisans are then reimbursed after inspection of the completed latrines.

Artisans are given three months to complete the latrine.

The other 50% of the cost of the latrine is borne by the beneficiary. Thus, if a beneficiary can provide all the materials the money paid by the District Assembly becomes the artisan's. In a nutshell, the beneficiary and the programme make equal contribution towards the cost of a domestic household latrine.

The District Assembly's Sanitation Fund is a revolving fund, to be replenished when latrines are completed.

The programme encourages the use of local materials for the construction of latrines.

4. Technology Choice

Householders are encouraged to choose from two options; a basic slab with an unlined pit of a Mozambique style latrine with a vent pipe and a San-plat style latrine with a vent pipe. The main technology envisaged for public facilities is the multiple (10-unit) KVIP. The programme has not yet undertaken public latrines.



5. Training

Both the District Water and Sanitation Team and the nominated artisans are trained in both the theoretical and practical construction of latrines. The DWSTs are trained so that they supervise the work of the artisans in the field.

6. Comments and Observations

- a) Because it is a new programme, policies on cost-sharing have not been stable. First the programme proposed equal cost-sharing but by the end of the 1995 session, the programme decided to pay only sixty thousand cedis (~~60,000.00~~) 40 USD as its contribution. Apart from the above problem, the real cost of the two types of latrine has not been stable because of inflation (cost of building materials keeps fluctuating).
- b) To cut down cost, the design has been modified and beneficiaries are encouraged more and more to use locally available materials. However, in certain communities the standardised materials like river sand and quarry chippings are not available. Most beneficiaries have refused to use the locally available materials as suggested by the program. For instance, some beneficiaries want to paint their latrines before use.
- c) The District Water and Sanitation Teams are supposed to be managers of the Sanitation Programme at the District level with little supervision from the Sanitation Engineer. However, they are incapable of this responsibility. The District Assembly has not been able to engage qualified people on the team. Apart from the above problem, the District Assembly (DA) is incapable of running yet another department in its office. It is envisaged that the DWSTs will be the responsibility of the DA. However, most often, the DWST is not able to execute programmes because the DA has no funds.
- Latrine construction by artisans should be closely monitored by the DWSTs but because of the above problem, monitoring has been ineffective.
- d) In a zone, the soil formation was lateritic and difficult to penetrate. Almost a year after the programme started one artisan could not complete his trial latrines because he could not break into the laterite rocks neither could any other person. The presence of lateritic stones has delayed the programme in this zone. Slabs have been transferred from such areas to other beneficiaries in different communities
- e) The approval for latrine construction coincided with the reading of the 1995 budget. Thus prices of building materials shot up a day after artisans had been given their cheques and



provision was not made for the unforeseen so the artisans worked at a loss. Some of the artisans therefore left the job for greener pastures in the district.

In a community one artisan has failed to execute the programme - he used the money for a bicycle.

The DWST had to solicit the help of the Police to bring him to book.

- f) In a community the water table was very high and the soil formation loose in yet another.
- g) Construction of household latrines is in the right direction. However, supposing all households in a community have their individual latrines, the effect may be detrimental considering the pollution to the ground water and the availability of land in the future.
- h) The technology choice of latrine in the rural area poses a problem because both cement and iron rods have to be transported at great cost. Thus making the latrines expensive.
- i) Many people especially the middle class have expressed the desire for household latrine. However, some of them have not met the condition of cost-sharing; causing delays. In three communities, artisans have been able to construct for individuals without subsidy.

Conclusion

The domestic household sanitation programme is new and every new programme has its teething problems. As the programme proceeds most of these problems will be solved.

FATI MUMUNI
Training & Management Officer

ACRONYMS

DA	-	District Assembly
DWST	-	District Water and Sanitation Team
RWST	-	Regional Water and Sanitation Team
PO	-	Partner Organisation



CREPA-GUINEE

**Huitième Conférence Africaine
RIF**

Du 25 au 29 Novembre 1996
Accra, GHANA.

**Quelle stratégie pour pérenniser la gestion
des déchets solides à Conakry.**

Communication présentée
par: Daouda CAMARA, Ing. sanitaire
Directeur CREPA-Guinée.



PROBLEMATIQUE DES DECHETS A CONAKRY

I- Introduction

La gestion des déchets solides à Conakry, constitue à l'heure actuelle, une préoccupation majeure des autorités gouvernementales, des bailleurs de fonds et des populations de la ville, dont la recherche de solutions fiables demeure l'une des priorités du gouvernement.

II- Analyse de la situation

La collecte et l'évacuation des ordures dans la ville de Conakry s'effectuent grâce au service de l'UPSU (Unité de Pilotage des Services Urbains), des PME, des ONG et de certains bénévoles.

On évalue la production journalière des déchets de Conakry à 0.4kg /hbt/j, soit 600 tonnes par jour pour une population d'environ 1.500.000 habitants. La quantité de volume évacuée à la décharge publique est de 120 T/j équivalent à 20% de la production journalière.

Le volume total non acheminé vers les décharges publiques est évalué à 480 T/j, pour 960 m³ avec une densité de 0,5 T/m³. Ces quantités sont soit stockées, incinérées, jetée à la mer, etc.

cette faiblesse de la capacité d'évacuation des déchets pourrait s'expliquer par un sous équipement des structures opérant sur le terrain; du faible revenu des populations, du manque de politique en matière d'assainissement, des technologies et stratégies utilisées, ...

Tous ces facteurs contribuent à la dégradation incontrôlée de l'environnement urbain de la ville de Conakry.



III- Expériences et actions sur le terrain

Depuis un certain temps, il existe des structures qui interviennent dans le secteur des déchets à Conakry, en plus des expériences tentées et des actions sporadiques des bénévoles.

A- UPSU

C'est l'Unité de Pilotage des Services Urbains de Conakry (UPSU) créée en 1987 et dotée d'une certaine autonomie administrative et financière. Elle reçoit les subventions de la ville de Conakry et du gouvernement pour pouvoir fonctionner.

- Equipements

L' UPSU dispose d'un parc automobile important dont plus de 50% des véhicules ne fonctionnent pas. Elle est équipée de lèves conteneurs, de bennes tasseuses, de camions bennes, d'un hydrocureur, de plusieurs conteneurs dont la plus part est hors services.

- Stratégie / Couverture

L'UPSU ayant une couverture très faible, par son sous équipement, n'assure réellement le service que dans la zone de Kaloum (Centre ville) et auprès de quelques institutions et gros producteurs de déchets. Sa stratégie est la suivante:

- Tournée des bennes tasseuses dans la zone de Kaloum
- . Dépôt des conteneurs dans les lieux publiques au niveau des quartiers
- . Chaque ménage déverse ses ordures au passage de la benne tasseuse (service gratuit)
- . Des conteneurs remplis, très souvent débordés, sont évacués à la décharge pour des lèves-conteneurs.



PROBLEMATIQUE DES DECHETS A CONAKRY

- . Des camions bennes tentent d'évacuer des déchets sur certains dépôts sauvages dans les quartiers
- . Récupération de coût auprès d'une catégorie de clients (institutions, industries, etc).

- Difficultés/Contraintes

- . Personnel pléthorique
- . Sous équipement par les services
- . Manque de subvention nécessaires pour mieux fonctionner
- . Non recouvrement des coûts auprès des ménages
- . Financement de la Banque Mondiale arrêté
- . Manque de réglementation en matière d'hygiène publique
- . Absence d'autonomie réelle dans la gestion des services
- . La stratégie utilisée ne permet pas un recouvrement direct auprès des ménages

B- Des PME

Au vu de la problématique des déchets à Conakry, il a été constaté la naissance de plus d'une dizaine de PME ayant voulu s'impliquer dans la gestion des déchets.

En réalité, on ne peut compter que 3 PME qui opèrent efficacement sur le terrain :

.B-1 Poubelle de Conakry

PME opérationnelle dans certains quartiers de la ville et dotée également d'une certaine autonomie administrative et financière avec un personnel de 5 cadres et de 16 personnes auxiliaires.



PROBLEMATIQUE DES DECHETS A CONAKRY

- Equipements

Poubelle de Conakry a pu évoluer sur le terrain grâce a un ensemble de matériel obtenu dans un état plus ou moins opérationnel et se présentant comme suit :

- Camion benne tasseuse : 2
- Lève conteneur : 1
- Camion benne basculante: 2
- Hydrocureur: 1

En plus de ces équipements cités ci-dessus, Poubelle de Conakry dispose d'autres petits matériels lui facilitant les opérations de ramassage.

Comme tous les autres services de ramassage des ordures à Conakry, cette PME est confronté à de multiple pannes de véhicules et des charges élevées de fonctionnement.

- Stratégie

- Rechercher des marchés des contrat auprès des institutions, des industries, des centres commerciaux et des quartiers;
- Pose des conteneurs dans les lieux publics ou ciblés suivant le contrat;
- remplacement des conteneurs remplis par des conteneurs vides;
- Tournée des camions bennes tasseuses (souvent dans des zones fixes comme les marchés, les centres commerciaux, ...);
- Dégagement des grandes quantités d'ordures dans des camions bennes basculentes.



PROBLEMATIQUE DES DECHETS A CONAKRY

- Activités Principales

- Précollecte et collecte des déchets;
- Vidange des fosses septiques, des latrines;
- Acheminement des déchets à la décharge publique;
- Dépotage des boues de vidange, généralement en bordure de mer.

- Difficultés/Contraintes

- Pannes fréquentes des véhicules;
- Dépenses de fonctionnement élevées;
- Personnel moins qualifié dans le domaine de la gestion des déchets;
- Peu de marchés potentiels dans les quartiers.

B-2 Lavenet

Cette PME est présente sur le terrain depuis plus de 3 ans et affiche une certaine crédibilité vis à vis de ses clients dont la majorité représente les institutions et les grands centres commerciaux. Cette crédibilité est due surtout à l'état appréciable de son parc.

- Equipement

Elle ne dispose que de 4 bennes tasseuses en état de fonctionnement. Il faut retenir de même que cette PME a plus de 2 camions bennes tasseuses hors fonctionnement.

En plus de ces camions, Lavenet dispose d'autres petits matériels de nettoyage.



PROBLEMATIQUE DES DECHETS A CONAKRY

- Stratégie

- Recherche de contrat;
- Tournées des camions pour le ramassage des ordures;
- Constitution des équipements de nettoyage des bureaux.

- Activités principales

- Précollecte et collecte des ordures;
- Evacuation à la décharge publique;
- Nettoyage et entrétien des Bureaux;
- Aures Prestations de service.

- Difficultés/Contraintes

- Frais de fonctionnemnt élevés;
- Marchés de contrats limités;
- Manque d'institutionnalisation dans le secteur;
- Stratégie et technologie non conformes à tous les quartiers;
- Moins de contrats avec les municipalités

B-3 INACAV

A l'image des autres PME, INACAV se force à être présente sur le terrain avec peu de moyens par rapport aux autres et cerne certains quartiers de la ville.



PROBLEMATIQUE DES DECHETS A CONAKRY

- Equipement

Contrairement aux autres, INACAV dispose à l'heure actuelle que de deux tracteurs avec remorques en plus du petit matériel et des poubelles fournies aux clients.

Le deuxième tracteur vient d'être obtenu par INACAV grâce à un appui de CREPA-Guinée dans le cadre de la mise en oeuvre de son programme d'activités.

- Stratégie

- Recherche de marchés de contrats;
- Tournée du tracteur dans les quartiers pour la précollecte, collecte et l'évacuation à la décharge publique;

Un dépôt de transfert a été tenté sans succès.

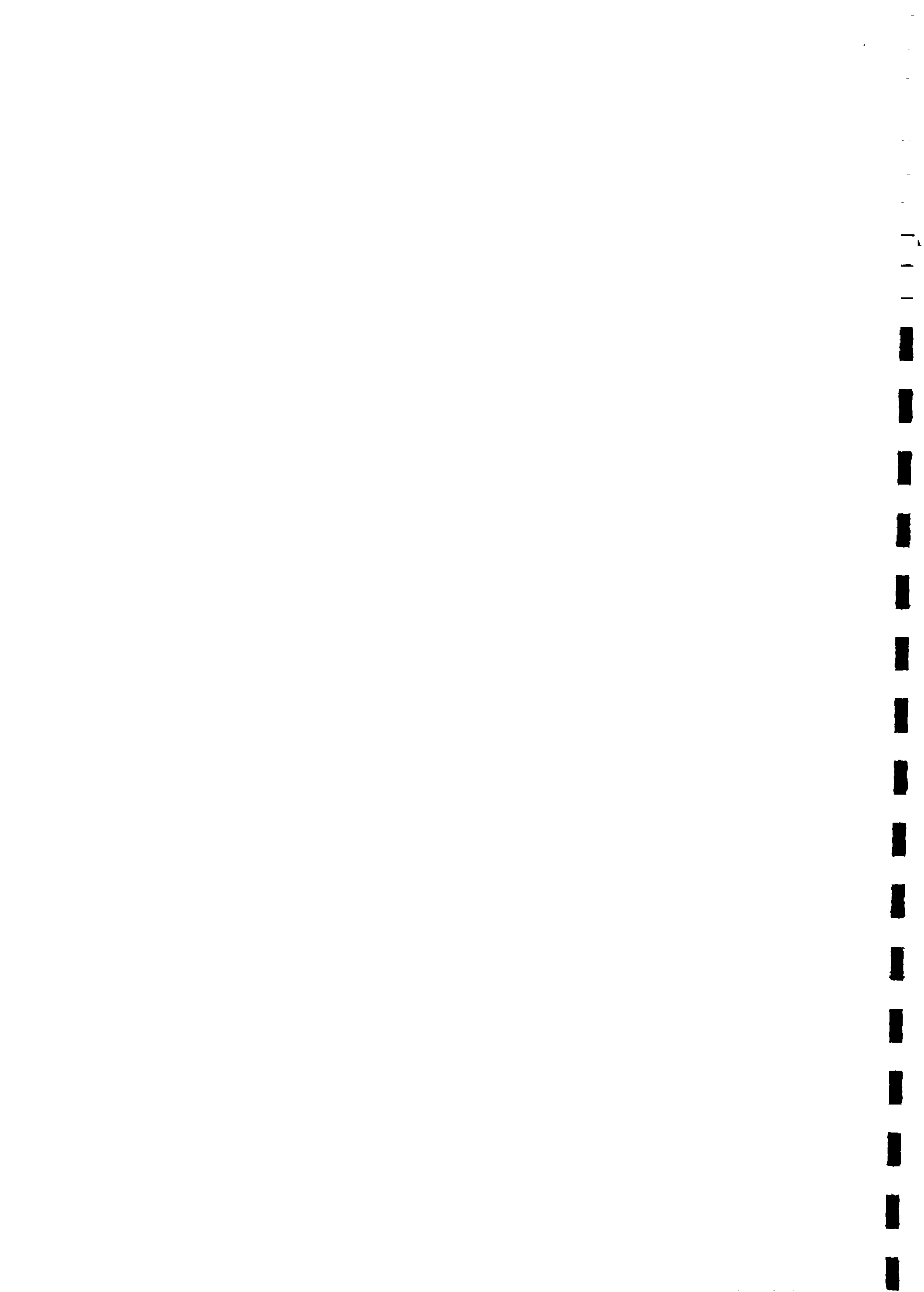
- Fourniture de pelles aux clients;
- Transport des déchets du poste de transfert à la décharge (Projet Gbessia cité de l'Air).

- Activités Principales

L'activité principale de l'INACAV se résume^à la gestion des déchets solides.

- Difficultés/Contraintes

- Moyens de financement limités;
- Peu de clients potentiels;
- Faible capacité opérationnelle;
- Dépenses de fonctionnement élevées;
- La stratégie de collecte peut être coûteuse.



C- Programmes et Projets

Dépuis les années 90, des initiatives ont été lancées en matière d'assainissement intégrés à d'autres composantes. Il s'agit entre autres :

C-1 Programme d'appui au développement Urbain (PADU)

Ce programme a été initié par l'UNICEF et le Gouvernement guinéen dont les principales actions étaient :

- Gestion des ordures ménagères;
- La réalisation des BF;
- Amélioration des puits traditionnels;
- Construction des latrines;
- Volet IEC.

Pour un départ, ce programme n'a ciblé que deux quartiers: Hafia mosquée et Bonfi Port, tous considérés comme des quartiers démunis.

- *Expérience de Hafia mosquée(OM)*

L'expérience déchets solides a été utilisée pour ce seul quartier:

- Méthode participative;
- Mise en place d'une unité de collecte des ordures;
- Mise en place des équipements;
- Aménagement des aires pour le dépôt de conteneurs;
- Confection et/ou location des conteneurs avec l'UPSU;



PROBLEMATIQUE DES DECHETS A CONAKRY

- Paiement des frais de collecte pour l'évacuation des conteneurs remplis à la décharge et paiement des prestations à cette dernière par le programme;

- Tout le volet appuyé par une campagne de sensibilisation.

- Durée de vie de composante

Si les autres composantes du programme ont pu survivre jusqu'à l'échéance (1996), la gestion des déchets solides n'a pu fonctionner que pendant un certain temps, car l'unité de ramassage des ordures a cessé ses services il y a plus de deux ans.

- Quelles leçons à tirer

Suivant l'analyse de la situation, l'échec de cette initiative pourrait être éventuellement attribué à plusieurs facteurs dont entre autres:

- Mauvaise gestion des recettes;
- Coût de fonctionnement élevé par rapport aux recettes bien que subventionné (enlèvement des conteneurs);
- Stratégie et équipement utilisés;
- Perception des problèmes de déchets par les populations;
- Personnel de l'unité moins compétent en matière de gestion des déchets;
- Difficultés d'accès auprès des ménages;
- etc.



PROBLEMATIQUE DES DECHETS A CONAKRY

C-2 Programme d'assainissement lancé par AFRICARE

L'Africare est une ONG américaine qui intervient dans plusieurs secteurs de développement avec un volet assainissement.

Vu la situation alarmante des déchets à Conakry, cette ONG a initié un programme important d'assainissement et comportant des volets suivants:

- Nettoyage des lieux publics;
- Curage des caniveaux;
- Nettoyage des corniches;
- Formation des ONG;
- Construction des caniveaux d'eau pluviale.

- Strategie

- Opération genre coup de balais;
- Mobilisation(location) e plusieurs camions;
- Travaux à haute intensité de main d'oeuvre;
- Action limitées dans le temps;
- Négociation avec les opérateurs comme PME et syndicat des transporteurs;
- Couverture médiatique des opérateurs sur le terrain.



PROBLEMATIQUE DES DECHETS A CONAKRY

- Leçons à tirer

- Les actions menées ont eu un effet positif à la période, c'est à dire lieux d'assainissement publics assainis;
- par contre, l'état des lieux est redevenu à la situation initiale quelques mois plus tard;
- les populations sont moins impliquées dans les opérations (prise de décision, stratégie, suivi)
- les opérations genre « coup de poing » ne constituent pas une solution définitive;
- coût des opérations élevé par rapport au profit.

C-3 CREPA-Guinée

Le CREPA-Guinée a initié un projet intégré de gestion des ordures et des fontaines dans un quartier de Conakry « Gbessia cité de l'air ».

- composantes

- gestion des ordures ménagères;
- gestion des bornes fontaines;
- IEC.

- Stratégie

La stratégie du CREPA-Guinée est basée essentiellement sur l'approche participative:

- Définition des critères de choix et d'intervention;
- Appui à une structure relai (ONG) avec formation;



PROBLEMATIQUE DES DECHETS A CONAKRY

- Appui à INACAV;
- Planification locale;
- Enquête ménage;
- Restitution sur les résultats de la planification locale et l'enquête;
- Mise en place des équipements;
- Réalisation des ouvrages (poste de transfert);
- Suivi du bon fonctionnement.

- résultats escomptés

- Adhésion effective de la population au projet;
- Autonomie de gestion de l'ONG;
- Pérennisation du système mis en place.

C-4 Actions prioritaires du gouvernement

Compte tenu de la situation critique des déchets solides à Conakry, le gouvernement a initié un vaste programme d'urgence qui comportera les actions suivantes:

- Gestion des ordures avec les PME;
- Sensibilisation de la population.

- Strategie

- Gestion du programme par un opérateur;
- Intervention des PME dans les quartiers;
- Paiement des frais de service par les ménages abonnés;



PROBLEMATIQUE DES DECHETS A CONAKRY

- Campagne d'IEC.

- Durée du programme

Ce programme devra durer environ 16 mois en attendant la mise en oeuvre du 3^{ème} projet urbain qui sera appuyé par la Banque Mondiale.

- Autres actions prioritaires

- Aménagement d'une nouvelle décharge contrôlée;
- Recherche d'une approche pérenne pour la gestion des déchets à partir des expériences sur le terrain.

- Stratégie envisagée par le 3^{ème} projet urbain

- Réorganisation de l'UPSU en service commercial;
- Subdivision de la ville en zones pour la fourniture des services de collecte des déchets solides et de nettoyage;
- Accord de franchise pour la fourniture de service à l'intérieur des zones;
- Attribution de la première zone (par importance) à une entreprise étrangère sur appel d'offre international;
- Appel d'offre au niveau national pour les autres zones;
- Affectation d'une zone à l'UPSU réorganisé;
- Gestion de la décharge par l'UPSU ou par une entreprise privée.

IV- Conclusion

Les expériences ci-dessus examinées donnent un aperçu très complexe pour une stratégie fiable de gestion des ordures ménagères de la ville de Conakry.



PROBLEMATIQUE DES DECHETS A CONAKRY

Il est évident que pour maîtriser cette situation, il est indispensable que les populations soient impliquées à toutes les phases de décision en utilisant les technologies appropriées /stratégie ayant fait leur preuve dans d'autres capitales africaines.







ABSTRACT

SARAR ; The Mistress of Change In Distress

A Case Study on the sinking image of the Sarar Participatory methodology in Ghana

Presenter: Oliver Frimpoing, Communications Expert, TREND.

The Sarar participatory technique was first introduced into Ghana in the early 1990s to staff of the Training Network Centre (TNC) at the University Of Science and Technology by Mr. Ron Sawyer, a PROWESS external consultant. The funding and executing agencies of the Centre's programme, the World Bank and the United Nations Development Agency (UNDP) selected the Sarar as the most appropriate participatory methodology for the Centre's human resource development training activities. As to what criteria the two bodies used for the choice of the methodology, it was and still difficult to explain. But one fact remains indisputable. The TNC staff and subsequent beneficiaries of the methodology found in Sarar a real participatory technique upon being field tested, after a ten-day workshop. For a time the methodology kept a high profile However this situation did not continue for long The Sarar technique has now rolled down the hill and is now in the doldrums. A number of reasons is accountable for this This paper attempts to trace these reasons and make suggestions for the revival of interest in the methodology to make it sustainable and effective for the sector's human resource development in Ghana.



SARAR - The Mistress of Change in Distress

A Case Study On the Sinking Image of the Sarar Methodology In Ghana.

By

Oliver Frimpong,
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Introduction

Possibly, as we turn over the pages of the history of the International Water and Sanitation Decade and look closely at its achievements, milestone by milestone, we cannot help being impressed by the immense efforts that have been made by individuals, groups or organisations - national and international - to develop appropriate methodologies and approaches to promote the ideas, ideals, the vision and aspirations of the Decade. Especially in the areas of human resource development and information dissemination we need not go too far afield, to acknowledge that the concept of community participation as enunciated by the Decade has led us to develop tools and methodologies of various kinds and forms that we have so far used to articulate the thinking of the Decade in order to help the ordinary community member to identify and solve problems all by her or himself. One of these participatory tools which has in no uncertain terms found international favour in the sector is the SARAR.

Sarar is a participatory methodology which was pioneered and has been championed by PROWESS - the Promotion of the Role of Women in Water and Environmental Sanitation Services. Sarar is a flexible methodology using non-traditional learning materials and training exercises, which aims to stimulate and release - through a combination of skills, teamwork and a positive learning environment - the creative energy of participants and communities while addressing community needs and problems. This development of local capacity is essential for sustaining low- cost water and sanitation services.

Ghana and the Sarar Methodology

The Sarar participatory technique was first introduced into Ghana in the early 1990s to the staff of the Training Network Centre (TNC) at the University of Science and Technology by Mr. Ron Sawyer, a PROWESS external consultant. TNC had been established under a World Bank - UNDP program as a Centre for Human Resource Development and it became urgent for the staff of the Centre to acquire knowledge in the use of a participatory technique for its training programs. The executing agencies of the Centre's programme chose Sarar as the most suitable for the Centre's training activities. As to what criterion they used for the choice it was difficult to say at that time. But one thing was quite indisputable. The staff found in the Sarar technique a real participatory methodology which upon field testing after almost a ten day workshop was found to be really participative in every sense of the word. The Centre later used it quite successfully and effectively in the training of field workers of two UNDP Water and Sanitation pilot projects in both the Volta and Eastern Regions of Ghana and also



for the Danida-funded Volta Region Water Supply and Sanitation Project in the initial stages of training of its extension supervisors.

Sarar rolls down the hill

It must be noted that the Sarar training programme was not limited only to the staff of the TNC. Some staff members in the Ministry of Health, the Department of Community Development, an incipient non-governmental organisation under the funding of ODA focusing its programme on Health and Hygiene Education (which later became known as the Health Education Unit) students of the Faculty of Art of the University of Science and Technology who had been assembled to prepare materials for the first training workshop became beneficiaries of the Sarar approach. The Health Education Unit when it later became functional used part of Sarar in its health and hygiene message deliveries. These included the three pile sorting exercises and the story with a gap. The rest of the Sarar tools, sadly, found their way into the garbage bin.

Students of the Art Faculty were not outdone in the use of the Sarar methodology. One of them used it as his project work in his final year studies and obtained a first class honours degree. He later built a Sarar paper box tools kit which became a blueprint for the improved participatory tools kit prepared by TREND and which is currently being used by the Volta Region Water Supply and Sanitation Project for the delivery of health messages in various communities in its catchment area.

By these developments, events and Sarar training activities the TNC at that time managed not only to create Sarar awareness but succeeded in putting the methodology on a high profile pedestal.

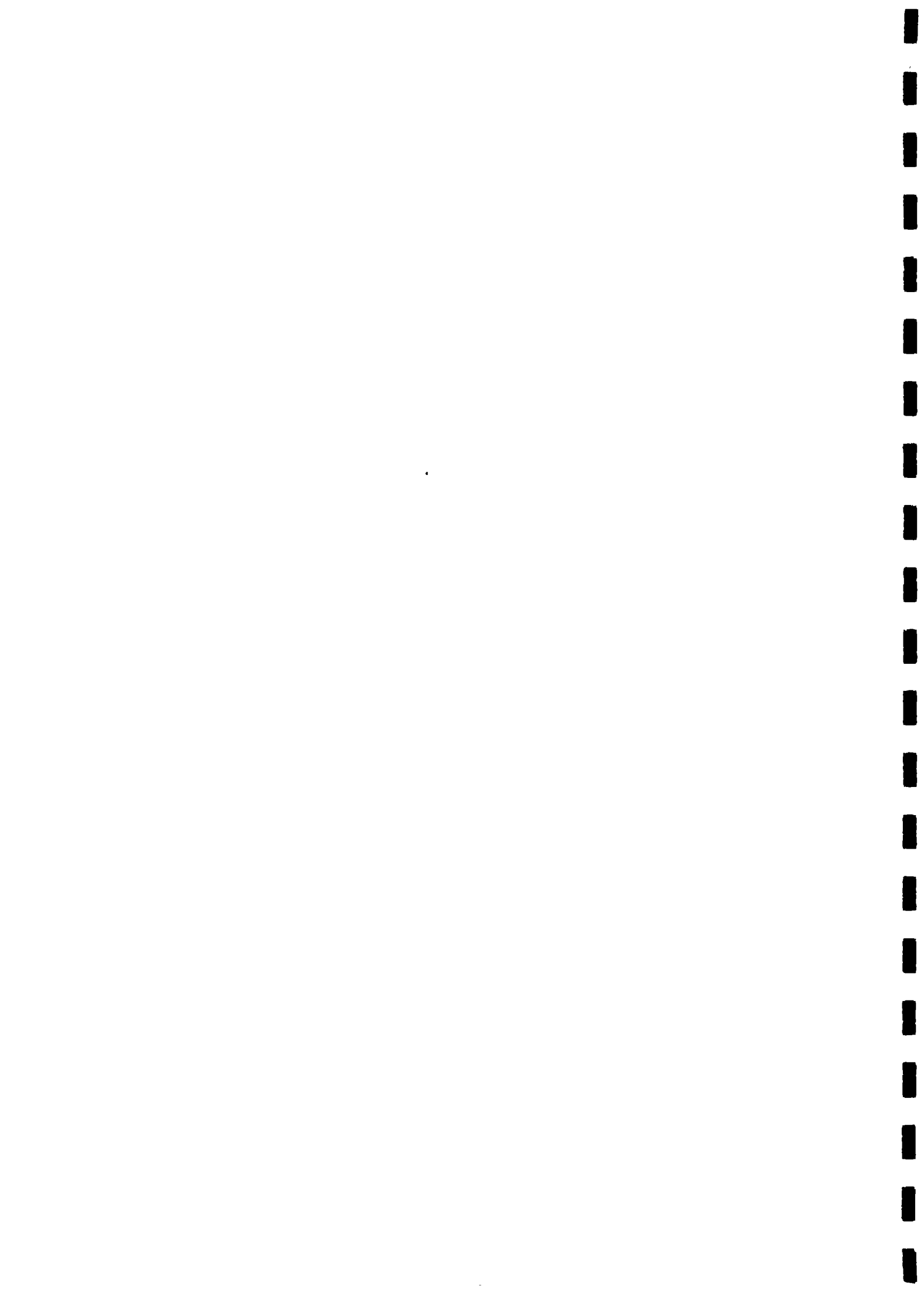
Having been successfully trained in the use of the Sarar methodology one would have thought that the staff of the Department of Social Welfare and Community Development for instance, would fully use it to change their hitherto directive approach to development programmes in their interaction with the communities but the use of Sarar appears to have ended with the end of the workshop organised for them by the TNC.

“Sarar” one staff member of the Department recently remarked “that effeminate, expensive, impractical and time wasting methodology has been off my books and mind for a long, long time” He was actually articulating the minds of many who have pushed this gentle and patient lady of effective and sustainable change down the hill.

This is because a close evaluation of the training workshops and the extent of the use of the Sarar methodology indicate that the methodology is either not been fully utilised or has been completely abandoned.

Enthusiasm for Sarar seems to be waning fast with the methodology in acute distress in Ghana even in the face of the wide distribution of Sarar participatory tools kit to a number of sector organisations by PROWESS. Sarar needs to be salvaged from the doldrums where it is sinking fast in Ghana.

Personal field and Workshop experiences outside Ghana



Recently, I have been closely associated with the development of Sarar as a tool for the community worker in two workshops I helped organise, first, in Mali and then in the Republic of Togo and I have been quite impressed with the efficacy of the Sarar tools both in workshop situations and in the field. My conclusions are that Sarar is effective, simple, situation specific and has the power to draw or elicit from communities the causes and effects of their problems. Whether in Tienfala in Mali or Tsevie in the Republic of Togo the response has been quite fantastic. No doubt under Crepa, WHO has formally adopted Sarar as a tool for community development.

Causes of loss of Interest

The following factors which are mainly attitudinal have been traced as reasons for the almost complete loss of interest in the Sarar methodology, specifically in Ghana. They need to be addressed to be able to rehabilitate Sarar in Ghana. They can also serve as indicators in areas where Sarar faces similar problems.

- ◆ Lack of creative skills on the part of trainers. Creativity is one of the essential bulwarks of Sarar. Efforts to develop pictures or images to demonstrate the Critical Incident concept have almost always invariably ended in fiasco.
- ◆ The inability to distinguish between Sarar tools which are practicable for field or community work and those which favour attitudinal changes for trainers. In workshop situations, Joharis Window for instance, is meant to inculcate in the participant at a workshop the need for openness in the interaction with the community, while the story with a gap is a practical planning tool in the community. That is why at Sarar workshops great pains are taken to distinguish between practical and theoretical tools. Sarar tools have been grouped as being analytical, informative, planning and investigative.
- ◆ The inability of trainers to conceptualise ideas which artists can easily and physically represent on paper. Sarar is picture based and appropriate pictures are essential for specific and accurate message delivery.
- ◆ The tendency of trainers to try to teach communities how to do a Sarar activity or how to use a Sarar tool instead of the trainer using the tool to help communities to solve their problems.
- ◆ The inability of trainers to practicalise theoretical tools to make them understandable. Using images of people in different postures to demonstrate such a theoretical tool as Sarar Resistance to Change Continuum has been most effective.
- ◆ Inability of trainers to cut down on verbal communication and set simple tasks requiring multi-sensory approach as required by Sarar makes the methodology quite unattractive for many.
- The tendency to doubt the community members ability to perform certain Sarar exercises, such as Participatory Community Mapping, makes trainers hesitant in using the Sarar methodology.



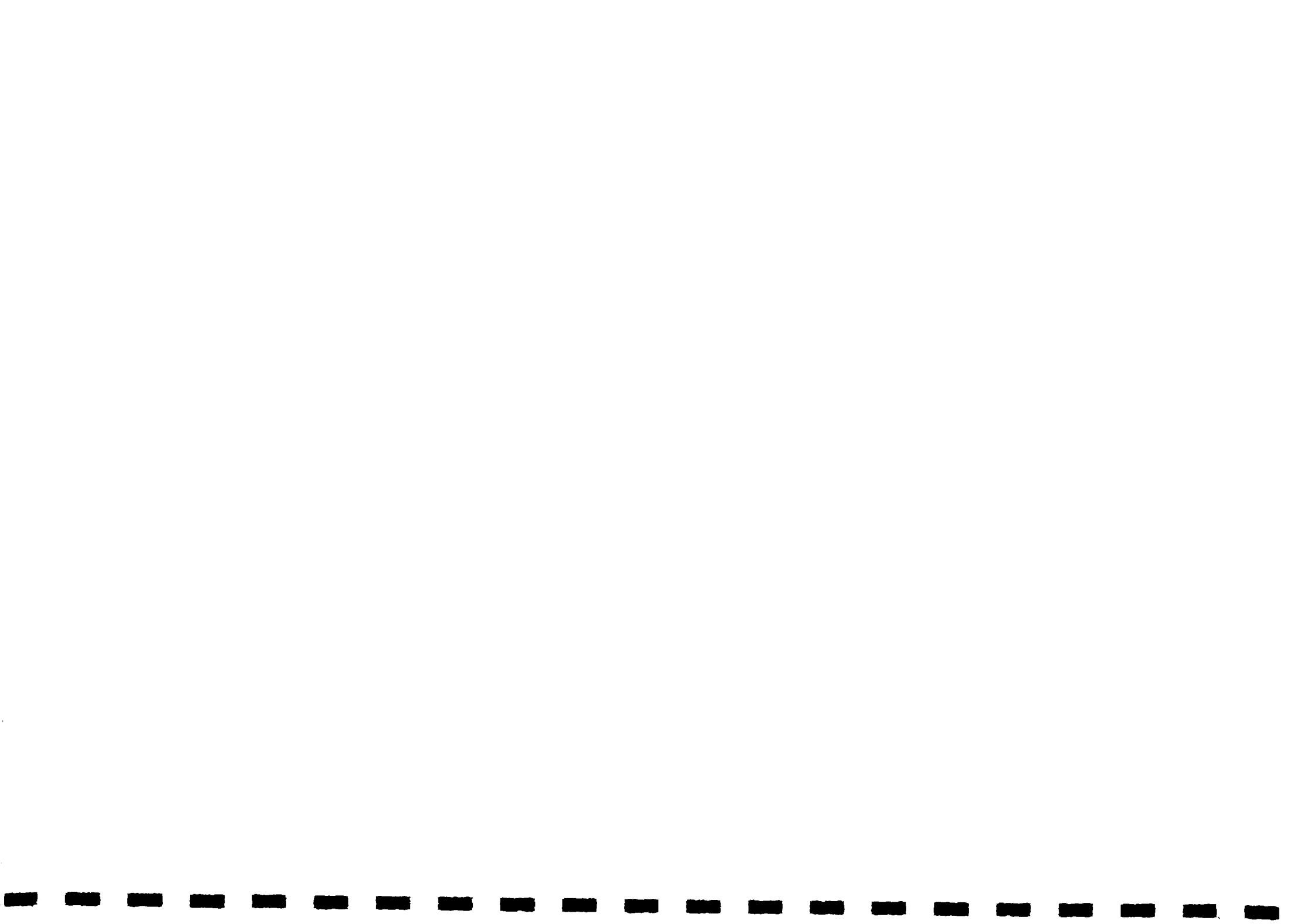
- Preparation of Sarar materials is often found to be quite expensive, the field activities are thought to be time-consuming. These coupled with impatience to reach set goals at the shortest possible time make people a bit hesitant in using Sarar. But Sarar is patient and eventually merits the investment in time.
- Most trainers lack flexibility and adaptability skills. They are too stereotyped, with a penchant for text-book stuff. Sarar tools are flexible with an in-built element that makes it possible for the user to adapt to changing situations and conditions.
- Currently, there is a dearth of knowledge about Sarar within the ranks of policy makers, sector training organisations, managers and co-ordinators of water and sanitation systems and a vast number of field workers in Ghana.
- Difficulty in working out and following a rationalised procedure for introducing Sarar activity in the field.
- Distribution of Sarar methodology publications and tools by PROWESS to organisations and individuals who have no training in the methodology and therefore find it difficult to use them.

The Way Forward

Ghana has almost always played a lead role in Africa's developmental activities. The first ITN Centre for human resource development in West Africa was established in Ghana under the name "Training Network Centre (TNC)" for human resource development, funded and executed, as we have seen above, by the World Bank in collaboration with the United Nations Development Project (UNDP). As a result, it became the first beneficiary and the torch bearer of the Sarar Participatory Methodology in West Africa. Unfortunately, for the above reasons, enthusiasm for Sarar has sunk to considerable depths. In countries like Kenya (where in 1990 I participated in the Workshop for the Participatory Evaluation and Monitoring of Projects using the Sarar approach) and in most East African countries Sarar is being used effectively to help communities solve their own problems. Ghana should not lag behind in the use of this exciting and very effective tool. I therefore make the following suggestions for its effective usage in the sector in Ghana.

Since TREND has played an immense pioneering role in the dissemination of knowledge in the methodology and has experience in its use it should be helped to do the following :

- ◆ TREND, with the assistance from the Community Water and Sanitation Project and / or the Danida funded Volta Water Supply and Sanitation Project, two of its main clients in Ghana, should as a matter of urgency, organise a series of Sarar participatory workshops for sector trainers and field workers from government and non-governmental agencies.
- ◆ Ghana should follow the Bamako experience. In March this year, under the aegis of Crepa Oaugadougou, an 18 - day Sarar participatory workshop was organised for eight Franco - phone countries. Over twenty participants were introduced to the Sarar methodology both in the classroom and in the community. TREND, like its counterpart CREPA, with its



human and material resources, knowledge and experience in the Sarar methodology should be assisted by an external agency, such as the World Health Organisation (WHO) or its old friend the United Nations Development Project (UNDP), United Nations Children's Fund (UNICEF) to organise a version of the Bamako Workshop for Anglophone West Africa

- ◆ Through the various sector media, beneficiaries of the Sarar approach should be urged to revisit the methodology, make their views known to enable TREND identify, discuss and help find solutions to the problems they must have encountered in the course of using the methodology
- ◆ To help cut down on production cost of Sarar materials, the Materials Development Unit of TREND should be supported financially by an external agency to help disadvantaged organisations, especially governmental agencies, to develop situation specific graphics for the use of Sarar in their activities.
- ◆ The ITN could lend its support to the efforts of TREND by channeling the supply of publications and other Sarar materials and manuals through TREND to ensure proper distribution to deserving organisations. Hitherto, such materials have been supplied to sector staff who have never had any training, formal or non- formal, in the Sarar methodology. A vast number of these have never been used by their beneficiaries.
- ◆ A number of sector training organisations in the country do not possess specific tools for their training activities, apart from knowledge in a set of participatory techniques which their training staff use occasionally in their activities. Knowledge in, and the use of specific tools such as Zopp, Theatre, Participatory Rapid Appraisal, Songs and Social drama and the Sarar Participatory methodology is rather low - a situation which upon close observation lead some of us to put a question mark on the quality of our training. Personally I find the Sarar methodology a simple tool for our trainers and recommend its extensive usage.

Procedure for introducing Sarar activity.

As mentioned earlier one of the problems faced by trainers using the Sarar methodology has been the difficulty in identifying a systematic and rationalised procedure for the presentation of Sarar exercises and activities. The following procedure which form part of my field experiences is worth trying.

- ◆ Establish a rapport with the community
- ◆ Introduce the topic
- ◆ Pass pictures round to allow users or participants to feel and describe what they see
- ◆ Establish mutual understanding of pictures



- ◆ Proceed with activity Promote good communication by
 - bringing out opinions
 - encouraging the expression of various viewpoints
 - calling attention to strong disagreements. When handled well, differences of opinion yield creative solutions
 - asking people to speak for themselves and be specific.

- ◆ Keep the role of facilitator as neutral as possible

- ◆ Keep discussion to relevance

- ◆ Keep track of time

- ◆ Ask the Question “ Do you think you have these problems in this community ? “

“ So what do we do to solve these problems ? “

Let me end this presentation with the old saying “ One good picture is worth a thousand words “. It is in this that one finds the effectiveness and the strength of Sarar, the mistress of change in distress in Ghana.



**SOLAR WATER PUMPING:
A RELIABLE WATER SUPPLY ALTERNATIVE
FOR PERI-URBAN AREAS OF DEVELOPING COUNTRIES**

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ABSTRACT

Burkina Faso is located in the dry Sahelian region of Africa. This West African country has experienced a severe drought during the past decade. In the mid-1980s, the urbanization of the country led to the reconstruction of new peri-urban areas and as consequence the relocation of certain populations to these suburbs. This situation, together with the migration and rural exodus that followed the drought period has created a growth of shanty towns in these suburbs. The capital city of Ouagadougou with a population of 1 million people, has limited water resources. At present, none of these suburbs has an electrical grid or water supply network. In order to supply water to the peri-urban areas of the city, many handpumps have been installed to supply water to people. Because of the growing demand for water, the authorities decided to replace some of the handpumps by diesel-powered driven pumps. Unfortunately, the high replacement costs of the equipment and the maintenance problems of this type of system make it difficult to manage. Sector 28 of Ouagadougou is one of these suburbs without electricity or any type of conventional water supply system. For this reason, the International Water Engineering Centre (IWEC) of the University of Ottawa together with the Low Cost Water Supply and Sanitation Regional Centre (CREPA) initiated a water and sanitation project to deal with this problem. One of the main goals of the project was to install a pilot solar water pumping unit in Sector 28 in the peri-urban area of Ouagadougou.

For the first time in Burkina Faso, a solar pumping unit has been installed in an urban area. In order to study the reliability of such a system in this particular context, economic costs were compared for the solar pumping system and five other options technically capable to supply the same daily volume of water. The other options are: diesel-powered driven pumps, handpumps, extension of the existing water supply network, pumps powered by the electrical grid, and rainwater catchment cisterns using roofs. In the event of future connections of the area to the electrical grid, a study of the competitiveness of the solar pumping system with the pump supplied by the grid was conducted. Future scenarios have been analyzed in this study in order to draw conclusions and make recommendations about this water supply alternative.

INTRODUCTION

Burkina Faso, like most the Sahelian countries of Africa, has a long dry season (up to 10 months in certain regions) and a rainy season characterized by quite variable



rainfall. The capital city of Ouagadougou is supplied by water from 3 reservoir-dams whose storage capacity depends on the rainy season. The limited water resources of Ouagadougou make the water supply of its peri-urban area possible only by pumping groundwater. The best way to pump high volumes of water is by means of submersible pumps driven by a reliable source of electricity. Because of the difficulty in obtaining donor agency funding in the water supply sector for the third world, technologies using renewable energy (which are usually low in maintenance cost) offer the prospect of a long lasting solution to the water supply problems in the suburbs of large cities. There are many solar pumping units in operation in Burkina Faso (190 registered in 1995), all installed in the rural area. However, the lack of grid electricity and water supply services in the peri-urban areas are similar to that in rural areas. "Sector 28" is one of those suburbs without any connection with the electrical grid, or any water supply network. For this reason the International Water Engineering Centre (IWEC) of the University of Ottawa, in collaboration with the Regional Low-cost Water Supply and Sanitation Centre (CREPA in French) based in Ouagadougou, has initiated a solar pumping pilot project in this peri-urban area. It is important to notice that people are willing to pay for the services.

For years solar pumping units have been considered cost-effective only in rural areas. Five other water supply options, technically capable of supplying the same daily volume as the solar pumping unit, have been identified in the region. In order to assess the competitiveness of solar pumping systems as compared with other options, an economic analysis was conducted. The low operation and maintenance costs of solar pumping units, together with their flexibility and autonomy, make them highly sustainable.

PRESENTATION OF THE PROJECT AREA

Sector 28 of Ouagadougou is a peri-urban (suburban) area created in the 1980s. Located in the eastern part of the city, its population is mainly from St. Camille, a downtown neighborhood, which experienced severe housing disruptions in the early 1980s obliging people living there to move and settle down in the outskirts of the eastern side of the city, which is now Sector 28. Seasonal agriculture is the major activity of the population, combined with small scale business performed by women in nearby market places and around water supply points. Only a handpump, and a few rainwater roof catchment cisterns existed to supply water to the population prior to the solar pumping unit installation.

The borehole to be rehabilitated by the solar pumping project was initially equipped with a handpump installed in 1988. Because of the growing population and the necessity of increasing the daily volume of water, the handpump was replaced by a submersible pump driven by a diesel generator. The water pumped was stored in a 10 m³ above-ground reservoir. This type of installation is named Autonomous Water Point (AWP). Because of disastrous management of the installation, the AWP was abandoned in 1993. It has now been rehabilitated by the IWEC/CREPA project with the installation of a solar pumping unit which can pump up to 25 m³/day. The water available at the unit is sold to the community at \$0.69 Cdn/ m³.



FEASIBILITY STUDIES

To assess the social acceptability of the solar pumping technology in the context of this peri-urban area of Ouagadougou, CREPA performed a field study which revealed that over 94% of the households were motivated to support the project in terms of their contribution in labor during the construction of the unit. Also, 77% of the beneficiaries are willing to accept a responsibility in the management of the system. The technical feasibility studies assessed the capacity of the borehole. It was shown that the borehole could support a maximum sustainable pumping flow rate of 4 m³/h at a depth of 30 meters.

DESCRIPTION OF THE SOLAR PUMPING UNIT

A sketch of the solar pumping unit of Sector 28 of Ouagadougou is shown on Figure 1 below. It is designed to work only when the sun is shining. This classic unit has a total power of 1,440 Wp (peak/watts) and consists of a Photovoltaic (PV) generator composed of 28 Photowatt modules

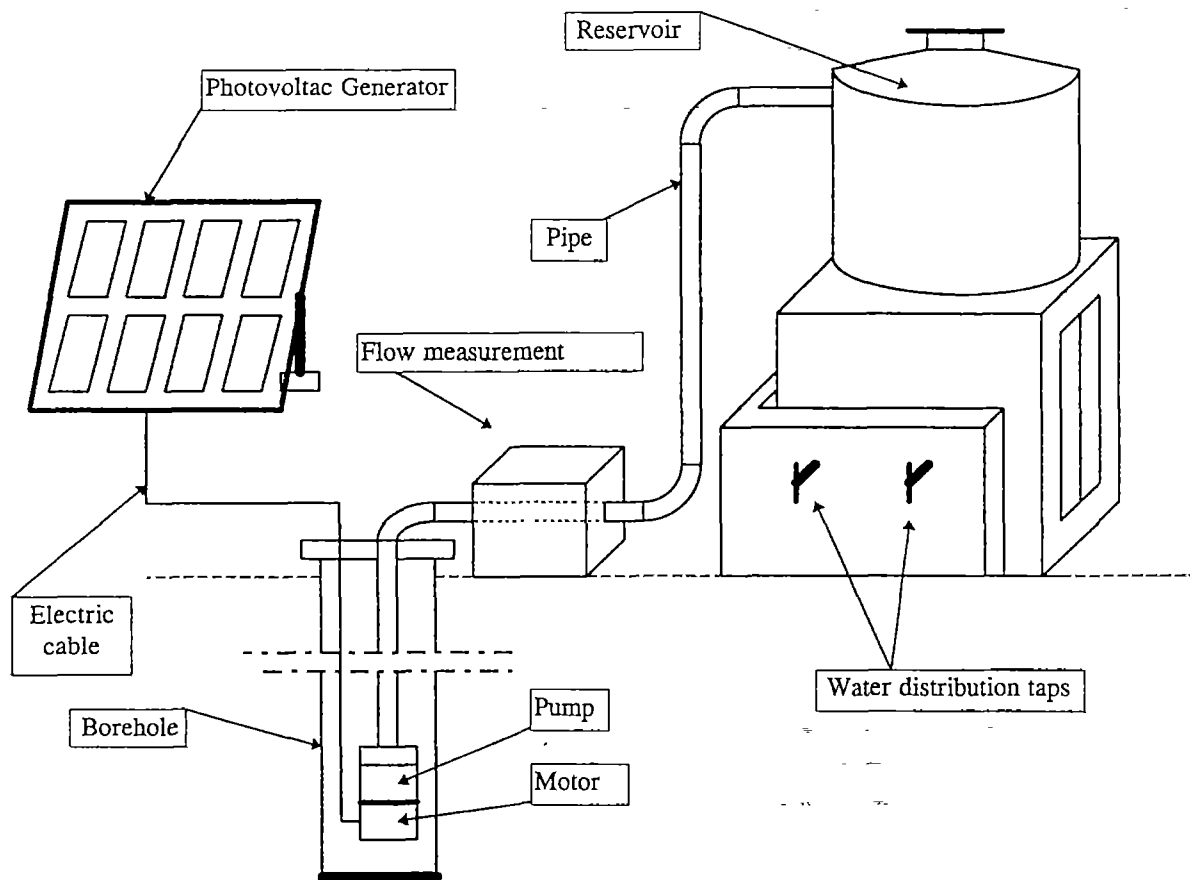


Figure 1: Schematic View of the solar pumping unit of Sector 28



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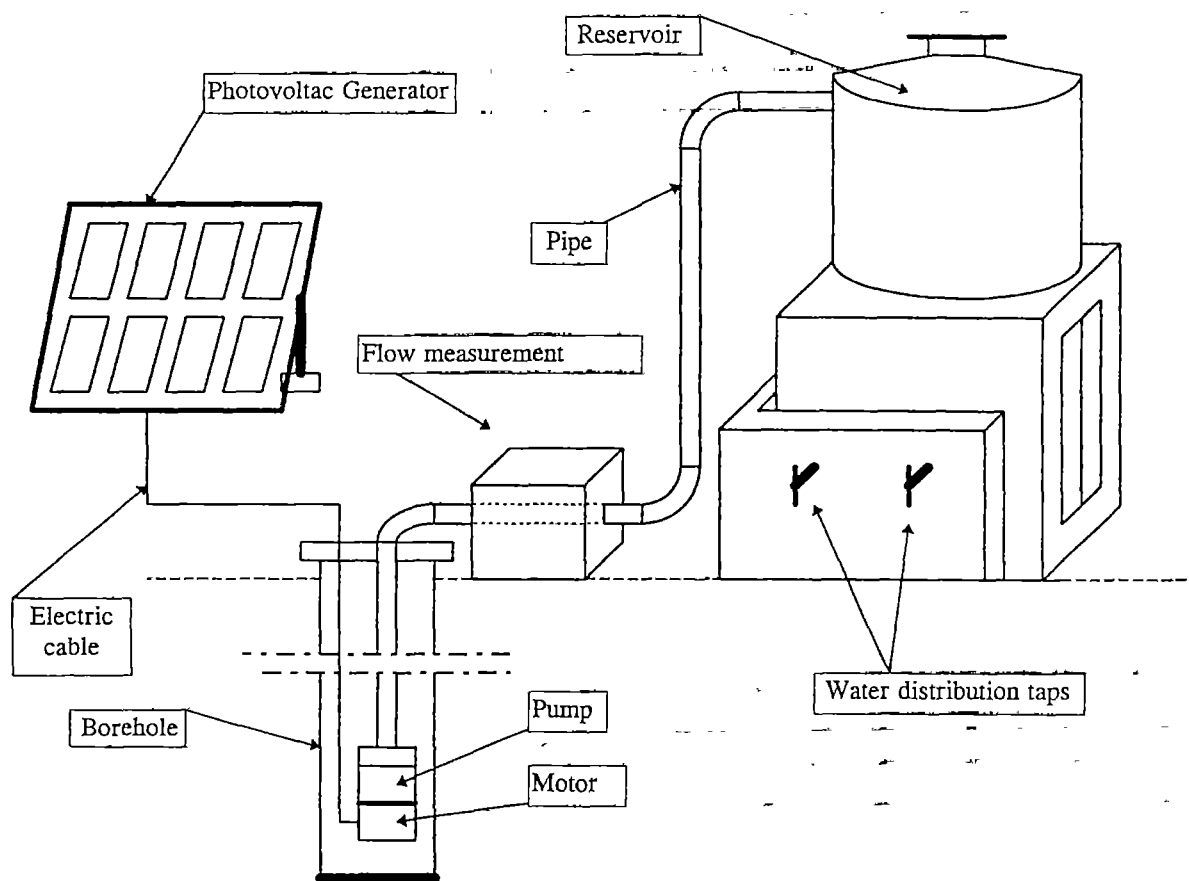


Figure 1: Schematic View of the solar pumping unit of Sector 28



PWX-500 type (4 in series and 7 in parallel) in accordance with ISRA 503 standards. Each module made of polycrystalline silicon cells has a nominal power of 45 Wp. The direct current produced by the PV generator is converted into an alternative current by a Grunfos SA 1500 Inverter. This current is used to drive a Grunfos 3A-10 submersible pump capable of supplying up to 25 m³ at a total head of 30 m. The wiring used to connect these different parts is a H07RN-F4 x 10 mm² type. The water pumped is stored in a circular metallic reservoir having a capacity of 10m³ above ground, before being distributed to the consumers. A set of control equipment allows the flow to be regulated. The whole installation is enclosed in a metallic wire fence 2 m high.

ECONOMIC ANALYSIS

The first step of this analysis is the assessment of the cash-flow of the different options based on the delivery of the minimum daily volume of water that the solar pumping unit of Sector 28 will supply; which is 15 m³. The computations are done using the actual market prices of the equipment. The costs of the 5 options (AWP, handpump, extension of the existing water supply network to install a standpipe, extension of the electrical grid to drive the submersible pump, and rainwater catchment system or RWCS using roofs) are estimated as if they have to be implemented on the site of the solar pumping unit. The following assumptions are made: i) the construction costs of the infrastructure (borehole and reservoir) will not be taken into account in the computations because they existed before the project; ii) solar pumping unit, AWP, and the extension of the electrical grid will be considered using the same submersible pump.

The principle of this economic analysis consists of computing the costs of the option over their lifetime period and comparing these costs on a common basis. The costs of an option over its lifetime is composed of: i) first investment cost of the unit; ii) annual operation and maintenance costs; iii) replacement costs of certain equipment. The costs over the entire lifetime are expressed as cash-flows. Because the options have different cash-flows, they must be compared on the same basis. This was done by calculating the *present value* of the cash-flow, and the most cost-effective option is the one with the lowest cash-flow present value.

Economic Evaluation of the Options

We conducted this economic evaluation on the basis of a 10% discount rate and a 20 year lifetime. Inflation was not taken into account. The results are shown in Table 1 below. Only the pump driven by grid electricity is more cost-effective than solar pumping unit.

Table 1: Present values of the options cash-flows (in \$ Cdn).

Options	Solar Pumping	AWP	Handpum p	Standpipe	Pump driven by electrical grid	RWCS
Cash-flows present values	5,799	25,897	7,041	7,814	1,060	158,533



Sensitivity Analysis

This analysis is very important to conduct because certain parameters used in the economic evaluation may vary over the lifetime of the options. That is the case of the discount rate for example. According to the information collected at some financial institutions in the country, the interest rate varies from 8.5% to 18%. The results of the sensitivity analysis based on the variation of the discount rate are presented on Figure 2 below.

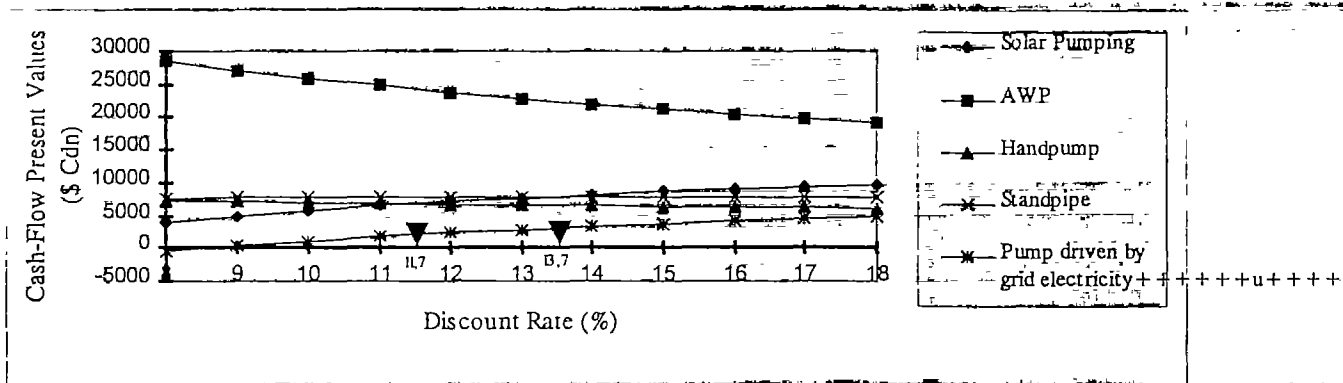


Figure 2: Sensitivity curves of the options to the variation of the discount rate

The results show that the pump driven by grid electricity is more cost effective than solar pumping system for any value of the discount rate between 8 and 18%. Compared to the handpump and standpipe options, solar pumping becomes more cost effective as long as the discount rate is equal or less than 11.7% and 13.7% respectively. For any discount rate within the range 8-18%, solar pumping is the economical choice when compared to AWP and RWCS. These results are very important because the average discount rate in the country has been about 10%.

The second sensitivity analysis performed in this study is based on the variation of the working lifetime of the various options. With a step of 5 years, we chose different lifetimes between 10 and 50 years in order to assess the competitiveness of solar pumping with regard to the other options. The results are presented on Figure 3 below.

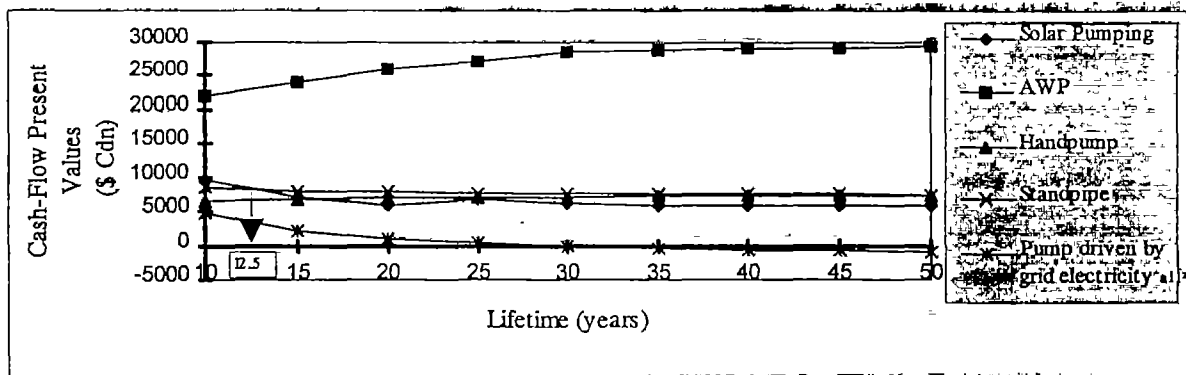


Figure 3: Sensitivity curves of the options to the variation of their lifetime



From all the 5 options, only the pump driven by grid electricity is more cost effective than solar pumping over the range 10-50 years. However, when its lifetime is higher than 15 years, solar pumping becomes more cost effective than handpumps. Compared to standpipes, solar pumping systems become more cost effective as long as their lifetime is higher than 12.5 years. This is quite interesting because the solar pumping units are expected to operate at least as long as the PV generator which last 20 years.

Estimation of the Net Income from the Sale of Water Pumped

Assuming that the only activity of the community around the solar pumping unit will be the sale of water, and that all the water pumped will be sold, we studied the net income from this water point. The minimum daily volume of water to be produced is 15 m³ but the unit is capable of pumping up to 25 m³/day. On this basis we estimated the net income for different daily volumes. The company in charge of the management and distribution of the water resources in Burkina Faso (ONEA) bills water at \$0.23 Cdn/m³ to the manager of the unit who then sells it to the community at \$0.69 Cdn/m³, a price that is fixed by ONEA. During the first 5 years of the solar pumping unit, the only operation and maintenance costs of the unit are: (i) bills from ONEA; (ii) Surveillance costs; and (iii) services of a local company to maintain the equipment. The expected net income for different daily volume during that period is shown in Table 2.

Table 2: Net income by selling water during the first 5 years of operation of the unit

Daily Volume of Water Pumped (m ³)	15	18	20	22	25
Annual Volume of Water Pumped (m ³)	5 475	6 570	7 300	8 030	9 125
Sale of Water (\$ Cdn)	3,778	4,533	5,037	5,541	6,296
Water Bills from ONEA (\$ Cdn)	(1,259)	(1,511)	1,679)	(1,847)	(2,099)
Surveillance Cost (\$ Cdn)	(300)	(300)	(300)	(300)	(300)
Service of a Local Enterprise (\$ Cdn)	(300)	(300)	(300)	(300)	(300)
Annual Net Income (\$ Cdn)	1,919	2,422	2,758	3,094	3,596
Cumulative Net Income after 5 years of Operation (\$ Cdn)	9,595	12,110	13,790	15,470	17,980

After taking into account the replacement costs of equipment such as inverter, pump, etc., we calculated the net income for a range of operations up to the 50th year. The results are presented in Table 3.

Table 3: Net income from the unit for different daily volumes at different period of time

Daily Volume (m ³)	Money Available to the Beneficiaries after Deduction of Operation and Replacement Costs				
	10th year	21st year	30th year	41st year	50th year
15	16,960	20,489	34,925	38,454	54,695
18	21,990	31,052	50,015	59,077	79,845
20	25,350	38,108	60,095	72,853	96,645
22	28,710	45,164	70,175	86,629	113,445



25	33,730	55,706	85,235	107,211	138,545
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These results show how the solar pumping unit constitutes an important source of income for the beneficiaries. Even if the community wants to use some of the water for commercial activities, they would still have enough funds to pay for the replacement costs of certain equipment. This assumes that there is efficient management of the money from the sale of water pumped. With rigorous management, the community may even be able to self-finance a new solar pumping unit entirely, what has never been done before in the region.

Sensitivity Analysis between Solar Pumping and Standpipe Systems

The previous sensitivity analysis has shown that solar pumping is more cost effective than standpipe as long as the discount rate is less than 13.7% and the lifetime greater than 12.5 years. However, these two options use different unit costs of water than that fixed by ONEA. That is why we decided to perform other sensitivity analyses between them. The first analysis is based on the variation of the daily volume and the results are presented on Figure 4. It appears that for any given daily volume within the range of 15-25 m³, solar pumping is always more cost effective than standpipe.

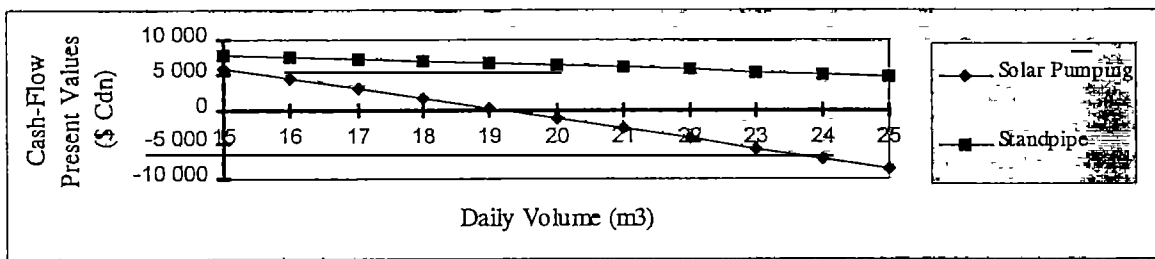


Figure 4: Sensitivity curves of the two options to the variation of the daily volume

The second sensitivity analysis is based on the variation of the unit cost of water produced. For 5 different daily volumes chosen between 15 and 25 m³, the results are presented on Figure 5. The main conclusion of this sensitivity analysis is that for the same variation of unit cost of water produced, solar pumping unit is always more cost effective than the standpipe option.

Figure 5a: Daily volume of 15 m³

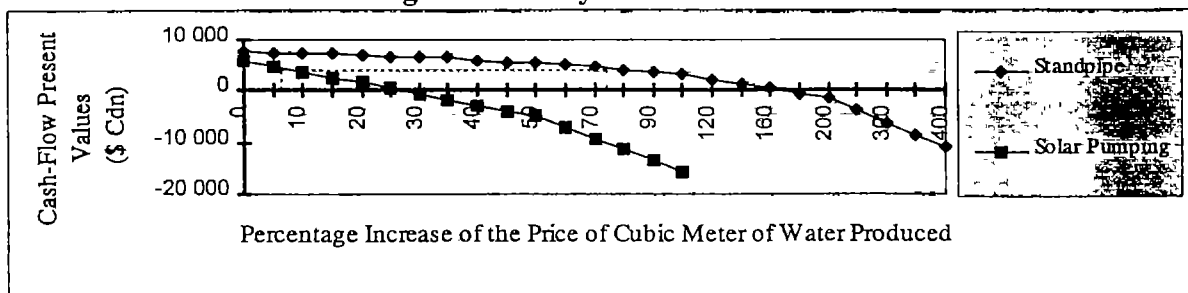


Figure 5b: Daily volume of 18 m³



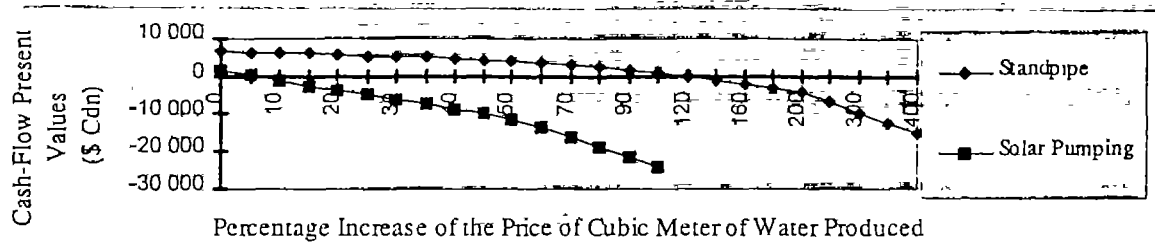


Figure 5c: Daily volume of 20 m³

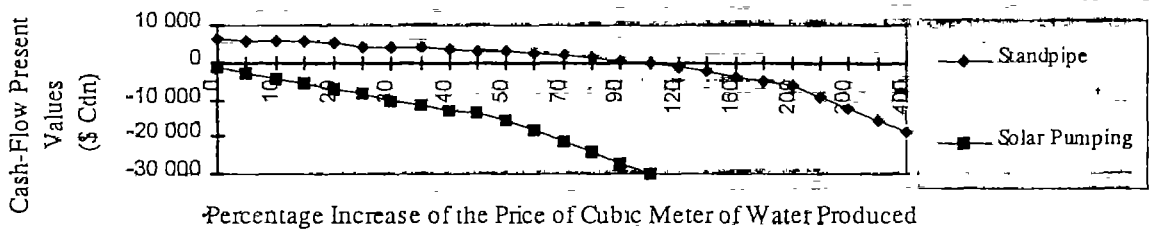


Figure 5d: Daily volume of 22 m³

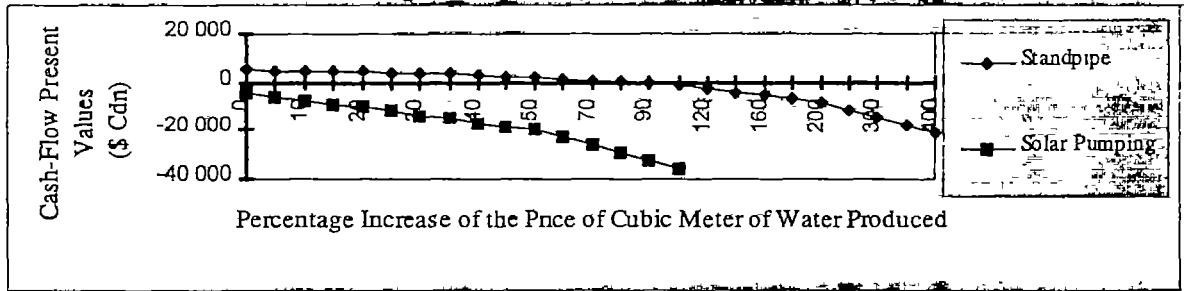


Figure 5e: Daily volume of 25 m³

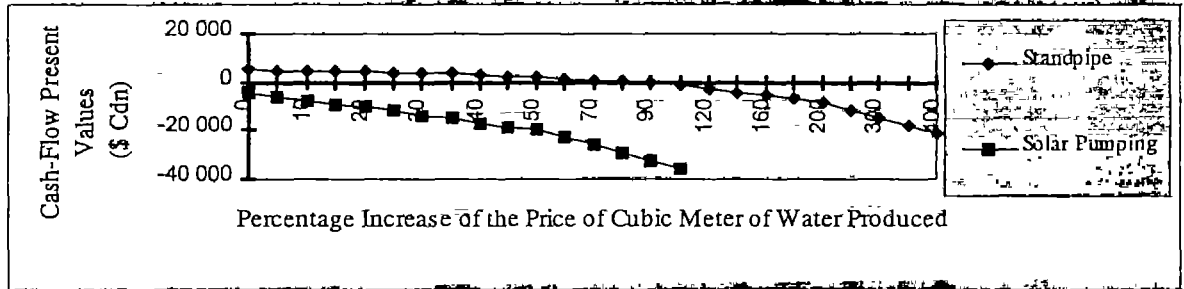


Figure 5: Sensitivity curves of the two options to the variation of the cost of cubic meter of water produced

What makes these curves even more interesting is that at any given time, one can use the unit cost of water produced by either option and find the variation of unit cost of the other option necessary to make it less or more cost effective. As an example, consider Figure 5a. If we have a 7% increase of the unit cost of water produced by the solar pumping unit, this option will still be more cost effective as long as the unit cost of water produced by the standpipe option does not increase by a percentage equal or greater than 73%.



Economic Analysis taking into account Reservoir and Borehole Costs

An important remark about the previous results is that the costs of the reservoir and borehole were not included in the first investment cost simply because they existed prior to the IWEC/CREPA project. The locally-made reservoir costs \$10,000 Cdn and the borehole \$6,000 Cdn. When included in the cash-flow, these two components together represent 42% of the capital cost of the solar pumping unit. In order to see how the introduction of these costs impact on the previous results, the economic assessment of the options was repeated. Because AWP, solar pumping, and pump driven by grid electricity use both the reservoir and the borehole, this supplementary analysis will not change the conclusion of the previous analysis between these 3 options. The analysis will concern only solar pumping, handpump, standpipe and RWCS. The results are presented on Figure 6 below.

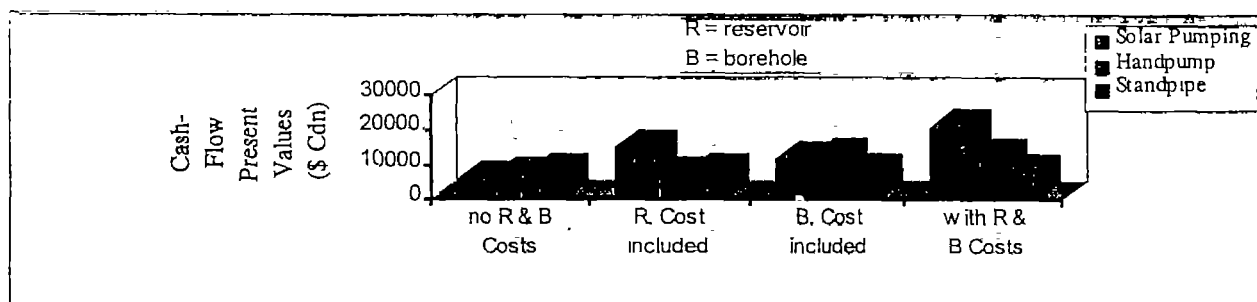


Figure 6: Economic evaluation of the options with costs of reservoir and borehole included

It appears that when we include only the cost of the reservoir or both the costs of the reservoir and the borehole in the cash-flow, the only option less economic than solar pumping is RWCS. When the costs of the borehole is included in the cash-flow, solar pumping is no longer more cost effective than standpipe.

When we take into account only the cost of the reservoir and perform the sensitivity analysis based on the variation of the discount rate or the options lifetime, solar pumping becomes less cost effective than handpump and standpipe. The sensitivity analysis of the options based on the variation of the discount rate and the options lifetime shows, when we include only the cost of the borehole, that standpipe is always more cost effective than solar pumping. These results help one to decide which site to choose when installing a solar pumping unit. It is important to notice that in Burkina Faso boreholes are constructed by the state and NGOs, and there are many sites where it is not necessary to construct a new borehole.

FUTURE SCENARIO

The cost of the PV generator represents 60% of the first investment cost of the solar pumping unit. At the end of the lifetime of that equipment (20 years down the road) an important discussion is whether to replace the PV modules by new ones, or to use the electricity from the grid. The choice of one source of electricity or another will be highly influenced by two



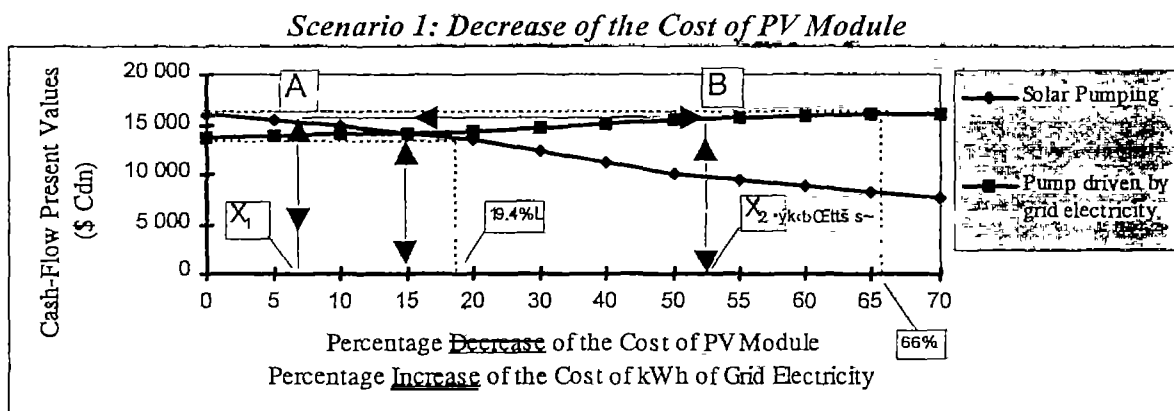
parameters. (i) the unit cost of PV module; and (ii) the cost of kWh of electricity from the grid. There will be two possible situations: either the project area is reached by the electrical grid at that time, or it is not. In each situation we studied the 3 following scenarios:

- 1) *Decrease* of the unit cost of PV module and *Increase* of the cost of kWh of grid electricity;
- 2) *Increase* of the unit cost of PV module and *Increase* of the cost of kWh of grid electricity;
- 3) *Decrease* of the cost of kWh of grid electricity and *Decrease* of the cost of kWh of grid electricity.

At any time, if we have to decide between the use of PV modules to generate electricity or the electrical grid, we will be in one of the 6 scenarios presented below. This analysis is very important mostly for decision-makers, that is why we named them «*Decision Charts*».

First Possible Situation: Project Area Not Reached by the Grid

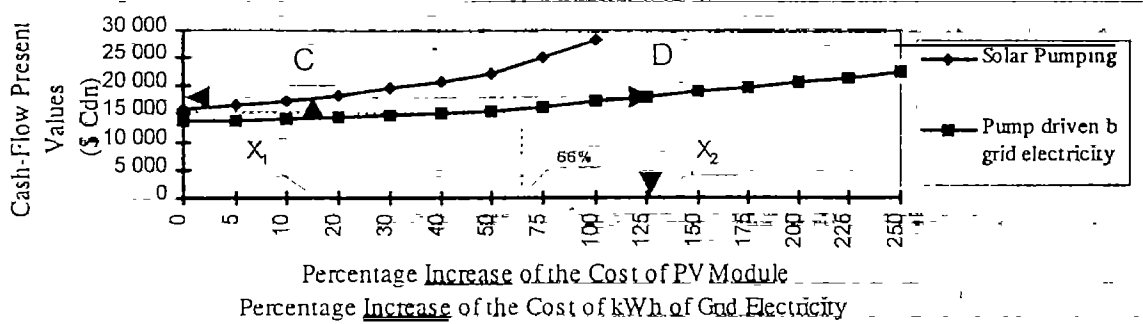
In this situation, the results presented on the 3 figures below show that if at the end of the lifetime of the PV generator the unit cost of PV module is equal to its actual value (\$475 Cdn/module), the cost of kWh of grid electricity should increase by a percentage greater than 66% to make solar pumping more cost effective. However, if the cost of kWh of grid electricity is equal to its actual value (\$0.215 Cdn/kWh) at the end of the lifetime of the PV generator, solar pumping will become more cost effective only if the unit cost of PV module decreases by a percentage greater than 19.4%



The significance of these curves is that at the end of the lifetime of the PV generator if the unit cost of PV module decreases by X_1 %, it will always be more cost effective to replace it by new modules as long as the cost of kWh of electricity from grid increases by a percentage equal or greater than X_2 %.

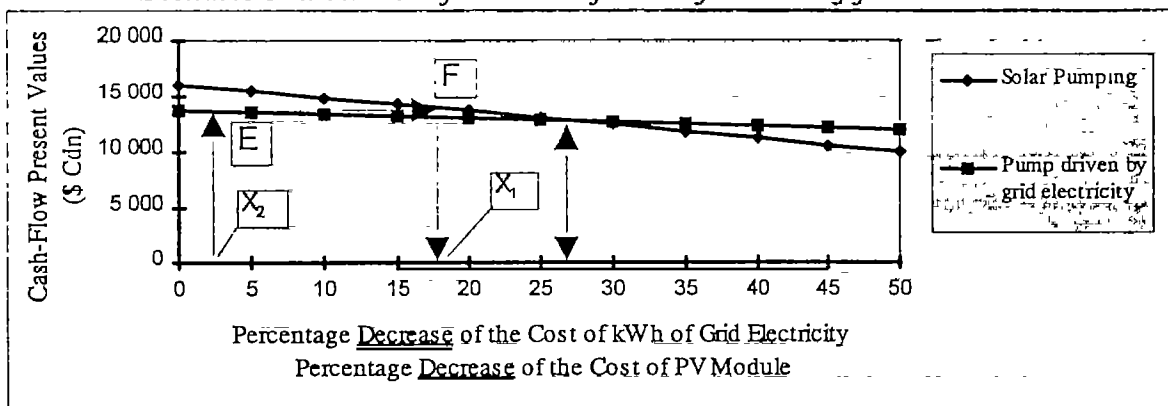
Scenario 2: Increase of the Cost of PV Module





If it happens that the unit cost of PV module increases by $X_1\%$ at the end of the lifetime of the PV generator, the economical choice will be to buy new modules as long as the cost of kWh of electricity from grid increases by a percentage equal or greater than $X_2\%$.

Scenario 3: Decrease of the Cost of kWh of Electricity from the Grid



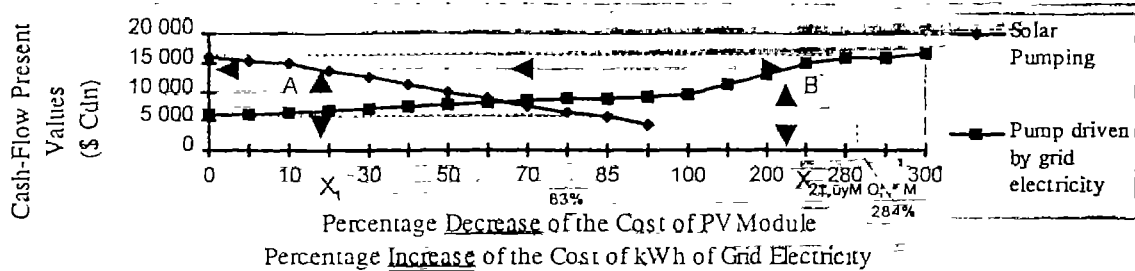
If the cost of kWh of electricity from the grid happens to decrease by $X_2\%$ at that period, there has to be a decrease of the unit cost of PV module by a percentage equal or greater than $X_1\%$ to make the replacement PV modules the economical choice.

Situation 2: Project Area Reached by the Grid

In this situation, the results presented on the 3 figures below show that if the cost of kWh of grid electricity is equal to its actual value at the end of the lifetime of the PV generator, solar pumping will become more cost effective only if the unit cost of PV module decreases by a percentage greater than 83%. However, if at the end of the lifetime of the PV generator the unit cost of PV module is equal to its actual value, the cost of kWh of grid electricity should increase by a percentage greater than 284% to make solar pumping more cost effective.

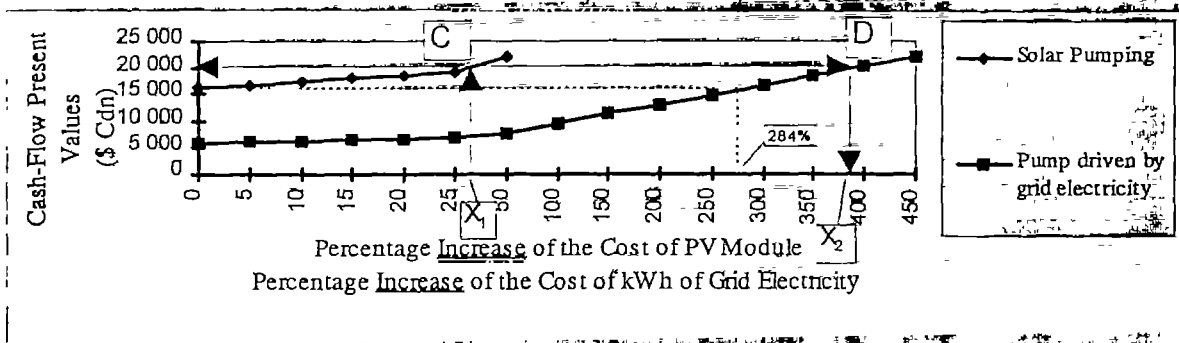
Scenario 1: Decrease of the Cost of PV Module





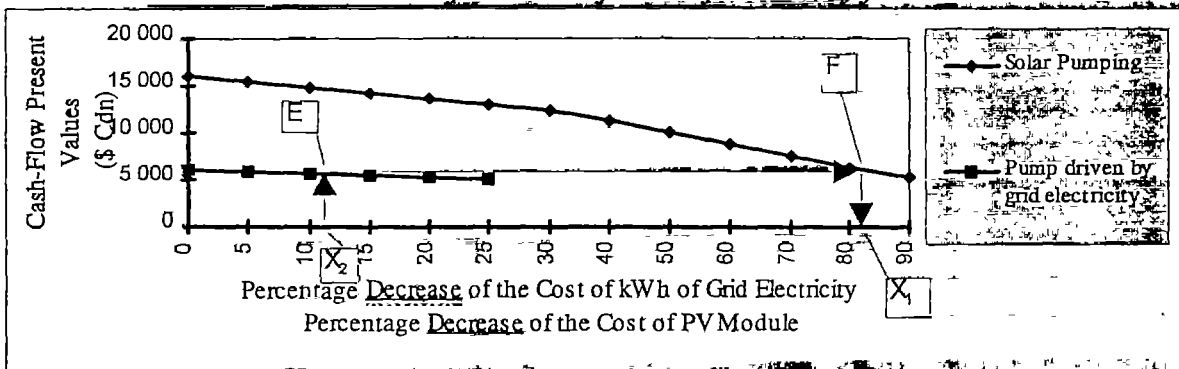
The significance of these curves is that at the end of the lifetime of the PV generator if the unit cost of PV module decreases by $X_1\%$, it will always be more cost effective to replace it by new modules as long as the cost of kWh of electricity from grid increases by a percentage equal or greater than $X_2\%$.

Scenario 2: Increase of the Cost of PV Module



If it happens that the unit cost of PV module increases by $X_1\%$ at the end of the lifetime of the PV generator, the economical choice will be to buy new modules as long as the cost of kWh of electricity from grid increases by a percentage equal or greater than $X_2\%$.

Scenario 3: Decrease of the Cost of kWh of Electricity from the Grid



If the cost of kWh of electricity from the grid happens to decrease by $X_2\%$ at that period, there has to be a decrease of the unit cost of PV module by a percentage equal or greater than $X_1\%$ to make the replacement of PV modules the economical choice.



CONCLUSIONS

For the first time in the history of photovoltaic technology in the West African region, a solar pumping system has been installed in a peri-urban area of a large city like Ouagadougou. This study has shown that solar pumping is more cost effective than all of the water supply systems in use in the country except the pump driven by grid electricity. Wind driven pumping has been omitted due to the low velocity of prevailing winds. The fact that the submersible pump driven by the electricity of the grid is the only option economically more efficient than this solar pumping unit can be explained by 4 main reasons: i) the two options have similar operation and maintenance costs. ii) all the replacement costs of the option of submersible pump driven by the grid electricity exist in the solar pumping unit; and in addition; iii) the first investment of the solar pumping unit is much higher than the one of the pump driven by the grid electricity; iv) the inverter has to be replaced periodically in the solar pumping option. However, one should not overlook the frequent power outages that occur very often in Ouagadougou, which result in severe water shortages when the pump is driven by the electricity from the grid. This would not be the case for the solar pumping unit of Sector 28 whose autonomy, together with the presence of users trained in its management, make it quite reliable. Another important aspect of the sustainability of the solar pumping unit in the particular economical and energetic context of this study is that it constitutes a great source of income for the community. For different daily volumes of water produced, Table 4 shows the period of operation necessary to recover the first investment cost of the unit.

Table 4: Number of years of unit operation necessary to recover the capital cost

Daily Volume of Water Produced by the Unit	Period of Time of Operation Necessary to Recover the Capital Cost of the Unit
15 m ³	14 Years
18 m ³	11 Years
20 m ³	9 Years
22 m ³	9 Years
25 m ³	7 Years

This makes it possible for the community to self-finance a new solar pumping system along with the other commercial activities that they may undertake. With the growing interest on the part of decision makers of Sahelian countries of Africa in photovoltaic technology, one should consider solar pumping system as a technology applicable not only to rural areas, but also as a potential alternative for water supply in peri-urban areas of large cities. Many of these cities present similar social and economic situations to Ouagadougou. Therefore, the results of this study could be applied, to some extent, to most of the cities of these countries with dry and sunny climates.

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TREND

TRAINING RESEARCH AND NETWORKING FOR DEVELOPMENT

8TH ITN AFRICA CONFERENCE:
MAPLE-LEAF HOTEL
ACCRA - GHANA
25TH - 29TH NOVEMBER, 1996

Theme: "Promotion and Sustainability of Water and Sanitation
Programmes"

Paper: Sustainability of Rural Water Supplies in Uganda

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ACRONYMS

BH	Bore Hole
CDA	Community Development Assistant
CBMS	Community Based Management System
DANIDA	Danish International Development Agency
DWD	Directorate of Water Development
GFS	Gravity Flow Schemes
HAs	Health Assistants
HPM	Hand Pump Mechanic
NGOs	Non Governmental Organizations
NWSC	National Water and Sewerage Corporation
O & M	Operation and Maintenance
UNICEF	United Nations Children Fund
WUC	Water User Committee



SUSTAINABILITY OF RURAL WATER SUPPLIES IN UGANDA:

BY: T. K. MWEBESA ACHS-PHC/EHD

1.0 Introduction:

Provisions of Water Supply to rural areas is an important function that involves the State, Local Authorities the Private Sector and the Communities. The Health and development of the rural communities depend on adequate and wholesome Water Supplies. In view of the exploding population, improved lifestyles and rapid urbanization, the issue of supplying and sustaining good quality water is assuming challenging dimensions in Uganda both in Urban and Rural areas. The provision of water supplies in Urban areas is a responsibility of the National Water and Sewage Corporation (NWSC). In other Towns it is the responsibility of the Directorate of Water Development (DWD).

Uganda is endowed with many sources of water supply. These include Fresh water Lakes, Rivers (Nile originates in Uganda) Wetlands and underground water sources. But to make a water source safe and dependable is a difficult task. Up to day most people take availability and wholesomeness of water for granted, some parts of the country (the grazing dry lands of Nyabushozi, Baale and Karamoja) the Water Supply is not enough and draughts aggravate the situation. The sources once protected sometimes are neglected due to various factors - Boreholes (salty/minerals), springs-located in valleys. In this Paper the discussion is based on rural water supplies which are a responsibility of Local Authorities and communities supported by NGOs.



2.0 Profile of Uganda.

Uganda is a land locked Country which borders with Sudan to the North, Kenya to the East, Zaire to the West and Tanzania and Rwanda to the South - across Lake Victoria. The country has rectangular features and is located between latitude $1^{\circ}28''S$ and $4^{\circ}15''N$ and Longitude $29^{\circ}34''E$ and $35^{\circ}00''E$. The average axis is a proximately 470km East -West and 530km North-South with the total area of 236,000km².

Most of Uganda lies within the upper part of the White Nile Basin which consists of seven major catchment areas. About 17% of Uganda is covered by Lakes and swamps.

The country experiences fairly well-marked wet and dry seasons related to the movement of the sun across the equator and the influence of the South-East and North-East monsoons which tend to move with the sun.

The mean annual rainfall ranges from more than 1,600mm along the coast line of Lake Victoria to less than 500mm in the North - Eastern parts. The mean Temperatures over the whole of Uganda show no great variation, apart from those of the mountainous, Districts of Western Uganda, and around Mt. Elgon, averaging 25°C.

Uganda is divided into 39 Districts, 4 Regions, 149 Counties, 837 sub-counties, 3738 Parishes and 18690 Villages.

The significant operational levels include the District and sub-county. Uganda is a decentralized - Republic; under President Yoweri Kagame Museveni. Districts are managed by LC 5 chairmen. There are 2 major sectors in the Government system namely the central and Local Governments.



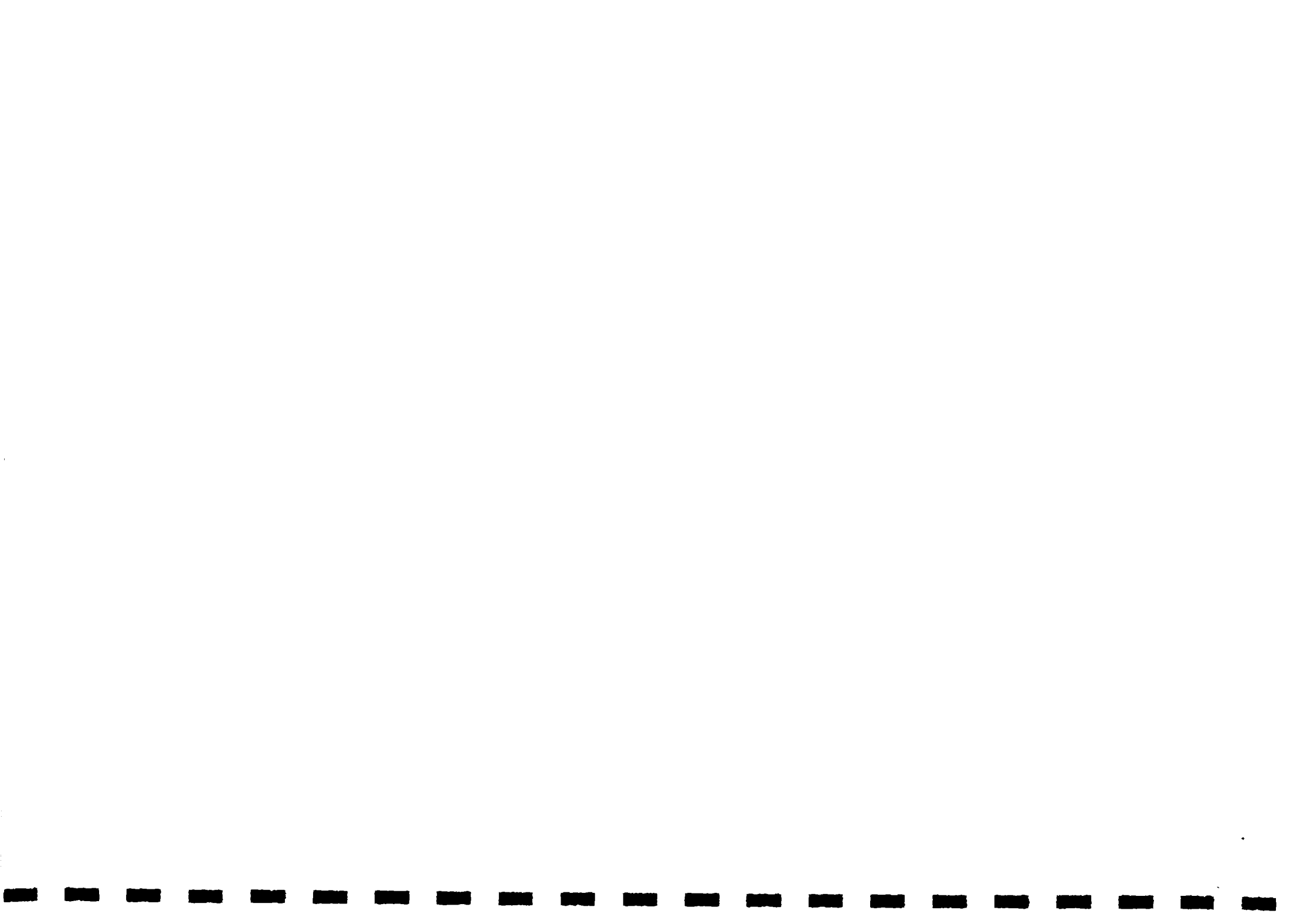
The population standards at almost 20m people with annual growth rate of 2.6% and 90% of them live in rural areas. Over 50% of the population is below 15 years of age, while the life expectancy is 50.5 years for females and 45.7 years for males (Not including the AIDS TOLL).

Uganda has over 30 Ethnic communities which can be divided in 5 broader linguistic categories - namely The Bantu (50%) The Atekeren (Para Nilotics or Nilo Hamites/Lango) The Luo, and the Madi-Moru group.

3.0 System of Water Supply in rural Areas:

The systems for provision of water supply in Rural Areas include:

- 3.1 Protected springs: only provided where there are permanent springs yielding 20litres in less than 5 minutes problem is that their position is sometime unfavourable in relation to the Homesteads.
- 3.2 Shallows Wells: Hand dug or Augured. Provided for up to 300 people i.e. 60 Households per well. Major problem is underground contamination. Presence of E.Coli is a regular phenomenon and has forced authorities to deviate from WHO standards of less than 1 up to 50ppm.
- 3.3. Bore Holes: provided mainly where the simpler of cheaper sources can not be made available, especially in the drier parts of the country.



3.4 Gravity Flow schemes:- which in essence are strong springs. Found mainly in mountain parts of the country, where the spring is protected and water flows by gravity. Stand pipes are then provided at strategic points in the low lying villages.

3.5 Rain water Harvesting:- using Private water tanks - built at House hold level, or Institutions (schools Health units).

3.6 Valley Tanks/Dams: Normally provided for watering animals though people sometimes make use of the water for domestic purposes.

3.7 Last but not least --Surface waters e.g. Lakes, and rivers. The Last two sources are difficult to protect.

4.0 Operation and maintenance:

The concept of community based management systems (CBMS) is getting firmly established in the country.

The major responsibility of operation and maintenance (O & M) of a water facility is the Water user committee (WUC) with the assistance of a Hand Pump Mechanic (HPM). The WUC is involved in the process of developing the facility straight from the conception of the project. They mobilise the community for the local inputs, are trained in O & M requirements, Hygiene and sanitation. O & M requirements include raising money for repairs and care-taking for the mechanics a training and overhead expenditures. The O & M of big systems which are beyond the capability of the WUC and HPM are handled by the DWDs Borehole (BH) maintenance units e.g. Bore Holes, or GFS (Gravity Flow Scheme).



5.0 Organizational Issues/constraints

The major problems encountered in sustainability of protected rural water sources include:

- o Lack/inadequacy of trained and motivated supporting staff. These include Health Assistants (HAs) and community Development Assistants (CDAs).
- o Lack/Inadequate Community involvement in the process of water protection...
- o Uncoordinated agencies/line Ministries; Health, Gender and Community Development, Local Government, Planning and Economic Development.

6.0 Managerial Issues:

- o Lack/Inadequacy of management policies and foresight at the Planning stage.
- o Inadequate training facilities and motivation of WUC, HPM and caretakers.
- o Political patronage/ Interference.
- o Lack of inbuilt participatory approach.
- o Inadequate supervising/monitoring and evaluation mechanisms.

7.0 Social Issues

- o Lack/Inadequate involvement of Women and the Youth



- o Lack/Inadequate awareness due to low literacy rates among rural dwellers.
- o Supposition that the poor/have nots-are the ones to do the jobs of protecting water supplies and caretake the sources.

8.0 Technical Issues:

- o Poor operation and maintenance approaches.
- o Absence of alternative protected water sources, in arid/semi arid areas.
- o Demand of Water exceeding supply.
- o Drying up of some of the protected sources due to the lowering of the water table due to draught.
- o Lack of proper guidance during the process of siting water sources.

9.0 Environmental Issues:

- o Contamination of water sources by pit latrines/domestic effluent.
- o Lack of Pit latrines resulting in using the bush.
- o Low priority for Environmental protection.
- o Negative cultural practices.



10.0 Financial Issues:

- o Unwillingness of people to contribute for O & M costs, expecting the local authorities to take care of the sources.
- o Lack of efficient cost-recovery system
- o Low economic power of rural dwellers.

11.0 Towards sustainability

Sustainability of a protected - rural water source entails:-
assurance of good-quality and quantity of water at a reasonable cost on long term basis. It includes reliability of the source, provision of enough water, assurance of quality and economy in production and conveyance to the home. Programmes involved in water protection have endeavoured to have an inbuilt mechanism for sustaining the protected water sources. These mechanisms include:-

11.1 Awareness increase: Programmes are involved in raising the community awareness about the importance of good quality and adequate water for promotion of Health. Hygiene Education is an integral part of the Protection Programme.

11.2 Formation of Water user committees:

Prior to the protection of a water source, user committees are formed. These committees cut across the villages to include all those who collect water at the same source. The committee members are trained in all aspects of water supply: use, Quality care, operation and maintenance.



11.3 Involvement of Women and Youth

Women and Youth are the custodians of water both within and without the Home. Their involvement in water protection, usage and maintenance is therefore of great importance. The voices of Women, and the youth is therefore being heard - loud and clear. Every committee, has one third of its membership composed of women/youth. In most cases women act as Treasures of the WUC, and in most cases are the caretakers.

11.4 Human Resource Development:

For adequate mobilization and Training of WUC, caretakers, Hand pump mechanics and the community at large, field extension workers are urgently required. These include Health Assistants (HA) and Community Development Assistants, (CDAs) Major Programmes involved in Water Supply and Sanitation have taken keen interest in their training. A crash training Programme for CDAs is being organized by WES and RUWASA - which are supported by UNICEF and DANIDA respectively. DANIDA is also undertaking the rehabilitation of the school of Hygiene - Mbale.

11.5 Support of NGOs:

A good number of NGOs are involved (and encouraged) in the protection of rural water supplies. In the rehabilitation and reconstruction of post liberation era in Uganda, their role has been vital in the water supply sector. They are involved in soft and hard water aspects as well as operation and maintenance requirements.



11.6 Operation and Maintenance:

All programmes involved in water supply and sanitation are required to include O & M mechanism in their schemes. This is an important aspect to sustain the protected water sources.

11.7 Proper Protection of Water sources:

Reliability of a source developed for rural water supply depends on proper protection. In case of failure, the community are greatly frustrated and lose confidence in the authorities involved. Many such incidences have happened in the past. Such sources include (mainly) springs and bore holes.

11.8 Sanitation and Hygiene Education:

No rural water supply can succeed unless sanitation is concurrently addressed. The same applies to Hygiene Education. These aspects are tackled through sensitisation/Training sessions and the Home and Environment Improvement campaigns.

11.9 Water Quality Surveillance:

To ascertain that the water provided is wholesome, programmes are encouraged to carry out Water Quality Tests to assess levels of pollution both at the source and in the Home. Due to lack of the necessary logistical support, few programmes and local authorities are involved in this exercise.



12.0 Conclusion:

For the welfare and Health of any community, a safe and sustainable water supply is the most essential Human requirement. Let us recognize that "Water is Life". In the rural areas of the developing countries, such a provision is un an uphill task. In this paper, attempts have been made to project what is happening in Uganda, the constraints being met and efforts to address them. It is encouraging to note that, though there are challenges, sustainability of protected rural water supplies is being taken seriously by all the players in the Water Supply and Sanitation Sector. The Community must be at the centre, the voice of women and youth must be heard. Innovative actions must be put in place. - otherwise the exercise will not be cost effective.



Map UGANDA



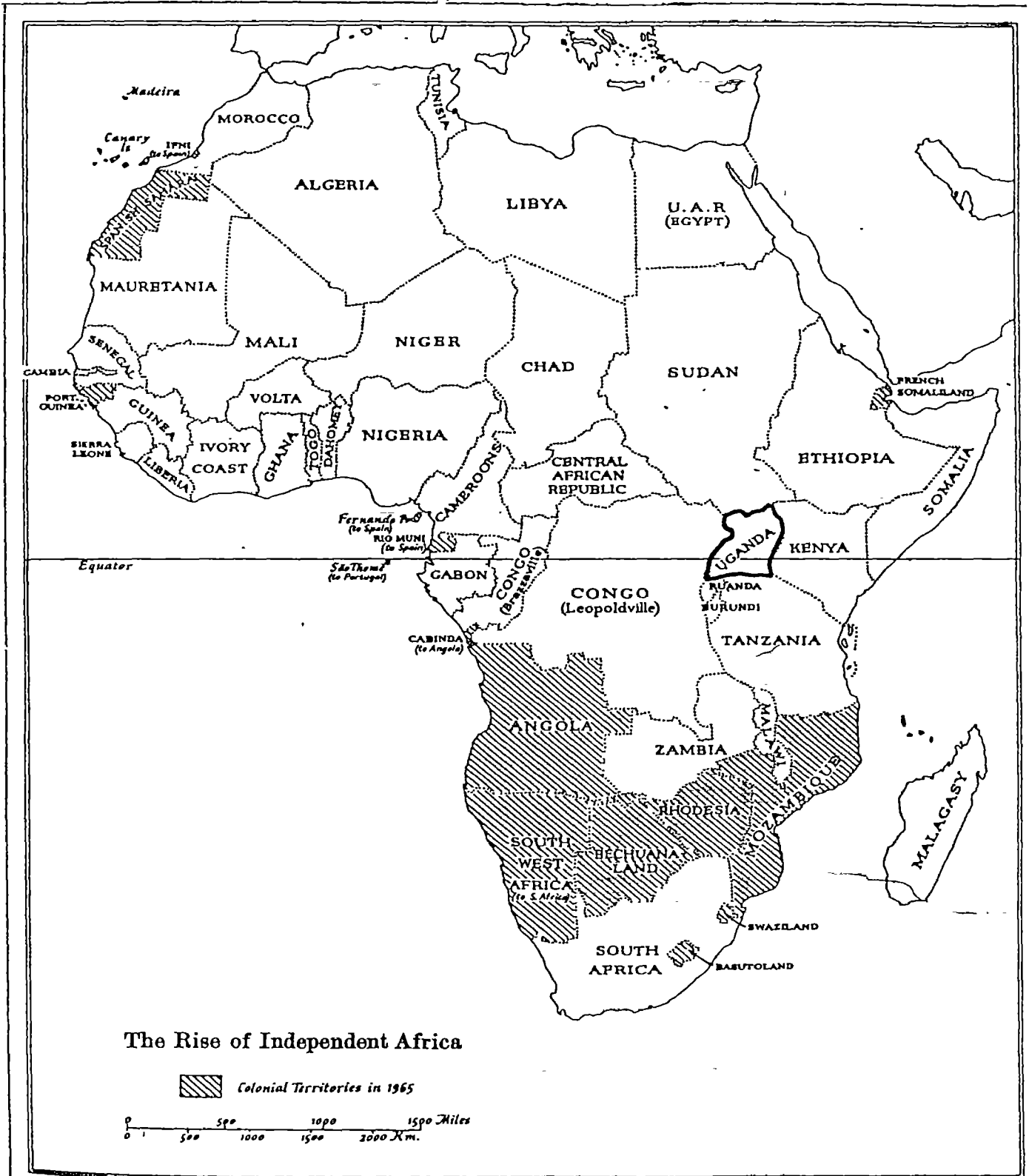
REFERENCE

0 20 40 60 80
km

— International Boundary
 District Boundary
 ARUA District Name
 • Arua District Headquarters



Map 1 Africa showing the position of Uganda



(Source: Africa - History of a Continent by Basil Davidson, Weidenfeld & Nicolson, 196



8TH ITN WORKSHOP

TOPIC: THE USE OF PARTICIPATORY APPROACHES IN DESIGNING COMMUNITY BASED WATER AND SANITATION PROGRAMMES

PRESENTER: ODURO DONKOR, PRONET, ACCRA - GHANA

ABSTRACT

A growing awareness of the failures of conventional development approaches in meeting the needs of the rural poor has led to the exploration of alternative approaches to assist communities in finding effective solutions to their own problems.

Recent experience gained by ProNet in working with small communities to develop and initiate some development projects has shown that working closely with communities to define their own problems, analyse them and also assisting them in developing clear statements of the problem to be addressed is crucial.

An essential ingredient for project success is understanding community need and perception. This requires information and data collection within the community. This can only be done using participatory approaches and must cover the technical and social feasibility.

A feasibility study carried out by ProNet for Plan International in the Bawjiase and Asesewa area of the Eastern and Central Regions provides an interesting case study in which both social and technical feasibilities for a water, health and sanitation programmes were tested using participatory techniques.

The paper will outline methodology, time frame, results and draw some interesting conclusions regarding communities ability in articulating its needs.

INTRODUCTION

Many development programmes place emphasis on the involvement of people. The extent of this involvement is in implementation ie, contribution of labour and locally available resources.

This approach has not necessarily led to sustainable development where people develop a long term perspective about their development priorities. Rural people have a vast pot of knowledge and expertise which can be neglected in the planning of development programmes. Community ideas might seem crude and without substance but they give an insight into community perception. Such "without substance" ideas can serve as a guide in project design.

It is now globally accepted that unless the target community participate actively in the planning process, the development process to a large extent will not be sustainable.



Where there is a genuine need for improved water and sanitation facilities communities show the willingness and ability to contribute towards the implementation of the project. Hence the need to develop a participatory approach which will empower the people to have a say in what they want for themselves from the planning stage to its execution. This approach allows for the hidden strengths in the community to be identified and developed/tapped for development.

The major strength of this approach is that rural people adapt the approach according to their situation and carry on this process with limited or no external support after the initial support.

BACKGROUND

PLAN, Ghana is a child focused organisation currently assisting 82 communities in the Central and Eastern Regions. The main focus of the intervention is to strengthen families and communities to create a favourable environment in which children can realise their full potential.

In consonance with this, water projects have been implemented in the Bawjiase and Asesewa areas of the Central and Eastern Regions respectively.

To find out whether PLAN'S support in the water projects have achieved the desired impact, an evaluation of the intervention was initiated.

The findings of the evaluation are as follows:

PROJECT CONCEPT AND DESIGN

- * The projects were funded on the basis of perceived community needs. However, there was no formal project design developed to guide the implementation

SOCIAL ASPECT

- * Though the communities were involved in the identification of the project, ineffective community mobilisation, animation and low community participation, coupled with lapses in the administration of the project derailed the effort to assist the beneficiary communities.

TECHNOLOGY

Three types of technologies were employed to address the community demand for potable water pipe borne, boreholes and hand dug wells. All the three types of technology choice were appropriate in the environment used, but currently not fully effective. The boreholes provide salty water, the yield from the hand dug wells is uncertain and about 50% of the tap stands are non-functional.



Based on the findings of the report a feasibility study was initiated in eleven new villages in the two programme areas. The results of the study will be used to design a project for these communities.

PURPOSE OF STUDY

The study was aimed at assessing the technical, social and economic feasibilities in the communities that have requested for water supply systems and to present the appropriate technological options to the communities and in line with the national strategy, suggest an implementation strategy for the projects.

METHODOLOGY

- * The collection of data was preceded by a literature review of the study area after which participatory methods ie community mapping, ranking, focus group discussion and semi-structured interview (SSI) were used to gather data. This gave communities an opportunity to discuss issues through an experience sharing process. Participatory methods ensure that communities are part of the research team.
- * Site visits to existing water sources and sanitation facilities were undertaken to assess what facilities existed and their conditions. Observation of the environment was conducted.
- * A total of eleven villages were surveyed. Seven were selected from the Asesewa area and four from the Bawjiase area.
- * Those who took part in the discussion and surveys consisted of groups of men and women from the communities. The groups included traditional leaders, teachers and village committees.
- * In the female groups emphasis was placed on health, water needs and access to resources. Data collected from women on these issues are more credible since women play the major role in water collection and management
- * Dates for community visits were arranged before hand. The research team was accompanied by staff members of PLAN who in most cases acted as translators.
- * Local language was used for discussions. Translators were used in the Asesewa area because the members are not familiar with the krobo language, this may have caused possible misinterpretation which have affected the collection of data.
- * The health institutions in both study areas were visited to obtain relevant data and to cross check health information gathered from the field



DURATION

Sixteen days were used to carry out the study. Eleven days in the field and five days writing the report. A day was spent in each of the study villages.

THE DATA COLLECTED THROUGH THE PARTICIPATORY PROCESS.

Settlement pattern/Important features in the community.

Community Mapping was used to gather the information. The team explained to members of the community that they are ignorant about the community and therefore needed help to draw a map. The house close to where the discussion was being held was first plotted on the ground and then neighboring houses were plotted with the household heads and the number of households

Subsequently roads, ponds, cemetery, latrines, refuse dumps, streams, waterpoints, and sacred areas were located. The results of the exercise provided the team with the following

- * Number of houses in the community.
- * Population of the community.
- * An idea of the water and sanitation facilities in use

NEEDS ASSESSMENT

The basic ranking method was used. The needs identified were ranked in order of priority. Water was ranked high in all the communities visited. The reasons for the choice included:

- * Shortage of water in the dry season
- * Women and children have to walk an average of 2.5km during the dry season to look for water.
- * Water shortage disrupt economic activities. Women indicated that they spend between 6 -12 hours daily in searching for water
- * Water collected during dry season is dirty and this they believe is be the source of some the diseases in the community.
- * School children hardly go to school during this period.
- * For communities in the Bawjiase area the guinea worm has been a source of worry every year. They believe solving their water problems will help eradicate the disease.

Other needs identified are clinics, farm input, corn mill, teachers quarters, latrine and school block.

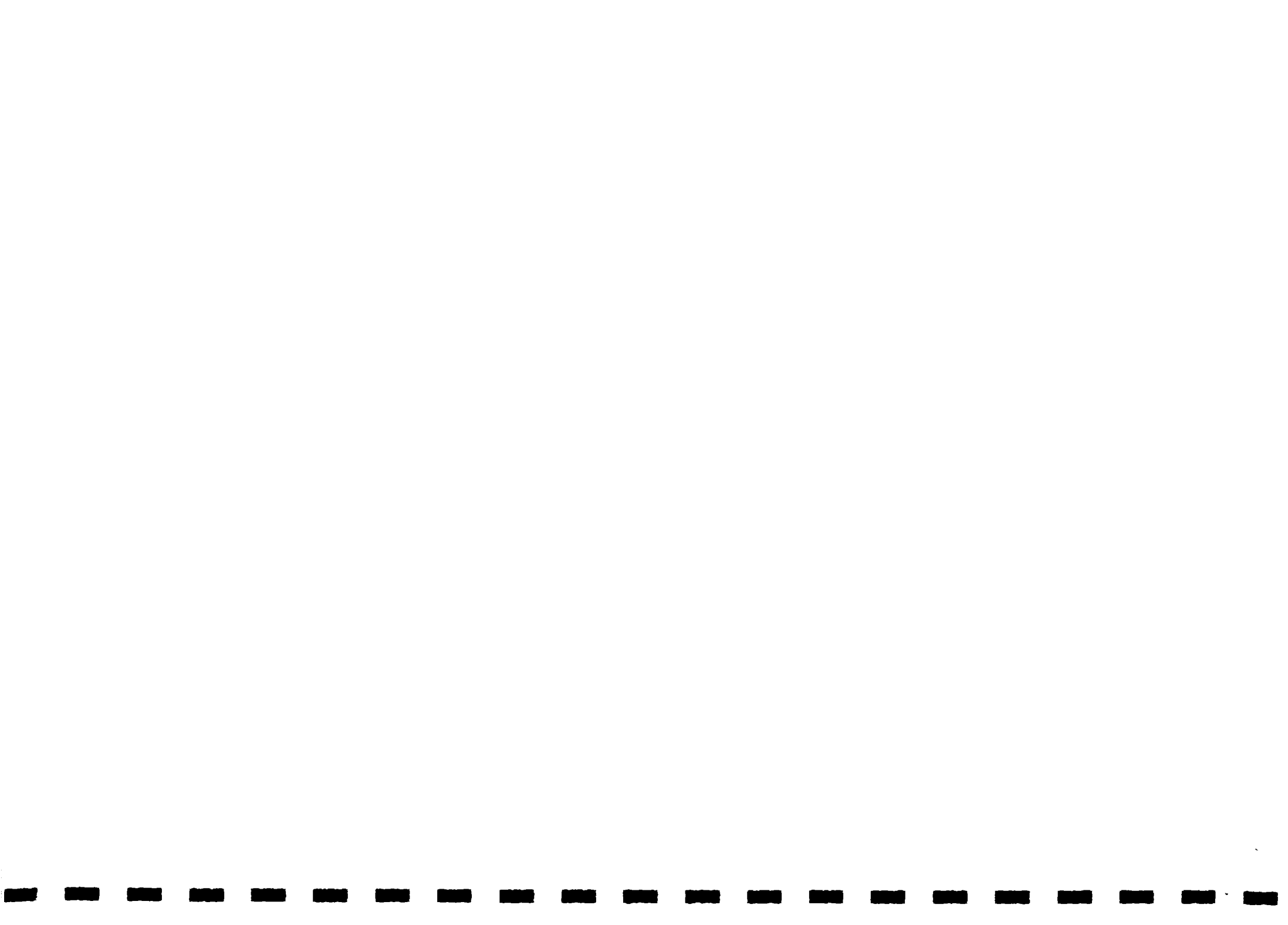


Table 6

COMMUNITY NEEDS IDENTIFIED

COMMUNITY	NEEDS	REASONS GIVEN
Dewa trim	<ul style="list-style-type: none"> * Water * Farm Input (Cutlass, fertilizer) * Road * Clinic 	
Adensu Asempanaye	<ul style="list-style-type: none"> * Water * School Block (Kindergarten). * Road * Corn Mill 	
Akatawia	<ul style="list-style-type: none"> * Water * Toilet * Clinic * Corn Mill * Teachers Quarters * Storage Facility for maize 	
Brepaw Upper	<ul style="list-style-type: none"> * Water * Clinic * Toilet 	
Asaschene	<ul style="list-style-type: none"> * Clinic * Water * Teachers Quarter * Road * Electricity * Kindergarten * Toilet 	
Aworvorso Kpeti	<ul style="list-style-type: none"> * Water * Corn Mill * Teachers Quarters * Clinic * Toilet 	
<u>BAWJASE AREA.</u>		
Opembo	<ul style="list-style-type: none"> * Water * School Block * Toilet 	
Ahentia	<ul style="list-style-type: none"> * Water * School Block * Electricity * Toilet * Day Care Centre 	
Akrabon	<ul style="list-style-type: none"> * Water * School Block * Kindergarten 	
	<ul style="list-style-type: none"> * Day Care Centre * Latrine 	
Fante Mayera	<ul style="list-style-type: none"> * Water * Toilet * Day Care Centre * Road 	

Source: Field Survey



SOCIO-ECONOMIC SITUATION

The research area focused on ethnicity, culture, religion, income levels, social structure, economic activities, housing. Semi-structured interviews and group discussions were used to gather the information.

Asesewa Area

- * Krobos are the dominant tribe in the area, there are pockets of other ethnic groups, Ewes, Gas, and people of northern descent.
- * Traditional religion is dominant in the area. Some Christians and Moslems also exist
- * Land is owned by individual families. They practice linear (HUZA) system of settlement. The land is owned by the family and therefore no community leader has control over it.
- * Landless people rent land for farming activities. The rent is paid with the produce of the farm.
- * Settlements are affected by the system of land ownership. The houses are built in line given the 'HUZA' or the linear pattern of settlement.
- * Houses are built of mud and roofed with aluminum sheets.

Bawjiase Area

- * Awutus are the dominant tribe, there are however, pockets of Fantis, Ewes, Gas, and People of Northern descent.
- * Christianity is the dominant religion
- * A greater part of the land belongs to the Senyas, an ethnic group in the central region. Most of the present settlers do not have their own land. Land is leased on seasonal basis at negotiated rate. The price ranges between c 6,000 - c 12,000.
- * Houses are built of mud and roofed with iron or straw.

GENERAL ECONOMIC ACTIVITIES

- * Farming is the main economic activity in the two study areas. Mixed crop farming is practiced. Cassava and maize are the main cash crops
- * Cassava processing is common in the two study areas. It is processed into gari and cassava dough.



INCOME LEVELS

Although participatory processes were used to identify sources of income, they could not give the exact information required because:

- * Farm produce are not often quantified in terms of money within the rural population.
- * Subsistence farming is the main farming practice and therefore the people do not relate what they consume to how much they would have earned from it had it been sold.
- * The issue of income levels remains a secret and cannot be disclosed in the open.

The team tried the expenditure approach to measure income. This method did not work well because the community members could not quantify the items of expenditure.

A general trend observed was that most household income are spent on education, health, farm labour, fuel (kerosine), clothing, soap, fish and salt. Other items relate to marriage and other cultural practices.

There is a seasonal variation in the expenditure pattern. For example more money is spent on labour during the period of land preparation for farming (Jan - May). In both areas land preparation for an acre of land is between c 15,000 - c20,000.

In both areas resources are controlled by men. However, it was evident that women in Asesewa area are better off than their counterparts in the Bawjiase area, because of the land tenure system. While the women in the Asesewa area can acquire family land for farming those in the Bawjiase area work jointly on the farms with their husbands who also control the wealth that accrues from the sale of the produce.

EXISTING HEALTH SITUATION

The information on the health status of the area was gathered through community group discussion.

Health Facilities

- * Villages in the Asesewa area are served by a public and private clinic. The farthest village is about 10km from Asesewa and nearest 2.5km
- * Villages in the Bawjiase area are serviced with a public hospital. The study communities are located within an average of 5km from the clinic.



ASESEWA PROJECT AREA	DISEASE TYPE:
a. Dewa Trim	<ul style="list-style-type: none"> • Convulsion (Children) • Whooping Cough (Children) • Malaria/Fever (Children/Adult) • Worms Infestation (Children) • Skin Rashes (Children/Adult) • Stomachache (Children /Adult)
b. Adensu Asempanye	<ul style="list-style-type: none"> • Malaria/Fever (Children/Adult) • Headache (Children/ Adult) • Waste Pains (Adult) • Diarrhoeal (Children) • Skin Rashes (Children)
c. Akatawia	<ul style="list-style-type: none"> • Malaria/Fever (Children/Adult) • Cutlass wounds (Adult) • Heart diseases (Adult) • Eye diseases (Adult) • Snake bites (Adult) • Measles (Children) • Whooping Cough (Children) • Malaria (Children/Adult) • Convulsion (Children) • Rheumatism (Adult)
d. Brepaw Upper	<ul style="list-style-type: none"> • Measles (Childre.i) • Convulsion • Fever/Malaria (Children/Adult) • Whooping Cough (Children) • Diarrhoeal (Children) • Headache (Children/Adult)
	<ul style="list-style-type: none"> • Stomachache (Children/Adult) • Yaws (Children/Adult) • Asthma (Children/Adult) • Skin Rashes/Worms (Children)
c. Asashehc	<ul style="list-style-type: none"> • Fever/Malaria (Children/Adult) • Stomachache pains (Adult) • Cutlass wounds • Diarrhoea (Children /Adult) • Diabetes (Adult) • Pneumonia (Adult) • Heart Diseases (Adult) • Measles (Children) • Chicken Pox (Children)
f. Aboasa	<ul style="list-style-type: none"> • Measles (Children) • Fever/Malaria (Children) • Whooping Cough
g. Awonvorso Kpeti	<ul style="list-style-type: none"> • Fever (Children + Adult) • Rheumatism (Adult) • Cutlass Wounds (Adult) • Hemia (Adult) • Cholera (Adult = Children) • Waste Pains (Adult) • Measles (Children) • Convulsion • Pregnancy Complications (Women)
<u>IAWJASE PROJECT AREA</u>	
h. Opembo	<ul style="list-style-type: none"> • Diarrhoea • Guinea Worm • Stomachache • Yaws • Skin Rashes
i. Alentia	<ul style="list-style-type: none"> • Guinea Worm • Bilharzia • Skin Rashes • Fever • Body Pains
j. Akrabon	<ul style="list-style-type: none"> • Guinea Worm • Cholera • Bilharzia • Fever • Skin Rashes • Yaws • Scabies
k. Fante Mayera	<ul style="list-style-type: none"> • Guinea Worm • Diarrhoea • Waste problems • Fever



- * Discussions revealed that in all the communities visited the first line of treatment is the used of herbs. When that fails they resort to drugs from peddlers. The clinic is only visited when the sickness is serious. This was confirmed by the health officers. The result of a high child mortality rate which community members could not quantify.

Community Perception of Health Issues

The information was gathered using group discussion and home visit.

Discussions were centered on disease prevalence in each community and their perception of the causes and transmission route.

- * The incidence of guinea worm is high in the Bawjiase area but non-existent in the Aseewa area.
- * In terms of personal hygiene most of the houses visited have been swept during the time of the visit. In most of the homes drinking water has been covered but that for general purposes such as bathing and cooking are stored in barrels not covered.

KNOWLEDGE, ATTITUDE AND PRACTICE

This looked at the people's knowledge, attitude in relation to water sanitation and health. It was gathered from the discussion that the people are aware of the presence of diseases in their communities. However, their knowledge about the causes and mode of transmission and prevention is low. For example it was mentioned that malaria is caused by working hard in the scorching sun though they admit the presence of mosquitoes.

- * Community members indicated that the dirty surroundings and uncleaned water could cause disease but could not identify the types of diseases that result from it.
- * In communities where there are no latrines the option is the bush. Human excreta is not covered. Anal cleaning materials include leaves, corn cobs, sticks and cement papers. Where there are latrines, there are no baskets for collecting anal cleaning materials. The latrines are occasionally swept but the waste collected are thrown into the bush.
- * Community members have different attitudes towards some of the diseases identified. A disease like bilharzia which is associated with children is not given as much attention by community members as they do to guinea worm. Such attitudes according to some community members stems from the fact that guinea worm has a more serious effect than bilharzia. It was indicated that bilharzia does not impede movement as guinea worm does.



EXISTING WATER FACILITIES

Site visits and semi-structured interviews used to gather the information required.

Asesewa Area

- * The main dependable source of water supply are the Volta lake extension along the north western part, a mechanised bore hole managed by the Ghana Water and Sewerage Corporation (GWSC), supply water to only the Asesewa township to forty boreholes provided by the Presbyterian church of Ghana. These sources service about 40% the areas population.
- * The remaining 60% depend largely on perennial streams, dugouts, and unprotected wells. Community members indicated that most of these sources dry up at the peak of the dry season.
- * Site visits to most of the local hand dug wells, streams and ponds show that most of these sources are underlain by rock at shallow depths.

Bawjiase Area

- * The area is serviced by two principal water sources, one is a treated water supply from Agona Kwanyako. This supplies water to Agona, Awutu, Senya, Efutu District of the Central Region. The second is a few bore holes supply by the GWSC and UNICEF. It service only 30% of the population.
- * The remaining 70% rely on streams, unprotected wells and dams for their water supply needs. These sources dry up in the dry season.
- * Consumers on the main pipe line from the Kwanyako treatment plant are not adequately served due to low pressure from the pumping station.
- * Ground water in most of the Bawjiase area is salty. The result of the saline intrusion from the sea.

EXISTING SANITATION FACILITIES

Transect walk was undertaken with community members to gather the information required.

- * A community walk undertaken revealed that open defecation and unimproved pit latrine are the main source of excreta disposal systems.
- * The traditional household pit latrines are the common types of latrine in use in the Asesewa area. Ninety percent of the houses have the facility. This type has been adopted owing to the linear 'HUZA' settlement pattern.



- * Communal latrine are very common in the Bawjiase area .This is so because of the compact nature of their settlement.
- * All latrines seen are poorly constructed. The latrines generally are open pits with logs placed across it to serve as foot rest, dwarf wall made of mud or grass and in most cases not roofed.

TECHNICAL OPTIONS

In deciding on these options, community preferences were taken into consideration through a process of discussion and analysis of the implications.

IMPROVEMENT IN WATER SUPPLY

- The outcome of the discussion shows that fifteen boreholes will be required in 8 communities. That is seven in Asesewa and one in Bawjiase.
- Piped water supply will be extended to three communities all in Bawjiase area.

JUSTIFICATION FOR SELECTION OF OPTION

- The hydrogeological situation of most communities in the Asesewa area does not make hand dug wells a feasible option. Data gathered from 42 boreholes drilled by Prakla Seismos show that the average depth within which reliable water can be tapped is 31m and about half of this depth is through fractured rocks.
- There is an effective maintenance system in both programme areas to handle hand pump repair work.
- In the Asesewa area, the Presbyterian Church has a maintenance team trained by Prakla Seismos and stationed in Asesewa to handle the maintenance work on the 42 boreholes.
- In the Bawjiase area the Ghana/French Government Community Water Programme has trained community maintenance teams and area mechanics to deal with maintenance work in the area.

PIPE WATER IMPROVEMENT

The reason for their choice are:-

- The existing boreholes produce water with salty taste which is not being used for drinking



- All the communities are located within an average of 2.5km from the main pipe line. It will therefore be cost effective to extend the pipe line to these communities.
- The three communities were all connected to the main supply line some 14 years ago, but the lines were destroyed by a contracting firm which worked on the main feeder road which runs through these villages.

IMPROVEMENT IN SANITATION SYSTEM

- Communities in the Asesewa area opted for household latrines. Their reason being that there is hardly any communal land to be used for communal latrines because of their settlement pattern.
- Communities in Bawjiase area opted for communal latrines. Their reason is that with the compact nature of their settlement latrine within the house could pose a nuisance, so they wanted it situated at the outskirts of the village. The team tried to convince them on the effectiveness of the household latrine but to no avail. They still insisted on their choice.

COMMUNITIES PERCEPTION OF BENEFITS TO BE DERIVED

The communities were of the view that-

- Improvement in water supply will not only improve the quality of water but also increase the quantity.
- The intervention will not only reduce journey time, improve quality of water but will increase time available to undertake other income generating activities
- Potable water will help improve health status of the community members.

INSTITUTIONAL INFORMATION

- Community based institutions exist in all the communities visited. These institutions have led these communities to carry out some development programmes. Community members were prepared to support these groups to spearhead any future intervention.
- They were, however, of the view that these groups will need to be strengthened to be able to handle any future intervention competently.



GENERAL OBSERVATIONS/FINDINGS

Below are the results of interaction with community members and site visits.

TECHNICAL FEASIBILITY

- Ground water abounds in the Asesewa area, but the geology of the area makes hand dug wells a non-viable option. However, boreholes are feasible considering the depth at which ground water can be extracted through bedded rock.
- Groundwater in the Bawjiase areas is salty, and therefore will not be utilised. In view of this all communities close to the main pipe supply line will have to be connected to the main line. For those further away from the coast and which are also far from the main supply line borehole still remain the only feasible option.

SOCIAL AND ECONOMIC FEASIBILITY

- Women and children are those burdened with responsibility of collecting water. In most of the communities the main source of water are streams, dug outs, ponds, unprotected wells. These source are liable to pollution.
- Women and children walk long distances particularly in the dry season in search of water. Children miss school hours and women are unable to attend to farming and other activities which can improve their income level.
- Water borne and water related diseases are very common. Thus any facility installed to improve the existing situation would be positive intervention
- Sanitation facilities exist but these have not been properly constructed and can be a source of health hazard. Waste disposal is a major problem in most communities.
- Community based structures such as clan heads, unit committees exist and have served as the pivot for community organisation and mobilisation.
- Though the discussion on income levels could not solicit the desired responses, the expenditure pattern of communities on education and health care is enough indication that if appropriate mechanism are put in place, the communities will not only be willing to pay for the facilities but also the cost of operation and maintenance. Their involvement in previous developmental activities indicates their willingness and ability to pay.



LESSONS LEARNED

- Rural people know what they require to satisfy their interest and meet their needs. In view of this it is required that they be involved throughout the project cycle. There is the tendency of some lapses to emerge but if the people directly affected are in charge and have access to the needed technical assistance and training they are likely to emerge stronger to face any future intervention.
- This is the maiden research carried out by the organisation using participatory processes. The experience gain in the field has shown that very vital information could be gathered using participatory approach, which otherwise could not have been gotten using the conventional research approach.
- It is not easy to use participatory approach to gather information on the level of income among rural folks and this makes it quite difficult to clearly establish the communities willingness and ability to pay for the operation of facility

REFERENCE

1. WEDEC Conference Print 1993
2. Sustaining Development through Community Mobilisation

