NETWAS
Network for Water and Sanitation (EA)

Mid-Term Review for the Kenya-Finland Western Water Supply Programme

Evaluative Report of the NETWAS Field Study

By

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Submitted to

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Forward

NETWAS is very pleased to have been associated with the Mid-Term Review for the Kenya-Finland Western Water Supply Programme. The opportunity provided to NETWAS to execute the field survey which formed part of the reference material for the Review has gone a long way to stretch our expertise and experience in the area of evaluation. For this we wish to thank the International Water Supply and Sanitation Centre (IRC) for proposing NETWAS and the Governments of Finland and Kenya for accepting our nomination.

NETWAS which is a department of AMREF, supports the activities of Governments in Eastern Africa in the furtherance of achieving their objectives in the water and sanitation sector. NETWAS undertakes a number of small scale community based water supply and sanitation projects in Kenya, Uganda and Tanzania, and utilizes most of the technologies that are being applied at KFWWSP. It has been useful in carrying out the study to note the application of these technologies on a large scale programme.

One of the other mainstay of NETWAS activities is training and technical information dissemination. Thus the experience in this study shall help NETWAS in both capacity building, and in its other sectoral duties of training and dissemination of experiences. Already a study tour of officers from the Ethiopia Water Resources Commission (Ministry of Water) is being planned during April/May 1991,to visit some of the projects in Kenya including KFWWSP.

In conclusion I would like to thank the two authors, Isaack and Pauline for the enormous amount of time they put in the preparation and implementation of the study and their professionalism in the preparation of the Field Study Report and this Evaluative Report. NETWAS and indeed AMREF owes the implementation of this study to them.

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Acknowledgement

This report has been written out of field surveys, KFWWSP document review and discussion with various groups and Government officers. This survey would not have otherwise been possible without the assistance of various persons and institutions who are directly or indirectly involved in the KFWWSP.

We wish to extend our gratitude to the Provincial Administration, Provincial Water Engineer and the District Water Engineers in the Programme area.

We too wish to thank Mr. Han Heijnen for assisting in the training of the national consultants and briefing in The Hague. Special thanks go to Ms. Lane Hoffman and all IRC staff who were involved in the training and the development of the questionnaire and checklist.

We also wish to thank the Programme staff especially Mr. Timo Tuominen, Mrs Julia Kunguru for assisting in arrangement for the survey teams and Mr.K. Kaniaru for assisting in the logistics, provision of documents, and for assigning an able secretary Miss Margaret Olando to type the initial draft report.

We wish to thank Mr. Eero Meskus, the Finnida Co-ordinator in the Ministry of Water Development, for his tireless efforts in co-ordinating the exercise.

Lastly, we appreciate the timely and necessary support provided by the NETWAS staff especially Mr. M.N. Kariuki through the exercise. The write-up of both the field survey report and this evaluative report has been made possible by the necessary computer back-up expertise provided by M.N. Kariuki. Mr.J.P.Thuku is remembered for reading through the manuscripts and making useful suggestions. To those others who assisted in one way or other, we say thank you.

Acronyms

AMREF	-	African Medical & Research Foundation
BN	-	Bungoma
BS	-	Busia
C	-	Borehole
CDA	-	Community Development Assistant
DDC	-	District Development Committee
DO	-	District Officer
DWE	-	District Water Engineer
EA	-	East Africa
FINNIDA	-	Finnish International Development Agency
GOK	-	Government of Kenya
IGA	-	Income Generating Activities
IRC	-	International Water and Sanitation Centre
K	-	Kenya
KA	-	Kakamega
KEFINCO	-	Kenya Finland Company
KFWWSP	-	Kenya Finland Western Water Supply Programme
Ksh	-	Kenya Shillings
LBDA	-	Lake Basin Development Authority
MOCSS	-	Ministry of Culture and Social Services
MOWD	-	Ministry of Water Development
NGO	-	Non-Governmental Organisation
NETWAS	-	Network for Water and Sanitation (EA)
O & M	-	Operation and Maintenance
RE	-	Resident Engineer
RWSG/EA	-	Regional Water & Sanitation Group (EA) of the UNDP/World Bank Water and Sanitation Programme
SI	-	Siaya
SP	-	Spring
UNDP	-	United Nations Development Programme

1 Introduction

1.1 Terms of Reference for the Survey

When starting the Third Phase of the Kenya Finland Western Water Supply Programme (KFWWSP) it was agreed that a mid-term review be carried out at the end of the first two years, and an evaluation at the end of the Phase III.

1.1.1 Purpose of the Review

The main purpose of the Review is to assess the progress made during the first half of Phase III, identify the problems and deficiencies in the plans, approach, and strategy of the programme and to prepare detailed recommendations for future actions to be taken. The review should cover but not necessarily be limited to the following aspects of the programme implementation:-

(a) Objectives of the Programme
(b) Programme strategy
(c) Institution building
(d) Water points and piped water schemes.
    - New
    - Rehabilitated.
(e) Operation and maintenance.
(f) Training and manpower development.
(g) Community involvement
(h) Inputs
(i) Institutional arrangements
(j) Monitoring and reporting
(k) Costs and financing
(l) Environmental aspects

AMREF was sub-contracted by IRC/Finnida to participate in the mid-term review for the third phase.

Specific Objective

The objective of including a national consultant (AMREF) to do a field survey in order to provide basic reference material to the mid-term review was for the following specific objectives:-

- to help reduce constraints of time inherent in a review mission
- to help focus the outsider perception by the expatriate consultant
- to help reduce a skewed or incomplete assessment of the programme
- to help build national capacity consultancy for improved advisory services in the qualitative development of the water and sanitation sector.

The two national consultants who executed the field survey were:

(a) Mr. I.O. Oenga - Public Health Engineer (K)
(b) Mrs. Pauline Ikumi - Social Scientist (K)

This gave the field survey a unique perspective of incooperating both social and technical aspects of the programmes in a single review. It also helped to focus technical issues against a community involvement background. This unique and desirable combination enhanced the team spirit and the understanding of the complementary roles that each of the factors (social/technical) play. The national consultants were resource persons to the Review Mission.

1.1.2 Task

The main task for the national consultant was to do a sample survey of the programme activities and collect field data that were necessary to support a proper consideration of the major issues involved in the review.

1.2 Invitation to submit proposal

AMREF and other consulting engineering firms were invited to propose to take part in the field work for the mid-term review mission and be partners to the members of the review team. It was hoped that the selected firm would build expertise in evaluation and qualitative development of the water and sanitation sector.

AMREF was awarded the contract and has carried out the task in the field survey. The choosing of AMREF was hoped to yield a large percentage of "Spin-off" effect in the region, as AMREF is working in several Eastern African countries. AMREF houses the ITN Centre for Eastern africa known as NETWAS - Network for Water and Sanitation.

1.2.1 Comments on the Terms of Reference

The TOR was elaborate, comprehensive and covered the needed Mid-Term Evaluation adequ ately. NETWAS would like to emphasize on some issues raised in the TOR.

One consideration is the provision of adequate sanitation. Sanitation sector received a raw deal during the International Drinking Water Supply and Sanitation decade. During a Regional Seminar on Water Supply and Sanitation organised by NETWAS in Uganda in July/August 1990, the participants who represented Ministries of Water and Health in East Africa, recommended that sanitation should receive greater attention during the next decade.

Sustainability of water and sanitation projects should receive greater attention. Methods or strategies to make projects self sustaining should receive greater emphasis. This could be made possible through the utilization of community management, use of affordable tariff structure, design of good water charge collection systems and increase in income generation projects.

Another consideration is an estimation of water produced and water consumed especially for one to decide levels of leakage in piped water supply schemes. This could help in design of a leakage control programme during the second half of project implementation.

The level of integration of the project with other activities was to be considered. Suggestion on how best to integrate this water supply project with other related activities should be considered and documented. For example the level of integration of Primary Health Care Programme and Ministry of Health during the first half of the project was to be evaluated and suggestions made on how best to increase the integration during the second half of the project.

Resources available during the first half of implementation period of the project were to be reviewed and documented and forecasts of expected future resources to be made available indicated. This would assist FINNIDA/GOK forecast the resources allocation.

It was important to note that the aim of the review is not to criticize but to offer suggestions on how the programme performance could be improved.

The Mid-Term review included a ZOPP type of Workshop. ZOPP means Objective Oriented Project Planning. The ZOPP defines the goals and means of verification through use of measurable indicators. This helped incorporate views from a wider cross-section of parties interested in the success of the programme.

2 Background Information to AMREF

2.1 AMREF - Aims, Objectives and Strategy

The African Medical and Research Foundation is an independent non-profit organization which has been working for over 30 years to improve the health of people in Eastern Africa. AMREF was founded in 1957 and has its headquarters in Nairobi.

AMREF's overall goal is to identify health needs and develop, implement and evaluate methods and programmes to meet those needs through service, training and research. Project funds come from Government and non-Government aid agencies in Africa, Europe and North America as well as from private donors.

In 1988, AMREF developed a five year development plan entitled "AMREF Strategic Plan 1989 - 1994". The plan has envisaged four key strategies:

- Delivery of services mainly in the fields of maternal and child health, family planning and clinical medicine, targeted at specific under - served groups in selected areas.

- Support to government health units and management teams in the form of technical assistance, back-up, consultation and problem solving, particularly in the filed of community-based health care, environmental health, communicable-disease control and health education. This includes support to communities in health projects development.

- Training support to government and NGO health workers, and community leaders through teacher training, continuing and distance education and the development of appropriate learning materials.

- Research into key medical, health and behaviour-related issues and dissemination of information

2.2 NETWAS - Network for Water and Sanitation

The promulgation of the Al Mata declaration in 1978 on Primary Health Care by the International Community resulted into the development and implementation of various strategies by Governments, international bodies and non-Government organizations in the field of environmental health. AMREF established an Environmental Health Unit in 1983 to provide the needed support on water supply and sanitation in its Primary Health Care Programmes in East Africa.

The declaration of the 1981-1990 by the International Community as an International Drinking Water Supply and Sanitation Decade and the inter-linkages between water, sanitation and health did also play a key role to strengthen the case for the establishment of the EHU at AMREF.

NETWAS (Network for Water and Sanitation - originally called "Regional Network for Water and Waste Management) was established within the Environmental Health Unit of AMREF in January 1986 under joint financial assistance from the Swiss Development Cooperation (SDC) and the Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ). NETWAS forms part of a global network named the International Training Network for Water and Waste Management which is coordinated under a joint World Bank/UNDP Water and Sanitation Programme.

2.2.1 Aim and Objectives of EHU/NETWAS

The aim of the Environmental Health Unit and the Network for Water and Sanitation is synonymous. EHU/NETWAS aims at raising the living conditions of the low income population by supporting the sector programmes for the improvement of the effectiveness and coverage of the regions water supply and sanitation investments. Four main strategies are utilized to achieve the above goal:

i) **Training**

Training of water supply and sanitation sector staff at certain selected key levels in the development and application of low cost appropriate technologies which can be sustained by the users themselves.

ii) **Technical Information Dissemination**

Support the collection and active dissemination of technical information and project experiences in the water supply and sanitation sector

iii) **Research and Development**

To promote improvements and application of low cost technologies in water supply and sanitation projects through provision of advisory services, consultancy services and undertaking and/or support of applied research.

iv) **Project Development:**

Promotion and introduction of a multi-disciplinary approach emphasizing socio-cultural health considerations in the planning, implementation and maintenance of water supply and sanitation systems. This is achieved by the implementation of demonstration community based projects.

NETWAS has country offices in Uganda and Tanzania whose aim is to promote its objectives in collaboration with water and sanitation sector institutions in those countries. Sudan, Ethiopia and somalia are covered under the regional office in Nairobi.

Below is a description of a few of community based water and sanitation projects in Kenya which have been undertaken by AMREF in the recent past.

2.3 Kibwezi Water Supply Project

2.3.1 General

The project is located in Eastern Province of Kenya in Machakos district. The project covers an area of 8,000 km2. The population of Kibwezi division is 163,000. The growth rate of population is 5% due to high immigration.

The area has mean rainfall of 644mm. The mean annual evaporation is 2112mm and the mean annual temperature is 22.°C The division has four small permanent rivers one of which is saline. The project is an AMREF programme implemented jointly with the community.

2.3.2 Project Implementation

The project began in September 1983 following a joint initiative by the Ministry of Health, Kenya and AMREF as a component of Kibwezi Rural Health Scheme and a funding from AMREF, Netherlands.

The distance to water sources in 1984 were great. The families had to walk an average of 4.4km to the watering point.

A criteria to be used to assess the members of community in greatest need of water was drawn. The choice of technology to be used was to be flexible. Ninety five percent of the project consists of hand dug wells. Water committees have been formed to man the water supply project.

To date, 72 hand dug wells have been constructed and equipped with hand pumps. This project has improved:-

- quantity of water used
- quality of water
- level of service
- maintenance
- replicability

Other donors have since aided this project. These donors are:-
- ODA
- EEC
- Tilburg Company of Holland

2.3.3 Minimum Evaluation Procedure (MEP)

A Kibwezi Divisional Wells Committee evolved in Kibwezi after six years and the committee embarked on an evaluation exercise which would help plan for the future and consolidate the existing knowledge of the project. An evaluation procedure called MEP was adopted.

In order to enable the fullest involvement of the committee field techniques for the bacteriological analyses were used. Two techniques were used:

- Membrane filtration using disposable 37mm filters
- Disposable E-Coli slides

MEP covered 30 wells. Domestic water samples were taken from 15 homes. Visual inspection of the wells to pin point levels of sanitation was done and photographs taken. Nine wells were visited.

The result of MEP is currently helping improvements on present activities of the project and its future activities.

2.4 Subukia Water Supply Project

2.4.1 Introduction

The project area is located 85km north east of Nakuru in the Rift Valley Province of Kenya. The total area of lower Subukia is 350km^2. The average rainfall is between 150 - 700mm per annum. The people and livestock have depended on Subukia River as a water source.

2.4.2 Kinoru/ Lari Gravity Project

This project has benefitted two cooperative farms Lari and Kinoru.

The project was implemented with the community assistance from Catholic Church, Subukia Parish and AMREF. AMREF provided the technical input while the church and the community provided funds and labour inputs. The spring protection project started in 1987 and was completed in 1988. The project consisted of:-

- Protected spring
- Two 0.8m^3 BPT each
- Two tanks at Kinoru 1.6m^3 each
- 1.2km of gravity pipe diameter 32mm to Kinoru.
- 2.6km of gravity pipe diameter 50mm to Lari.

2.4.3 Simboiyon Spring Protection

This project was to benefit Simboiyon farm. The farm has 400 cooperators and a population of about 3,600 people. The project would also be extended to benefit Olmanyatta and Kaptarakwa farms. The project would benefit in total 8,500 people.

The project got assistance from Australian High Commission

The project was implemented by four parties:-
- Austrian High Commission (Funds)
- AMREF (Technical input)
- Community (funds and labour)
- Catholic Parish

The project consisted of:-
- Protected spring
- 1.2km Gravity pipe diameter 50mm GI pipes
- 2 No 10m^3 ferro cement tanks
- 1km gravity distribution diameter 25mm.

The project was started early 1989 and was completed in June 1989.

2.4.4 Ol Manyatta Spring Protection

This project is also located in Subukia and when completed the project will include:
- protected spring at Chui spring
- 5km of gravity pipe of diameter ranging from 50mm to 20mm
- The project will also include storage tanks and distribution lines to Kipsigis Tugen.

To date, all the gravity pipe has been laid. In addition, sixteen VIP latrines have been constructed at Ol Manyatta primary school. The project financiers have been the community and the Catholic Church. AMREF has provided technical input.

2.5 Gelegele Community based Water Supply and Sanitation Project

2.5.1 Introduction

The project is located at Gelegele in Kericho District. The project started in 1990 and the funding comes to an end in June 1991. The Phase 1 project is expected to benefit primary schools while the second phase will benefit the community living in the rural areas. The project consists of construction of VIP - latrines and ferro cement tanks for rain water harvesting. The phase one project is completed and preparations are at hand to start the second phase.

2.5.2 Funding and Technical Input & Work done to date

Funding source is from the Belgian Government through a Belgian NGO, withous while the technical input is provided by the Environmental Health Unit of AMREF. The community will contribute free labour and also contributed funds during the second phase through a revolving fund system.

To date, four primary schools, one secondary, one health centre have benefitted from the scheme. The achievements up to date is as shown here below:-

Primary schools - 80 VIPs and 20 Ferro cement rain water storage tanks have been constructed at the primary schools.

Secondary school - 22 VIPs and 1 Ferro cement storage tank have been constructed at the secondary school.

Health Centre - 1 VIP and 1 Ferro cement have been constructed.

The community has been mobilised and are working together with AMREF in this project. They are eagerly looking forward to the day when they will also have a ferro cement tank and a VIP latrine at their homesteads. In all, the beneficiaries are expected to be 5,000 people.

The project area has been a very effective practical training ground for the following people:-

- students from Kenya Water Institute
- students from Medical Training Centre
- community artisans to man construction
- community health workers.

2.6 Other Projects

2.6.1 Kenya

- Kilifi Water and Sanitation project
- Kayole slum area VIP latrine advisory work
- Construction of VIP latrines for Nomadic Health Unit,Kajiado.
- Technical advise to Kinoo Self Help Water project

- Advisory assistance to Kikuyu PCEA church on VIP latrines
- Construction of Ferro-cement rain water storage tanks at Olchoro and Endonet Primary Schools located at Kajiado.

2.6.2 Uganda and Tanzania

- EHU Uganda and Tanzania has been involved in CBWSS in the respective countries.

3 Background to the KFWWSP

The Governments of Kenya and Finland have agreed that rural water development is one of the sectors of programme concentration within their development co-operation. In 1981, the Kenya-Finland Western Water Supply Programme (KFWWSP) was started in Western Province of Kenya. It currently covers parts of Busia, Bungoma and Kakamega Districts in Western Province and Siaya District in Nyanza Province.

3.1 Objectives of the Programme

The overall programme objective has been stated as to improve the water supply situation in the programme area, so as to contribute to the supplying of the population with a safe adequate supply of potable water by the year 2000.

Rapid population growth makes the attainment of this goal increasingly cumbersome. The competition for the scarce resources by other sectors of the economy deprive the water sector of the required inputs. The goal however, remains an ideal target to work towards.

The specific objective in Phase III, of supplying an additional 400,000 people with clean water through the repair of existing and the design and construction of new water points and piped water schemes is on schedule. To fulfil this objective a total 1700 point sources need to be developed. At the end of June 1990, a total of 484 point sources were constructed. This represents an achievement of 28.5% within 37.5% of the programme time. It may be useful to note that construction of new point sources without corresponding use, O & M by the communities may not achieve an improvement in general health and economic development. The programme is endeavouring to ensure that user communities are well versed in the O & M of the point sources.

3.2 Programme Strategy

The use of cost-effective locally sustainable technologies is a tool in the long-term management and sustenance of the water supply systems.

Point sources as well as gravity schemes are cheap both in terms of capital investment as well as minimal O & M costs. The continuance of utilizing these technologies and the community involvement in the water supply system development, use, operation and maintenance is contributing greatly to the attainment of the goal of clean water for all by the year 2000 in the programme area.

The capability of MoWD in the O & M of point sources need to be developed further, so as to provide backstopping services to the user communities.

3.3 Implementing Agency

The Ministry of Finance and FINNIDA with the approval of the Ministry of Water Development, appointed KEFINCO as the consultant responsible to manage the implementation of the Kenya-Finland Western Water Supply Programme.

KEFINCO is a consultant, and by force of circumstance it is also involved in physical implementation, operation and maintenance, institution building, training and manpower development.

3.4 Programme Achievements

The Investigation and Planning Phase (February 1981 to October 1983), achieved among other things, the water supply development plan for the programme area, protected 21 springs, dug 114 shallow wells and drilled 82 boreholes, providing 43,400 people with safe water. Infrastructure for the programme was also constructed. The total expenditure was Ksh. 45 million.

The water supply development plan that was developed during the Investigation and Planning Phase gave the overall goal as 7,200 handpump wells and 1,400 protected sprigs as sufficient to cover and supply safe water to the population in the programme area adequately.

The Implementation of Phase I commenced in November 1983, and was completed in December 1985. A total of 183 springs, 294 dug wells and 266 boreholes were constructed. The Kakamega, Malava and Shikusa water treatment plants were rehabilitated and/or augmented. Three struja units were installed, two in Kakamega and one at Maseno. It was estimated that this phase provided an additional 148,600 people with safe water. These measures together with those in the investigation and planning phase served a total of 160,000, people. A total of 90 wells were deepened. The total number of dug wells that required deepening is not given in the reports. A total of 600 water committees were formed. The total cost for phase I was Ksh. 89.3 million.

The Implementation of Phase II commenced in January 1986 and ended in December 1988. It was estimated that 340,000 people were provided with safe water during Phase II alone. This brings to a total of 500,000 people served with safe water at the end of Phase II. It is estimated that 350 dug wells will need deepening, while 120 spring protection facilities will be repaired during Phase I. A total of 180 dug wells will be maintained. The target figures for Phase II were 600 protected springs, 450 boreholes and 450 dug wells. A computer data system was started and two offices built in Kakamega. Augmentation of the mechanical store was completed.

During the Third Implementation Phase, it is expected that an additional 400,000 people will be provided with safe water. A special emphasis is laid on community involvement in order to enhance sustainability. Point sources shall still continue to receive priority with some enhanced utilization of gravity piped schemes where possible. Rehabilitation and /or augmentation of existing piped schemes shall continue to receive some attention. The proposed targets are 600 protected springs, 500 dug wells and 600 boreholes over the 4 year period. In addition, 200 supplies will need repairing and 700 supplies (point sources) will need pollution control measures in Phase III.

The Phase III Implementation is divided into five main sectors, each with its objectives and components. These are:-

- Water Supply Development
- Physical Improvements
- Operation and Maintenance
- Training and Manpower Development
- Community Involvement

The main emphasis in Phase III is consolidation of the programme activities in order to enhance sustainability. This measure is hoped shall counter the disintegration of the systems and avoid waste of all effort spent on their construction.

Imparting knowledge and skills to the communities in matters related to the sustenance of the improved systems is another justifiable need for the Phase III. This too is hoped to help prevent the programme from becoming an isolated effort without a lasting impact on the water sector, especially in the programme area.

3.4.1 Programme outputs

The total number of point sources constructed in all the 3 phases is 3000. The anticipated initial production to adequately cover the programme area was estimated at 8400. Fig. 1 shows the percentage done against the total output expected. It may be useful to note that about 1/3 of the total expected output has been done within a 10 year period. In order to reach the total coverage another 20 years of programme time is needed at current rate. If the rate is to be reduced to allow for proper community integration, and thus enhancing the sustainability of community based management, then a longer programme time is necessary.

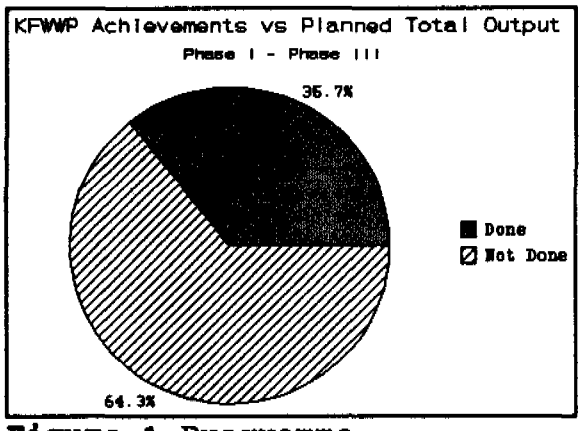

Figure 1 Programme Achievements

3.4.2 Women Involvement

Figure 2 and 3 show the literacy levels in men and women. The high illiteracy levels in women is an hinderance to effective participation of women in development programme. Appropriate communication aids (audio-visual) are necessary, if the programme is to effectively involve women.

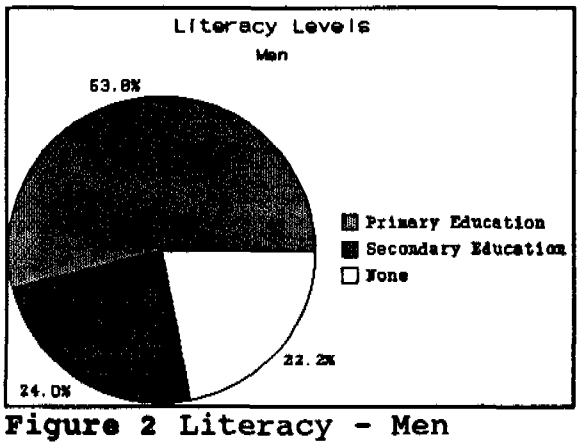

Figure 2 Literacy - Men

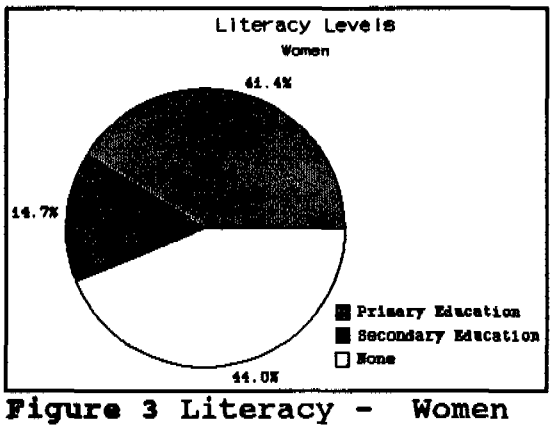

Figure 3 Literacy - Women

3.4.3 Community Involvement

In many water points awareness campaigns have been done, refer to Fig. 4. However the essence of the campaigns have been "selling" the Programme and not sensitizing the communities to address themselves to their basic problems and find solutions. This has lead

to committees being formed in hurry and consumers not knowing what their obligations and responsibilities are. The sense of ownership by the communities was lacking in many places.

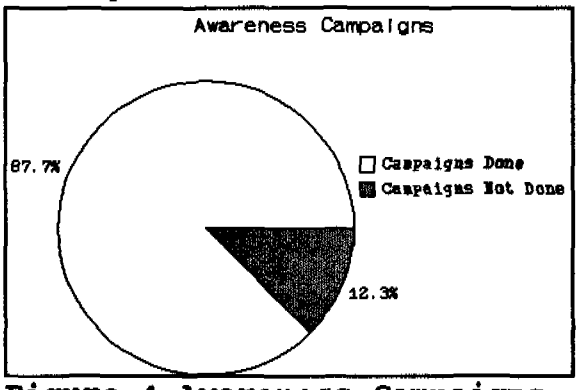

Figure 4 Awareness Campaigns

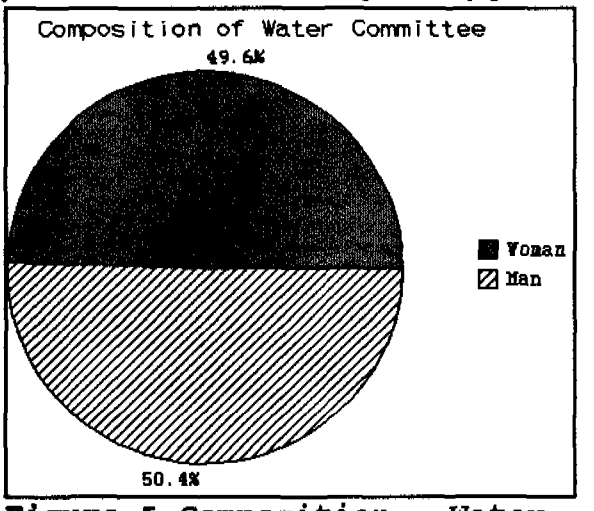

Figure 5 Composition - Water Committees

Figure 5 depicts the composition of water committees. Gender participation seems to be even, and the involvement of both man and woman may enhance sustainability better than when it is all a woman's affair. The training aspects in management skills have not been effective. This may be due to high illiteracy levels and lack of follow ups. Many of the pump attendants who are women have been trained on Nira AF 85, but even then pumps do not break down often to give them practice. This condition also deprives the repairmen of anticipated revenue and are moving elsewhere. This state of affairs may be due to the massive replacement of the old hand pump models Nira AF 76 by the new more robust handpump Nira AF 85.

3.4.4 Technical Options

Ground water extraction by boreholes and dug wells is the most common option adopted by the programme. The other options are spring protection, Gravity schemes and rehabilitation of pipe schemes.

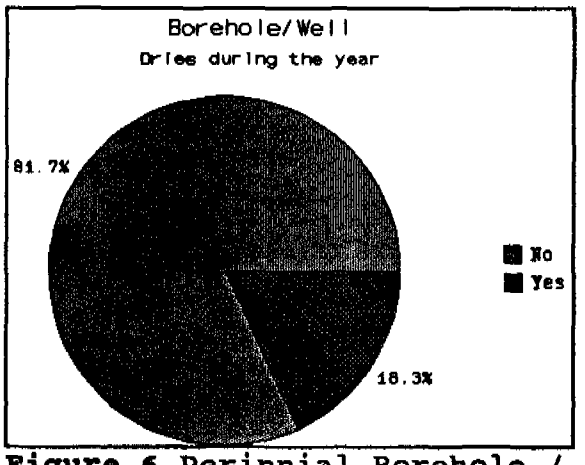

Figure 6 Perinnial Borehole / Well

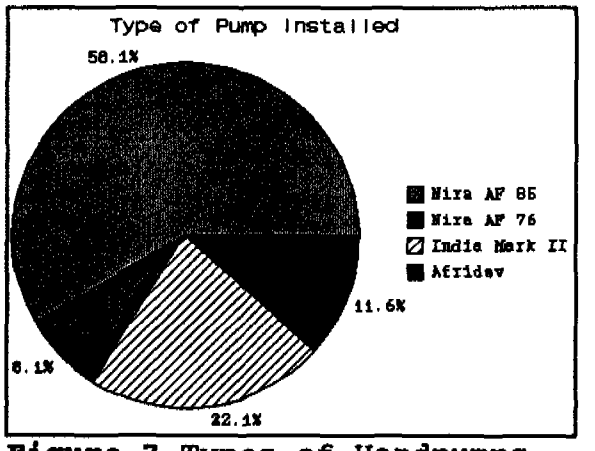

Figure 7 Types of Handpumps

The percentage of boreholes and dug wells that dry up during the year is given in Fig. 6. The programme is increasingly advocating for Nira AF 85 and replacing the old model Nira AF 76

handpumps. This replacement is due to a technological development in the design of handpumps. It however does not auger well for the provision of spare parts. A local manufacturing of spare parts may add to ease sustainability. Fig.7 gives the proportions of the various types of handpumps being used by the programme. Afridev has a local manufacture, while India Mark II is produced at Kakamega. The Nira models are imported.

3.4.5 Sanitation

Figure 8 indicates the percentage clean latrines. Many latrines visited were of the traditional type. Over 35% of the latrines visited were dirty. However, the KFWWSP is not undertaking any sanitation activities at the moment. Hygiene education and a sanitation improvement facilities are necessary. However the capacity of the water programme need to be assessed before such auxiliary activities are undertaken.

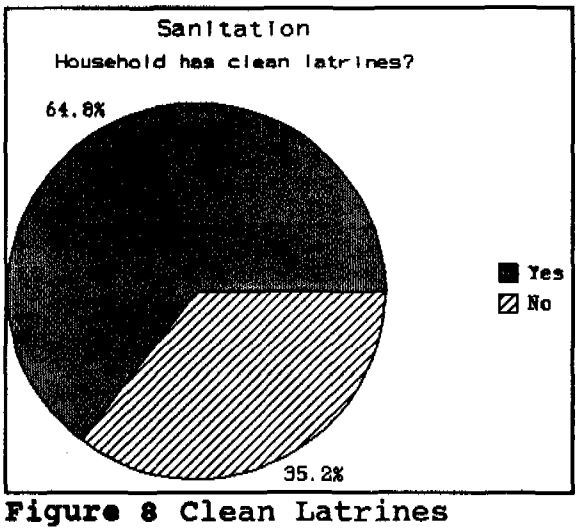

Figure 8 Clean Latrines

4 Methodology of Field Surveys

The following strategy was adopted in carrying out the field survey:

"The consultants made their first field visit to the programme area to facilitate planning. During this period the survey teams were identified. Each Survey team had 3 members, a driver and a vehicle.

The survey teams will be introduced by the supervisors on the background to the field survey, methods and the aim of the evaluation. The meaning of each question explained in detail and attention devoted to getting the teams to interpret and gather information in a uniform way. The questionnaires will be pre-tested and revised on the basis of the experience gained.

The survey instruments shall be questionnaires, interviews observations, and discussions".

- The surveys were carried out on pre-selected point sources, and interview among others:-
  - Water committees
  - Attendants
  - At least 4 households for each point source
- Five focused group discussions were conducted, one in each of the districts, Bungoma, Kakamega and Siaya and two in Busia. The main target group were women.
- Lastly, special groups were interviewed. These were the District Water Engineers (DWE), Provincial Administration (i.e. DO, Chiefs, Assistant Chiefs), Project Staff at Kakamega and the extension workers. Health Agent (i.e. Public Health technician) and officers-in-charge of health centres were also interviewed.

4.1 Survey Teams

4.1.1 Introduction

The main task for the national consultant was to collect and analyze data from the field in the programme area, which would form the basic material for the mid-term review. The consultant recruited, trained and organized 4 survey teams (one for each district). The field surveys were executed by the survey teams under the supervision of the national consultant.

4.1.2 Composition

The national consultant recruited and organized 4 survey teams.
Each survey team had 3 members.

The team leaders were a geologist and three senior water inspectors. The other members from whom the survey teams were constituted included, four public health technicians, three social workers (all women) and KANU - Maendeleo ya Wanawake official (woman). This composition of the survey teams had the advantages of:-

a) Collaborative team work. The technical team leader, the health officer and the social worker formed and executed their tasks as a team. Each discipline supplementing the other. This promoted team work spirit which is necessary in all rural development programmes. It is

hoped that the 12 members of the teams shall carry this spirit along with them to their respective areas of work.

b) The involvement of women (social worker, Kanu Maendeleo ya Wanawake) enhanced gender participation.

c) The composition of the survey teams brought together persons from various institutions and this amalgamation enhanced both the team work spirit as well exposing the officers to appreciating each other's role in the development activities in the rural areas. The distribution was:

- Ministry of Water Development - 4 Technical officers
- Ministry of Health - 4 Public Health Technicians
- Ministry of Culture & Social Services - 3 Social Workers(women)
- KANU Maendeleo ya Wanawake - 1 Official (woman)

d) The training and the involvement in field survey, exposed these officers and gave them a new perceptive and impetuous in the dynamics community involvement in rural development activities.

This exercise indeed was a positive contribution to the national capacity building in the qualitative development in the water and sanitation sector. The rural setting of programme and the component of the community based management of the water supplies were added advantages in the exposure.

4.2 Training of Survey Teams

4.2.1 Briefing: Objectives

The training of the survey team took 3 days. After a short welcome to all participants, the consultant gave an overview of the programme and the purpose of the evaluation. The main purpose of the survey was to assess the progress made during the first half of phase III of the Kenya-Finland Western Water Supply Programme, to identify the problems and deficiencies in the plans, approach and strategy of the programme and to prepare detailed recommendation for future actions to be taken. The field survey was to provide basic material for the mid-term review. The survey teams were given briefs on each of the areas detailed below:-

4.2.2 Background Information

The following areas were covered during the briefing of the survey teams. It was hoped that this information will prepare the survey teams in order to adequately apply themselves during the field survey.

(i) **Technical options**

There are 4 technical options which are offered by the programme, Point Source (protected springs, dug wells and borehole) and gravity piped schemes. The rehabilitation of piped scheme is done, on a limited scale. The survey teams shall primarily concern themselves with point sources.

(ii) **Institution Buildings**

Each water point is expected to have a water committee,which is registered with the Ministry of Culture and Social Services. Each committee is expected to manage their water point. Each water point is expected to have an attendant. Each location is expected to have a repairman. This is hoped to strengthen the community based management of water supplies.

(iii) **Community participation**

Local communities are expected to be involved in decision making, on water point allocation, planning, design and construction, and use the facilities when completed. Operation and maintenance of the systems is the responsibility of the communities so as to guarantee their sustainability.

(iv) **Women Involvement**

Special attention is to be paid to the involvement of women, and enabling them get involved in the water development programme in their areas.

(v) **Cost Recovery**

The specific aim is to achieve sustainable community operated and maintained water supplies.

(vii) **Income Generating Activities**

Income generating activities are encouraged,activated, and initiated with the objective of boosting the level of income so as to raise the living standards of communities and also enable them to maintain their water systems.

(viii) **Training Activities within the programme**

There are three target groups for whom training activities are organized. The community leaders and extension workers who attend seminars for about three to four days. Then there are the pump attendants (two women) for each water point who are taught handpump maintenance and repair. The general population is educated on the linkages between disease and water, through film shows.

4.2.3 Survey Instruments

(i) **Questionnaire/checklists**

Each question on the questionnaire was explained and how to record answers. There were discussions on the checklist as well. A timetable was developed in line with the number of point sources each team was to visit.

(ii) **Role Play**

Participants did a role play to practice on the questionnaire. Special attention was paid on how the questions were asked and getting clear answers. Time was taken to discuss how the survey teams should introduce themselves to the communities and in particular to the respondents.

Supervision, guidance and support for the teams while in the field, was provided by the national consultants.

(iii) **Pre-testing**

A day was spent on pre-testing the survey instruments in Malava Division in Kakamega District.

(vi) **Adoption of survey instruments**

A morning was spent discussing questions/problems identified during the pre-testing. Any differences were ironed out. The survey instruments were then adopted.In the afternoon, the survey teams left for their respective districts to start the actual Field Survey.

4.3 Actual Field Survey (17th Jan. to 31st Jan. 1991)

4.3.1 Survey Schedule

Dates were set to visit pre-selected point sources in all the 4 districts. Each team had to visit an average of 3 point sources a day. An average of 4 households were interviewed at each point source. A water committee at each point source, and the pump attendant (mama safi) were interviewed. The public health technicians for each of the sub-locations were also interviewed.

Observations on the sanitary conditions of the Point Sources and the homesteads was done. The water storage facilities and habits were noted in the homes.

4.3.2 Visiting of pre-selected point sources

Survey teams visited pre-selected point sources. They interviewed consumers in 4 households at each point source. The teams also interviewed the committees and pump attendant at each point source. Observations on the sanitary conditions of the Point Sources and the homesteads was done. Observations on water storage and drawing at home was noted. The two national consultants assisted and supervised the teams in all the 4 districts throughout the survey. The Locational Representatives served as guides in visiting the pre-selected point sources.

4.3.3 Focused group discussions

Focused group discussions with women were done by the national social consultant, and in two districts there were group discussions for men. The selection of participants in the group discussions was by selecting a cluster of point sources and requesting consumers from them to come to the group discussions.

4.3.4 Discussions with DWE's, Chiefs, Locational Representatives

The national consultant also held discussions with the District Water Engineers in the programme area, the local administration (DOs, chiefs, assistant chiefs) locational representatives, and two health centres in the programme area. The visiting of the health centres was to solicit information on the general health condition.

4.3.5 Piped schemes

Visits to selected piped schemes were done by the national consultant. Operators and committee members were interviewed. Observations on the physical conditions was also done.

4.3.6 Other point sources of interest

Point sources not preselected for the survey were also visited by the national consultant, as well as the survey teams. This was done to increase the data base and to yield some interesting information e.g. on iron removal plants, solar units and hydram.

4.3.7 Supervision/monitoring/guidance of field surveys

The four survey teams were supervised by the national consultant throughout the field surveys. At the start of the field survey, the national consultant went from one team to another and assisted in setting them up. The national consultant also assisted in the logistics during the surveys and checked that the teams were getting the right information.

4.3.8 Transport

Transport was provided by the KFWWSP for the survey teams and AMREF provided transport for the national consultant

4.3.9 Analysis and report writing

Completed questionnaires were collected at the end of the field survey. Analysis and summarizing was done by the local consultants. A draft report was prepared and presented to the Review Mission in order to form a basis and highlight issues that the review mission may have wished to address.

4.4 Sampling and selection of Point Sources

4.4.1 Introduction

The Kenya-Finland Western Water Supply Programme (KFWWSP) cover 15 divisions, in 4 districts.

The divisions covered in Bungoma district are Kanduyi, Cheptais and Sirisia. Kapsakwony division has also benefited through Chemoge-Kapsakwony gravity scheme. In Busia district all the six divisions, Amukura, Amagoro, Butula, Budalangi, Funyula and Nambale are covered. Of the 12 divisions in Kakamega district, Mumias, Lurambi and Malava divisions are covered, while in Siaya, Ugunja and Ukwala divisions are covered.

A few points have been done outside the programme area on request by DDC,s. This has been possible due to the 10% flexibility in the programme budget.

The programme has constructed about 3000 water points. The field survey covered 5% of the constructed points. The total number of points visited was 140 distributed evenly in the 15 divisions covered by the programme. In Kapsakwony division in Bungoma which has very few point sources developed, only the Kapsakwony gravity scheme was visited.

In each division, 10 points were visited. Some attempt was made to distribute selected points in proportion to the densities of the constructed points. The whole programme area was covered.

The selected points were hoped to yield vital information on the sustainability of the community based operation and maintenance system currently advocated by the programme.

The list of the selected points was given to KFWWSP staff who provided detailed information on each of the points. This revealed that in Bungoma district 4 of the 9 boreholes randomly selected and 2 of the 13 shallow wells were dry. This situation raised the issue of whether there was need to visit the dry points. It was decided that in the case of Bungoma where there were many dry points, some of the dry points be replaced by productive points. Indicated in brackets are the productive points, BN-138 (BN-128), C-6176 (C-6107) which was also dry and had to be replaced by C-6106. The point C-8401 replaced by (C-8396). The dry points visited in Bungoma were BN 129, C-6391, C-8393. The springs in Chepyuk sub-location, Kopsiro location of Cheptais Division that were chosen included SP-869, SP 872, SP 876. These were replaced by SP-497, SP-498, SP-499 due to the resettlement process being done in Chepyuk sub-location, as this is a forest conservation area.

In Busia district, borehole numbers C-8780, C-3391, C-3926 in Busia town are observation boreholes and were therefore not visited. No replacement was done for them. The borehole number C-7941 is dry. An alternative point visited was C-7943. The borehole number C-8592 is an observation borehole and was thus not visited, no replacement site was visited.

The shallow well numbers BS-484, BS-469, BS-503 were visited despite the fact that they are dry. BS-10 is abandoned due to poor quality, but was visited. While BS-527 which is also abandoned due to poor quality, was replaced by BS-517 in the survey. Borehole number C-8016 was visited despite being dry. In Kakamega and Siaya districts, no changes of the selected sites was done. Visiting those sites that are dry or abandoned was hoped to yield data and information from those communities on how they view such developments.

In addition to the pre-selected point sources, additional piped schemes were selected for visiting. These were Kakamega water supply and Mukumu water supply in Kakamega district; Sega water supply in Siaya district; Amukura Mission Water Supply in Busia district and Kapsakwony, Kutere and Chwele water supply in Bungoma district.

Other point sources that would yield additional information of interest, such as iron/manganese removal plants, hydram arrangements, struja units, solar units, income generating activities, gravity schemes and pumped schemes were visited.

4.4.2 Distribution of pre-selected points visited

Table 2:2 Distribution of pre-selected points visited

	YEAR OF CONSTRUCTION								
DISTRICT	82	83	84	85	86	87	88	89	Y/N
KAKAMEGA									
Borehole	3		1			4		4	
Shallow wells		1		1	4	2			1
Springs		2	1		1		4	1	
BUNGOMA									
Boreholes				3	2			6	
Shallow wells				1		1	9		
Springs			2			3		3	
BUSIA									
Boreholes				1			11	4	5
Shallow wells			2	8	5	6	5		
Springs			2			7	3		1
SIAYA									
Boreholes						3	1		2
Shallow wells					3	1	2		
Springs			3		3	1	2		

Table 2:3 Other points visited

BUNGOMA	KAKAMEGA	BUSIA		SIAYA
C-6192	SP-8	BS-483	BS-9	C-5746
C-6149	KA-429	C-6129	(Iron removal)	SI-102
	C-7093	C-7533		
C-8565	C-5476	C-6128	BS-556	
SP-3012	C-7093	C-8816	BS-26	
C-6149	C-5476	C-5181	C-5294	
BN-140	C-7045	C-8803	BS-112	
BN-33	KA-237	Buduongi (no	BS-5	
	C-8403	number on slab)		
	C-7010	C-5305	C-8814	
	C-7012	BS-30	C-8815	
	C-8011	C-5308	BS-649	
	C-5958	C-5156	BS-522	
	C-8445	C-5133	BS-535	
	KA-333	C-7941		
	C-5697	BS-644	BS-523	
	KA-343	BS-610		

Piped schemes visited

- Amukura - borehole
- Chwele - solar (borehole)
- Kutere - gravity
- Kakamega - Pumping (rehabilitated)
- Mukumu - borehole
- Sega - borehole
- Webuye - gravity/pumping
- Kapsakwony - gravity
- Chemoge - gravity
- Kongit -gravity

5 National Capacity Building

5.1 Introduction

The inclusion of national consultants allowed for national capacity building for improved advisory and consulting services in the qualitative development of the water supply and sanitation sector.

A special briefing programme on evaluation at IRC, in The Hague was conducted. During the one week at IRC discussions on evaluation and preparation of survey instruments (questionnaire, checklists) was accomplished.

The national consultant executed a field survey in the programme area, and participated as resource person to the review mission. The national consultant attended a two-day staff development workshop conducted at the end of the review, which discussed results and follow-up of the mid-term review activity. The field survey report writing was the responsibility of AMREF through the National consultants.

5.2 Briefing in The Hague

The one week briefing at the Hague prepared the consultants to adequately apply themselves in the execution of the field survey in the programme area. It also provided for the involvement of the national consultant as resources persons to the review mission.

5.3 Development of Survey Instruments

The preparation of the survey instruments was started during the discussions and briefing in The Hague. A questionnaire for each of the technical options was prepared. There were one questionnaire for boreholes/wells, one for protected springs and another for piped schemes. Each questionnaire had general,socio-economic and institution building sections. Checklists for sanitation and hygiene, health agent, programme staff and guideline for group discussions were prepared.

The pre-testing and adoption of the survey instruments accorded the consultant and the survey team members an opportunity to review the survey instruments and incooperate practical lessons learnt from the field pre-testing.

The preparation of the questionnaire accorded the national consultant the opportunity to study the interrelations between the survey instrument, the execution of the field survey, the analysis of the questionnaires, the inferences and conclusion to be drawn, and recommendations to be made from such an exercise.

Of special note was the inter-linkages between various sections of the information collected. For instance the relationship between type housing and affordability. The exercise has been indeed one that has offered NETWAS a unique opportunity to develop expertise in the qualitative development in the water and sanitation sector and thus helped built national capacity.

5.4 Survey Teams

The selection, composition and training of survey teams is discussed in section 4 of this report. It may suffice here to mention that the survey team members were all Kenyans working in the public sector. The experiences they gained is hoped will further enhance their willingness to cooperate and cultivate the team spirit in their routine tasks. The inclusion of 4 women in the survey teams increased gender participation on the field survey.

The role play helped harmonise the approach the survey teams were to adopt in the field. Issues of communication and the perception of issues by different groups and/or discipline different adequately covered by the composition of the survey teams. The team leaders who were technically qualified persons, checked on the quality, the health technician checked on the public health aspects of the point source. The social worker assessed the community issues pertaining to the point sources.

The team leaders assisted in the management and logistics of the exercise.

5.5 Methodology

The main avenues of information gatherings were by:-

(i) **Programme documents**

- The programme document, progress reports, study papers were reviewed by the national consultant. This provided a useful understanding of the programme.

(ii) **Interviews/Discussions**

The communities, the water point committees, the pump attendants and some repairmen were interviewed by the survey teams. A questionnaire was used to record their responses.

Also interviewed were the DWE, DO, Chiefs, Assistant Chiefs, Locational representatives as well as programme departmental heads.

Focused group discussions were also done to solicit views, ideas and perceptions of the programme of the communities.

(iii) **Observations**

Visits to various point sources, gravity schemes, households provided an opportunity to observe and record. A checklist was used for such observations.

5.6 Field Findings

The wealth of information and experiences gained by the programme has been documented in the main field report.

It may suffice to indicate that the questionnaires, checklists were summarised and an analytical draft report compiled. This report was presented to the review mission in order to provide an

overview of the programme achievements, problems, constraints, observations and recommendations.

The final field report has been prepared as a separate document to the mid-term review report. It however provides basic reference material. The basic issues raised in the field report are summarised below:

(i) Technical Options

The technologies advocated by the programme are capable of being used at village level operated and maintained. There has been considerable physical development in the water facilities with increasing improvement in the quality of the finished product. Improvement on the quality of workmanship by the local contractors, supervision, checks and balances need to be improved. The design of the spring protection is still lacking and can be improved significantly to reduce overflowing which are possible causes of pollution. The draw-off (sprout) of the hand pumps are too large and need to be reduced. It was observed that consumers improvise reducers which are often the cause of contamination.

Spring protection, dug wells, boreholes and piped schemes are the four technical options offered by the programme. There is an over emphasis for physical output without corresponding capacity building in the MoWD and the community to manage the developed water points.

(ii) Community Development

The responsibility of management, use and maintenance of the physical facilities rests with the recipient communities. In order to strengthen their capacities the programme provides training to the water committees, pump attendants and the general population.

It was noted that degree of involvement by the communities is impaired by the programme attitude of "Provider" rather than that of "Partners in development" to the community. The over emphasizing of physical output sometime at the expense of quality of the facilities provided may be understood from the point of view as it is an indicator that presents itself for verification easily. The quantitative manner in which the workplans are drawn deny quality its due share in the development, inspite being the very key to the long term sustainability of the water facilities.

The quality of community based management is enhanced by adequate training and follow-up. The follow-up is lacking and this causes back sliding of the water committees and thus the overall management strategy.

Women involvement in its absolute sense may be determental to the overall sustainability. It needs to be blended suitably with the "man" factor in order to enhance gender participation in the development, management, use and maintenance of the water facilities.

(iii) Collaboration

It is the Government of Kenya (GoK) policy to provide adequate rural infrastructure in the rural areas in order to balance the rural/urban development. This is hoped to check the rural/urban migration. To do this, then, did the Government of Kenya wish to collaborate with the Government of Finland (represented by FINNIDA locally) in the Kenya-Finland western water supply programme.

The Ministry of Water Development has a stake in the Programme for it is achieving the goal of providing wholesome, potable water to the populace of the Programme area by the activities being undertaken by KEFINCO as a consultant and by force of circumstance as a contractor.

It is therefore imperative that KEFINCO advise and give an adequately correct view to all parties concerned, so that those concerned may suitably adjust the policy with changing times. This is somewhat achieved by the mid-term reviews, but as situations and circumstances change rapidly, KEFINCO as consultant need address itself to this issue adequately.

The role of the communities as consumers and future managers of the water facilities need to be developed adequately. The capacity of the MoWD to adequately advise and provide technical support need to be developed.

The allocation of the water points need to be processed through the District Development Committee (DDC) and programme staff in each district need report to respective District Water Engineer. The integration of certain programme activities into the line ministries need to be enhanced.

(iv) **Auxiliary Activities**

The Programme is currently undertaking on auxiliary activities which are unnecessarily overloading it. They include hygiene education campaigns, income generating activities. A study to review an acceptable degree of auxiliary activities is recommended.

(v) **Sanitation**

Provision of adequate physical water facilities without corresponding coverage in sanitation provide little chances for the improvement of health. While the Programme may wish to add on sanitation component to its activities, the corresponding hygiene education can be better handled by the Ministry of Health or its appointed agent.

(vi) **Programme Area**

It may be useful to extend the Programme area to cover the whole of Western Province, while Siaya may be given up to the Lake Basin Development Authority or develop a separate Project/Programme for it. This area extension shall call for allocation of more resources as well as extended time.

5.7 Execution of Field Survey

The national consultant had two components; the technical and the social. The technical consultant was deemed to be the national team leader, responsible for output, management and logistics of the exercise.

5.8 Report Writing

An initial draft report on the field survey was prepared in the field to provide reference material to the review mission.

The final field survey report was written in Nairobi and NETWAS members of staff did review the manuscript and made useful suggestions.

Also the summarising of the questionnaires provided a forum for discussion and exchange of views and ideas within NETWAS on the format and depth of presentation for the final field survey report.

5.9 Staff development workshop

A two day workshop (14th, 15th Feb 1991) was held to discuss the initial findings of the review mission.

The workshop participants deliberated, made observations and recommendations on various issues raised by the review team. The four areas identified by the review team as of critical importance in enhancing the sustainability of the water supply facilities included:-

- Community Based Management (CBM) - Organizational Aspects
- Community Based Management (CBM) - Technical Aspects
- Cost-sharing
- District Focus

The national consultant highlighted some of their findings during the field survey. These findings enhanced the deliberations on the issues listed above.

5.10 Support Services

The KFWWSP provided a conducive atmosphere in which the whole exercise was carried out smoothly. The programme provided transport, information, organised for guides, and secretarial services. It also offered working space both in the conference hall as well as in the guest house. The programme attitude was open-minded and supportive.

5.11 Collaboration

The involvement of AMREF in the execution of the field survey for the mid-term review of the KFFWSP was in line with its primary role of collaborating with the relevant government ministries and in particular the Ministries of Water and Health.

The exercise has further cemented and enhanced the cordial relationship between the Ministry of Water Development and AMREF. AMREF supports and supplements the efforts of the Ministry of Water Development in training especially on low cost technologies. This enhances the provision of potable water to the rural communities, based on the District Focus strategy of rural development policy and cost sharing.

5.12 KFWWSP Experience vs AMREF Experience

NETWAS undertakes small community based water and sanitation projects in Kenya, Tanzania and Uganda.

Initial impressions indicate that community based management of water and sanitation programmes is indeed a viable strategy. This strategy may contribute significantly to the provision of water and sanitation facilities to the many rural poor, by easing the demand that would otherwise be placed on government and donor agencies for providing operation and maintenance funds and management.

The concept of evaluation on those community projects undertaken by NETWAS has received a rather low priority due to lack of funds. However due to experiences gained here, it is imperative that future proposals for community based projects include adequate provisions for evaluation and reviews.

5.13 OBSERVATIONS & RECOMMENDATIONS

The inclusion of a sample field survey in mid-term review of the Kenya-Finland Western Water Supply Programme Phase III by a national consultant is a commendable undertaking.

It is recommended that future reviews include adequate sample field surveys in order to adequately assess the project/programme activities.

Rural development programme heavily rely on the goodwill of the communities. It is recommended that all reviews include social and technical components.

AMREF has gained and built considerable capability in qualitative development of the water and sanitation sector as a result of its involvement in the KFWWSP Mid-Term Review. AMREF operates in many rural and urban areas in the Eastern Africa countries. This gives it an advantage to undertake evaluation in the water supply and sanitation whenever requested to do so. Organisations (donor, Governments) wishing to review/evaluate their programmes may utilize this expertise that is now available within the region.