BACKGROUND REPORT
of the
APPRAISAL MISSION of PHASE IV
of the
KENYA-FINLAND
WESTERN WATER SUPPLY PROGRAMME

The Hague
July 1992

TABLE OF CONTENT
ACRONYMS

Abbreviations and Acronyms

ASDO - Assistant Social Development Officer
B/H - Borehole
CDA - Community Development Assistant
DDC - District Development Officer
DO - District Officer
DPHO - District Public Health Officer
DSDO - District Social Development Officer
DWB - District Water Board
DWE - District Water Engineer
FINNIDA - Finnish International Development Agency
FIM - Finnish Marks
GDP - Gross Domestic Product
GOK - Government of Kenya
KES - Kenyan Shillings
KEWI - Kenyan Water Institute
KFWWSP Kenya-Finland Western Water Supply Programme
KFPHCP - Kenya-Finlan Primary Health Care Programme
lcd - litres per head per day
MOCSS - Ministry of Culture & Social Services
MOH - Ministry of Health/Medical Officer of Health
MOLG - Ministry of Local Government
MOWD - Ministry of Water Development
NGO - Non Governmental Organization
NWCPC - National Water Conservation and Pipeline Corporation
O&M - Operation and Maintenance
P&D - Planning and Design
PWE - Provincial Water Engineer
PTA - Parents Teachers Association
WSDP - Water Supply Development Plan

0 EXECUTIVE SUMMARY

The background document was prepared in the course of the Appraisal for Phase IV of the Kenya-Finland Western Water Supply Programme and should be read in conjunction with the Project Document prepared for Phase IV. The background document contains the findings of the Appraisal Mission of May 7 - 26, 1992 and further elaborates on some of the key issues relevant to the sustainable water development in the context of this project.

The Mid-Term Review Report of April 1991 indicated a number of shortcomings in the KFWWSP and recommended a range of actions mainly related to a shift from a supply driven to a demand driven approach (refer to annex 1). It is gratifying to note that MOWD, FINNIDA and the Programme have since redirected the approach of the Programme focusing on achieving a larger degree of sustainability through community involvement, cost-sharing and community based management. Decentralization of Programme activities to the district level, increased collaboration between MOWD,MOH and MCSS at district, divisional and locational level and continued efforts in organizing securing spare parts provision and operation and maintenance of piped schemes, will further contribute to continued utilization and functioning of schemes.

In Phase IV consolidation of achievements will be a key-element. It will express itself in continued but limited guidance and support to projects that have been handed over and a geographical consolidation within the Western Province to further test and develop the demand-driven approach together with the District Development Committees and the district offices of the MOWD, MOH and MCSS.

To that end, procedures and guidelines need to be prepared for Programme assistance to community water points, public piped water schemes and private and semi-private water systems. Once agreed, the procedures need to be made public and submission of appropriate requests for community water supply development assistance promoted. Prioritization of requests is necessary to ensure that optimum use is made of financial, staff and material resources for both community water point development as well as for the implementation of (semi-) private water supplies. Appropriate procedures for such prioritization need to be developed.
A draft process approach for assistance to communities is indicated.

Payment for water is an issue that has taken on great importance in the present economical and political climate. The Government is not capable any longer to subsidize water supply development. Neither is it in the position to subsidize the operation and maintenance of existing schemes. Cost-sharing aimed at full recovery of running costs of water points and piped schemes has thus becomes imperative. Through consultation and promotion, consumers should be made aware that water supply costs money and that convenience and reliability have a price.

Funds will be generated as part of the community contribution or for work done on private or semi-private projects. These funds are proposed to be deposited with the District treasury and can be used to pay for operational costs of the decentralized Programme in that district (transport, staff) and to pay for building materials and local labour (masons,fundis).

Communities and consumers should be consulted about different types of water supply technologies and be offered a choice in staged development of their water supply facilities. The choice should be such that community-based management of water points systems or piped supplies is feasible from a socio-economic and human resources point of view. The role of government agencies in this process will be much more than before one of facilitation rather than execution. It is ultimately the choice of the community to satisfy its water supply development needs with technical, social and health advice being provided by government agencies, the Programme or NGO's.

The costs of operation and maintenance of piped supplies is often very high. Without proper tariffs it will not be possible to sustain such systems on consumer rates alone. Still that is the only way by which continuity can be guaranteed. The Programme should consider the cost-implications for construction, rehabilitation and operation and maintenance of piped schemes and should refrain from approving any involvement in piped schemes for which no sound socio-economical basis exists through consumer or community based financing. Several schemes undertaken or rehabilitated in the past few years have unfortunately not met this important criterion.

The importance of good hygiene practices and proper sanitation will be emphasized through training programmes, particularly at community level. Public Health Technicians under the supervision of the District Health Technicians will be responsible for this task. Close collaboration with the Primary Health Care Programme will increase the efficiency of all hygiene education and sanitation efforts considerably.

Educational materials will have to be developed which encourage a two way communication between community members and the Public Health Technicians. Participatory techniques are very useful in this respect. These materials can best be developed jointly by both Programmes and the Ministry of Health.

To get a better view on hydrological situation in that part of the Lake Basin that falls within the Western Province, the Programme will further provide support to a limited hydrological survey activity. This activity aims to contribute to better quantitative and qualitative water resources management. As many of the surface water sources for the Western Province originate from Nandi district limited activities in hydrological surveying and water supply development are foreseen also for the south-western part of that district.

It remains important to ensure equitable distribution of Programme benefits. The position of women and disadvantaged households needs in particular to be considered. The Programme has a good record on women involvement and will need to find ways to further strengthen the important role of women in community-based management and household hygiene improvement by ensuring that procedures developed for the selection of projects in the context of district development planning are adequately gender sensitive. The same holds true for the development of procedures that would favour support to disadvantaged communities and households.

The new approach to sustainability and cost-sharing requires further training of all staff associated with the Programme. Procedures need to explained and promoted. The new roles of communities and consumers on the one hand and government and programme staff on the other require understanding and appreciation of the ultimate goals of the water supply development projects. Office bearers within communities need to receive training in management, communication and O&M to be able to fulfill their new tasks. The Programme has in the last few years put in quite some efforts in community development and training. Intensification of these promotion and training efforts are necessary if a sustained water supply development in the Western Province is to be achieved.

The Project period is proposed as 1993-1996. After 1996 no further FINNIDA financial or technical assistance in the Western Province is assumed. A strategy to ensure a proper and gradual transfer of responsibilities, capacities and skills should be part and parcel of the proposed project. Implementation of that strategy should ensure a smooth transfer of of all Programme activities to relevant government staff at provincial or district level by 1996.

Summary of recommendations

- The demand-driven approach must be reflected in all components of the programme, from planning, programming, and implementation, to long-term monitoring and evaluation.

- The shift from a supply driven to a demand driven approach requires a change in attitude of both Programme personnel as well as community members. Community members must now be viewed as consumers, controlling the development process on their own behalf, rather than as beneficiaries of an externally planned and implemented service project. As consumers they have obligations as the owners and managers of improved water supply systems, but they also have rights to a cost effective and high quality water supply facility.

- A process approach to assistance implies integration and synchronization of social and technical activities at community level. Community members must be allowed sufficient time to take well informed decisions and to agree on a common water supply development strategy.

- A demand driven approach requires that the goals and thus the expected benefits of the consumers are taken as a point of departure for planning and design. People often higher value immediate socio-economic benefits than health benefits.

- Further decentralization of Programme activities and integration into the existing government institutions at district and locational level, and adoption of a role advisory and facilitating role rather than a role as initiator and implementator of projects have to be main principles.

- Greater cooperation with the staff of the Ministry of Culture and Social Services and the Ministry of Health is crucial. Institution building efforts will therefore focus on increased linkages and collaboration between MOWD, MOCSS and MOH staff especially at district and locational level. This is also corresponding with the requirement to transfer duties and responsibilities to GOK line departments when the Programme starts phasing out in the course of Phase IV.

- Strenghtening the role of the private sector contributes to water supply development independant from donor and government structures. Measures, such as training of private fundis, quality controle of their work and supportive (non-competing) pricing mechanisms enhance the process of privatisation.

- The demand-driven approach may favour requests from better-off communities or households. Therefore care should be taken to continue to involve poorer communities (households) in the Programme and ensure that these also have access to water supply development activities.

- Women being the main providers and users of domestic water will remain an explicit target group. Involvement of women in all stages of a water project is seen as essential to effective utilization and ultimate sustainability. During the process positive and negative implications for women must be continuously assessed with female community members.

- So far the experience with community based management of piped water supply systems is limited. Experience gained with the planning, design and management of fairly small schemes (or zoned schemes) may eventually indicate the viability of community management for larger piped schemes. Till that time it is appropriate to undertake only smaller community management based water supply schemes.

- The planning and design department should provide the consumers with realistic figures for O&M of all water supply options if sustainability is to be achieved.
  Rehabilitation of piped water supplies should only be undertaken if it can be justified in terms on sustainability or in an increase in service level and/or a reduction of O & M costs.

1. Introduction

1.1 Programme Background

The Kenya-Finland Western Water Supply Programme began in early 1981 with an investigation and planning phase. By the end of 1983 the Programme started in earnest and is shortly due to complete the third financing cycle since then:

* Phase I November 1983 - December 1985
* Phase II January 1986 - December 1988
* Phase III January 1988 - December 1992

The Programme partially covers four districts in Western Kenya with a population of 1.8 million in its command area. Its overall objective is to improve the water supply situation in the Programme area in order to achieve an improvement in general health and economic development.

Up to the end of 1991 the Programme has completed 3290 water points, which are assumed to serve some 660'000 people.

The Programme basically has a rural water supply orientation in which the delivery of drinking water is ensured through the construction of point water supplies and in some cases piped (gravity) supplies. During Phase III the Programme has increasingly provided rehabilitation assistance to the treatment works of piped water supplies in the Western Province. Altogether it is assumed that around one million people will have received access to safe drinking water in the past ten years through the efforts of the Programme.

The provision of safe and sustainable water supplies is a stated objective. The technical components of the Programme have since 1986 been complemented by a large community development and training effort. The staff involved in these activities try to ensure a greater participation of the beneficiaries in the establishment of improved water supply points through mobilization, awareness raising and training for community based management and operation and maintenance.

Greater community involvement, particularly of women, in all phases of the project is expected to lead to larger assumption of responsibilities for operation and maintenance of the supplies. To ensure a larger degree of financial resilience at community level the Programme also encourages income generating activities.
The combination of technical quality, adequacy of supplies and a sufficient embedding of a water point in a given community should in a context of higher level support by means of monitoring and minor technical assistance (to obtain spare parts or technical advice) ultimately lead to a self-sufficient and sustainable water supply system.

Table 1. Water points constructed by the Programme up to the end of 1990.

PRODUCTION	KAKAMEGA	BUSIA	BUNGOMA	SIAYA	TOTAL
SPRINGS					
- Inv.Phase	16	-	5	-	21
- Phase I	106	26	32	12	176
- Phase II	306	148	92	103	649
- Phase III	157	53	71	29	310
Sub-Total	585	227	200	144	1,156
DUG WELLS					
- Inv. Phase	36	32	27	16	111
- Phase I	195	61	29	9	294
- Phase II	140	134	79	97	450
- Phase III	102	64	72	22	260
Sub-Total	473	291	207	144	1,115
BOREHOLE WELLS					
- Inv. Phase	36	28	10	8	82
- Phase I	68	98	54	46	266
- Phase II	120	99	43	56	318
- Phase III	147	94	57	55	353
Sub-Total	371	319	164	165	1,019
TOTAL	1,429	837	571	453	3,290

1.2 Mid-term Review

A mid-term review was held in the spring of 1991 to assess what progress was made during the first half of phase III and to identify the problems and deficiencies in the plans, approaches and strategy used to achieve the aims of the Programme. The terms of reference for the mid-term review emphasized institutional development, training and manpower development, as well as community participation and cost recovery.

The outcome of the mid-term review was a critical commentary on a range of project planning and implementation issues which culminated in an extensive list of recommendations. For easy reference a full copy of these recommendations and the executive summary of the mid-term review report is included.

The key recommendations related to the main implementation procedure of the Programme which was considered to be too much supply-driven -- trying to achieve the targets set for water points construction by speeding up the physical implementation process -- and by far not sufficient demand-driven -- responding to the expressed need of communities for improved water supply facilities. The intention to enhance community involvement in planning and eventual administrative and financial management was certainly there in the Programme, but could not be sufficiently realised due to the pressure on output in construction, lack of extension staff resources and too little time taken for proper community mobilization and organization.

Another important element of the mid-term review was the issue of consolidation. Consolidation in a technical and social sense in which projects would reach a stage that they could be run on their own. Only few projects had up to that time been handed over. This was probably due to a lack of proper procedures for community project development and thus for handing-over, due to continuing repairs on handpumps and due to a lack of understanding or interest on the part of communities to take over the responsibility for the water point.

Especially the need for "social repair" as distinct from technical repair will require a longer involvement on the part of Programme related staff to ensure that a proper community level organization is in place that can manage the facility and see to it that the initial investment in the water point will also lead to social and economic benefits.

The mid-term review report contained several recommendations and suggestions to facilitate the change from a supply-driven to a demand-driven approach. Some of these recommendations have since been implemented (see chapter 2. and annex 1.).

1.3 Appraisal for Phase IV

As of January 1993 a next four-year phase for the Kenya-Finland Western Water Supply Programme is envisaged. To prepare for Phase IV of the Programme a project preparation mission visited the Programme area in November 1991. The findings of that mission are laid down in an Interim Report, dated November 26, 1991. On the basis of the information gathered a draft project document for Phase IV was prepared in January 1992.

In May 1992 FINNIDA fielded an appraisal mission to consider and, if so necessary, revise the draft project document for Phase IV.
The scope of work of the mission included an assessment of the overall Programme policy, the strategy and the actions envisaged to implement the strategy. The mission was requested to indicate realistic targets for water supply development, human resource development, institution building, community development, cost recovery, communication and hygiene education and make an estimate of the activities needed to achieve such targets in terms of construction capacity, personnel and operational requirements. The activities were to be reviewed against a background of a range of physical and socio-economic base line studies, human resource development, water resources management (at local and district level), gender issues and environmental concerns.

The outcome of the mission should be a project document describing activities for Phase IV which take into account the above process issues in order to result in an increase of coverage in water supply facilities in rural areas and through urban piped schemes while ensuring that these are sustainable and functional with respect to acceptability, to cost-sharing, to proper utilization and sharing of water resources, to community management, to institution building and human resources.

In particular the mission should assess the optimum level of Finnida support required to facilitate the process of consolidation leading to an increase in local capacities and skills to undertake similar water supply development work on their own. A full copy of the terms of reference is attached as annex 2.

In addition to an amended Project Document, the appraisal mission is requested to produce a Background Report containing the findings and recommendations of the mission and elaborating somewhat more on the rationale for the activities included in the Project Document. The present report is the Background Report referred to above.

The appraisal team was in the field from May 7 to 26. It consisted of the following members:

Mr. Isaack Oenga/AMREF	Sanitary Engineer
Ms. Eveline Kamminga/IRC	Social Scientist
Mr. Han Heijnen/IRC	Senior Civil Engineer (teamleader)

The following resource persons were assigned to the mission:

May 7 - 20	Mr. Eero Kontula/FINNIDA, Helsinki
May 11 - 14	Mr. Andrew Makokha/ Deputy Director MOWD
May 18 - 22	Mr. Lawrence Musyoka/ Deputy Director MOWD
May 14 - 22	Mr. K.A.Ajode/ Acting Deputy Chief Public Health Officer MOH
May 21	Mr. Johnson N. Obaga/ Provincial Director of Social Services, Western Province MCSS

A programme on the mission's activities is attached as annex 3.

2. STARTING NEW APPROACHES

Since the mid-term review of early 1991 many things have changed in the Kenya-Finland Western Water Supply Programme. In July 1991 the Programme management and representatives from FINNIDA considered the set of recommendations that had come out of the mid-term review and decided to start implementing a number already. It is worthwhile to briefly list the more important changes.

* Decentralization

  In 1990/91 decentralization to the district level has gradually started. Offices, stores and a small workshop facility were constructed and existing MOWD buildings rehabilitated. The mid-term review strongly recommended further decentralization to the district and capacity building for future independent operation.

  Now, responsibilities for operation and maintenance as well as for community development have been placed at the district level by deputing relevant staff from Programme Headquarters in Kakamega to the Programme support team based at the District Water Engineer's office.

  Programme activities are further coordinated by way of monthly meeting chaired by the District Water Engineer and attended by the programme support team, the district public health officer and the district social development officer. Relevant senior staff from Kakamega attend the meeting as well to fine tune operational activities.

* Kenyanization

  In the past the hold of expatriate staff over the Programme has been very strong and an average of 10 - 15 consultant's staff were placed in the Programme. If capacity building and eventual independent continuation of Programme activities is also a development objective of the Programme, then it is obvious that a stronger representation of Kenyan nationals in key Programme positions is wished for. In the past year several Kenyan staff have been offered such positions within the programme. The drilling section, the field investigation section and the transport and workshop operation are now headed by qualified Kenyans. In the course of the year and in 1993 this process of Kenyanization will continue.

* Handing-over

  The issue of handing-over was raised several times during the mid-term review and the low rate of projects that were handed over to the care of beneficiary communities was criticized. Whereas it is only fair to ensure that a waterpoint is well developed and constructed before it is handed over, there are obviously great risks involved for the Programme when it continues to carry responsibility for the operation and maintenance of a water point simply because it has not been able to hand the facility over to the community. Apart from the fact that the Programme starts spending more time and money on repair and rehabilitation of water points -as happened in the first two years of the on-going third phase of the Programme - the delay in handing-over also delays the day that communities, to some extent by force of circumstance, learn to take care of systems themselves.

Knowing full well that handing-over of water points to communities that started out to participate in the Programme during the supply-driven period, may not be understood so well by these communities, even though a fair amount of awareness raising will in the meantime have been done by the Programme's community development department, it is still the only way to gradually reduce the deadweight of past projects within the Programme. After projects have been handed over to the community a new phase of partnership starts for these projects in which the community and the District Water Engineers are the primary partners and the Programme increasingly plays a facilitating role only.

As recommended by the mid-term review the Programme has since last year started an ambitious programme of handing over. To date 1300 out of 3500 water points have been handed over and the target is to complete the handing-over exercise by November. In view of the fact that some 10-15% of water points need major overhauling this ambitious target may not be quite possible.

It is further proposed that new water points will be handed over nearly immediately following technical certification by the DWE. The committees managing these water points will however be able to claim assistance from the Programme within a guarantee period of one year.

* Workshops

The programme maintains a very well equipped garage, a mechanical workshop and several other workshops. Whereas the establishment of these workshop might have been warranted in the past, the size and cost of maintenance of the facilities may well be beyond the carrying capacity of the Government of Kenya when the Programme is itself ultimately handed over. It was advised therefore to reduce workshop related activities.
The programme has taken steps to reduce its overheads in this area by privatising the concrete foundry and by preparing the privatisation of the metal and wood workshops. Partial commercialization of the garage by offering mechanical engineering services to third parties is being studied.

The Programme maintains a substantial fleet of some 65 landrovers, saloon cars and lorries. At Programme Headquarters a carpool has recently been established to ensure a more effective utilization of especially landrovers and lorries. The system has already proved its worth in reducing running costs and by establishing that with some advance planning through the carpool, a lesser number of vehicles can still provide the same transport services. At district level a similar system will be introduced shortly to encourage effective utilization of the few vehicles assigned by the Programme to each of the districts.

Another noteworthy development is further the appointment of the Provincial Mechanical Engineer as the head of the Programme garage and workshops in preparation of a gradual take-over of operational tasks of these establishments.

* Privatisation

The Programme has increased its efforts to train private contractors and location based fundi's (construction technicians). In that same context the Community and Training Department is supporting the general policy of privatisation by organizing training for mobile team members (who undertake maintenance and repair tasks for the waterpoints in the Programme) to become private contractors. Collaboration with the Chamber of Commerce is established in order to improve their business skills. The number of mobile technical teams will be reduced significantly in the near future.

One of the aspects of the demand-driven approach will be a greater reliance on private entrepreneurs for the execution of small contracts issued by the Programme, the DWE or even by water committees. To encourage direct contracting for small scale works by committees and semi-private agencies, the Programme could annually publish a listing of fundis that are certified by the Programme as constructing works according to its standards. The ensure continued certification a system of refresher courses for fundis and a simple monitoring system on performance of fundis could be established.

As the Programme will decentralize, less staff will be needed at headquarters. For staff that is deputed to the Programme by MOWD there should be no problem as these will simply be posted somewhere else. For other staff that is becoming redundant it is probably quite difficult, in view of the economic situation in Kenya, to get these staffs absorbed by MOWD. The Programme has therefore embarked on a plan of action geared to assist those that will become redundant in obtaining skills for work in the private sector (small business management skills) or providing some physical assistance (guaranteed orders for a certain period e.g. for the privatised concrete foundry). This support should provide incentives to Programme staff to prepare themselves for a life after the Programme.
The steps taken sofar in reducing the liabilities of the Programme with respect to physical and staff establishment are considered to be very encouraging.

* Hygiene education and sanitation

Within the Kenya-Finland Primary Health Care Programme a shift is taking place to reduce its direct inputs in the provision of sanitary facilities such as demonstration latrines at health centre and schools to a more promotional role. It appears that strategies are being developed to facilitate the self-initiation of sanitary improvements around the home through a hygiene education programme and the promotion of participatory processes for the identification and encouragement of community level activities to improve sanitary conditions in the community.

Although it will require some further consideration of the issues involved, it seems that the present approach is much more in line with the proposed direction of the water supply Programme than, say, a year ago. In that sense the cost-sharing policy of the Ministry of Health and the Demand-driven approach of the Water Programme dovetail nicely. Increasing similarities in the policy frameworks of the MOH and MOWD will thus make it easier for field level staff to collaborate effectively, promoting health and water development messages that also in the approach to their realization reinforce each other.

From the above it is clear that the Programme and the Programme environment (government policies, KFPHCP) have changed already quite a bit over the last year into a direction that promotes a greater degree of people's participation and community involvement, while at the same time transferring responsibilities and operational facilities to capable Kenyan national both within the Programme as well as in the districts' governmental organizations and the private sector.

There are still other issues, however, which have come up during the mid-term review of 1991 and that are consequential to the shift to a demand-driven approach that need attention. These elements were mentioned in the Terms of Reference for the Appraisal Mission and will be further discussed in the detail required in the next pages.

3. CONSOLIDATION

3.1 Introduction

In Phase III of the Programme consolidation was indicated as a complementary activity to the achievement of the high proposed number of constructed water supply facilities. It was explained in the mid-term review that in order to reach the long-term objectives of improved health and sustainability, intermediate objectives need to be realized regarding utilization and functioning of facilities, community-based organization and sense of ownership. As there are many schemes were these intermediate objectives have only partially been achieved, a lot of technical and social "repair" activities still need to be undertaken. In view of the urgency to do better in community mobilization the Programme was advised to reduce its physical outputs by 40 to 50 % during the remainder of Phase III and provide more resources and time to training and facilitation for the establishment of community based water systems. The Programme has started to implement this recommendation already but will have to further strengthen its efforts to achieve an acceptable degree of consolidation with respect to the continued functioning and sustainability of especially the water points.

3.2 Sustainability

If sustainability is taken seriously, a lot of attention needs to be given to less-technical aspects which are crucial to a proper embedding of a water supply in a community: e.g mobilization and awareness raising, training for organization and management of schemes, accountability,etc. Although a lot of structure can be brought into the provision of these inputs, community based water supply development is essentially a process which needs time and space to grow.

If time and process support are essential for better understanding of roles and responsibilities, for establishing principles of cost-sharing and community based management, it follows that the targets for Phase IV can not be set too high. For the sake of proper development and delivery of the essential activities supporting the project implementation, particularly in the area of community mobilization and training for community based management it is thus necessary to assure that the delivery of the software inputs into projects are well coordinated and synchronized with the technical inputs. It is furthermore advisable to withhold construction support to a community when the Community Development and Training staff consider the community not yet "ready".

Apart from new projects, there are many existing projects that need additional technical or social inputs. Proper support procedures need to developed by the Programme to deliver technical and social support and advice for all these projects. It is considered that to establish such capacities in a decentralized fashion at the district level will take a lot of effort and time, as people have to be trained and institutional linkages have to be formed to ensure effective support to the whole gamut of activities needed to develop a sustainable water supply.

Consolidation of the Programme's achievements thus means that the Programme finds the best strategy to develop new projects in a self-sustaining way, while at the same time identifying problematic projects through regular monitoring and by providing continuing assistance in the technical and managerial field.

The proposed strategy for Phase IV is demand driven with a strong focus on achieving sustainable results. The Programme will have to ensure that water supply facilities that have been established continue functioning as well as possible. In line with the present procedures the Programme does not take over the responsibility for operation and maintenance but through monitoring and by providing an enabling environment (e.g. establishment of a spare part sales system, technical advisory service at district level, training of community

development assistants and public health technicians at locational level) it tries to encourage communities to maintain their schemes. Assistance in operation and maintenance of individual projects will be undertaken on the basis of full cost-recovery.

3.3 Geographical consolidation

Phase III of the Kenya-Finland Western Water Supply Programme knows a geographical coverage that extends partially over four districts, Kakamega, Bungoma, and Busia in Western Province and Siaya in Nyanza Province. The fact that the Programme boundaries do not conform to the district boundaries causes all kind of smaller and larger communication problems at the district level. It hampers a good dialogue between the Programme and districts, because it restricts the District Development Committees in properly coordinating and prioritizing all water supply development needs of the district.

The updated water supply development plan, prepared by the Programme in 1991, acknowledges this problem and thus covers the districts completely.

To take full advantage of the water supply development plan , **it is proposed to henceforth align the Programme boundaries with the district boundaries of the Western province.** This means an expansion of the Programme to incorporate also those areas within the Western Province that earlier were not served by the Programme. These areas are mainly found in the Kimili, Webuye areas up the eastern slopes of mount Elgon and in the new Vihiga district in the South Eastern part of the Province.

Institutionalisation of planning and implementation procedures at the district level and proper political and administrative decision making could enhance the equitable distribution of resources.

As a consequence of that choice, activities in Ugenya North and Ukwala in Siaya district will have to be terminated. In line with the consolidation policy the projects constructed in Siaya should be given the follow-up and training necessary to manage their own affairs after the withdrawal of the Programme. To ensure back-up support to these projects adequate institutional strengths have to be built into the district offices of MOWD and an informal link should be retained with the Programme for some time.
Discussions with the DWE Siaya indicate that it is possible to complete all on-going and planned projects by the end of 1992. He is further confident that these communities can manage their own affairs after that.

Still some support is requested by Siaya in relation to staff development, occasional technical assistance and some support for the drilling of a few boreholes. The Programme will be invited to participate in the Siaya Water Development Coordination Unit which will be set up later on in 1992 with the assistance of the Lake Basin Development Authority.

In the context of this coordination unit, which brings together relevant government and donor agencies, limited support to water supply development in Siaya district can be provided during the proposed two-year withdrawal period 1993/94.

Whereas activities in Siaya will be stopped within the next years, work in the newly created Vihiga district needs to be taken on if the expansion to the full Western Province is accepted. Vihiga is a district created at the end of 1991 and is split off from Kakamega district. In the past ten years the Programme has only undertaken limited work in the area that is now Vihiga district. This was mainly because most of Vihiga was served with piped water supply schemes. Although most of the schemes are functioning, they are usually old, heavily overextended and can not supply sufficient water as sources are nowadays inadequate to serve the large populations in Vihiga. The district is very densely populated with more than 400 people per square kilometre and land holdings of 0.5 acre per family.

The district is a high economic potential area for dairy farming (practicing zero-grazing with imporved cattle-breeds) and horticulture.

The Programme has to prepare an inventory of the activities that it can undertake in the new district. The district will have to consult the Programme about the preparation of a District Water Supply Development Plan. Until that Plan is ready and approved by the district authorities, some support to the development of point-sources, to the rehabilitation and augmentation of piped supplies and to the provision of training can be considered on an ad-hoc basis.

In Phase IV no substantial physical development of district water bases is foreseen. Thus, no substantial budget will become available to furnish Vihiga district with means to build up an office and workshop for the District Water Engineer Vihiga. It is assumed that most technical support will initially be provided from the Programme Headquarters in Kakamega. If so required, GOK will itself furnish the funds for the development of a new water base in this newly created district.

To satisfy the water needs of the population of Vihiga the water resources that originate from the Nandi Hills also need to be surveyed. In view of the population density in Vihiga district it is likely that sufficient water can only be taken from those hills in Nandi district. To compensate present users in the border area limited water supply activities may need to undertaken in the locations bordering Vihiga. It is suggested that an amount equal to 10% of the agreed annual district level allocation for Vihiga could be used to finance these special projects in Nandi District.

The role of the Programme in Phase IV

Advisory role
Secure financing
Provide intersectoral cohesion
Arrange training for
    personnel development;
    community development;
Develop promotional material on
    hygiene;
    to create a demand;
    raise awareness for cost of water (supply) and revenue
Organize sectoral studies on
    water resources
    health
    socio-economic conditions
Support monitoring and reporting in both
    text and
    data format
Assist in the development of procedures
Provide logistic and operational support
Set up a spare parts distribution system

4. INSTITUTION BUILDING

4.1 Introduction

The Kenya-Finland Western Water Supply Programme is a rather complex programme, which has undertaken to assist people in developing their water resources. Within the Programme various sections are involved in planning and design, geohydrological investigations, drilling, construction, operation and maintenance, community development and training, socio-economic surveys, computerization, transport, logistics and prefabrication of well-rings and slabs for handpumps. These activities have initially been taken up by the Programme as they were needed for project implementation and insufficient capacities to provide services were available elsewhere in the Programme area.

At Programme level liaison with the leading partner, the Ministry of Water Development, is maintained by the Provincial Water Engineer. The Provincial Water Engineer in turn liaises with his staff in the districts and sees to it that Programme activities at that level are executed according to plan.

Since a few years national policy has encouraged decentralization of responsibilities, duties and capacities to the district level. Various administrative mechanisms have come in place to guide the decision-making processes. The district development committee, the district executive committee and the district water board are examples of committees that deal with water resources management and the equitable distribution of water supply development. The District Water Engineer is associated with all these committees and liaises between the committees and the water supply development sector in the district.

In the last few years it has become evident that software aspects relating to community involvement, hygiene education, community organization for operation and maintenance of the facility and for financial management are very important and need more attention. The Community Development and Training section within the Programme has played an important role in developing the procedures necessary to deliver the necessary software components in the various stages of project implementation. At field level the Programme has sought assistance from Community Development Assistants (CDA) which are employed by the County Councils but are deputed to the Department of Social Services to perform community development related tasks. For hygiene education the Programme has received some support through the Kenya-Finland Primary Health care Programme as well as directly through the Public Health staff assigned to work at the locational level. It has recently also started to prepare its own collection of health education materials with materials received from AMREF, KWAHO, etc.

4.2 Intersectoral collaboration at district and locational level

Phase IV of the Programme will be characterised by a continuing transfer of responsibilities to the district level and to the locational level as these are the key interfaces for action in this type of programme. In the future it will be at these levels that routine activities relating to project applications, survey, community development, design, planning, construction, and monitoring will take place. To make the staff at these levels effective, Phase IV will have to ensure that adequate capacity building takes place to prepare them for their future tasks.

Following is an overview of various officials and community based persons and groups that can play a role in the water supply development facilitation process:

Level	
Programme	**District**
# Ministry of Water Development ----------	District Water Engineer
# Ministry of Health / KFPHCP ----------	District Public Health Officer
# Ministry of Culture and Social Services Department of Social Services ----------	District Social Development Officer
# Ministry of Natural Resources----------	District Environmental Officer

Divisional Level

District Officer (DO)
Divisional Water Officer (DWO)
Public Health Officer (PHO)/
Public Health Technician (PHT)
Assistant Social Development Officer (ASDO) (employed by MCSS)/
Community Development Assistant (CDA) (employed by County Council)

Locational Level

Chief
Public Health Technician
Community Development Assistant

MOWD project staff (if any)
Health Centre/Dispensary staff

Sub-locational Level

Assistant Chief
Public Health Technician

Village Level

Headman/ traditional leaders
Community Health Worker (CHW)/
Traditional Birth Attendant (TBA)
Traditional Healers

Women Groups/Parent Teachers Association/Religious Groups
Cooperatives/Development Committees

In Phase III several attempts have been made to involve staff of the Department of Social Services in the Programme activities. The Department has assigned a liaison-officer to the Programme in Kakamega and has expressed several times that it is willing to contribute to the development and implementation of community development activities at various levels. Lack of resources seem to have hampered a more effective engagement of the Department.

The Programme has in the past year assisted the Department by repairing several of its vehicles. However in view of the limited resources of the Department, it will be necessary to provide more support to the officers to be involved in the Programme.

Involvement of the Department as a partner in Programme implementation is foreseen at two main levels: the district level and the locational level. At the district level the District Social Development Officer should be involved to coordinate together with the District Water Engineer and other district based officers the field level activities. Regular field visits for supervision, participation in siting meetings and organization of training activities and meetings require that the DSDO has adequate logistical support to perform those tasks. To enable her to do the work properly it is proposed that a Programme vehicle is made available for each DSDO at district level with an appropriate allocation for fuel. The vehicle will be maintained by Programme. In case additional transport is required this can be arranged with the DWE who maintains a transport pool for Programme purposes.

At locational level the mobility issue has been raised over and over again and it appears necessary and warranted to ensure that Community Development Assistants have access to transport to be able to visit the various sites in the location regularly. In Phase III the Programme has made available bicycles to a number of CDAs, but this facility could be further expanded to cover all CDAs at the locational level.

In addition to transport facilities, appropriate allowances have to be granted to DSDOs and CDAs to compensate them for their additional efforts and to make their remuneration commensurate with other Programme staff.

Whereas it is necessary on the one hand to ensure that adequate facilities are available for officers to do their work, at the same time the quality of work has be guaranteed. It has been indicated that additional training and exposure to the concept and implications of the demand-driven approach is required for the majority of the staff. The Programme should develop or identify appropriate training opportunities to serve this need. This activity could possibly be undertaken jointly with the LBDA project in Nyanza Province where similar issues play.

Facilities, training and performance indicators should assure the quality of the community development intervention on behalf of the water supply development programme. The Programme should in consultation with staff of the Department of Social Services elaborate a set of indicators to enhance performance and job-satisfaction of field staff and to ensure appropriate monitoring and -if necessary- action. The indicators could possibly be developed using the Logical Framework (NORAD) or the ZOPP method (GTZ). Monitoring should take place at the locational level and the results forwarded by the CDA to the DWE and DSDO.

The Appraisal Mission has had several discussions with representatives of the Ministry of Culture and Social Services and generally found a great interest on their part in becoming a real partner within the Programme, provided adequate facilities are offered for field staff. A note containing recommendations to that effect, prepared by the Provincial Director for Social Services and submitted for consideration to the Appraisal Mission, was discussed. The note is on the whole reflecting the ideas of the Mission as indicated above, except that operational support requested for the Provincial level and the Divisional level does not seem warranted. When discussing the note in Nairobi the Assistant Commissioner considered it necessary that locational level staff would have a motorcycle at their disposition. This was not considered realistic.
A copy of the note is attached as annex 4. It lists suggestions as made to the Appraisal team by Mr.Johnson Obaga, provincial director of social services, Western Province. These recommendations have been considered and for those that are relevant in view of the support expected by the Programme from the staff of the Department appropriate provisions have been made in the Programme budget proposed for the next four years.

On the basis of that note and the statements given above the Programme should start discussions with the Provincial Director and his colleagues at the district level on the appropriate level of support needed to ensure that the Department of Social Services can play its role as community development facilitator properly. During these discussions the measure in which CDAs can make themselves available for water development tasks in the light of their other community development duties needs to be considered when negotiating the appropriate compensations.

At the locational level the Public Health Technician (PHT) can also play an important role as a facilitator of water supply development. The Public Health Technician functions at the locational and sub-locational level and is thus the officer reaching nearest to the community and the consumer. For the delivery of hygiene education messages, promotion of demand for improved water and sanitation facilities, monitoring of progress in project implementation and for advice on self-initiated water supply improvement projects the PHT can be a key-person. To enhance the involvement of the PHT in the Programme transport facilities should be provided. In addition PHTs should receive additional training on technical water issues so as to encourage that he can play a role in the advice and supervision of the construction of shallow wells and springs. In such a case it might even be possible to consider remunerating the PHT for his supervisory role.

The PHT and the CDA are normally involved in the whole community mobilization process and will thus probably have a good idea about progress in the particular location. It is therefore useful that the PHT and the CDA have regular review meetings at the Chief's office and pass on a progress report to their superiors at district level as well as a copy to the DWE, in case no representative of MOWD or the Programme can attend the meeting. The DWE in turn will ensure that the DDO, the DSDO, and the DPHO are participants of the monthly district level coordination meeting. In that meeting progress, new activities and suggestions to solve technical, social or health problems in projects can be discussed. Participation in the monthly meeting by these officers will increase their commitment to the common goal of the provision of sustainable water supply facilities.

In the broader context of decentralization, intersectoral collaboration and the focus on the demand-driven approach the tasks of the Programme in supporting the development of water supply facilities also changes gradually. A participatory exercise held with the Kenyan members of the Appraisal team and some staff representing the Progarmme and the MCSS resulted in a listing of roles for the Programme as given in the box on page 12.

5. Demand driven approach

5.1 Introduction

A major feature of the 'demand driven' approach is that, rather than the Programme, the users themselves take initiative and responsibility for improving their own water supply. Hence 'demand' is not only an expression of felt needs, but -very essentially- it implies a basic willingness to contribute to the management and financing of the water supply. Cost sharing and community management therefore will be important elements of the new Programme strategy.

Although genuine demand implies a willingness to take responsibility, people do not always have the immediate capacity to manage the water supply. Therefore capacity building for self-management will remain an essential task of the Programme in order to achieve sustainable improvements. Continuing inputs in training and assistance in community management will therefore be necessary.

The success of the demand driven approach will ultimately depend on the appreciation by the consumers of the services offered through the Programme and the feeling of receiving good value for their money and efforts. The main role of the Programme will be to facilitate user groups in achieving their development goals. Therefore a more process oriented approach in assisting communities is required. In addition the relationship between consumers and Programme should be one of partnership. Decentralization of programming and implementation responsibilities towards district levels, and strengthening of local level inputs (extension workers) will be indispensable.

The following principles will be of critical importance:

- providing comprehensive public information and ensuring good public relations
- applying clear and transparent procedures for selection of requests and assistance
- offering of services which fulfil expressed needs and which are most appropriate for the specific conditions (physical, economic, social, organisational etc.),
- offering of services in a cost effective way. Development costs of water points installed by the Programme, for example, could be cut by reducing overhead costs. Also more involvement of the private sector.
- delivering of good quality services. For example, by licensing small contractors/fundis; conducting site inspection after construction; giving consumers a guarantee period after construction,
- securing actual and future availability of spareparts,
- providing sufficient and timely training and follow up support in community management skills, including operation and maintenance, resource mobilisation, record keeping etc.

5.2 Procedures and Guidelines

The shift from a supply driven to a demand driven approach requires not only a significant change in attitude of many of those involved in the Programme, but also new procedures and guidelines for assistance to communities. The Community and Training Department (CTD) has already started to develop these procedures and guidelines.

As was recommended by the Mid-Term review, it is also important that a more participatory and process oriented approach is applied in the work with communities and consumers' groups. More flexible programming procedures, and the use of participatory community development and training methodologies will therefore become essential.

Registration of requests

Registration of applications for assistance has begun in January 1992. Without specific campaigning, application letters have begun to reach the District Water Engineer's offices. Over a hundred requests have been registered sofar. Some requests originate from areas not yet covered by the Programme, while others come from areas already covered. Assistance is being asked by various categories: private individuals, institutions, small groups of neighbouring households, women's groups, groups of men and youngsters and communities as a whole. Usually both technical and financial assistance is asked for a borehole, a shallow well or a spring. The water is intended for domestic and/or economic purposes (livestock watering, vegetable growing, brick making etc.).

Almost half of the requests have come from Kakamega District, which is closest to the Programme headquarters. More active promotion of the Programme's services in the other areas is therefore needed. People in the whole Programme area will have to be well informed.

Selection of requests and type of assistance

According to the new policy direction requests from within the Programme area are entitled to technical assistance to the extent that the capacity of the Programme permits. Financial assistance, however, depends above all on existing coverage by the Programme and the number of expected users of the waterpoint. Consumers - as before - will in all cases be responsible for meeting the operation and maintenance costs.

At the moment there appear to be three major categories of water points defined:

a. **community water points** in areas not yet covered by the Programme and serving at least 200 persons within a distance of one kilometre:
the community must contribute 30% in labour and/or cash, while the remaining 70% of the development costs is carried by the Programme;

b. **semi-private water points**, which are community water points in areas already covered by the Programme or **institutional water points,** such as in health centres or school compounds:
the applicants must contribute resp. 70% and 60% in labour and/or cash and the Programme takes charge of resp. 30 and 40% of the investment costs; and

c. **private water points** in any part of the Programme area:
owners must pay for 100% of the development costs.

The Appraisal Mission has considered this categorization and considered that it is reasonable to request a cost-sharing according to the above procedure.

The minimum number of 200 users (25 households) required to qualify for a 'community water point' might be too high in certain cases, for example for very small hamlets. A "community" can best be defined as a group of users, who live in the same area and have access to, and use, the same improved water supply system. A women's group, for example, should also be able to qualify for a community water point, if all other conditions are fulfilled. Demonstrable low income levels might also be a reason for not strictly applying the costs sharing rules. It can be considered to give communities (groups) which are not able to share investments costs, but are willing and able to take charge of the O&M costs and management, a reduction.

The costs for both consumers and the Programme vary considerably according to the type of the request. To secure a fair distribution of subsidies it is very important that:

- the categories are very clearly defined and well known by all parties: consumers, local administration and field staff (through training, brochures etc.)

- a strict procedure for decision making is followed. Good supervision of the proper application of the criteria is needed (for example spot checks; complaints-officer).

In the actual guidelines a distinction is made between two kinds of Programme assistance: technical and financial. The issue of financial assistance was discussed above. Technical assistance to private individuals could and should probably remain limited to giving advice on qualified and reliable private contractors.

Costs of different technologies and service level

The real investment costs for the consumers and the Programme depend not only on the percentage of cost sharing (subsidy), but also on the kind of water supply or choice of technology[1]:

a. **Improved spring**
Estimated development costs: KES 20,000, excluding consumer's contribution in labour of KES 5,000

b. **Shallow well without pump**
Estimated development costs: KES 50,000 to 60,000, excluding consumers'contribution in labour of KES 4,500

c. **Shallow well with pump**
Estimated development costs: KES 70,000 to 80,000, excluding consumer's contribution in labour of KES 5,000

d. **Borehole**
Estimated development costs: KES 250,000 to 300,000, excluding consumers' contribution in labour of KES 1,000

It is clear that not only the relative, but also the absolute costs for the consumers and the Programme varies significantly according to the kind of water supply. This will have a significant effect on the number of facilities which can be supported from a particular budget.

[1] for full details on estimates for various technology options, refer to annex 9

Operation and maintenance costs of the various options, which have in all cases to be paid by the consumers themselves, also vary significantly:

	O&M costs in KES per household per month
Improved spring	1/-
Shallow well with pump	5/-
Borehole with pump	10/-
Piped: kiosk	15/-
Piped: house connection	30/- (Gazetted rate)

It is very important that the benefits and costs are well known and understood by the formal and informal decision makers and consumers: men and women.

The Programme has made good progress in elaborating cost estimates for both installation and running of water points. It seems, however, that this information has not yet been sufficiently disseminated to all Programme staff, especially those in direct contact with the consumers. For the next phase it will be important that:

- information on estimates of installation and O&M costs, and management implications of various options is readily available to all Programme personnel (MOWD,MCSS,MOH), related services (Livestock, Forestry, Agriculture) and consumers (through brochures/ public information package, see annex 5.)

- not only the technical, but also the financial, labour and management implications of service level and technology choice are considered. Communities and consumer groups should be assisted in decision making, using understandable calculations of the various options in their specific physical, economic and social context, including both development and future operation and maintenance costs

- consumers are given ample time to make well informed decisions in order to facilitate feedback between formal (men) and informal (women) decision makers. Consumers (communities) should not be pressured into hasty decisions

- the Programme puts all efforts into supplying cost efficient inputs. Including the private sector is very important in this respect

- upgrading of systems is taken as a serious option: a community may prefer to start with just a shallow well and maybe later install a pump, for example.

Piped schemes are the most expensive option for both the Programme and consumers. Nevertheless this elevated service level is in high demand by those who can afford it. It is estimated, however, that on average at least a third of the population will not use the piped water, because they cannot afford it or because their homes are too far away. This part of the population could benefit from improved point source water supplies. For reaching all people, mixed systems, piped supply and point sources, would offer the most equitable distribution . The feasibility of this approach, especially in the light of community-initiated incremental improvements in water supply, need to be explored further.

Prioritization of requests

For various reasons it might not always be possible to follow up immediately all requests for assistance. Therefore it will be necessary to develop criteria for prioritisation. Issues to be considered include:

* **Need for water.** Water scarcity, low accessibility, poor water quality, unreliability on the one hand and incidence of water borne diseases and population density on the other hand are important factors.

* **Water use.** Taking into account the objectives of the Programme, domestic and mixed domestic/economic uses will have preference over purely economic use of water.

* **Number of consumers.** Requests from communities and larger groups might need priority over requests from individual consumers (private water points).

* **Willingness and ability to pay** for more than the minimum required contribution (30%). Such a community might receive higher priority.

* **Lower cost options.** If subsidized by the Programme, especially springs and shallow wells, should get priority over more expensive technologies such as boreholes and piped water supplies.

* **Service level.** When people demand a high service level, it might be more equitable to ask people to pay a higher proportion of the costs to ensure that everyone receives the same amount of subsidy on a per capita basis.

* **Positive recommendations.** Requests supported by a positive recommendations from other agencies (governmental or NGO's) might be given priority.

* **Degree of organisation.** Communities (groups) which have established a reputation of being well organized and motivated during previous development interventions might also be given priority.

To streamline the procedure it may be worthwhile to develop a one page assessment form in which some of the above elements are weighted and summarized into a simple A, B or C ranking. This assessment can be undertaken by the DWE and his colleagues of Social Services and Health during the monthly coordination meeting or the meeting of the district water board. Following the assessment the report becomes a public document that can be quoted in the district development committee and can also be used to reduce undue political interference in the resource allocation process.

Applicants should be kept informed about the status of their application and the progress of the procedure.

The Programme has little experience with involving the local administration in the new approach. Which roles various levels of administration can and should play in the selection procedure in achieving principles of equity and supporting local initiative needs to be further studied.

Area coverage and demand

The following table shows the distribution and type of requests registered during the first four months of this year.

Tabel 2. Registered requests for assistance, 1/1/92 to 1/5/92

District	Private waterpoint	Semi-private waterpoint	Community waterpoint	Tot
Kakamega	33	19	20	72
Bungoma	6	2	1	9
Busia	4	3	3	10
Siaya	3	-	2	5
total	46	24	26	96

Source: Community and Training Department, KFWWSP

Most of the demand so far has come from Kakamega District. This is probably due to higher income levels and greater awareness of the existence of the Programme in this district. In addition a high proportion (about half) of the requests are private rather than communal.

A public information campaign will be necessary to spread information over the wider Programme area. Although such a campaign probably will augment the demand from covered as well as non-covered areas, it is likely that a number of pockets within the Programme area will continue to show little interest (see annex 6). According to Programme personnel these are communities which, for socio-cultural or economic reasons, attach insufficient value to the benefits of clean water. Some of these communities are suffering from a very high incidence of waterborne diseases and have plenty, or even too much water, (swampy areas).

To offer these areas (or groups) a fair share of the Programme's resources, extra efforts could be put into identifying and reducing constraints and finding solutions. Actions which could be undertaken include:

- in depth (more qualitative than quantitative) studies to identify factors (economic, social, cultural, political etc.) defining a lack of willingness and/or ability of the population to improve their own water and sanitation situation, and finding ways to increase motivation.

- awareness raising of health benefits through hygiene education activities. Collaboration with Primary Health Care Programme and community health workers

If ability to pay is really low, the Programme could in exceptional cases consider to provide facilities for free on the condition that there is a willingness to manage the system after it has been installed and labour inputs are provided voluntarily. Hygiene education, capacity building for community management and promotion of income generation activities will be important activities in such communities.

5.3 Process approach for assistance

The Community and Training Department has elaborated new guidelines for the development of water points. There are different procedures for each category of water point (private, semi-private and communal). Programme inputs in assistance for private water points should be kept as limited as possible. For achieving sustainable results in community and semi-private water supply development, however, a more integrated package of technical, community management and hygiene education inputs will be necessary. Software services such as providing information, training (technical and managerial skills), hygiene education and support in decision making and community management should be included as an integrated component in the standard procedures.

As already recommended by the Mid-Term Review, it will probably be more effective to use a more process oriented approach for the work at village level. Still, the approach is too much characterized by a series of punctual and strictly defined interventions (various level siting meetings/ construction/ training workshops/ handover etc.). In annex 7. a description is given of a village siting meeting which took place during the Appraisal Mission to illustrate the existing approach.

It seems that too often time pressure and limited communication skills prevent effective communication between Programme workers and community members. It is most important that the pace of the process is defined by the consumers themselves and not by the Programme. Giving consumers enough time to internalize received information, to reflect, to discuss, to reach a consensus and to mobilize the required resources is very important.

The process approach does not imply that there are no clearly defined yardsticks or outputs to monitor progress. In the preparatory phase, for example, various yardsticks could be used. One yardstick, which is already used, is an agreed amount put on a bank or post office account. An additional down payment could be requested for sharing of the development costs. Another outcome of the preparatory phase could be a jointly made and mutually agreed workplan, defining roles, responsibilities, activities, time schedules etc. Such a workplan should include a commitment by all parties involved to undertake their share of the work. Not only the consumers, but also the field workers therefore should have sufficient feedback with the various sections involved (community development, technical, training, health etc.) and Programme workplans, in order to make proper arrangements about the services to be delivered to the consumers.

The handover and assumption of ownership by the consumers should be less of an issue than before. The whole strategy and process of intervention is geared towards consumers taking initiative and having responsibility from the start. The role of the Programme is limited to providing services and advice. Guarantees, such as proper quality control of construction and a guarantee period and sufficient training and follow up support, will be important for the consumers' confidence and capacity to take full responsibility for managing their water supply system.

Flexible programming of activities, participatory communication techniques and on the job training instead of centralized formal workshops will all contribute to the success of a process approach. Consumer groups should be able to easily contact extension workers (CDA and PHT) for advice in community management and O&M issues.

It is important that the process taking place at community level can be systematically followed, not only for effective programming of Programme inputs, but also for good supervision of personnel, and monitoring and evaluation. Keeping track of the status of all individual projects is necessary. The following model gives suggestions as to how the process can be divided in different phases and activities, and what measurable outputs could be used to monitor progress. Time is less important in this approach than the achievement of the goals set. Some projects might be established in a short amount of time, while others need years to grow. What is essential is that in each phase all steps are properly taken, before the next phase begins.

SUGGESTED PROCESS APPROACH TO ASSISTANCE

I Application and Selection Phase

Goal: identification of projects, which have a good chance of success in terms of overall Programme goals

* Submission of request for assistance from consumers to DWE's Office

Output: letter and standard information form filled out and registered at DWE Office

* Classification by District personnel (CD Officer) as private, semi-private or community request on basis of selection criteria

Output: preliminary classification of requests as private, semi-private or community request

* Follow up on semi-private and community requests: assessment visits by CDA/PHT:
  - Community members receive information on the Programme's services, while the CDA/PHT collect information on the following issues:
  - water needs (distance, quality, quantity, reliability of existing sources)
  - local incidence of water born diseases
  - chosen water development goals and planned use: domestic and/or economic activities
  - estimated number and type of users
  - potential conflicts between users
  - willingness and ability of consumers to mobilise adequate resources
  - previous development experiences and results (e.g. reputation of community among other agencies)
  - village cohesion and organisational capacity

Output: assessment report on the request for assistance

* decision on preliminary admission to programme on basis of assessment report and discussions at district level CD meeting (including CDA's and PHT's)

* defining priority for assistance by applying prioritization criteria

Output: preliminary admission to Programme, category of assistance and priority

* Consultation with locational and sub-locational administration

Output: government approval of Programme assistance to particular community

II Preparation Phase

Goal: planning and design of a water supply system, which fulfils the consumers mid-term water needs and fits their capacity to sustain the system. Making of a joint work plan.

* assisting the community in planning and decision making:
  - definition of goals and purposes of the water supply (including economic purposes)
  - technology choice and design
  - site selection, etc.

  Sessions with groups of men and women to share information on technical options and implications in terms of costs, benefits, management etc.

* assisting the community in the formation of a water committee and selection of pump attendant

* technical assessment of options by District technical team

* initial training on community management issues (resource mobilisation, record keeping, problem solving etc.)

* initial training on operation and maintenance

* hygiene education

Outputs:

- water committee in place, registered as a self-help group at Min. of Culture and Social Services and received initial training
- pump attendant selected and received initial training
- type of water supply selected
- site selected and land eased
- down payment of .... paid to the Programme
- minimum of KES 1000 put on account for future O & M
- joint community/Programme/contractor work plan with clear division of tasks and responsibilities and time frame agreed and signed by all parties involved

III Execution Phase

Goal: Joint execution of planned activities. Consumers are sufficiently motivated and trained to take up responsibility for managing their water supply

* Work plan is executed by all parties involved: community members, fundis, and various agencies. Hardware and software activities: construction, training (management, technical and hygiene skills) etc.

Outputs:

- work plan executed: water supply constructed, operational and quality inspected, and all planned training provided
- water committee sufficiently trained
- pump attendant sufficiently trained
- handing over resp. acceptance of ownership by consumers. Commissioning paper signed by inspector, consumer representative. Guarantee provided.
- decisions taken on basic management issues, such as organisation of water use and user's financial contributions

IV Follow up Phase

Goal: further support to effective community management of the water supply, hygiene education activities and monitoring of progress towards sustainibility

* Regular support and monitoring visits by CDA/PHT. Focus on identification and solution of problems concerning:

  - functioning of water supply (reliability/ quantity/ quality sufficient; O&M activities)

  - utilisation of water supply (changes in number and kind of users, economic use; conflicts)

  - community management. Indicators:
    - functioning of committee (frequency and regularity of meetings; turnover of members; issues discussed and decisions taken)
    - record keeping (expenditures and income; break downs; visitors book)
    - amount of money on account
    - problem solving capacity: problems identified and solved
    - arising problems: conflicts among users; problem of non-payment etc.
    - performance of pump attendant

* hygiene education activities by PHT

Output:

  - well functioning and utilized water supplies, and effective community management

  - increased awareness of relationship between water and health, and improved hygiene behaviour

  - filled out simple fact sheets including information on functioning, utilisation and community management performance. Problems for further follow up identified.

5.4 Ability and willingness to pay for and manage improved water supplies

The success of the new Programme strategy will depend to a large extent on people's ability and/or willingness to contribute. It is not only a condition for people to participate in the Programme, but it is also essential for the future sustainability of the improved facilities.

Evidence of lack of willingness and/or ability to contribute is likely to be found in the following situations:

a. those communities which do not properly operate and/or maintain their improved facilities (point water sources or piped supply), and

b. those communities or groups within communities which are well informed about the services offered by the Programme, but do not show any demand or initiative.

People might not be able to pay, because of lack of financial resources among those responsible for payment (often women). If the investment and/or O&M costs of a water supply are beyond the means of the consumers, the question of willingness to pay clearly does not arise. Low income levels are no doubt a real constraint in some localized areas and for certain disadvantaged groups within communities. The last point is rather relative, however, taking into account the large range of real costs to the consumer in relation to the service level. The costs of one m3 safe water can range from KES 25 to KES 2!

Not being able to pay is not always the real reason for people not being willing to contribute or not wanting to take an initiative to improve their water supply. A broad range of factors can influence communities' willingness, as the table below indicates.

Factors influencing people's willingness to manage and to pay
may include:

- relative demand for water
- perceived quality of existing sources
- perceived benefits of improved facilities
- level of equity in likely distribution of benefits
- acceptability of technology
- acceptability of service level
- opportunity cost of improved water supply
- opportunity costs of management demands
- reputation of service agency
- political factors
- health awareness
- community cohesion
- transparency of financial management
- perception of ownership and responsibility

In annex 8. a further explanation of these factors is given.

Studies in selected communities to better understand
1. the lack of ability and/or willingness to sustain existing improved water supply and
2. the lack of demand for the services offered by the Programme

should be an important activity during Phase IV.

One way to get an idea of the key players in the community concerning the water supply in question is by asking the following basic questions:

- who are the (potential) users of the water and for what purpose?
- who is responsible for paying which costs (investment, O&M)?
- who takes the decisions?

Answering these questions will give also important information on gender, power and economic interest issues.

There are two basic methods for measuring how much men/women can and are willing to pay. The first, the indirect method, involves analyzing what others in similar circumstances to the target population are already paying for services. The second -often less successful- direct method, involves asking men/women to say what they would be prepared to pay in the future for improved services.

In depth interviews to find out women's/men's opinions on above mentioned 'willingness' issues will be very useful to get an insight into their real motivations. Being gender specific in data collection is crucial. Both men and women from different economic strata will have to be interviewed. In addition interviews with key informants, such as (village chiefs, women's leaders, teachers, health personnel, locational representatives etc.) can help to assess and analyze constraints and possibilities. This information can lead to formulation of better Programme implementation strategies on how to increase sustainability and more equal access to services provided by the Programme.

5.5 Socio-economic benefits and income generation

Expected benefits are the main reason for people to take initiative to improve their water supply situation and to properly operate and maintain their supply. The type and priority of benefits - social, economic, health etc. -can vary from one consumer group to another, or even from one household to another. In addition men, women and children within the same household might have different water needs.

A demand driven approach requires that the goals and thus the expected benefits of the consumers are taken as a point of departure for planning and design. As experience in the Programme area has shown, people often higher value immediate socio-economic benefits than health benefits.

Two sorts of socio-economic benefits can be derived from improved water supply: a. time and energy gains, and b. availability of water for production (vegetable growing etc.)

a) timegains

As the AMREF socio-economic survey of 1991 has shown, time gains are not always significant and sometimes even negligible in the covered communities. When the new supply is more easily accessible, the daily burden for the water haulers, mostly women and children, is reduced. This benefit is generally very much appreciated by the consumers and often perceived as the most important benefit. The amount of time gains depends above all on the distance to traditional sources and the service level. House connections are most efficient in this respect and also often have the advantage of being perceived as 'modern', which gives a certain status.

The time saved, when significant enough, could be used by women for productive activities. The economic value of women's time, however, depends on their opportunities. Which income generating activities can be expanded or initiated? Time is just one of the resources needed to earn money. Women in the Programme area typically have few other resources, such as land, skills and starting capital. In addition

the prevailing subsistence economy and consumption patterns do not always create favourable market conditions.

b) water for economic use

Extra water for production is the second potential economic benefit derived from improved drinking water and also highly valued by the consumers. Both women and men use water from improved supplies for economic activities, such as brick making and livestock. The recent promotion of feedlots for cattle ('zero grazing') and high yielding milk cows in the project-area seems to increase the need for nearby water points. The market for milk is considered very good and the local dairy industry a large capacity. 'Zero grazing' is likely to be an expanding economic activity for both men and women in the project area. Vegetable growing is more a women's activity.

There are clear indications that in the Programme area demand is and will often be primarily based on the need of water for economic purposes. This economic factor will generally enhance both people's (men and women) willingness to pay for and to take care of a water point or piped supply. A water supply which has an economic or a combined economic-domestic function is likely to be well maintained, which is positive for its sustainability.

Yet, as in the case of time saving, water is only one of the conditions needed to engage oneself in gainful water related activities. Time gains and water for production are important and appreciated social and economic benefits, but they do not automatically lead to significantly increased incomes.

It is recommended that:

- time gains and water for production are more taken into account in the planning and technical design of water sources, especially when they are the reason for the request for assistance. Extra facilities might be required. The use of high quality water for production, however should only be promoted within reasonable limits and when design (capacity/costs) and environmental implications are taken into account.

- since improved water supply does not automatically lead to increased incomes, Programme workers should be cautious in using economic benefits as a strategy for selling improved water supply to people.

- it should not be taken for granted, that extra income earned is used for paying water rates. People might have other priorities, such as medical bills, school fees etc. By directly linking income generation with ability and willingness to pay might therefore not always be justified and might not always be a secure base for future sustainability of the supply.

- women are the priority target group in the promotion of income generating activities. Since generated incomes are usually rather small and often not very secure/reliable, a too strong a link between women's income generation and water supply should be avoided. This also might result in men even taking less responsibility in financing, which could be negative for both the position of women and the sustainability of the supply.

- promotion of income generating activities requires specialized expertise. Identification of markets, skill training and setting up loan schemes or other credit facilities are complicated issues. Inputs necessary for promoting income generation might therefore be somewhat out of scope of the Programme's in Phase IV. Nevertheless the Programme could play a positive role in making liaisons between consumers and governmental and non-governmental agencies more directly involved in income generation.

- if certain categories of consumers use significant quantities of water for economic purposes (for example for irrigation or livestock watering) than others, flat rates for payment may not be justified. Graded payment systems might then be developed to ensure a more equitable distribution of costs. For example, households pay a basic charge for domestic water use and are charged in addition per head of cattle or irrigated surface. These are management decisions which have to be taken by those responsible for the management of the supply and need sufficient community support.

- the promotion of zero-grazing in the area might have unforeseen environmental implications. An intersectoral approach, including livestock and environmental departments, is recommended to avoid that the Programme supports activities which might have unintended negative effects on the long term.

6. CHOICE OF TECHNOLOGY

6.1 Type of technology

Choice of technology is an issue that all parties need to tackle with tact. The consumer of technology must have a choice commensurate with his ability to pay and to manage. And even when that ability is limited, efforts should be made to explain to the consumer's satisfaction if he has to subsequently own, use and operate and maintain facility.

The Ministry of Water Development has traditionally favoured and justified less cost-effective large schemes, often with full treatment, extensive distribution network and sophisticated equipment for pumping. The consumer has often just been a recipient of the service. The KFWWSP has had a rural focus with point sources and is only gradually including some piped schemes. Here too the consumer has often just been a recipient of service.

As it is no longer possible, from a macro-economic perspective, to subsidize the operation and maintenance of water supply facilities, increasingly governments favour a partnership between the implementing agencies and the consumer in which a larger share of the development and operational burden is carried by the consumer. In acknowledgement of the new role of the consumer and the facilitating role of government, this approach calls for a demand driven process of planning and design in which the choice of technology features prominently. For, it is ultimately the consumer who has to pay for a service that is accepted and adequate, while it is the interest of the government to see to it that the available development resources serve as many consumers as possible.

Affordability and **level of service** are key issues in the discussion with the consumer. Consumer orientation towards the pro's and con's of various water supply option is necessary so that a service providing water from sources other than piped schemes is seen in the right perspective.

(i) Point Sources

The KFWWSP has in the past concentrated the development on point sources. These include protected springs, hand dug wells and boreholes, both fitted with hand pumps. The design and construction of spring protections has been improved since the 1991 mid-term review. The O&M costs for protected springs is about KES 250 per year. Communities have to appreciate the need for clean water, for them to understand and agree that spring protection is indeed a desired development.

Hand dug wells are usually not deeper that 10-15 metre and are equipped with the Nira AF 85 handpumps. The O&M cost for shallow wells is about KES 500 per year. The number of users varies between 200-400 people.

The O&M cost of drilled boreholes is about KES 1,500 per year. Boreholes are nowadays fitted with Afridev handpumps. Earlier boreholes are still equipped with India Mk II handpumps.
Boreholes are more expensive to construct and often serve larger communities. The larger the groups that uses a point, the more complicated managerial matters become.

In general, point sources like protected springs and hand-dug wells, can be developed by communities themselves employing fundis with only technical assistance from the programme. Private individuals, too, can utilise these resource to develop their own water sources.

(ii) Gravity Schemes

The Programme has built some gravity schemes within the programme area. Some of these schemes are community managed. Initial investment cost is generally high, while O&M costs are within the community's management capabilities. Level of service is high with convenient supply and high reliability at reasonable costs of production.

While gravity schemes are very attractive in terms of running cost and ease of maintenance, they carry two inherent main risks. First of all they are prone to excessive expansion, covering larger areas than originally intended complicating management issues in the process. This also may increase the number of consumers beyond the production capacity of the scheme. The second potential risk with gravity schemes is the uncontrolled and excessive use of water use for purposes like livestock and small irrigation, thus overstretching the facility. Metering is expensive and flat rates may not give adequate control on water use, creating additional wastage. Strong community involvement and improved consumer relations leading to improved social control, combined with technical measures relating to zoning of consumption areas and monitoring use by master meters might be useful options to avoid problems.

(iii) Small Piped Schemes (pumped)

This alternative is appropriate where groundwater potential for shallow wells or gravity scheme are limited. A limited distribution network is then used preferably with groundwater (borehole) as a source. Surface water sources usually require full treatment which is beyond the capacity of a small community.

Piped schemes with pumping facilities require skilled personnel to O&M. They also attract higher O&M costs due to energy requirements. It is therefore imperative that ownership is clearly defined from the onset. If the community has to do the operation and maintenance, then detailed consideration and explanation of O & M costs is of paramount importance at the design stage. Tariffs for water must be calculated to cover all O&M costs including personnel, energy, repairs, billing and pump replacement costs. If that is not done, schemes will easily fail to continue functioning due to inadequate operational funds thus leading to a loss of serious investment.

Like gravity schemes, this category of development has a risk of being extended beyond the production capacity. The consumers are also likely to use water for purposes that put a lot of pressure on the system. It is prohibitively expensive to meter all consumers and zoning might be the only alternative to consider.

(iv) Rehabilitation of Piped Schemes

The KFWWSP has in the past undertaken the rehabilitation of piped schemes operated by either the Ministry of Water Development (MOWD) or National Water Conservation and Pipeline Corporation (NWCPC).

In the previous phases the KFWWSP has often undertaken to rehabilitate those components that are situated before the storage tanks (reservoirs). This approach denies full utilization of the investment, as often the distribution system, metering and management of the schemes are also in serious need of overhauling. Rehabilitation is usually justified on grounds of utilising the initial investment that went in to build the water systems. However when the rehabilitation process does not consider the overall economic, financial, social and technical position of the scheme, rehabilitation in a technical sense is only a piece of string to keep some loose ends together, but does not tackle the real issues that decide on the longer term viability of the scheme and the justification of the new investment.

Thus, the KFWWSP should be weary of undertaking rehabilitations. Even when it agrees, the water tariffs should cover all O&M costs, equipment replacement costs, continuous expansion and improvement costs, as well as part of the investment cost. Stringent measures for billing and revenue collection should be agreed and enforced, if rehabilitation schemes have to be viable. Water losses through leakage, and illegal connections should be monitored closely.

No substitute exists for customers satisfaction. The water undertaker must actively cultivate good consumer relationship. A continuous process of expansion and improvement must be seen to take place by the consumers. Confidence and respect for the water undertaker encourages consumers to pay for services rendered.
A management efficiency where staff are motivated by objective achievement appraisal and reward is an asset that the Ministry of Water Development cannot afford to lose if the consumer has to maintain respect and confidence in the Ministry services.

(v) Metering and Zoning

Adequate revenue collection is a key to sustainable water supply development. Minimizing water losses through capping on illegal connections and leakages reduces O&M costs is very important.

Metering and meter reading is an expensive undertaking. Alternative billing systems must be sought for rural water supplies. Grouping consumers into geographical areas "zones" and charging flat rates per plot (not household) offers a suitable alternative where land-owners pay for the water on a flat rate. Each zone is then metered to monitor the amount of water used in that zone and tariffs (flat rate) are adjusted accordingly by the water committee of that zone to cover at least the production cost. This method also reduces personnel and travel costs for meter reading.

As a general rule metering and flat rates should not be used within the same water scheme. Often this creates a bad image as those on flat rates tend to use more water and pay less while those metered use less water and pay more. Flat rate tariffs must be such that they cover at least the production cost of water.

(vi) Rain Water Harvesting

Rainwater is abundant and reliable within the Programme boundaries. Household and institutions could be encouraged to harness this resource. Those with suitable collecting surfaces like roofs, rock, paved surface, road surfaces and ground surfaces could well be advised to consider collecting rainwater for domestic, livestock or small irrigation schemes. Domestic use requires good quality water and can be stored in tanks, while livestock requires a fair quality water and can be stored in open sub-surface tanks.

Different categories of potential consumers for the Programme's services are foreseen. The well-off household or private developers of public amenities could be encouraged to develop their own private water supplies with technical assistance from MOWD or KFWWSP. This category needs to pay full cost of development and preferably use the locally available skilled "fundis". Public institutions like schools and health centres need to be encouraged to develop their own water points and could be given a subsidy. For communal (community) water points the subsidy should be limited to 70%.
It must be clear that whereas the Programme shall finance a large part of the investment costs, all O&M costs must be met by the consumer in full. The consumer must choose a level of service and technology that he can sustain.

6.2 Planning and Design

The Programme and the user community must work hand in hand in the planning and design of water supplies. All pertinent (feasible) technical options and their implications on O&M must be given to the consumers: men and women. Each technical option, and its implication on the final tariff on the water should be explained and discussed thoroughly. It must then be left to the consumers involved to make their final choice.

Technology choice should never be imposed. Where people's demands are outside what the Programme can offer, the consumers should be encouraged to seek assistance elsewhere.

A few examples (Table 3) from the planning and design department (P&D) may highlight the present inadequacy of information given to the consumers for purposes of decision making.

Table 3. Annual O&M and Revenues as calculated by P&D Department

Name of Scheme	Constr. Cost Ksh	O&M Ksh	Annual Expect. Revenue Ksh	Deficit Ksh
Ugunja	2,500,000	218,927	70,080	148,847
Mateka	3,147,000	323,100	70,664	252,336
Butere	1,520.000	366,948	353,203	13,745
Khwisero	3,030,000	248,210	59,568	188,642
Navakholo	7,600,000	512,554	180,018	332,532

The annual O&M costs as calculated by the Planning and Design department are given in Table 3 above. When these costs are compared to the calculated expected revenue, a deficit is registered in all the five schemes. The design reports are silent on how these deficits are to be met. In the case of Navakholo, the community are to take care of the O&M the scheme. The operation and maintenance costs seem to be under estimated and proposed revenue collection is less than the calculated operation and maintenance costs. There is further a risk that people are not willing to pay the real cost, which is 8 shs/m^3 instead of 2 shs/m^3, which is proposed.

If they operate as planned, then an annual deficit of Ksh 332,532 is envisaged. How to cover this deficit is an issue the design report does not attempt to address itself to. Neither did it become apparent during the extensive discussions the Appraisal team had in Navakholo, how the organizing committee or the Programme were going to solve that problem at this stage when construction was on-going. The KES one million needed to meter all connections (as proposed by the organzing water committee) is unfeasible, as no such funds are available from the Programme or the community. Intelligent zoning of the scheme may possibly mitigate problem.

The design report has very briefly if at all touched sustainability with respect to environmental issues. The main criteria for development has been the yield of the borehole.
The report did not include any measures either proposed for management establishment or training. It is advisable to follow the Navakholo project systematically in a scientific way in order to gather as much as possible information of the project cycle and operation and maintenance of community managed scheme.

It is imperative that the planning and design department work out modalities of providing the consumers with realistic figures if sustainability must be achieved.

A few alternative tariffs that might be useful to include are suggested below:

(i) Tariff at production cost. The tariff covers all O&M costs.

(ii) Tariff at production cost plus pump replacement costs. This tariff covers all the O&M costs and allows for pump replacement when existing pumps have run their useful life.

(iii) As (ii) above plus minor expansion and improvement. This should be most desirable tariff as it always caters for expansion and manor renovations when necessary.

Gazetted tariffs are applied in MOWD and NWCPC schemes. Individual groups of consumers, and District Water Boards should be encouraged to levy tariffs that enable them continue maintaining water supplies within their jurisdiction in a sustainable manner, even when such tariffs are higher than the ones that are gazetted.

6.3 Construction

i) Construction of point sources

So far community inputs have not been valued in monetary units. In the demand driven approach it is useful that all inputs be valued and credited to the party providing that component of the project. These are GOK (DWE), the Programme and communities. Construction costs are given as in Table 4 below for each of the point source alternatives (see also annex 9 for further details).

Table 4 - Construction costs for Point Sources

Item	Material	Labour	Transport	Contingency	Community Contribution	Total
Spring Protection	7819	5031	4848	1770	5050	24518
% Total cost	32	21	20	7	21	100
Hand dug well (8m)	54056	12857	5674	7273	4500	84360
% Total Cost	64	15	7	9	5	100
Borehole (60m)	162591	41120	16800	N/A	800	221311
% Total Cost	73	19	7.6	-	.4	100

N/A Not given

The material cost as a percentage of total cost ranges from 32% for springs to 73% for boreholes. Overhead costs for labour and transport have been limited to those incurred during construction. Overhead costs for siting, community training and mobilisation, planning and design have not been included in the costs of facility development. It might be useful that these costs are included in future so as to get a fair picture on the cost of development of each of the point sources.

The calculation below estimates these costs to be around 2000/-for each point source:

(a) 4 No. visits by staff associated with the Programme @ 210/-	Kshs	810.00
(b) 4 No. Regular support by CDA + Transport @ 140/-	Kshs	560.00
(c) 2 No. Training of Community Pump attendants @ 200	Kshs	400.00
(d) Vehicle L/Rover (Program Staff)	Kshs	494.40
(e) 2 Day Driver @ 270 (4 x 0.5 visits)	Kshs	540.00
	Kshs	2,094.40

(ii) Construction costs for Piped Schemes

A selection of 11 piped schemes (Table 5) gives a per capita cost of between Sh 762 for Ugunja in Siaya to Sh 96 for Khwisero in Kakamega. The Ugunja project has Ksh 2 million worth of buildings included. Electricity installations costs have not been included in the above costs. These usually range between a minimum of Ksh 50,000 to an average of Ksh 300,000.

On the basis of per capita costs only, piped schemes are not at a disadvantage as compared to point sources. A hand dug well serves between 200-400 persons, giving a per capita cost of between Sh 211 to Sh 422. In this vein piped schemes compare favourably with other technical options (see Table 5 for per capita (investments) costs for piped schemes).

However piped schemes often require skilled manpower to operate and maintain. They also often require full treatment requiring chemicals, energy and a high rate of spare part turnover. Piped schemes may also cover large areas, thus requiring elaborate management services including leakage detection, meter reading, billing and revenue collection just to mention a few.

Often total populations are used for per capita estimation, yet in practice only a part of the people actually have access to the facilities as extensive pipe networks would be required to reach each individual household.

So far the experience with community based management of piped water supply systems is limited. As it further seems that the schemes easily grow out of hands of a community to manage, priority should be given within Programme planning to relatively small piped schemes abstracting water from a spring and gravitating the water. Experience gained with the planning, design and management of fairly small schemes (or zoned schemes) will eventually indicate the viability of larger piped schemes.

Table 5 - Construction costs for Piped Schemes

Scheme	Population served	Water source	Pipeline km	Tank m^3	Costs Ksh.						
					Materials	Borehole	Contractor	Community	Total Costs	Per Capita	Remarks
1. Ugunja Project (N)	8,000	B/H	14	175	1,960,456	200,000	3,939,456	-	6,100,403	762	Incld Building
2. Butere (R)	12,280	B/Hs	4	100	685,295	200,000	309,087	-	1,194,381	98	Excl. Tank
3. Sira-Nyawita (N)	1,692	B/H	3	25	513,072	100,000	385,586	190,930	1,189,580	703	
4. Khwisero (R)	5,627	Spring	1.7	10	384,568	-	134,145	Estimate 30,000	548,713	96	Excl. Tanks Diesel Pump
5. Kabuchui (R)	1,921	Spring	2.5	25	315,755	-	38,800	25,000	379,555	198	Diesel Pump
6. Hamisi (R)	4,577	Spring	3	40	512,492	-	39,000	-	551,492	120	
7. Matera-Luandeti (N)	6,000	Spring	11.5	50	Estimate 700,000	-	1,024,000	Estimate 180,000	1,904,000	317	Gravity
8. Sigonere (R)	8,586	B/H	8.3	27	Estimate 850,000	120,000	428,882	180,000	1,578,882	183	Excl. Tank Diesel Pump
9. Navakholo (N)	12,000	B/Hs	27	225	Estimate	300,000	1,809,833	390,000	3,999,833	333	
10.Kibabii (N)	8,000	B/H	4.5	50	616,266	120,000	125,000	-	861,266	108	Excl. Tanks
11.Muchi-Mile (N)	5,000	B/H	14	50	487,626	100,000	359,850	-	947,472	189	Excl. Tank

N = New scheme R = Rehabilitation

Installation costs for electricity are not included in the above figures. This ranges between a minimum of Kshs 50,000/- to an average of Kshs 300,000/=.

6.4 Operation and Maintenance

The demand driven approach pre-supposes self-reliance on the part of the consumers, be they government, a community, group or individual. It is clear that private individuals or institutions who develop their own water supply facility, will also show quite some desire to maintain their facilities in order to continue getting benefits of their investment. MOWD and communities, on the other hand, normally delegate the duties of operation and maintenance to employees or volunteers. This has an inherent shortcoming since the operators are normally persons with no feeling of ownership for the project. Close supervision and monitoring are therefore necessary in order to minimize neglect and breakages.

(i) Community managed water supplies

In order to attain their full potential community supplies must be managed in an optimal way. Locally available skills in management, book keeping, preventive maintenance and repairs are required. The Programme is endeavouring to provide these aspects through the community development and training department.

Water Points

Readily available spare parts are prerequisite in both preventive and repair work. The Programme which has encouraged the use of Afridev and Nira need to ensure that spare parts for these two models of pumps are available in the Programme area. Afridev is locally manufactured, while Nira is imported. It is understood that Nira is produced in Tanzania. Efforts to import within the region or local manufacture should be intensified. The cost of spare parts is of great concern, and local fabrication may be useful step.

The sustainability of the programme relays very much on the availability and cost of imported spare parts on the local market. The hand pumps used are mainly NIRA 85 and Afridev. The programme has made a study concerning distribution of spare parts and has approached the manufacturers as well as local agents and shop keepers. The result is that a local agent is found, but no local business men. It seems that the distribution has to be arranged through local NGOs or MoWD.

It is absolutely imperative that a workable solution is found for the spare part problem within the next two years. Collaboration with the Lake Basin Development Programme and with the UNDP/WB Programme based in Nairobi can be sough to further study the possibilities. At the same time Vallama, the Finnish producer of the NIRA 85, should be approached to find a solution for the provision of reasonable priced spares, possibly to be produced in Tanzania or otherwise by small manufacturers in Kisumu. Consolidation of the spare part distribution is one of the most important activities of the next phase. The programme will also have to develop the possibilities for local manufacturing of the parts and try to find the optimum between cost, quality and availability.
The project document for Phase IV has made adequate provision for trials in this important area.

The Programme is keen in handing-over completed projects. Already 1300 projects have been handed over. Monitoring of these facilities is necessary so as to provide information of their performance and factors influencing it. Cleanliness at source and at household level are issues that need to be addressed. Sanitation (drainage), erosion and deforestation are issues that encompass water from its availability (water resources management) to its exploitation and use. Communities must be sensitised to appreciate this and the inherent consequences.

Certain technologies are being presented as village level operated and maintained. In cases where "demand" is the key then affordability can best be judged by the consumer. In theory, therefore the users of technology are free to choose from the whole spectrum of technologies. In practice the Programme should offer those technical options that best present themselves as affordable and sustainable within the socio-economic environment of the Programme area. It is important that not only men, but also women receive all relevant information and take part in decision making, since they are the primary users of the water and often in practice responsible for the payment of water rates.

Tariffs and revenue collection are a sensitive but crucial part of community managed schemes. The Programme should use sufficient time to develop and promote ways to determine and test water rates and rate collection systems.

Because the beneficiaries in rural areas have to meet the O&M costs they should be properly informed from the beginning about costs and alternative types of supply.

The rough O&M costs for different types of supplies are:

shallow well	500 KES/annum
protected spring	250 KES/annum
borehole with hand pump	1500 KES/annum

Replacement cost are respectively

shallow wells	20 000 KES
protected spring	20 000 KES

Investment cost of a borehole with handpump is around KES 200 000. This may be reduced by 30% when the overheads of the programme are not included.

In 1991 strict invoicing for repairs on water points has been undertaken by the Programme. The result has been encouraging with around 50% of the KES 113 000 actually paid. Further promotion of invoicing for repair and monitoring of payments needs to done, while at the same time a more commercial rate for repairs (avoiding hidden subsidies) should be established. Table 6 below is taken from the annual report 1991 of the Programme and provides an overview of the hand pump repairs and related cost recovery.

Table 6. Hand pump repairs and cost recovery.

	KAKAMEGA	BUNGOMA	BUSIA	SIAYA	TOTAL
Number of *	358	157	279	170	1964
Pumps +	434	181	266	138	1019
TOTAL	792	338	545	308	1973
NIRA AF 85	66	34	17	11	128
AFRIDEV	31	25	54	18	128
NIRA AF 76	37	23	38	4	102
INDIA MK II	100	93	141	115	449
Total Repaired	234	175	250	148	807
Invoiced Sh	67,796	32,143	45,772	30,558	113,003
Paid Sh	41,080	14,124	18,933	16,693	62,806
Perc. paid	61%	44%	41%	55%	50%

* Hand Pumps installed in Boreholes
\+ Hand Pumps installed in Hand-Dug Wells

Assuming the effective use of the well to be 2 to 4 m^3/d, the annual production will be 700 - 1400 m^3/a, which equals to 0.7 - 1.4 KES/m^3 for shallow wells and 1.4 - 2.8 KES/m^3 for a borehole with hand pump.

Community managed piped schemes

The operation and maintenance cost of a piped scheme depends on water quality of the source, yield, type of distribution: be it gravity or pumped, length of the distribution network and the base of tariff: metered or flat rate.
Within Kenya rates vary from 2.0 Kshs/m^3 in simple gravity schemes to over 25 Kshs/m^3 in more sophisticated schemes.

The bottleneck in piped schemes are not only the higher unit cost but the management skills needed to operate and maintain them, protection of the source and equal distribution in case of limited yield.

The programme could limit the support to piped schemes to those which are proved to be economically viable and manageable and the rate of O&M do not exceed 4 Kshs/m^3

(ii) Rehabilitation of MOWD/NWCPC Schemes

Schemes in this category often utilise surface water sources requiring full treatment and pumping to elevated grounds. Distribution is then done by gravity having extensive pipe layouts. Skilled manpower is required for operation and maintenance. Table 7 and 8 give O & M cost for Bungoma and Vihiga district respectively.

Table 7: Yearly O & M Costs for Various Schemes in Bungoma District

Name	Water Produced m^3	Water sold m^3	Revenue expected	Revenue collected	Electricity	O & M	Salary
Webuye	480000	420000	1470000	912000	864000	444000	480000
Ndivisi/ Makuselwa	864000	696000	2436000	684000	9600	348000	300000
Chesikaki	1128000	1122000	3927000	226800	Nil	245712	245580
Kib/ Bokoli	520800	501600	1755600	127332	Nil	151704	325800
Old/ Bibichori	126000	120000	420000	34800	Nil	30804	100080
Chwele	10800	9600	33600	15600	Nil	5448	42660

Table 8: Monthly O & M costs for various schemes in Vihiga District

Average Monthly Water Production M^3 (W)	Maseno	Kaimosi	Mbale	Sosiani	Vihiga
	60000	24500	16,800	25,000	1600
Average Chemicals cost ksh	35650	28500	20,600	750	1000
Monthly Electricity cost Ksh.	98000	12180	77,000	12,460	730
Production O&M Cost Ksh.	10000	12000	10,000	5,000	2000
Staff salaries	52700	23800	27200	27200	27200
Total monthly Expenditure Ksh	196350	77100	65,500	45,410	30930
Number of consumers metered (M)	690	330	1225	225	120
Water (consumer) Flat Rate (F)	735	600	170	160	2
Connections Total (C)	1,425	930	1,395	385	122
Average monthly Water Billed Kshs. (B)	300,000	122,500	67,200	125,000	8000
Average monthly Revenue collection (Ksh.) (R)	70,000	46,000	10,600		1400
Population (P)	50,000	25,000	53,000		12000
Area served (Km^2)	45 Km^2	50 Km^2	50 Km^2		12
Average Per capita supply W/P lpd	40	33	10.6	55.6	4.4
B/C average bill per connection sh.	210	131.70	48.20	324.70	65.60
(B - 30F)/M (average Bill Per metered connection) shs.	402.80	316.70	50.70	534.20	66.20
W/C $^{m^3}$ (water consumed per connection)	42	26.3	12	64.9	13.1
Number of consumers per connection	35 (1050)	27(797)	38(1132)	39(1167)	98(2977)
R as % B	23.3	37.6	15.8	16.8	17.5

An analysis of the Vihiga situation reveals the following:-

(i) The percentage revenue collected varies between 15.8% to 37.6%.

(ii) The average per capita supply i.e. water produced over total population varies between 4.4 lpd to 55.6 lpd.

(iii) The average bill per connection i.e. average water billed over total connections varies between sh 48.20 to sh 324.70 per month.

(iv) Discounting the flat rate of sh 30 per connection, then the average monthly bill for metered connection varies between sh. 50.70 to sh 534.20.

(v) The average water consumed per connection varies between 13.1m^3 to 64.9m^3.

(vi) The population served per connection varies from 27 persons to 98 persons. While the water consumed per connection over the per capita consumption gives persons per connection to vary from 797 persons to 2977 persons per connection.

It is apparent from the foregoing paragraphs that revenue collected is far below targeted levels, and compared to O&M costs are insignificant. Revenue collection is a major issue when considering rehabilitation.

The difference between the flat rate of Sh 30 per month and the average bill per connection of Sh 48.20 is significant. When compared to the maximum (average) bill per metered connection of sh 534.70 the difference is 1780% more.

When these differences are looked at by consumers who know how much water is actually used at each connection, then the concept of metering and flat rates in the scheme only help erode consumers confidence.

It is only fair to conclude at this stage, that all water schemes in the Programme need revitalisation in their management and only few require physical improvements. A similar analysis for the Bungoma district water supplies would strengthen this view. A visit to Busia-Mundika water supply bore testimony to this fact.

The level of service provided by piped water schemes in practice may well be within the level that well maintained point sources can offer.

It should not be Finnida's intention to support O&M activities financially. Every new rehabilitation or water supply development project should only take place if it can be justified in terms on sustainability or in an increase in service level and/or a reduction of O & M costs.

7. HYGIENE EDUCATION AND PROMOTION

In order to achieve health benefits and a higher standard of living from improved water supply, hygiene education and improvement of sanitation are essential.

Proposed strategy:

- Organisation of seminars for locational opinion leaders to create awareness on health benefits that could accrue from improved water supplies.
- Organisation of hygiene education sessions with consumers (women, children and men) in communities where water supply has or is intended to be improved, including also members of water committees.
- Meetings in public barazas for the general public.

Content of health education

- The areas covered would include environmental sanitation with posters depicting health messages related to the water use.
- Messages on the proper maintenance of water points.
- Messages on use of clean water collection vessels and storage facilities in the homes.
- Provision and use of sanitary facilities in the homes.
- Importance of personal hygiene.

The above messages should be prepared in close collaboration with Public Health Technicians and should be tested in the Programme area. The existing Community Development Assistants can be used as facilitators as well as educators in health issues. Sofar, it has not been monitored whether messages and information passed to the communities have positive effects, since there is lack of follow up.
During the Appraisal mission the following activities were identified as necessary for the development of an effective hygiene education programme:

- Follow up to ensure that consumers practice what they have learnt from hygiene education by increasing personnel inputs at locational level.
- Closer coordination and collaboration with the staff of the Ministry of Health at the district, divisional, locational and sub locational levels.
- Use of the already trained community health workers (CHWs) in the follow up and intensification and reinforcement of health messages.
- More involvement of PHTs in hygiene education and closer supervision by the District and Divisional Public Health Officers.

Concerning the kinds of expertise required and how to optimize the use of existing resources:

- There is need for a) more commitment on the part of existing personnel in line Ministries to carry out their tasks effectively and b) closer supervision. Therefore transport facilities in the form of bicycles and possibly motorbikes must be provided.

- There is need to refine health education materials e.g. posters and generally to increase the use of other media such as videos, film shows, news papers and radio.

- Need to involve teachers in Primary schools and other institutions such as religious organizations, PTA's and other NGO-like agencies in the dissemination of health messages.

Activities which need to be developed for sanitation improvement in order to ensure a greater and more effective coverage by sanitary facilities:

- Intensification of health education concerning the importance of provision and use of toilets in the homes.

- Support to those communities who have shown interest in adopting latrines.

- Intensification of community mobilization for action

Concerning the collaboration between the Water Supply Programme and the Primary Health Care Programme it can be observed that there exists a joint technical committee where the top managers of the two programmes meet to discuss and exchange ideas. However, the relationship and collaboration at lower levels needs to be better defined for improved effectiveness.

8. WATER RESOURCES

Climate

The Western Province is steadily sloping from Nandi escarpment in the East and from Mount Elgon in the North towards the South - Western corner. Rainfall in Western Province is relatively high with mean annual rainfall varying from 1000 mm/year in the South Western corner to about 2000 mm/year in the Eastern part. The driest months are December - February while heaviest rainfalls occur in April and May. There are about 22 rainfall observation stations in the province.

The mean annual pan evaporation within Western Province varies from 1600 mm to 2100 mm based on 7 stations within the region. The actual annual evaporation from free water surface ranges from 1100 mm to 1500 mm.

Surface Water Resources

The whole area of Western Province lies in the Lake Victoria Basin (referred to as Drainage Area 1). Nzoia river is the most prominent in the province. It originates from the Cherangani Hills which form the northern part of the watershed diving the Kerio Valley from the L. Basin. Many other rivers feed the Nzoia before the boundary for Western Province. The main upper course is the Moyben River. Other notable tributaries are the Kwoittobus, the little Nzoia. the Ewaso Rongain, the Kibisi and the Kipkarren.

In Western Province the Nzoia river flows roughly in the south-westerly direction. Here the main tributaries are the Kuywa, Chwele and Khalaba discharging into the Nzoia from the North, Lusumu and Viratsi flowing into the Nzoia from the southern part of the Nzoia catchment. Isiukhu river is a tributary of Lusumu river.

Other important rivers in Western Province are the Malaba river and its tributary Malakisi, Yala and the Sio river. Malaba river forms the boarder between Kenya and Uganda before it turns to the Uganda side.

There were a total of 27 regular river gauging stations in the region by 1987. The gauging stations on river Nzoia are 1DA2 (upstream of Pan Paper Mill water intake) and IDDI (Nzoia river at mumias). Lusumu and Isiukhu (both tributaries of Nzoia) have a gauging station each. There are also gauging stations on Rivers Kuywa, Chwele, Khalaba, Malaba, Malakisi and Sio.

In general, the surface water resources in Western Province are abundant and fairly distributed.

Surface Water Quality

Seasonal variations in PH, COD and BOD have been observed down stream of industrial effluent discharge points along the rivers (e.g on River Nzoia). The main cause of pollution in the rivers is discharge of poorly treated effluent from sugarcane and coffee processing factories, the paper mill and non-point source pollution from agricultural lands.

Generally, water from most rivers in Western Province require full conventional treatment before it can be considered acceptable for human consumption.

Water resources management

Western Province lies within Lake Nyanza draining basin, which is the most important water area of the country. The three main rivers within the region are Yala river Basin, Nzoia River Basin and Malaba River Basin, which originate from slopes of Mt. Elgon, Cherangani and Nandi Hills outside the Province.

The population has traditionally settled in areas, where water and arable land are available. The population growth and hence the growth of agricultural and industrial activities will increase the water demand in future. The limited amount of good arable alnd also puts stress on the environment and requires people to settle on arid or semi-arid land.

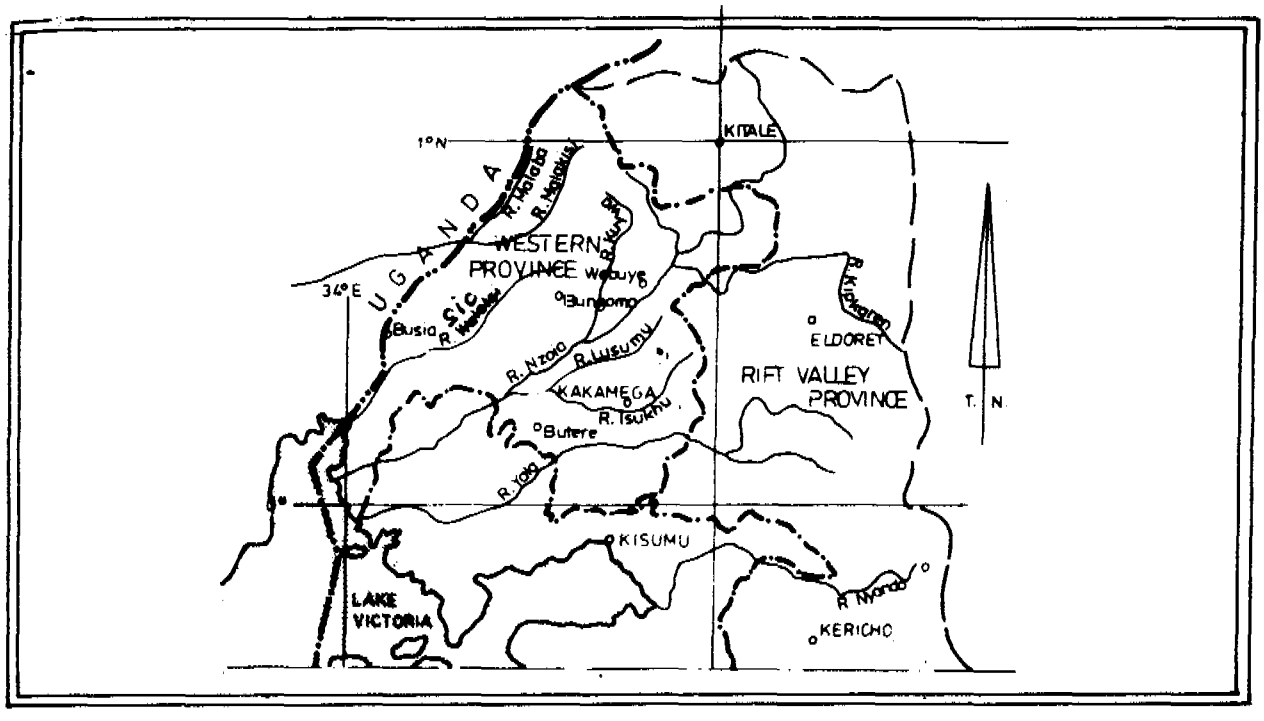
The increased awareness of value of water has already created conflicts in Western Province, when water is distributed down streams. The National target "safe and sustainable water supply" to all people by the year 2010 is definitely unattainable. This means that water will increasingly become a scarce, commodity whose rural distribution will raise tension and conflict between the rural and urban areas, rich and poor, as well as between agriculture and industry. The potential conflict between agriculture and industry is made more complex by the existing water resources needs within the agricultural sector.

Suggestions on a course of action

There is a need for proper maintenance of the existing hydro - meteorological stations. At present most of the River Gauging Stations a in a pathetic state. Rehabilitation of the gauging stations should be taken as a priority. Regular monitoring of existing gauging stations is required in order to ascertain the quality of data coming from the field. There is a need to pay gauge readers on time in order that they can be motivated to do the job accurately. More observation stations are required to establish an evenly distributed network.

During the rainy season, the rivers are generally very turbid in this region. This suggests a soil erosion problem in the region. Currently, sediment loads in the rivers are not monitored regularly. A regular sediment monitoring network should be established.

A regular monitoring scheme is definitely required for assessing the quality of water in the rivers, taking into account that there are a number of industries discharging industrial effluent to some major rivers in the region.



9. GENDER ISSUES

It is not yet clear how the shift towards a more demand driven approach will affect the position of women in the Programme area. Most applicants sofar have been men, either individuals or representatives from a community or group of households. Nevertheless also some individual women and women's groups have approached the Programme for assistance.

To get a better insight the following activities could be undertaken:

- registration of requests: record the sex of the applicant and intended users of the water supply,

- monitor the intended (applied for) and actual use of the water: women are most likely to benefit from water for domestic use, while both men and women can be the primary beneficiaries of water for economic use. Zero grazing is an activity for both men and women, while vegetable growing and brick making are probably more typically women's activities.

Earlier studies in the Programme have shown, that men and women often have different roles and thus interests concerning water supply. Apparently in many households men are taking direct responsibility for the installation (construction) costs, while women pay for the routine operation and maintenance costs. Since women in the area have little means to earn an income of their own, they depend to a large extent on their husbands's ability and willingness to give them sufficient household money to pay for water charges. The distinction between installation and O&M costs, however, is not always very clear. What if the pump breaks down and an expensive spare part is needed or a pump has to be replaced?

While women are the main consumers of water for domestic purposes, both men and women use water for economic purposes. What happens if the water supply does not give enough water to fulfil everybody's needs? Within the Programme very little information and awareness exists concerning (potential) conflicts in interest between various usergroups (men versus women, but also men versus men and women versus women) within communities.

Management problems in water supplies can occur when those who use, those who pay and those who take the decisions are not the same people, do not communicate and have different interests. This issue is especially relevant for community-based water supplies with heterogeneous user groups and weak organisational structures.
Considering the complexity of the gender situation the following strategies are recommended:

- encourage involvement of both women and men in all decision making during all phases of the process and in all activities. Indirect influence of women can be encouraged by giving formal decision makers (mostly men) enough time for proper feedback and consultation. Single meetings are usually not adequate for important decision making. Siting meetings which are not part of a process might force the community to hasty decisions without properly including the opinions of women. This might have negative effects for future functioning, utilisation and the ultimate sustainability of the water supply.

- focusing too much on women only might have an alienating effect on male community members, resulting in total withdrawal of responsibility on the part of men.

- extremely important is that women are given access to <u>all</u> information (plus explanation) concerning technology options and their financial and management implications in order to enable (empower) them to take informed decisions and influence decision making processes.

- collect information on community user groups and their potential conflicts. This should be included in the research activities of the Socio-economic unit. Requests for assistance might also be related to such problems.

- an estimated 30 % of all households is female headed. Female heads of households should be a specific target group, since they are often disadvantaged both in terms of income levels and in terms of access to male dominated decision-making structures.

The Programme could also benefit from better understanding the existing and potential role of men in water development. Which methods can be used to encourage men to take a larger responsibility in providing water for their families? Informal discussions with women informants (women's leaders for example) and focus groups could be a good method to collect information. Cultural and economic variations should be taken into account.

10.TRAINING AND HUMAN RESOURCES DEVELOPMENT

The recently developed Programme policies concerning human resources development and training seem very much in line with the proposed strategies for Phase IV. Sofar training has been almost exclusively provided in the form of centrally organized formal workshops: technical and management skills training of pump attendants and water committees; technical training of locational repair men etc. These workshops are planned on a yearly base and leave little room for synchronizing with individual community processes and needs.

Some of these new developments are the following:

* decentralisation of training activities. Provincial level staff will reduce its responsibilities for direct training of community members. They will mainly function as trainers of trainers (TOT's). District and divisional level staff will get more training tasks.

* decentralisation of training planning. The planning of training activities will also be decentralised from provincial to district level

* changing training methods. It is foreseen, that in the future more emphasis will be put on the job training and follow up instead of formal workshops, which have limited sustainable results

* training of private contractors. The Community and Training Department is supporting the general policy of privatisation by organizing training for mobile team members to become private contractors. Collaboration with the Chamber of Commerce is established in order to improve their business skills. The number of mobile technical teams will be reduced significantly in the near future.

* staff training. Staff from the Ministry of Water Development at Provincial and District level will receive a training in management skills (supervision) from a national consultant firm mid 1992. This is to support the overall decentralisation policy of the Programme.

All these trends are very positive and need further elaboration during the next Phase. The following aspects might need further consideration:

Training of extension workers
Not yet foreseen, but critical is the need for more and better training inputs by extension workers at grass root level. In view of their responsibilities in the new Programme approach CDA's and PHT's involved in the Programme will need more training.

Orientation training of all Programme staff
A part of the Programme staff has rightly expressed the opinion that the new approach requires a thorough preparation of all staff. It will be very useful to organize training workshops for all staff at all levels (national and expatriates; WD,SSC and PH) at the beginning of Phase IV to make every body familiar with the new approach and to change attitudes accordingly. The demand driven approach, the process approach to assistance, procedures, guidelines and participatory communication techniques are important elements for such workshops.

Training and public information material development
Various sorts of training materials will need to be developed during Phase IV:

- public information package

In Annex 5. some suggestions are given for the outline of a public information package on the Programme.

- manuals for extension workers

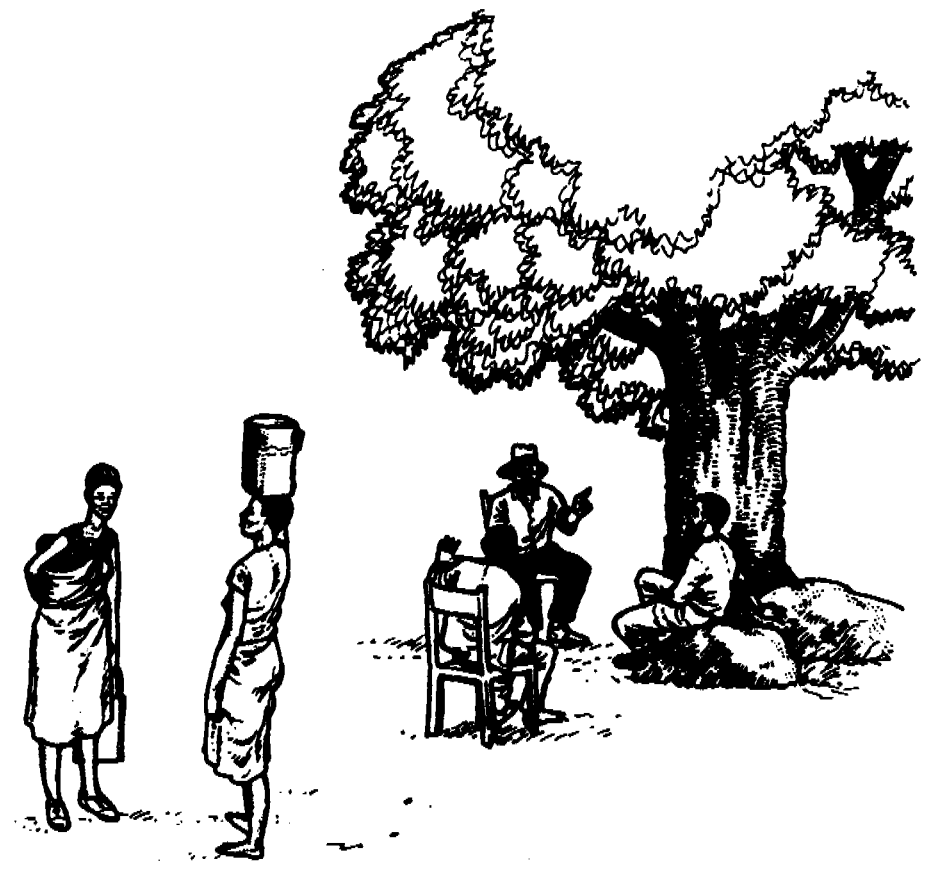
1. A general 'water advisers manual', which could include information on Programme procedures and package of services; tasks and activities in the assistance process; basic support and problem solving skills concerning operation and maintenance and community management (record keeping etc.) to assist communities; basics of hygiene education; participatory communication techniques etc.

2. Specialized manuals in the field of hygiene education, operation and maintenance and community management are already to a certain extent available, but might need modification. Close collaboration with the Primary Health Care Programme will be useful in this respect.

Annex 1

KENYA–FINLAND
WESTERN WATER SUPPLY PROGRAMME

MID-TERM REVIEW



DRAFT REPORT

EXECUTIVE SUMMARY AND SUMMARY OF RECOMMENDATIONS ONLY

EXECUTIVE SUMMARY

Mid-term Review

The Kenya-Finland Western Water Supply Programme partially covers four districts in Western Kenya with a population of 1.7 million in its command area. Its overall objective is to improve the water supply situation in the Programme area in order to achieve an improvement in general health and economic development.

In the present four-year project phase the Programme is supposed to increase the population it will cover with adequate water supply by 400'000 at the end of 1992.

A complementary objective is that of consolidation of the existing water supply facilities.

The provision of safe and sustainable water supplies is a stated objective. The high physical targets are however in contradiction with consolidation and instead tend to lead to a focus on numbers rather than on real achievements in terms of quality and sustainability.

The Programme has been quite successful in ensuring coverage in a physical sense. In previous phases the Programme has completed 2367 water points, which are assumed to serve some 470'000 people. Several new and rehabilitated piped water supply schemes have brought adequate water supply to another 100'000 consumers.

The technical components of the Programme have since 1986 been complemented by a large community development and training effort. A greater participation of the beneficiaries in the establishment of improved water supply points is expected to lead to the assumption of village level responsibilities for operation and maintenance of the supplies. To ensure a larger degree of financial resilience at community level the Programme also encourages income generating activities.

The mid-term review covered all aspects of the Programme but emphasis is placed on institutional development, training and manpower development, as well as community-based management and cost recovery. These programme aspects are discussed with respect to their impact on the eventual sustainability of the projects completed.

Strategy for Sustainability

Sustainability encompasses aspects of durability and continued functioning, renewal through good husbandry and planning of available resources, and possibly even self-sufficient extension of the original project to cater for new demands, as well as aspects which provide for a sustainable and effective utilization of the supplies.

At community level this means that the water supplies constructed or improved should continue to give the expected service and be consistently used on a year-round basis also in future.

At Programme level, sustainability means that activities now carried out by the Programme should be institutionalised in permanent institutions or agencies that can continue to perform present Programme activities well into the future.

The Programme has been active at both the community and programme level in developing strategies and methodologies that are conducive to achieving the sustainability.

Sustainability is an elusive concept that requires concerted and goal-oriented action on many aspects. Interrelationships and the relative importance of each activity need to be understood by those who develop the implementation strategy. A critical path leading to sustainability needs to be developed. On average the implications of working towards sustainability are inadequately understood resulting in actual programme strategies that do insufficient justice to the sustained functioning and continued utilization of the facilities.

Traditional concepts of efficient utilization of equipment and technical manpower resources sometimes clash with the needs and importance of restraint dictated by the critical path towards sustainability. This is a tension that the Programme is daily struggling with. The issue of numbers versus sustainability should continuously be evaluated by all partners in this Programme: MOWD, MCSS, FINNIDA and KEFINCO! As the leading partner in the Programme, KEFINCO is required to propose timely adaptations in the various work plans.

In phase III considerable human and material resources are being invested in the preparation, organization, education and training of the communities. These activities are indicative of the importance attributed to the "software" inputs of human resource development, training and community education and participation - all measures necessary to improve the community-based management aspects of the Programme.

However, effective utilization and sustainability of the installations once all Programme assistance ends, requires additional efforts to ensure user satisfaction and acceptation, hygienic and consistent use of the supplies, empowerment for community-based management, affordability of the water tariffs, decentralized spare parts, facilitation for additional water point facilities and for income generating activities.

Strategies for Capacity Building

Strategies for capacity building of professional staff of MOWD, MCSS or the Programme are weak and vague in the Programme document. Due to the delays in the finalisation of a human resources plan, strategies and action plans have not been developed further. Objectives for capacity building need to be spelled out.

MOWD is contemplating a change of functional role from being a "provider" to becoming a "promoter" of projects. This change provides a challenge for the Programme not only in terms of the methodologies applied for project delivery, but also to produce a human resources development plan that does incorporates the additional skills needed by all Programme staff in communication and facilitation.

The Ministry of Culture and Social Services is becoming a major partner in the Programme. MCSS staff are assigned coordination and support tasks, and agreements are being formulated about the details and conditions of MCSS staff inputs. However a role in strategy development and guidance has sofar not been assigned. This should be remedied in a next Phase.

The Ministry of Health through the Kenya-Finland Primary Health Care Programme is supposed to provide support in hygiene education and hygiene education materials development. The Health Care Programme further promotes the construction and use of sanitary latrines by building demonstration latrines. Differences in focus (health care planning versus village level work) and in Programme area have sofar not made this collaboration very effective.

Wherever the necessary hygiene inputs are not being given, the Programme should make an effort to collaborate with other government or ngo programmes to provide these services.

Institution Building

No clear strategy for institution building has been spelled out in the Programme document. It will be necessary to determine for a next phase of the programme which sections of the programme could - with benefit - be (partially) institutionalised at district level and what strategies and support elements are necessary to achieve this.

A good start has been made in Phase III with decentralization towards the districts. The decentralization of technical programme activities towards the districts is progressing well. A similar decentralization of the community development and training activities is under way and needs to be institutionalised further.

The Kenya-Finland Western Water Supply Programme extends partially over four districts, Kakamega, Bungoma, and Busia in Western Province and Siaya in Nyanza Province. The fact that the Programme boundaries do not conform to the district boundaries causes all kind of smaller and larger communication problems at the district level. It hampers a good dialogue between the Programme and districts because it

is difficult for the district development committees to really coordinate the water supply development needs of the district with the Programme. For effective decentralization and application of of the water supply development plan (see below), it is necessary to conform the Programme boundaries with the district boundaries of the Western Province.

The absence of a strategy and action plan for institutionalization of Programme aspects and capacities in MOWD or MCSS, hampers the development of institutional capacities for sustained and autonomous continuation of Programme activities. This should be remedied as soon as possible but certainly before the start of the new phase.

Water Supply Development Plan

The Programme has produced the first draft Water Supply Development Plan for Western Province for the period of 1990-2005. The draft Plan gives clear indication that the approach of the Programme has been correct in emphasizing the development of point source water supplies and of the associated community-based management approaches. Public funds and the capacity of the MOWD are apparently not sufficient to undertake water supply development on a large scale and particularly to take care of operation and maintenance of water supply schemes in Western Province. Thus a larger role has to be played by community and private initiatives.

In the course of the preparation of the water supply development plan and also during the regular Programme work extensive mapping of ground water resources has taken place.

Point Source Water Supplies

Although the overall performance is impressive, the production during phase III is somewhat behind target. Around 20% less new projects have been constructed. On the other hand many more projects have been repaired than initially scheduled. For 1991 targeted output has been reduced by a good 20%. Even then production targets remain too high and need to be reduced even by another 40 to 50 % when taking into account the insufficient manpower resources available for community development and training and the continuing drain on technical implementation resources for rehabilitation and repair. Thus instead of the planned 283 water points, only the construction of around 150 water points should be foreseen in the 1991 Work Programme.

A reduction in physical targets will facilitate community mobilization, training for community based management and follow-up for maintenance and rehabilitation, and proper utilization of the water point sources. The reduction of targets should allow as well for a shift of the production of the water points to be demand driven rather than supply driven.

The procedures presently in use in the selection of the water points to be implemented as part of the Programme, reflect the supply driven approach.

A demand driven approach can be encouraged by a joint evaluation of local water problems and a discussion of possible solutions and their (financial) consequences. This will lead to a choice of technology and/or level of service reflecting the wishes and long-term organizational, management and financial strength of the community. As a matter of policy the Programme, in consultation with MOWD, should decide what choices can be offered in level of service and technologies used.

Additional facilities (laundry place, bathing place) will greatly contribute to better utilization and sustainability of system. The Programme should facilitate their construction by field testing and preparing type designs, and by training village masons to build these. These simple constructions should be commissioned by the community itself without Programme subsidies.

Standard designs for water points and some elements of piped supply schemes are now in existence in the Programme. Designs have been prepared by the design section some few years back. Designs are incomplete in terms of measurements and other information or details necessary for "fool-proof" construction. Most do not seem to have been cleared or approved by a design engineer. For good procedure this is however advisable.

The main concern of the Programme is the handpump. The Programme is presently using mainly three types of handpumps: Nira AF 85 direct action pump for shallow wells and boreholes (up to 15m), Afridev (15m - 45m), India Mark II in deeper boreholes.

The issue of village level operation and maintenance is linked with the spare parts distribution system and the ease with which parts can be obtained locally. To facilitate repair and access to spares, further investigation and testing of VLOM handpumps and their potential for local manufacture and distribution of spares should be undertaken by the Programme.

For shallow wells the Programme should test the feasibility of producing well rings for shallow wells at the community level. Providing opportunities to village level artisans to construct additional facilities to waterpoints, to build latrines and assist in the construction of shallow wells will increase the role of private entrepreneurs in the sector. By consequence this will have a positive impact on sustainability of water supply projects in many remote areas.

The Programme undertakes regular water quality testing of supplies. Results of the last one and a half year show that quite some springs, wells and boreholes contain faecal coliforms. The causes of these shortcomings are claimed to be for the greater part due poor construction and poor maintenance. However the average water quality of the waterpoints is still far better than the water delivered through piped schemes.

Operation and Maintenance

The Programme supports the operation and maintenance of community managed water systems by training pump attendants, local pump repairmen, (gradually) providing manuals for the different types of community managed water supplies, assisting through mobile teams in major repairs and providing the necessary spare parts. Support by the Programme has been substantial and has apparently enabled to maintain a high operational level of the water supplies.

One of the conditions for reliable and sustainable village level operation and maintenance is the ready availability of handpump spares. A more permanent spare part distribution system is required which would bring the spares near to the water points at an affordable price and in a continuous and timely manner. The issues involved in a decentralized and commercially viable distribution system need to further considered.

The Programme provides rehabilitation support to the MOWD piped water supply schemes. Sofar this activity has not borne much fruit.

Training and Manpower Development

During the last year the Programme has been working on a human resources development plan. This HRD plan should adequately reflect the needs of the Programme now and in the next few years in terms of technical staff, community development and training personnel, locational level extension workers etc. Sofar this plan has not been approved for finalization by MOWD.

The programme provides training opportunities to MOWD staff attached to the programme, to contractors involved in the construction of various water points and to locational repairmen. At community level it services training for locational leaders, pump attendants and well committee members

Community Development and Community-Based Management

The implementation of a more in-depth community participation strategy is required for an acceptance of the facilities, their continued utilization and a community based management system. The required more intensive mobilization efforts and the need to synchronize technical and social activities in a project site, put a severe strain on the limited manpower resources of the community development and training section. In addition there is the backlog of "social repair" work caused by the late start of community mobilization activities in the programme. Consequently only the construction of around 150 water points can realistically be undertaken in the 1991 Work Programme.

The supply-driven approach which is presently applied is limiting the community's involvement in the very essential decision process as to what type of water point the community should receive. It is, in fact, this very process which is supposed to promote community participation and bring about an effective utilization of the water points and an increase in water consumption. This in turn will positively influence the willingness to contribute and pay the water tariffs and ultimately lead to the community's assumption of responsibility and ownership of the water supplies.

Cost Sharing

The community's ability to support the long term recurrent maintenance costs of a water supply system will decide whether the water supply will remain in good condition and will continue to satisfy the needs of the population. Women are often those responsible for paying the recurrent maintenance costs, which makes their access to cash critical to sustainability. Methods to ensure proper accountability for water charges collected at the village level and ability/willingness to pay set tariffs remain issues for further investigation.

The programme has recognized the precarious financial situation of many of the consumers, with particular emphasis on women, and has been reasonably successful in developing strategies to broaden the economic base of individual users and, by inference, the water supply project.

Hygiene Education and Sanitation

Health/hygiene education and sanitation are needs and concerns that are complementary to the water programme and need to be taken up by the Programme if it is working towards sustainability and health impact.

Opportunities have been missed for using hygiene education as a promotional tool not only for improved hygiene practices but also for motivation for water supply improvements.

Collaboration exists with the KFPHCP on the construction of demonstration latrines. However as these latrines are hardly low-cost, replication of this type of latrine is limited. The Programme should develop some low-cost models and promote these in its projects.

The community health care programme run by the Mumias hospital is discussed as an alternative approach to encouraging community self-improvements in water and environmental sanitation.

Monitoring and Reporting

According to the Programme Document a monitoring programme will be an intrinsic part of the third Phase. The consultant is supposed to propose a methodology for collection and analysis of baseline data which in turn can be used to establish indicators for the achievement of health and economic benefits.

Monitoring and reporting system functions reasonably well for technical aspects. For community development and training activities it does not exist. Sofar the development of a monitoring programme leading to impact measurement has not been taken in hand.

During Phase III computerisation has successfully been started.

Records management and documentation is poorly organized in the Programme. This may cause problems when Programme activities are ultimately handed over to the district level. The planned resources centre that would be established between the water Programme and KFPHCP, for joint material development and as a centre for technical information, has sofar not been established.

Costs and Financing

The Programme budget is prepared as a part of the annual Work Plan.

There appear to be considerable differences between the budget estimates and the actual expenditures indicating shortfalls in work planning and budgeting.

Unit cost wells, boreholes and springs have increased considerably in Kenyan shillings terms between 1986 and 1990. Costs have more than doubled. This increase is probably caused by the still relatively large overhead cost of around 25-30% added on to the cost of constructed facilities, and the utilization of imported handpumps and spares.

The programme should consider ways to reduce the overheads by investigating Kenyan alternatives for the provision of particular services and products.

Environmental Aspects

The issue of environmental consequences caused by Programme activities was addressed during the AMREF field survey. Though some erosion and stagnant water was seen near water points, no major environmental problems were encountered.

Work Plan 1991

The draft Work Plan for 1991 was produced in December, 1990 but has not been approved yet because the findings of this Mid-Term Review will be considered in the final version. The mission has reviewed the Work Plan and provided comments.

In comparison to the preceding phases, (1981-1988) a marked improvement can be seen in the planning, design and implementation of Phase III. In comparing the third implementation phase's objectives, its indicators of success and their relationship to the programme's activities, it is clear that serious attempts have been made to incorporate many of the lessons learned from the preceding phases into the design of the third phase. This shows an increased appreciation of the complexity of this type of rural development programme, auguring well for the chances for future adaptation and synchronization of programme activities for sustainability.

15 SUMMARY OF RECOMMENDATIONS

Only the major recommendations are listed below. The texts of this document, and the two accompanying volumes 2 (AMREF report) and 3 (Mid-term Review Workshop) contain many more recommendations and remarks which should also be taken into account when the Programme is finally deciding on implementation of particular recommendations (refer to annex 4)

These recommendations are made with a view to not only improve the implementation of the ongoing Programme, but also to develop, experiment and test out new approaches in both 'software' and 'hardware' which will have wider replicability on a national scale for the rural water supply sector in Kenya.

15.1 Remaining Project Period 1991-92

Recommendation 1

The selection procedure for the allocation of water points should be reversed so that the decision making process is from the 'bottom (community level)-up and is based upon the felt needs and choices of the intended beneficiary communities.

Recommendation 2

The allocation and selection of the number and type of water supplies/points should also reflect the specific demographic, spatial distribution, socio-economic, institutional and technical characteristics of each district.

Recommendation 3

Effective synchronization of the technical and social components is essential to a water project.

Strictly following the workplan's targets has resulted in an overemphasis on physical output. Instead project management should monitor overall programme progress - both technical and social - and adjust the implementation speed in a flexible way.

Recommendation 4

Programme management should develop and implement mechanisms which permit the women and men in the communities to be partners with the Programme in the decision making process concerning the choice of type of water points and the level of service (including siting).

The implementation of this 'demand-driven' participatory process will require the following:

* drawing up a protocol which defines the decisions open to community choice, and
* preparing a detailed work plan specifying how the software and hardware components will be woven together and who will be responsible for what, when and where.

Recruitment and training is urgently needed to ensure that each of the 54 locations has a full-time locational representative.

Recommendation 5

In view of the crucial role these extension workers have to perform in the implementation of the Programme's community development activities and the heavy workload which is foreseen for them, this task can not be carried out by voluntary workers on a part time basis. Henceforth the position of locational representative should be a salaried and a full-time one. The working conditions/ salaries of all the locational representatives should be standardized and uniform.

Recommendation 6

Top priority should be given to procuring the additional necessary manpower via women' groups, district Community Development offices, etc. Agreements must be reached with the Programme's partners at national and district level (MCSS, District, County Council) to procure the necessary manpower on a salaried basis. All efforts must be made to ensure the funding for all locational representatives' salaries throughout the duration of the Programme.

Recommendation 7

Unless a location has a locational representative who can perform community mobilization and extension work in the project communities, no construction work should be scheduled in that location.

Recommendation 8

Priority should be given to providing training to the communities with water points recently completed so as to allow for a coordinated sequence of the technical and social aspects of the water point: siting, community development, construction and training activities for community based management.

The survey findings have revealed that a large number of the water point attendants and executive committee members still remain to be trained. In addition refresher training and skills-upgrading in financial managment, bookkeeping as well technical skills in operation and maintenance is required for many of the committees and attendants already trained.

Recommendation 9

The location, duration and content of the training workshops should be arranged (and timed) so as to encourage women's full attendance, taking into account their workload, the agricultural calendar and women's availability of time.

For sustainability to be achieved the construction pace has to be slowed down to allow for the Community Development and Training Department to properly prepare, sensitize and organize and train the community.

This means that the rate of construction needs to be reduced considerably.

Recommendation 10

A reduction of the number of water points constructed or rehabilitated during the remainder of 1991 and Phase III is considered necessary in order to adjust the implementation speed so that three essential goals can be reached:

* synchronization of the social and technical components;
* consolidation of the existing water supply facilities and committees and
* a proper delivery of the community mobilization and training inputs for the embedding of the new water supply facilities.

Recommendation 11

Hygiene education must be provided, not only prior to construction, but also at regular intervals after the improved water and sanitation facilities are in use. The Programme should collaborate with the health personnel (government or ngo) in the Programme area in order to ensure that the necessary health inputs are provided to the communities. This measure is instrumental for bringing about utilized and sustainable water and sanitation supplies.

Recommendation 12

Much of the construction of the water points is subcontracted to local contractors who are trained by the Programme. An inadequate system of checks and balances is currently applied.

Supervision and quality control by the Programme to ensure that the contractor's work meets specified standards, before the water points are handed over to the communities, needs to be strengthened.

Recommendation 13

A large number of the contractors working with the Programme do not reside in the Programme area and consequently there is a strong likelihood of their outward migration. Efforts must be made to recruit and train local contractors residing in the Programme communities so as to transfer skills and technology to local manpower and provide the communities with a readily resource which they can employ to carry out the upkeep of their water supplies.

Recommendation 14

The Programme has a facilitative role in promoting and providing technical assistance for the construction of appropriate low-cost additional facilities (e.g. laundry facilities, bathing hides, animal drinking troughs) in order to enhance utilization of the water supplies. The Programme's role can be that of developing and pre-testing models in consultation with the community and training local masons who can be contracted and paid by the communities.

Recommendation 15

In view of the many training activities that will need to be set up for the intensive training for community based management, and the additional staff training in communication and facilitation, it is recommended to retain the post of expatriate training officer. Alternatively a well-qualified "heavy" Kenyan professional could be recruited for this post when the present incumbent leaves his post.

Recommendation 16

The Programme should further examine the issues involved in village level operation and maintenance of handpumps. Selection and testing of VLOM handpumps and their potential for local manufacture and spare parts distribution should be investigated.

Recommendation 17

In order to put into place all the elements necessary for an operational community based maintenance system before the end of Phase III, it is recommended that a spare parts distribution system should be set up and functioning by the end of 1992.

Recommendation 18

The Programme should focus its facilitation on two areas of latrine construction. First of all the Programme should work together with KFPHCP to develop guidelines and clear drawings for the construction of low-cost latrines. Furthermore, opportunities should be provided for village masons to learn how to construct these latrines.

For good follow-up to project monitoring data collection and evaluation now taking place at district level needs to be refined and enforced. Proper procedures for integrating monitoring data into the main database need to be established inasfar as these are not existing already.

Recommendation 19

A workable database for monitoring community development, socio-economic and health indicators will need to be established urgently!!

Recommendation 20

The decentralization process should be pursued with continued vigour. Progress has been made but still quite some work is needed to effect the full integration of Programme activities into the district. This will also mean an increased involvement and responsibility on the part of the District Water Engineer, the Social Development Officer and the District Development Committee.

Decentralization to the district level of the actual data management and reporting will be instrumental in strengthening the district level involvement.

Recommendation 21

The Programme should try to identify opportunities for further short-term courses on particular "burning" Programme issues to expose (associated) staff to new development and experiences. In additions study visits to projects in Africa that are known to have tackled particular problems currently confronting the Programme would be most inspiring: putting into place community based management and maintenance, (commercial) spareparts distributions systems, local manufacture, integrated water, sanitation and health programmes.

Recommendation 22

The Programme should put a greater emphasis on experimental work, e.g in the areas of water technology (slow sand filtration, handpumps, casting of well-rings on site), community management (different methodological aspects, different scenarios for choice and incremental community self-improvement, options for the development of small piped schemes, even when pumped), and in the use of private services for transport, maintenance and repair of piped schemes). This field testing of different technologies and implementation methodologies and the subsequent dissemination of the results, will carry extra weight due to the leading role of the Programme in the water supply field in Kenya.

Recommendation 23

To continue to ensure a good liaison between the various partners in the Programme the post of the Finnish Programme Coordinator in the MOWD headquarters should be retained. In addition to his regular advisory role towards the various actors in the Programme, the FINNIDA coordinator could increasingly play a information exchange role in promoting proven approaches and methodologies applied by the Programme within the Ministry as well as towards other Kenyan water programmes.

There is a need to look into traditional arrangements for men and women paying and managing water systems and for a long term perspective which attempts to sensitize men and bring about a mentality change. In the traditional gender division of household responsibilities men are responsible for the household's investment cost and women for recurrent cost. Payment of O & M costs contributes to the life expectancy of the water supply and is an investment in the sustainance of the water point. Viewed in that way, O & M costs could well be considered the male financial responsibility or at least a shared gender responsibility and not as is presently the case, largely the woman's financial burden. Translating O & M cost into a monthly water tariff may well have the effect that women, more than men, are required to pay the charges for the water facility.

Recommendation 24

As an immediate measure, it is recommended that the Programme carry out affordability studies in the communities to determine who is actually paying the water tariffs and whether they have sufficient income to do so. If men are found to shoulder less of the recurrent cost burden, the studies should suggest ways in which the male share in contributing to the operation and maintenance can be increased.

The Socio-Economic Section, assisted by an outside Consultant, has prepared a report on women group's profitable income-generating activities. The recommendations contained in the report are excellent and provide practical measures which if applied would go far in assisting the women groups with the inputs (business/management training, training in carrying out marketing and feasibility studies, agricultural extension services, credit and loan facilities, distribution and marketing facilities, etc.) and resources they require to engage in profitable and productive economic activities.

Nevertheless, the inputs necessary to implement the recommendations contained in this report go beyond the scope of the Community Development and Socio-Economic staff.

Recommendation 25

For this reason it is recommended that the Programme be assisted by short-term (one year) Technical Assistance in the form of a female Coordinator who would inventorize all on-going programmes and projects in the Programme area (government, ngo, etc.) providing agricultural, fisheries, livestock extension services, credit facilities or other inputs and services aimed at improving women's income base.

Based upon the results of this inventory, the Coordinator could act as a resource person and collaborate with other government agencies, ngo's and donors active in the Programme area in order to provide the specific services, activities and inputs individual women and women's groups and cooperatives will require in order to engage in profitable (and feasible) micro-enterprises and income-generating activities.

Recommendation 26

Given the strategic importance of women having access to sufficient financial resources to undertake any activity, FINNIDA should consider the possibility of setting up (either on its own or in collaboration with another donor or ngo) the provision of credit facilities and loans specifically adapted to the women's needs and constraints.

Recommendation 27

The Government of Kenya should be urged to bear its responsibility as a Programme partner and provide their financial and manpower inputs fully and promptly.

15.2 Future of the Project

The mission has understood that FINNIDA is considering of decreasing and eventually stopping the support to the water supply sector in the present Programme area. Considering the present high level of the inputs and activities it felt that the winding up of the Programme should be slow and gradual.

Recommendation 28

The activities to be continued during the next phase (1991-96) could be community support, training and O&M support whereas the actual implementation could quite rapidly come to an end by the middle of the phase. It is further envisaged that some support may still be needed after 1996.

The mission has further learned that FINNIDA is considering support to another rural water project in Kenya. The mission is also aware that there are suggestions that the future project should be of similar nature and cover areas around the present Programme area. It is felt that the above suggestions are reasonable and great savings in time, effort and money can be utilized by the future project. The consolidation and winding up of the activities in the present Programme area would also be easier.

It is suggested that following aspects are taken into consideration when defining the scope and contents of the next project:

Recommendation 29

- The project area should not be too big - if need arises it can be expanded later. It would be natural to include in the project area the remaining parts of the Western Province. The possible expansion areas should include whole administrative districts which do not have any major ongoing water programmes. These could be Nandi and Uasin Gishu districts.

Recommendation 30

- The present approach of supporting community managed, appropriate and affordable water supplies should be retained but more emphasis should be given to the "support" aspect rather than "implementation". This means that the project should be demand driven supporting those who through their own initiative want to improve their water supply rather than following some predetermined programmes and targets.

- If the above demand driven approach is not adopted, the supply driven approach which is presently applied will only lead to high physical targets and, in practice, to "forced" community mobilization.

Annex 2.

Annex 2

1

DRAFT 24.4.1992

TERMS OF REFERENCE FOR THE APPRAISAL OF PHASE IV OF THE KENYA-FINLAND WESTERN WATER SUPPLY PROGRAMME

1. BACKGROUND

Development of rural water supply is one of the areas emphasized in the Finnish development assistance programme in Kenya, since the programme strategy concentrates on improvement of the living conditions of the rural population and enhancement of their livelihood.

Accordingly, Finland has financed and implemented a Water Supply Programme in Western Kenya since November 1983, as follows:

-- Phase I: November 1983 - December 1985;
-- Phase II: January 1986 - December 1988; and
-- Phase III: January 1988 - December 1992.

Phase I was preceded by an Investigation and Planning Phase from February 1981 to October 1983.

The total cost of the Programme by the end of Phase III (December 1992) will be approximately FIM 262.6 million. The Programme has produced over 3200 new point source water supplies (protected springs, wells and boreholes) and 17 piped water supply schemes and rehabilitated 12 piped schemes, thus providing improved water supply for more than one million people in Western Kenya.

In the course of the implementation of the Programme there has been a gradual shift in the planning and implementation strategy followed. The scope of the programme activities has expanded, with an emphasis on community involvement in planning, implementation and maintenance of the improved supplies. However, the Mid-term review of Phase III, carried out in early 1991, still stressed that further integration of the Programme activities into the existing Kenyan organizational set-up and more community involvement and ownership of the water supply facilities is required before any long-term sustainability in terms of the improved water supply facilities or institutional development can be achieved.

Therefore, a Project Document for Phase IV of the Programme has been prepared with the aim of finalization of the Finnish involvement through a gradual consolidation of the activities, and phasing out the assistance by completing the institutionalization and integration of the activities in the present programme area. Because of the low level of the improved water supplies an extension of the programme to the remaining parts of the Western Province has been considered. It is argued that expansion of the programme to cover entire administrative areas, such as the Western Province would enhance the process of institutionalization and integration into the present administrative set-up in line with the present district focus policy.

2. THE PURPOSE OF THE APPRAISAL

The mission is requested to appraise the appropriateness of the proposed policy, objectives and approach for Phase IV and to revise the objectives proposed in the draft Project Document for Phase IV, as well as the activities and resources needed for achieving the objectives considering the issue of long-term economic and environmental sustainability and increasing local participation.

The appraisal mission is requested to present FINNIDA with its assessment of the consolidation requirements and the subsequent need for FINNIDA support, as well as its assessment of the rationale in expanding the programme simultaneously to cover whole Western Province.

On this basis the mission should present FINNIDA with a report of its findings and finalise the Project Document for the consolidation Phase (Phase IV) of the Kenya-Finland Water Supply Programme in Western Kenya.

3. SCOPE OF THE WORK

The mission shall make an assessment of the overall policy, the strategy and the actions envisaged to implement the strategy. It shall indicate realistic targets for water supply development, human resource development, institution building, community development, cost recovery, communication and hygiene education. It will make an estimate of the activities needed to achieve such targets in terms of construction capacity, personnel and operational requirements. These activities will be viewed against the background of a range of physical and socio-economic baseline studies, human resource development, water resources management (at local and distric level), gender issues and environmental concerns. The result of the activities proposed for Phase IV should be an increase of coverage in water supply and sanitation in rural areas and in urban piped schemes that are sustainable and functional with respect to acceptability, to cost sharing, to proper utilization and sharing of water resources, to community management, to institution building and human resources.

4. ISSUES TO BE CONSIDERED

1. Demand Driven Approach

The demand driven approach will require a restructuring of programme inputs to allow such a demand to come about. Procedures, staffing, institutional aspects and training needs have to be reviewed in that light. The mission will clarify the issues involved and detail the consequences for the Programme.

2. Choice of Technology and Implementation

Boreholes, shallow wells, protected springs and piped schemes have been constructed by the Programme. What are the effects of a possible greater degree of privatization of construction? Which effects will that have on the share of various technologies? What is the potential of shallow wells dug by community labour with a private contractor and with only material assistance from the Programme? What technologies could

be employed by the Programme to enhance output in water supply facilities and sanitation, while maintaining quality of construction?

What are the prosedures and criteria to be used in assessing the feasibility and sustainability of proposed construction? How is the prepardness of the community to take care of the water supply facilities in a demand driven approach evaluated? How is the decision to start implementation arrived to?

3. Institution Building

Institution building has to take place at two levels:

* Integration of the Programme approach at the district level through the District Council, and in particular with respect to the relationship between the Ministry of Water Development, the Ministry of Culture and Social Services, the Ministry of Health, and possibly other relevant district level agencies and NGO's.

* Establisment of a community-based management structure in which - possibly with support from higher level government agencies and non-governmental agencies - O&M, cost recovery and other beneficial community undertakings can be generated.

The mission should consider these two aspects and propose suitable measures that might engender the necessary institution building.

4. Gender Issues

Women are normally playing an important role in water supply and sanitation projects. In respect of taking responsibilities, cost-recovery and O&M, which are the roles that could be played by each gender in order to ensure equity in access, utilization and decision-making with respect to the facilities?

Which additional physical facilities could be built to enhance the degree of utilization of the water points and piped supplies constructed by the project?

Which socio-economic developments should/could take place to create additional economic gains through the provision of water?

5. Human Resources Development

Procedures and guidelines are needed to back-up the demand-driven approach, a gradual change of attitude needs to take place among Programme staff, government staff and beneficiaries to be real partners in the new situation.

What is the trainig that is needed to ensure adequate capacities among all partners to avail of the opportunities offered by the demand-driven approach?

Which additional technical training is required to ensure utilization of appropriate technologies in well and latrine construction within the project area by private contractors?

6. Operation and Maintenance

Which operation and maintenance systems are existing for point sources as well as piped schemes? Can these be considered

sustainable when the Programme ends? Which arrangements are made for the provision of spareparts? Are there options to simplify O&M requirements through use of appropriate technologies, through organizational adaptations, through greater community involvement? Which responsibilities for O&M can be transferred to the community?

7. Expansion

An expansion of the project area is foreseen to the remainder of the Western Province. Is the expansion warranted in view of the development result that is to be expected. Which health and economic benefits are to be expected from this expansion? Which results might the expansion have with respect to regional development in Kenya?

8. Water Resources Management

It seems that water resources are not at issue yet in the Programme area as it has abundant rainfall. Even then at least in certain areas, temporary water shortages or competition for water have been noted (by the mid-term review). It, therefore, seems opportune to consider the issues involved in water resources management, as these have been laid down in the procedures for district water development as well as at the local level. The mission should attempt to indicate, which measures and procedures should be incorporated in the Programme in the order to ensure an equitable use of water, both at district as well as at local level.

9. Health Status

Adequate attention should also be given to creation of conditions in which health benefits derived from water and a higher standard of living can be realised. Hygiene education and improvements in household sanitation are essential in order to achieve this.

Which activities should be developed in order to establish an effective hygiene education programme?

What kind of expertise is required, and how can best use be made of the existing resources?

Which activities need to be developed for sanitation improvement in order to ensure a greater and more effective coverage by sanitary facilities?

10. MOWD and NWCPC Piped Schemes

Many piped schemes are in poor shape. Some need rehabilitation of the distribution network and the treatment system. Which technical options are feasible for improvement of the schemes? What should be the institutional procedure between the Programme and the MOWD and NWCPC in order to ensure such rehabilitation?

How can cost recovery and O&M of these piped schemes be improved? What is required for making these schemes financially self-sufficient in the future?

11. Information management

Recording of well-data, project implementation data, and

geo-hydrological data is essential for proper resource management within the Programme. Which data should be recorded to monitor progress in community involvement and the impact of hygiene education? Which reports are necessary in order to assess Programme development? Which data should be shared with the community; and which with a national database?

Which project training manuals and community awareness building material should be prepared? Which background information is needed for that?

How is the Programme registry, the project documentation and the project drawings maintained for use by the Programme, by the district and by other potential users?

12. Costs and financing

The earlier items list questions that need to be addressed in the course of the mission. Many of the answers to these questions will lead to activities that need to be costed and for which a cost-benefit analysis has to be carried out.

What are the minimum costs of the planned activities and who will generate these? How much funds are needed to run individual projects after completion of Finnish inputs and can the sustainance of these projects be ensured by the Kenyan authorities or by the communities themselves?

Are inputs cost-effective? What possible spin-offs are to be expected?

13. Other Issues

Environmental degradation is an issue in an area that is gradually getting overpopulated. Watershed protection, protection against pesticide run-off, afforestation to retain water yields in sources are issues that need to be addressed, and in particular in the context of spring protection and piped water supplies taking water from hillsides

5. MISSION COMPOSITION AND SCHEDULE

The mission, including Mr. Han Heijnen, Senior Civil Engineer, IRC/Netherlands, the Team Leader; Mr. Isaack Oenga, Sanitary Engineer, AMREP/Nairobi; and Ms. Evelien Kamminga, Social Scientist, IRC; with back-up support provided by Mr. Phil Evans, Expert in Community based management, IRC, will visit Kenya from May 7 to 26, 1992 according to the tentative schedule attached. It will present its report and project document to FINNIDA by June 5, 1992.

While in Kenya, the mission will be joined by Mr. Eero Kontula, FINNIDA Advisor on Water Supply Development, as a Resource Person. The Government of Kenya is requested to nominate as its representatives experts with the following specialisation:

-- Ministry of Water Development (MOWD): Senior Planner/Engineer;
-- Ministry of Culture and Social Services: Senior Community Development Specialist/Expert in Community Economic Development;
-- Ministry of Health: PHC/Institutional Development Expert.

6. AUTHORIZATION

Although the mission is entitled to discuss with the authorities concerned any matters relevant to its assignment, it is not authorized to make any commitments on behalf of the Government of Finland.

Helsinki,

Kalevi Ahti
Director
Division for East, West and North Africa
FINNIDA

Annex

The following tentative timetable is proposed:

Thursday May 7 Friday May 8	Discussions in Nairobi Embassy of Finland, MOWD/MCSS
Saturday May 9 Sunday May 10	Transfer to Kakamega Rest
Monday May 11	Visit to Provincial Governor and preparation of district level missions
Tuesday May 12 troug	Visit to each of the districts involved, and meetings with project related district level personnel.
Friday May 15	Field visits
Saturday May 16 Sunday May 17	Team review and plannig for second week Rest
Monday May 18 through Friday May 22	Specific tasks and visits Discussions with project staff, review of recent activities, preparation of draft document
Saturday May 23 Sunday May 24	Team review and discussions of draft Return to Nairobi
Monday May 25 Tuesday May 26	Debriefing to Embassy of Finland, MOWD/MCSS Submission of preliminary draft. End of Mission
Friday June 5	Submission of report project document to Finnida

Annex 3.

KENYA-FINLAND WESTERN WATER SUPPLY PROGRAMME
APPRAISAL PHASE IV

PROGRAMME

Thursday May 7, 1992

07.00	Arrival of appraisal mission in Nairobi Ms.Kamminga/IRC Mr.Kontula/FINNIDA Mr.Heijnen/IRC
11.00	Briefing at Embassy of Finland Ms. Visuri, Councillor Ms. Maenpaa, First Secretary (Development) Mr. Oenga/AMREF
14.30	Ministry of Health Mr. Kirruti, Foreign Aid Coordinator Mr. Ajode, Senior Public Health Officer Mr. Gathiiki, Senior Public Health Officer Mr. Kariuki, Public Health Officer Mr. Walukano, Project Manager KFPHC-P Mr. Kewer, Public Health Officer KFPHC-P

Friday May 8, 1992

09.00	Ministry of Water Development Mr. Mwongera, Director of Water Development Mr. Makokha, Deputy Director
14.00	Ministry of Culture and Social Services Mr. Chemoiya, Commissioner for Social Services Mr. Syeunda, Assistant Commissioner Mr. Righa, Senior Social Development Officer
16.30	Round-up discussion at Embassy of Finland

Saturday May 9, 1992
Transfer to Kakamega

Monday May 11, 1992

08.30	Briefing by KFWWS-P project manager
10.30	Briefing by KFPHC-P project manager
14.30	Finalization of field programme and initial discussions with Programme staff
19.00	Reception hosted by the Embassy of Finland

Tuesday May 12, 1992

08.30	Courtesy call to Provincial Commissioner Western Province, Mr. Francis Lekolool

10.00	Discussions with Provincial Water Engineer, Mr. Munene and staff of District Water Engineer's Office Kakamega
14.00	Field visit to Navakholo piped water supply scheme and health centre

Wednesday May 13, 1992

08.00	Field visit to Bungoma district
10.30	Courtesy call to District Commissioner Mr. K.M.Rintari (acting)
11.00	discussions with * DWE, DDDO and programme staff at district level * DPHO * DSDO
13.00	Lunch
14.00	Visits to Chesakaki piped W/S, Chwele H/P, Webuye piped W/S

Thursday May 14, 1992

08.00	Field visit to Busia district
10.30	Courtesy call to District Commissioner Mr. Benjamin Rotich
11.00	discussions with * DPHO * DSDO participation in monthly coordination meeting chaired by DWE, and attended by Programme staff from Kakamega and Busia
14.00	Visits to Busia-Mundika piped W/S, protected spring and H/P
16.00	Visit to Ugunja/Siaya district Discussion with DWE Siaya and staff Field visits washed out by heavy rain

Friday May 15, 1992

08.00 - 17.00	Discussions with Programme staff in Kakamega Study of documents Visits to various Programme sections and workshops Further discussions with KFPHC-P

Saturday May 16 and Sunday May 17, 1992
Study of Programme Documentation

Monday May 18
Tuesday May 19
Brainstorming sessions on institutional components, selection procedures and promotional efforts related to the implementation of an demand-driven approach.
Mr. Musyoka/MOWD
Mr. Ajode/MOH
Ms. Odek/MCSS
Mr. Hakkinen/Kefinco
Mr. Oenga
Mr. Heijnen

Report writing Mr. Kontula

Community development/training Ms. Kamminga

Wednesday May 20, 1992

09.15	Visit to Vihiga district
10.30	Courtesy call to District Commissioner Mr. D.M.Mwangi
11.00	Discussions with DWE
12.30	Continuation of discussions in Siaya, Siaya district with DWE, DDDO and DPHO
	Report writing Ms.Kamminga

Thursday May 21, 1992

09.00	Visit to Lake Basin Development Authority, Kisumu Mr. Klein, project manager Mr. Ondera, geohydrologist [Heijnen,Musyoka]
14.00	Participation in siting meeting, East Marama Ms. Kamminga
14.00	Field trip to Webuye Mr. Ajode, Mr. Oenga
19.00	Meeting with Provincial Director MCSS on possible inputs Department of Social Services Mr. Obaga Ms. Rufina Ms. Odek

Friday May 22, 1992

08.30	Study of documents and final discussions
14.00	Debriefing in the conference room of PFPHC-P Provincial water engineer and staff, DWE Busia, Senior programme staff of KFWWS-P, KFPHC-P
16.30	End of mission in Kakamega

Saturday May 23 Report writing

Sunday May 24, 1992 Transfer to Nairobi

Monday May 25, 1992

08.45	Embassy of Finland - Courtesy call to the Ambassador - Debriefing
14.00	AMREF - Team discussion

Tuesday May 26, 1992

09.00 Ministry of Water Development
Debriefing
Mr. Mwongera, Director of Water Development
Mr. Makokha, Deputy Director

11.00 Ministry of Health
Debriefing
Mr. Kirruti, Foreign Aid Coordinator
Mr. Kidiku, Chief Public Health Officer
Mr. Walukano, Project Manager KFPHC-P
Mr. Kewer, Public Health Officer KFPHC-P

15.00 Ministry of Culture and Social Services
Debriefing
Mr. Mathangani, Deputy Commissioner
Mr. Syeunda, Assistant Commissioner
Mr. Righa, Senior Social Development Officer

23.00 Departure for Amsterdam

The Appraisal Team consisted of the following members:
Mr.Isaack Oenga/AMREF, Ms. Eveline Kamminga/IRC, Mr.Han Heijnen/IRC (teamleader)

Resource persons assigned to the mission comprised:
May 7 - 20 Mr. Eero Kontula/FINNIDA, Helsinki
May 11 - 14 Mr. Andrew Makokha/MOWD
May 18 - 22 Mr. Lawrence Musyoka/MOWD
May 14 - 22 Mr. K.A.Ajode/MOH
May 21 Mr. Obaga/MCSS

Annex 4

RECOMMENDATIONS FOR PHASE IV OF K.F.W.W.S.P. TO THE APPRAISAL REVIEW MISSION OF MAY 1992

I STAFFING PATTERN:-

(a) PROVINCIAL OFFICE :- Provincial Director for Social Services (PDSS) and Provincial Director for Adult Education Department to be involved in Programme activities by e.g. attending meetings and seminars on water.

- One senior officer from the Provincial Office be attached to co-ordinate activities on water from all the 4 (four) Districts.

(b) KEFINCO HEAD OFFICE :- Efforts be made to second two more senior officers to Community and Training Department from the Ministry of Culture and Social Services.

- The Ministry of Culture and Social Services to be more committed and be provided with apportunities to be more active in the activities of Community and Training Department as the Department would in the near future be wholly run by the Ministry of Culture and Social Services.

(c) DISTRICT SOCIAL DEVELOPMENT OFFICE'S OFFICE (DSDO's) :- In each District, one senior officer be attached to the Programme activities.

(d) DIVISIONAL LEVEL:- The Divisional ASDO's and AEO's be utilised for co-ordination services and Supervision of locational SDA's; Women Leaders and Adult Education Teachers.

(e) LOCATIONAL LEVEL :- Secondment of effective SDA's, Women Leaders and Adult Education Teachers.

II TRANSPORT ALLOWANCES:-

- The Provincial Director for Social Services be provided with transport support in terms of a vehicle and fuel and maintanance plus allowances.

- The District Social Development Officers to be Provided with vehicles and fuel plus allowances.

- At Divisional Level, the relevant officers be provided with motorcycles plus the allowances.

- At locational level, the SDA, Adult Education Teachers be given bicycles and field allowances.

III TRAINING NEEDS

- All the Ministry of Culture and Social Services Staff involved be trained in water related issues. The Ministry of Culture and Social Services staff be invited to attend workshops and seminars at different levels.

...../2

Study tours also be arranged for the Ministry of Culture and Social Services staff where neccessary.

- At least two Ministry Of Culture and Social Services senior staff be thoroughly prepared for the eventual take over of the Department of Community and Training in terms of exposing them to relevant training courses, seminars and workshops of national international standards.

- All water committees be trained on how to run the facilities

- Special attention be given to women groups by encouradging them to engage in income generating activities.

IV CO-ORDINATION

Information flow to reach District heads, District Social Development Officer's, Provincial Director of Social Services and Commissioner for Social Services by sending them copies of workplans, annual reports and Quarterly report.

- Ministry of Culture and Social Services at District levels (DSDO's) to regularly attend the co-ordination meetings inorder to keep informed of programme activities.

Most people staffing proposals and logistics for operations were discussed and agreed on duing the meeting held between the programme and Ministry of Culture and Social Services staff held on 18th June, 1991 (see page 7 and 8 of the attached minutes)

(JOHNSON N. OBAGA)
PROVINCIAL DIRECTOR OF SOCIAL SERVICES
WESTERN PROVINCE

c.c.
The Commissioner for Social Services
P.O. Box 30276
NAIROBI - (Attn. W. O. SYENNDA) Our telephone converstion Syeunda/Obaga on 20th May, 1992.

The Project Manager,
KEFINCO
P.O. Box 744,
KAKAMEGA

ANNEX 5.

PUBLIC INFORMATION PACKAGE
-brochure on procedures-

* Why do we want better water supply?

  Potential benefits:

  - water close by is convenient and reduces daily burden of women and children
  - clean water is good for the health of the whole family
  - more water for economic activities
  - modern time facility

* How much does water cost?

  Simple cost scenarios for shallow well (with and without pump), protected spring, borehole and piped water supply.
  - costs per m3 water per type of water supply.
  - installation and o & m costs on a monthly basis

* What services can the Programme offer?

  Sort of assistance that the Programme can offer (technical; financial; various training and community management support; hygiene education)

* What are the conditions for getting assistance?

  - principle of cost sharing
  - criteria for getting financial assistance (subsidy), such as location within the Programme area; previous coverage; minimum number of beneficiaries;
  - private, semi-private and community waterpoints and % of cost sharing

* How to make a request?

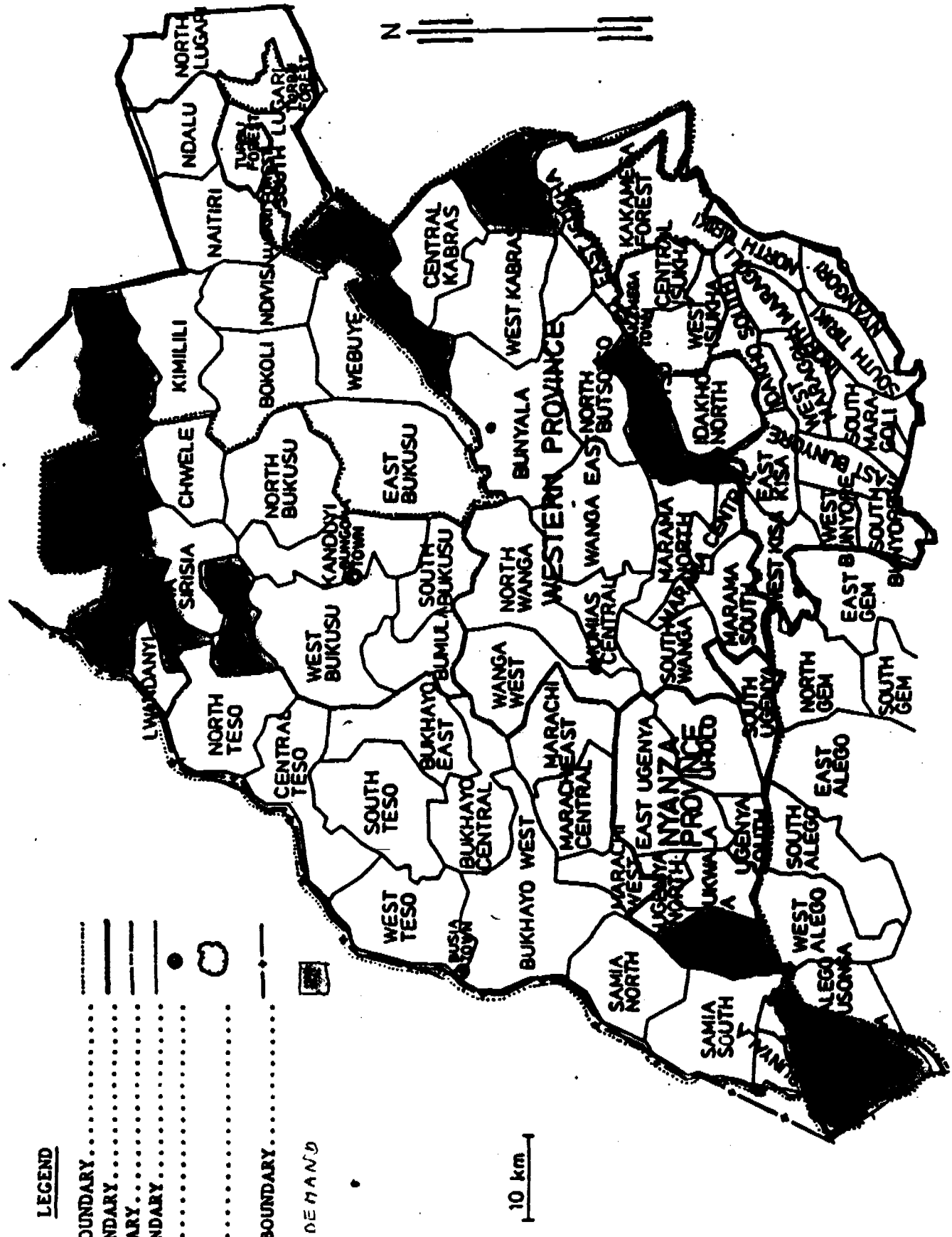
  Who to approach and how? And very important: What information should be provided? Purpose of request, expected benefits, description of the users, actual water sources, what assistance asked etc.

* What next? and When?

  Which procedure will be followed by the Programme for preliminary selection and contacting the applicants?

ANNEX 6.

AREAS WITH EXPECTED LOW DEMAND FOR IMPROVED WATER SUPPLY



Source:
KFWWSP, Comm. + Training Dept., 1992

ANNEX 7.

An average Village level Siting Meeting
Kakamega District, 21/5/92

The major purpose of the meeting is to decide on a site for the borehole, which has been allocated to the community through the locational and sub-locational meeting procedure. Also the community is expected to propose a water committee of 11 members, a female pump attendant and fill out the 'Community Involvement Agreement Form 1'. This agreement is a one-sided commitment of the community concerning land easement; participation in construction and maintenance; contribution of labour; provision of necessary information; opening of an account and collection of a minimum of KES 1000 for maintenance costs; and assuming property of the waterpoint once operational. Since the community is located in a high area, a borehole has been chosen by the Programme's technical staff as being the most appropriate technology. This is the first direct contact between Programme and community.

At arrival (3 p.m.) a group of 26 women and 16 men is waiting with the locational representative. She is young, active and since two months working for the Programme on a contract base. Everybody is waiting for the village chief to return from a funeral. In the meantime we try to start a conversation. This is not easy because the men and women attending the meeting are sitting some 7 meters away on the other side of the table. The locational representative and the community department worker sit behind a table. A man is invited to the table and explains that at the moment water is used from two rivers at some distance from the village. There is no tradition of using wells. When asked why they want to have a borehole, a women is invited to the table. She points out that this will reduce their daily burden of water hauling and in addition creates opportunities for economic activities. They have recently formed a women's group which has not yet been registered.

After an hour the chief arrives and the meeting is opened with a prayer. The meeting has a rather formal character. First the objectives of the Programme are explained: improving health and economic conditions. The village chief shows a list of about 50 households which have expressed interest, while the total number of households is estimated on 100. This issue is not discussed. The community has not succeeded to reach a consensus among themselves. In fact the community is split in two neighbourhoods and each proposes a different site at maybe three hundred metres distance from each other. After a lively discussion the Programme worker proposes voting. The majority gains and about ten angry losers leave the meeting. It might have been better to postpone the decision making till a later date, since this fast procedure might reduce the number of users resulting in higher costs per user.

A burst of rain forces everybody to go inside one of the corrugated iron roofed houses of the village. Now everybody sits closely together and the atmosphere is more informal. The noise of the rain on the roof, however, limits communication somewhat. The audience gets information on what is expected from them. The chief shows a list with proposed members for the water committee (6 men and 5 women). The chief, who is young and seems active, is on the list as the secretary of the committee. The programme worker, however, suggests to replace him, because he might be too busy with other duties. Another secretary is selected from among the people present at the meeting.

The community has not yet decided who will become the pump attendant. This is an important decision for the future functioning of the water supply. Instead of giving them more time to propose someone, they are asked to select a person immediately. One of the women is proposed and she accepts to do the job.

Then the audience is informed about the recent policy change of the Programme towards cost sharing. Water is no longer provided for free, but communities have to contribute 30% of the costs. No facts are is given of how much the total costs are, nor how much the expected future O & M costs will be. The Programme worker only asks the people, how long it will take them to get KES 20,000 together for the borehole supply. The answer is: 'next September'(in four months time). When asked how they want to organize the collection of the money, a woman committee member says with a confident voice that they will discuss that in the committee. (The Programme worker explains afterwards, that this amount was his own idea (only about 10% instead of 30% the real costs of the borehole). He had found it hard to charge the full 30%, because nearby communities earlier covered by the Programme got their water point for free.)

Somebody asks when they are going to receive training and makes critical reference to what happened in nearby communities. There the Programme has handed over the waterpoints without having provided the routine training for the pump attendants. The locational representative says to have been confronted with complaints and not to know what to tell the people. The Programme worker tells her that a training workshop is foreseen in the near future, but no precise date is given.

During the meeting the Programme worker shows a couple of drawings. He asks the people to tell them what they see. Not all drawings are discussed and some do not seem to be understood. The drawings illustrate community management issues, such as people meeting and arguing.

Finally the village chief is asked to fill out the Community Involvement Agreement Form 1, which he had received two weeks

before at the sub-locational meeting. The content is briefly explained to the people. After a final prayer the meeting is closed.

The meeting has taken a total of two hours. There has been little exchange of information and discussion. The Programme worker mostly told the people what they are expect to do. Several men and women have given their opinion on certain issues. According the Programme worker is this siting meeting like most others suffering from a full agenda and time pressure.

The locational representative, who is supposed to activate and assist the community, says that follow up will be very limited, because she has to cover 28 water points in the location and does not have any means of transport.

ANNEX 8.

Factors influencing people's willingness to pay and manage water supplies

* **Service level**
  The level of service provided has an important influence on whether or not people will pay for it. The lowest (and cheapest) level of service can not always be assumed to be the most marketable. In some cases, consumers who are not willing to pay a modest rate for a simple point-source supply will gladly pay much more for a higher level of service such as a house connection.

* **Service standard**
  If a system does not perform consistently, and does not continue to provide an acceptable level of service, willingness to pay is likely to diminish. This might be the case with certain piped water schemes in the Programme area.

* **Perceived benefits**
  Paying for a service is effectively a decision to invest. Continuing willingness to repeat this expenditure is dependent on the benefits to be gained. Since some benefits can be easily seen and others can not, the extent to which possible benefits are perceived and recognized by consumers is important. For example, health benefits are often indirect and many consumers may not perceive them as a benefit at all. Other factors, such as the taste, smell and colour of water from an improved supply, may be perceived as being more important.

  Economic and financial benefits, in so far as they are more obvious and direct, may also have a greater influence on people's willingness to pay. If an improved service does not provide perceivable benefits in comparison to an existing source of supply, users are unlikely to be willing to pay for it. Agencies and communities may not share the same perception of the benefits to be gained from service improvements. Within communities there can be important variations too. Different sections of a community may have different levels of interest in improved services, particularly where some stand to gain more than others. An awareness of consumer perceptions, and possible variations within communities, is therefore crucial in developing a sustainable programme.

* **Relationship to production**
  Where water can be used for productive purposes, such as gardening or livestock watering (zero-grazing), willingness to pay is likely to be higher than where it can not. Again, however, an improved supply must be able to deliver this advantage to a greater extent than an existing source if this factor is to be of importance.

* **Price**
  Often alternative sources of water are available, even if of poor quality. The level at which water charges are set is likely to influence people's decisions as to whether to pay for a better service or stick with the old one. A balance needs to be drawn between establishing a price which will meet costs, on the one hand, and which people will be prepared to pay, on the other.

* **Relative cost**
  In deciding whether the cost of a service is acceptable or not, people will often compare it to the costs of other services which they value equally, or which they consider to be of a higher or lower priority. The costs, for example, of electricity supply, schooling, or health care, may be used as benchmarks against which the relative costs of water and sanitation services are measured. If the costs are considered to be too high in relation to others, willingness to pay may be affected.

* **Opportunity cost of time**
  Where water is free, the basic cost to users, apart from the energy consumed in carrying it, is the time it takes to collect. The extent to which this time is valued may influence whether people are willing to pay for a service which will save time in meeting water needs. In most cases, the time in question is that of women. Men, however, may have a different perception about the value of women's time than women themselves.

* **Characteristics of existing sources**
  Where users consider their traditional water sources to be acceptable, it is unlikely that they will be willing to pay for an improved service. Relative factors such as the quantity of water available, perceived quality, distance from home, potential economic uses, and the reliability of the supply, are all likely to influence whether people will continue using existing sources, or pay for an improved supply.

* **Reputation of service agency**
  The credibility of an agency providing a service will have an important influence on willingness to pay. In many developing countries, people have had experiences of development efforts which have promised much but, in the end, delivered little. The service agency - whether it is a government department, public enterprise, private company, or community management body - must be able to deliver the goods, and be seen to be doing so by the consumers.

* **Community cohesion**
  Cost recovery is usually managed through voluntary contributions to a common fund. Good cohesion within a community is essential for this, but can not be taken for granted. Factional conflicts, or lack of trust in the village leadership or office holders, may mean that consumers are unwilling to cooperate in a joint venture of this kind, irrespective of felt needs. This factor is likely to be linked to others, such as the method devised for collecting and managing contributions, the distribution of water points in the community, and so on.

* **Policy environment**
  The previous policy of seeking to provide basic services free of charge can make the covering of costs a difficult proposition. People are unlikely to be prepared to pay for services while they know that others got them free. When a free water policy is abandoned, it is important that new policies are clearly communicated and are implemented consistently.

* **Perception of ownership and responsibility**
  The degree to which people feel responsible for their own water services may affect their willingness to pay. If they believe that a water supply system belongs to the government or Programme, for example, they may feel that it is the government's responsibility to take care of it. Even when systems have been formally handed over to communities, many people still do not accept ownership and responsibility. This factor may often be symptomatic of other problems, such as an inappropriate approach to implementation, inadequate consultation, or dissatisfaction with the type or level of service. A system which is imposed from the outside is unlikely to be fully accepted by a community, and willingness to pay is likely to be adversely affected as a consequence.

* **Transparency of financial management**
  This factor may be closely linked to the reputation of the service agency or local management organization and is basically a matter of trust. If people can not see clearly what is happening to the contributions they make towards the upkeep of their water supply or sanitation system they are unlikely to be motivated to pay for it. An acceptable and

clear financial management system, with high levels of accountability, should help to instill trust and reassure people that their contributions are being used for the intended purpose.

* **Institutional framework**
  The establishment of water committees which bypass existing authority or local management structures, for example, may limit the effectiveness of such bodies and make people reluctant to support them. A framework which is insufficiently open to users as a whole may also diminish willingness to pay if people feel that their views will not be accounted for in the development and management of systems.

(Phil Evans, IRC, Publication, forthcoming)

Annex 9

COST ESTIMATE FOR TYPICAL SPRING

NORMAL SPRING (STANDARD)

ITEM	QUANTITY	UNIT COST	TOTAL COST
Cement	12 Bags	200.00	2400.00
Sand	3 Tons	330.00	1000.00
Ballast ½"	3 Tons	320.00	1000.00
Ballast 3/4	½ Ton	350.00	175.00
Blocks 6" x 9"	80 Pcs	25.00	2000.00
Round bars 6mm Ø	3 Pcs	33.00	100.00
B.R.C (2 x 2)m	1 Pc	240.00	240.00
Polythene paper	20 m	20.00	400.00
GI Pipe 2" x210mm	2 Pcs	1200.00	504.00

LABOUR COST

		3500.00
Contractor (Lumpsum)	3500.00	
Supervisor W/point	4 days each 140/=	560.00
Coordinator cost.	2 days each 210/=	420.00
R.E.	½ day	483.35
Driver	½ day each 135/=	67.50

TRANSPORT COST

M/bike 8 trips	30 Km each 0.55/=	408.00
L/Rover 4 trips	30 Km " 3.10/=	494.40
Tractor/Lorry	30 Km " 24.70/=	3946.00

TOTAL COST	**17,698.25**
Overhead 10%	**1,769.85**
Gross Total	**19,468.10**
Say	**20,000.00**

COST ESTIMATE OF A HAND DUG WELL

BILL OF QUANTITY FOR A 12.0M WELL

TOTAL DEPTH OF THE WELL - 12M

WATER COLUMN - 5M

ITEM	UNIT	QUANTITY	RATE(KSH)	TOTAL (KSH)
LABOUR FOR CONTRACTOR				
Total depth of the well 12m				7,500.00
Water column 5m				
MATERIALS				
Rings 100m Ø 10m	No	20 Rings	1,150.00	23,000.00
Rings 800m Ø 1.4	No	4 Rings	800.00	3,200.00
Flexo - band	Roll	1.4 Rolls	570.00	800.00
Cement	No	8 Bags	200.00	1,600.00
Building Lime	No	7 Bags	90.00	630.00
Current blocks	No	14 Pcs	72.00	1,008.00
Straight blocks 6 x9	No	17 Pcs	25.00	425.00
Round bar 1/4	No	1.4 Pcs	33.00	46.20
B.R.C (2x2)m	No	1 Pc	240.00	240.00
B.R.C (0.8x4)m	No	1 Pc	500.00	500.00
Ballast	Tonn	1.4 Ton	300.00	420.00
Sand	Tonn	2 Tons	140.00	280.00
Polythene paper	M	7 m	20.00	140.00
Pump AF 85D	No	1 Pc	19,833.00	19,833.00
				52,122.20

USE OF MACHINERIES, COMPRESSOR & DEWATERING PUMP

ITEM	UNIT	QUANTITY	RATE(KSH)	TOTAL (KSH)
Cost of diesel used	litres	100 ltrs.	12.70	1,270.00
Plant operator working on site for				
Salary for 12 days	day	12 days	60.00	720.00
Night out 1	day	12 days	100.00	1,200.00
Plus 20% contigencies for tear & wear of machine			664.00	664.00

TRANSPORT

ITEM	UNIT	QUANTITY	RATE(KSH)	TOTAL (KSH)
i) Inspection of works by coordinator using a Land Rover (Total days 3) to site	Km	240 Km	8.12	1,958.80
ii) Supervision of works by a supervisor using a motor cycle to site for 7 days	Km	560 Km	0.55	408.00
iii) Transportation of machineries to site using Land Rover.	Km	160 Km	3.09	494.40

MATERIAL TRANSPORTATION

i) Transportation of 22 rings (making 3 trips)	Km	160 Km	12.33	1,972.80
ii) Transportation of other materials (1 trip)	Km	80 Km	12.33	986.40
				9,674.40

SALARIES AND ALLOWANCES

SALARIES:

i) Coordinator	Days	3 days	125.80	377.50
ii) Supervisor	Days	7 days	80.00	560.00
iii) 2 drivers	Days	2 days	60.00	240.00
iV) 2 turn biys	Days	2 days	40.00	160.00

NIGHTOUTS

i) Coordinators	Days	1 day	150.00	150.00
ii) Supervisor	Days	3 days	150.00	450.00
iii) 2 Drivers	Days	3 days	150.00	900.00
iV) 2 turn boys	Days	3 days	100.00	600.00
				3,437.00

TOTAL COST	71,594.10
10% CONTIGENCIES	7,159.40
TOTAL ESTIMATED COST	78,753.50
SAY	79,000.00

BOREHOLE DRILLING ESTIMATE

DIRECT COSTS

1. OVERBURDEN DRILLING

ITEM	RATE	AMOUNT
TIXTON 2 BAGS	KES. 441.40	KES. 882.80
TYLOSE 1 BAGS	KES.3,933.95	KES.3,933.95
FUEL 500 LTS.	KES. 12.70	KES.6,350.00
HYDRAULIC OIL	KES. 41.15	KES. 823.00
GREASE 3 KG.	KES. 50.30	KES. 150.90

2. ROCK DRILLING

DRILLING FOAM 5LITS.	KES. 27.00	KES. 400.00
FUEL 500 LTS.	KES. 12.70	KES.6,350.00
DRILLING OIL 2 LT.	KES. 30.00	KES. 60.00

3. FINISHING

FILTER SAND 50 BAGS	KES. 80.00	KES. 400.00
TRANSPORT 200KM	KES. 14.00	KES. 2,800.00
CASINGS:		
100MM PLAIN 40M	KES. 234.15	KES. 9,366.00
100MM SCREEN 20M	KES. 361.75	KES. 7,235.00
WOODEN PLUGS 2NO.	KES. 55.00	KES. 110.00
DEVELOPING 2HRS		
FUEL 100 LTS.	KES. 12.70	KES. 1,270.00

4. TRANSPORT

LORRY: 5 TRIPS/DAY X 3	
= 15 X 20KM	
= 300KM X KES.14	KES.4,200.00
L/ROVER: 6 TRIPS/DAY X 3	
= 18 X 20KM	
= 360KM X KES.10	KES.3,600.00
L/ROVER(SUPERVISOR)100KM X 3	
= 300KM X KES 10.0	KES.3,000.00

5. **TEST PUMPING - 6 HRS**

L/ROVER 4 TRIPS X 50KM = 200KM X KES 10.00	KES.2,000.00
GENERATOR FUEL = 460LTS X 12.70	KES. 508.00

6. **INDIRECT COSTS**

SALARIES & ALLOWANCES	KES. 14,320.00
WEAR & TEAR (HAMMER 30%)	KES. 37,500.00
(DRAG BIT 30%)	KES. 7,500.00
TEMPORARY CASING 10M @ KES.883.80	KES. 8,838.00
MACHINERY	KES. 10,000.00
RIG MOBILIZATION, SETTING AND DISMANTLING	KES. 5,000.00
	KES.128,832.65
ADD 10% CONTINGENCIES	KES. 12,883.30
	KES.141,715.90

7. **OTHER EXPENSES**

FIELD INVESTIGATION TEAM:	
1 GEOLOGIST (ALLOWANCES) KES. 200/DAY	KES. 200.00
1 FOREMAN (ALLOWANCES) KES. 150/DAY	KES. 150.00
5 ASSISTANTS KES. 150/P/DAY	KES. 750.00
EXPLOSIVES	KES. 700.00
TRANSPORT: 2 l/ROVERS 200KM X 2 = 400KM X KES.10/KM	KES. 4,000.00
INTERPRETATION & REPORT WRITING	KES.25,000.00
SLAB CONSTRUCTION	KES.10,000.00
HAND PUMP + INSTALLATION	KES.31,500.00
	KES.72,300.00
GROSS TOTAL	**KES. 214,015.90**
SAY	**KES. 215,000.00**

REMARKS

1. TOTAL DEPTH LIMITED TO 60M
2. OVERBURDEN MAXIMUM 30M
3. PIPING WITH 100MM PVC SCREENS AND CASINGS
4. 30% OF BOREHOLE SCREENED
5. DRILLERS OPERATING FROM 20KM AWAY FROM SITE

COMMUNITY PARTICIPATION'S ESTIMATE

SPRINGS

1.	Clearing and preparing spring site 10 people working 5 days = 50 man days	= 2,000.00
2.	**Construction:** Delivering materials to site to site and participating in the actual construction. 10 people working 5 days = 50 man days each 40.00	= 2,000.00
3.	**Material Contributions:** 1 lorry hard core each Ksh. 300	= 300.00
4.	Water Committee Officials on site for 3 days for facilitation = 5 x 3 x 50/=	= 750.00
	TOTAL CONTRIBUTION ON SPRING	**= 5,050.00**

DUG WELL

1.	Digging up to water level = 8m	= 4,400.00
2.	Hardcore 1 Ton each 60/=	= 60.00
	TOTAL	**= 4,460.00**
	Say	**= 4,500.00**

BOREHOLE SITE

1.	Clearing route to site 40/= x 10 people	= 400.00
2.	Hard core 1 Ton each 60/=	= 60.00
3.	Delivering water for construction = 4 women for 2 days 4 x 40/= x 2	= 320.00
	TOTAL	**= 780.00**
	Say	**= 800.00**