

International Reference Centre
for Community Water Supply
and Sanitation

WHO Collaborating Centre



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COMMUNITY EDUCATION AND
PARTICIPATION PROGRAMME

INTER-REGIONAL PROJECT

REPORT ON BRIEF APPRAISAL PHASE

FEBRUARY 1982

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Interregional Project on Community Education and Participation (CEP)

REPORT ON BRIEF APPRAISAL PHASE

Incorporating travel reports December 1981 - February 1982

SUMMARY OF RESULTS

This report summarizes the visits of Dr. Alastair White and of Ms. Lane Hoffman to seven African countries (Zambia, Zimbabwe, Togo, Upper Volta, Cameroon, Kenya, and Malawi) in December 1981 to February 1982. The objective of the missions was to assess the need for and the interest in the project in these countries, and where appropriate to reach agreement with the authorities of the countries concerned for their participation in the project (subject to final approval of the project's funding by DGIS). The number of participating countries is envisaged as four.

In all the countries visited, the relevant authorities expressed formally or informally their interest in participating in the project. Commitments on both sides (subject to funding) have been made in Zambia and Cameroon. In Kenya and Zimbabwe, written proposals have been presented by IRC for a decision to be taken in further consultations within those countries, i.e. an IRC commitment has been made. In the case of Togo, following the visit a letter has been received requesting that that country should be included in the project, but no commitment has been made by IRC. In Upper Volta and Malawi, no commitment has been made on either part, but these countries have expressed their openness to formal proposals from IRC.

ZAMBIA (visit by A. White, 12-19 December 1981)

Discussions were held with the Community Development Department of the Ministry of Labour and Social Services, with the Department of Water Affairs of the Ministry of Agriculture and Water Development, and with the Ministry of Health. Given the interest of the three ministries in participation in a joint project with IRC, a tentative workplan was drawn up in this sense (Annex A).

It was presented to the members of the National Action Committee for the Water Decade, at a meeting held in the Department of Water Affairs.

Agreement was reached with the Community Development Department that this Department would lead the Zambian participation and would assign a staff member to CEP project appraisal and development. A letter of intent was signed.

Current situation with respect to community participation in water

The Department of Water Affairs has recently drawn up plans (to be submitted for government approval) to meet the decade objective of completing coverage of the rural population¹ with water supplies by 1990, except for settlements of less than 50 people. According to these plans, 10% of the new population to be served, living in larger villages above 500 people, will be provided with piped supplies through standposts, at a cost of K. 200 per capita. K.1=\$1 (US) approx.) 30% will be supplied by boreholes with handpumps at a cost of K. 22 per capita; 40% will have dug wells with handpumps at a cost of K. 30 per capita; and 20% will have open wells with windlass, chain and bucket at K. 25 per capita. The windlass and bucket system is in widespread use in Zambia.

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1. Three different written sources seen give highly divergent figures for the percentage of the rural population already having access to improved supply; but it may be more than half. The figures quoted are 72% (Ref. 1), 64% (Ref. 2), 32% (Ref. 3). See also Refs. 4 and 5.

Also according to the plans, "the department is encouraging in a limited way active community participation". In practice, this means community voluntary labour in the digging of wells. Already about 20 wells per year are being dug in this way, in the Eastern Province.

There is a considerable neglect of maintenance. This appears to be related to both of the major problems commonly found elsewhere: a lack of provisions working, and little contribution from beneficiaries who see the upkeep of the supplies as a government responsibility.

In the background of these particular problems and others in Zambia is the fact that government revenues have been declining in recent years, so that organizational structures and expectations which were established in a more affluent period can no longer be sustained. There is a clear need for an approach relying on a greater community participation. This is recognized, but at the same time difficult to implement.

The Community Development Department has for many years been working with local communities in the construction of self-help water supplies, mainly open wells but including some piped supplies. However, the Department also has suffered from the declining financial situation and the scale of this work has been much reduced (the Department has been unable to give so many grants-in-aid toward self-help projects, and lack of transport has affected all the Department's work). The Department sees the need as being primarily that of teaching the people to do more for themselves, i.e. transferring skills and motivating self-help. The skills can be introduced in one place, and people brought in from elsewhere to learn.

The Ministry of Health, which is already cooperating with the Department of Community Development, intends also to use self-help methods for dug wells (and has done so in the past). The Ministry also has its health assistant trainees go as a group to construct a well, for the purposes both of teaching them how to do it and as a demonstration to the villages. Health staff have petrol pumps to pump out wells which are polluted.

There are active programmes of rural sanitation and primary health care, and a Health Demonstration Zone at Mwachisompola (visited) as a national pilot project.

If the plans for full coverage by 1990 are to be fulfilled, it would primarily be through external financing of large-scale projects in particular provinces. The largest current externally-financed project is that of NORAD in Western Province, which started in 1977.

It has concentrated so far on the supplies for the 8 townships of the Province, but 50 wells of the 700 wells or boreholes envisaged have been built so far. Up to now, participatory methods have not been used.

The NORAD project has been considering the need for sociological study, and the possibility of collaboration with the IRC project was discussed, but this is a sensitive issue with the Department of Water Affairs because of its wish to see external inputs not concentrated in one province. The issue has already arisen in connection with the World Bank global handpump testing project.

The situation with regard to the responsibilities of Rural District Councils for rural water supplies is complex, and the extent to which these responsibilities are carried out did not become clear during the visit. For instance health staff are to encourage villages to ensure that wells are lined, and if the village lines its wells, the District Council has the duty to provide windlass, chain and bucket. The Council will also help in the lining, providing supervisors and some cement while the village development committee raises a levy among villagers for cement. But it is unclear how well this system operates, or on how wide a scale District Councils were made responsible for the operation of pumped supplies. There are however big problems of engine breakdown and lack of fuel because of the councils' lack of skilled manpower and financial resources. A new Decentralization Act will alter the pattern of local responsibility, but it is not yet clear how it will operate.

Persons contacted

Department of Community Development (Min. of Labour + Social Services)

Mr. M.L. Imakando Commissioner for Community Development
Mr. K.L. Kamalata Senior Community Development Officer

Department of Water Affairs (Min. of Agr. and Water Development)

Mr. M.D. Patel Deputy Director
Mr. W. Gäfgen Water Engineer (GTZ). Secretary, National
Action Committee for the Water Decade.

Ministry of Health

Mr. Kisonge Principal Secretary
Mr. F.K. Mambwe Chief Health Inspector
Mr. Michelo Head, Health Education Unit
Dr. J.D. Martin Advisor, Primary Health Care (ODA)
Dr. J.E.G. Ngombe Project Director a.i., Mwachisompola Health
Demonstration Zone
Mr. K.P. Kasoka Health Education Officer, Mwachisompola H.D.Z.

National Commission for Development Planning

Mr. M.S. Mwale Chairman, National Action Committee for the
Water Decade

WHO

Dr. J.W.K. Duncan Project Manager, WHO/ICP/BSM/002
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Dr. G.V.V. Rao Sanitary Engineer, WHO/SIDA Cooperative
Project (water)
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UNICEF

Mr. M. Iskander Resident Representative, Zambia and Malawi
Ms. Selina Assistant Representative, Zambia

UNDP

Ms. D. Casey Assistant Res. Representative

World Bank

Mr. Amoako Representative

Royal Netherlands Embassy

Mr. Van Limburg
Stierum Ambassador to Zambia and Malawi
Mr. F. Roos 1st Secretary
Mr. Haakma Water Affairs

West German Embassy

Ms. J. Odida 2nd Secretary

Norwegian Embassy-NORAD

Mr. Peterson 1st Secretary (development)
Mr. Sørensen Project Coordinator, NORAD project
 for water development in Western Province

Lusaka Urban District Council

Mr. M.N. Saasa Senior Community Development Officer,
 Housing and Social Services Dept.
Mr. E. Nyirenda Assistant City Engineer (Water)

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2. UNICEF: Country Programme Profile: Zambia (1981) UN Economic and Social Council E/ICEP/P/L.2056(REC) 16 April 1981. P.4:63.6% of rural children have "access to safe water" in 1978.
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6. Muller, M.S.: "Self-Help: a case study of water projects in two unauthorised settlements in Lusaka", in H.J. Simons et al, eds., Slums or Self-Reliance?: Urban Growth in Zambia Lusaka: University of Zambia, Institute of African Studies, 1976
7. K. Jayaraman: "Training to meet manpower needs in the field of water supply and sanitation", paper presented to National Action Committee for the Water Decade (author is Head, Dept. of Civil Engineering, University of Zambia).
8. Rep. of Zambia. Ministry of Health: Mwachisompola Health Demonstration Zone.
9. Rep. of Zambia, Min. of Labour and Social Services, Dept. of Community Development: Annual Reports.

Note on practical aspects of a project in Zambia

While the Community Development Department is prepared to make available a staff member to work on the project, it will be necessary also to contract national and/or international consultants. The Netherlands Embassy has recommended a Zambian rural sociologist. Zambian institutions which might be approached include the University's African Studies Department, its Dept. of Social Sciences, the National Institute of Public Administration; there may also be a possibility of including non-governmental organizations concerned with rural development.

Because of the Community Development Department's lack of transport and other resources, it will be necessary for the project to hire a vehicle (a small car or 4-wheeled vehicle according to area and season), pay for fuel and also a subsistence allowance for CD staff members working outside Lusaka to carry out the studies planned.

It is intended that the project will be coordinated with the IRC Public Standpost Project, which includes a CEP component. (It may be possible to appoint a joint local project manager).

ZIMBABWE (Visit by A. White, 20-22 December 1981)

Discussions were held principally with the Ministry of Community Development and Women's Affairs, and also at the Ministry of Natural Resources and Water Development and the Ministry of Health. A draft proposal was prepared for a project in which these three ministries collaborate with IRC, the Ministry of Community Development taking the major role in the first stage, i.e. of appraisal study. This proposal (Annex B) has been sent to the ministries concerned, and it was agreed that the Ministry of Community Development and Women's Affairs would submit the proposal to the Ministry of Economic Planning for its approval, as is required.

Summary of Discussions

Ministry of Health : Dr. Gwada

- Great interest expressed in the CEP project. It should be a matter of collaboration between the 3 ministries (Health, Water, Community Development), and Dr. Gwada would take an active part in securing this. He hoped to convene a meeting in January.
- The Village Health Workers programme is just beginning. Since the VHW's will be trained in encouraging community participation including for water improvements, there should be liaison.
- The Ministry suffers from a great lack of trained manpower, specifically in the field of public health and sanitation.

UNICEF: Dr. Shomari

- There is a UNICEF sanitary engineer assigned to Zimbabwe as advisor, David Williams, who arrived in November (it was not possible to meet him, since he had gone to Bulawayo)

- UNICEF does not have its own project, but is providing various kinds of support in the field of water, including in addition to the sanitary engineer, a percussion drilling rig, training for village pump attendants, and testing of handpumps and latrines in collaboration with Blair Research Laboratory. Emphasis is laid on boreholes and shallow wells with handpumps.
- There is also a UNICEF proposal for a programme to find useful roles for the former military medics of the liberation armies. This will involve screening and training: some will become medical assistants either immediately or after training; others may be involved in rural sanitation.
- UNICEF is suggesting a water supply programme for villages with a population around 200-250. The emphasis of the Rural Water Section (Ministry of Natural Resources and Water Development) has been on larger villages, around 2000.
- Maintenance has been left to District Councils, but they do not have sufficient revenues. There is a long-term objective of strengthening local councils which have committees for water. They would be responsible for maintenance, receiving Ministry support.

Ministry of Community Development and Women's Affairs:

Ms. Makwavarara, Dr. Agere

- Great interest expressed in the CEP project. I undertook to send a proposal from Europe at the end of December, which the Ministry would hope to have approved by the Ministry of Economic Planning by the end of January. (The proposal was sent 2nd January, no reply received).
- The Ministry has 386 community workers: there are plans for more than 700.
- They are involving villagers in self-help wells along with other improvements. Water is considered one the basic areas of activity
- A director of research and two assistants are to be appointed soon. They would be involved in the CEP project with IRC, together with other CD staff at headquarters and in the provinces where activities are undertaken.
- One CD staff member would be made responsible for the project.

- It is unclear how much transport the Ministry will have available: it may well be necessary for the project to hire a car from the government pool (CMET). The prices are 29.8 Zimbabwe cents per km. for a landrover, or 18,0 cents for a small car, including fuel.
- It would be advisable to establish an Interministerial Project Management Committee, at an early stage.

UNDP: Ms. Patricia Donovan

- Is sponsoring the assignment of a WHO expert to prepare terms of reference for the National Action Committee for the Decade. The Minister has spoken in public of reticulated supplies for everyone (a tap for every 4 houses), but this would cost \$ 900,000,000 and is out of the question.

Blair Research Laboratory (MoH) Mr. V. Clarke, Director

- The well-known inventions of the Blair Laboratory, the Blair Pump and the Blair Ventilated Improved Pit Latrine, were discussed. The handpump costs only 50 Zimbabwe dollars and works well to a depth of 12 metres. It can be maintained by a village man.
- The Laboratory has made proposals for the organization of installation and maintenance of the pumps. A team of eight persons, including 4 of the ex-army medics, would be assigned to each district (50-60 districts). The pump would be provided free to those who had dug and protected their own well.

Ministry of Natural Resources and Water Development

(Mr. P. Grizic, Permanent Secretary, Water Development)

- Interest expressed in the CEP project; the policy is to encourage greater self-help. This may become easier when District Councils are organized, as they will be soon.
- It would be preferable if there were a separate staff to carry out mobilization and liaison with communities - the technical staff will have little time for it.
- No final decisions have been taken on the policies for small water supplies (i.e. minimum population size of places to be served by piped water).

- A copy of project proposals should be sent to Mr. Grizic, who will submit it to the Minister.

Royal Netherlands Embassy (Mr. J. Douma)

Debriefing at end of visit.

Persons contacted

Ministry of Community Development and Women's Affairs

Ms. Makwavarara Permanent Secretary
Dr. Agere Deputy Secretary

Ministry of Natural Resources and Water Development

Mr. P.M. Grizic Permanent Secretary

Ministry of Health

Dr. A.M. Gwada Director Public Health Inspectorate
Dr. V. Clarke Director, Blair Research Laboratory

UNICEF

Dr. S. Shomari Resident Representative

UNDP

Ms. P. Donovan Assistant Res. Rep.

Royal Netherlands Embassy

Mr. J. Douma 3rd Secretary

CAMEROON (Visit by A. White, 11-14 January 1982;

H. Heijnen also took part in the meetings in Yaoundé while in Cameroon for the IRC's Slow Sand Filtration project)

Department of Community Development

Agreement was reached with the Department of Community Development (Director: Mr. Andrew Ndonyi) for the inclusion of Cameroon in the CEP project.

The project in Cameroon will collaborate primarily with the Department of Community Development. The Department is one of the two government agencies with extensive activities in the field of rural water supply both within the Ministry of Agriculture, the other being the Direction du Génie Rural. Up to the present, the latter does not use as intensively participatory methods as the Department of Community Development. While the possibilities of increasing the elements of community participation in the work of Génie Rural will be explored, the concentration upon the Department of Community Development is justified by the recent decision to amalgamate the Department with the Animation Rurale service, and to extend the water supply work previously confined to the two anglophone provinces, to the whole country.

This decision has greatly exacerbated the shortage of qualified staff within the Department, and there is no senior staff member available to devote full time to the project. However, a local project manager or coordinator/principal researcher is required. There are at least two expatriate social scientists resident in Cameroon who have already completed preliminary evaluations in the rural water sector. It is likely that one of these experienced persons will be available to work on the project. However, the financial implication of employing an expatriate for an extended period goes beyond the provision for consultants made in the original overall project proposal.

Preliminary discussions have also been held with the Pan African Institute for Development branch at Buea, Cameroon, (PAID-WA) on the

possibility of collaboration in some aspects of the project. This would most likely be in the context of PAID-WA's Zone for Guided Integrated Development, and could involve the implementation and monitoring of new procedures for community participation¹.

There is also a possibility of involvement by the University of Yaoundé, particularly the Departments of Sociology and/or Health Education.

Current situation with respect to community participation in water

Two national agencies are responsible for rural water supplies in Cameroon, both departments within the Ministry of Agriculture having other responsibilities also. They are (1) Direction du Génie Rural (Rural Engineering, usually referred to by the French title) and (2) Department of Community Development. In addition, a large number of voluntary agencies are active in the rural areas and many of these include among their activities the encouragement and support of self-help small water supplies (spring catchments etc.).

However, SNEC (Société Nationale des Eaux du Cameroun) is in practice an urban water supply agency only.

Since 1976 both Génie Rural and Community Development have had nationwide scope in all seven provinces. Until 1976 Community Development's water supply activity was confined to the two anglophone provinces: it was then amalgamated with the Service d'Animation Rurale, its counterpart in the francophone provinces but which had not had any significant activity in the field of water. There are now Community Development offices in every province, with activity in the field of water supply largely concentrated in the two anglophone provinces. Of the francophone provinces, it is most active in the West and Centre-South. In the anglophone and the two above mentioned Francophone provinces it receives substantial help from the Swiss Association for Technical Assistance (SATA). As for Génie Rural, there appears to be some concentration of its activity in North Province, with a well-digging programme.

1. For PAID-WA, this would involve an element of training for their students, who mainly come from other countries in Africa, as well as for the community members.

Génie Rural has a staff of about 150, including 30 engineers - the remainder are technicians; other workers are employed on a temporary basis. Community Development has a total staff of about 750 but these are divided among three sections: the Technical Service which handles the installation of water supplies, and also the Training Service dealing with training and community education, including the male Community Development Assistants who liaise with the communities over water supplies, and the Women's Service which, with its female CDA's, has not had a role in water supplies.

There were 270 Community Development Assistants in 1981, 177 or 66% of them female; 19 engineers, 25 expatriate technicians (many of them volunteers), and 62 technicians. In all there are 110 CD Water Supply Technical Personnel¹.

Génie Rural had a budget for water supplies of 135 million CFA francs (about \$540,000) in 1978-1979, 22% of it from the state and 78% from the Fonds National du Développement Rural (FONADER). The budget of the whole Department of Community Development in 1981-1982 was as follows:

566,482,000 (\$ 2,266,000)	for payroll alone (from government)
43,647,000 (\$ 175,000)	only for other recurrent costs (from government)
1,100,000,000 (\$ 4,400,000)	for investment (30% from government, 20% community, 50% foreign aid)
<hr/>	
1,710,000,000 (\$ 6,840,000)	of which 55% from government 0.3% national budget)

Since the functioning budget (apart from payroll) is only 4% of the investment budget, the question must immediately be raised, to what

1. As of 1979 (Franklin, p. 28). Of these, 87 or 79% in the Anglophone Provinces.

extent the investment budget is allowed in practice to subsidise the functioning budget; the answer appears to be: too little, and this creates problems for maintenance¹.

Génie Rural does also receive financing from other agencies for particular projects, while the amounts shown above for Community Development cover all its activities not just water supply, so these budgets cannot be directly compared. Water supplies are, however, the single most important technical activity of Community Development as they are also for Génie Rural.

Génie Rural has an instrumental attitude toward community contributions; Like Community Development, it estimates the value of community contributions at 20% of the cost of the completed projects (including cash and labour contributions)². (This may not be a fair comparison, since the water projects constructed by Génie Rural tend to be simpler).

Community Development has an approach toward community participation which emphasises its intrinsic value as a path of development; this may not necessarily mean that there is a great difference in practice in the way in which water supply projects are carried out by the respective technical services in conjunction with community labour. Anyway, despite the lack of close liaison between the two services, the similar policy toward community contributions appears to mean there is little possibility of villagers' objecting to making contributions on the grounds that other communities are being supplied free.

1. "The very limited functioning budgets for all divisions was the major obstacle to making the services of the Department available to every village within these provinces. Prior to reorganisation in 1976, the budgets in each of these divisions (i.e. those in the Anglophone provinces then covered) had been 600,000 CFA annually. From 1977 until this year (1981) the annual budget for each of the divisions in the country was set at either 100,000 CFA or 200,000 CFA. (for the 1981/1982 financial year each division received an increase of 100,000 CFA bringing the annual budgets of 19 divisions to 300,000 CFA and for 21 divisions to 200,000 CFA)".
(National Plan for CD, 1981)

2. 20% in all the provinces except the North; in the North, it is estimated as "virtually nil" (Franklin, p. 38).

In the anglophone provinces, some 15%¹ of the rural population has been supplied with piped water: these provinces are climatically and topographically suited to gravity piped supplies and this is what Community Development (with SATA) has concentrated upon. In the North, where Génie Rural has been particularly active in building wells, about 70% of the rural population are covered with improved wells, but even these may dry up during droughts. Other provinces tend to have relatively few improved supplies other than spring catchments representing various degrees of "improvement".

In 1978, a WHO report estimated the national percentage of the rural population having reasonable access to safe water as 22%, but this figure must be regarded as very approximate since there is a dearth of reliable data and since the concepts of "reasonable" and "safe" are themselves open to varying interpretations.

There appears to be a problem with maintenance in both the Génie Rural and Community Development water supplies. The Director of Génie Rural is reported to have told a meeting in 1974 that the majority of the supplies built by his department over the previous 20 years had been abandoned. As for the Community Development-supported supplies, it is agreed that there are problems of lack of resources made available for maintenance (the functioning budget) and problems with the system of local responsibility adopted: these will be discussed below.

The Department of Community Development and its approach to water supplies

What follows are some tentative remarks based on the brief visit; they may serve as hypotheses for further research and analysis.

1. The village population of the 2 provinces is 1,600,000 (National Plan for Community Development, 1981, p. 10). The 39 water supply projects completed by CD/SATA up to 1978 had a design population of 232,295, or 14,5% of the population figure. However, the design figure allows for a doubling of population existing at the time the supply is planned. On the other hand, Génie Rural has built some supplies in these provinces too.

- 1) The Department provides separate training for technicians and for Community Development Assistants. This training is provided by formal training institutions, the Building Training Centre at Kumba (aided by and run jointly with SATA), and the Community Development Training Centres at Kumba and Santa. At these centres, most courses are 2 years' duration and to achieve higher levels in the service an agent has also to take an upgrading course (for CDA's, from "C" to "B" grade). These arrangements constitute a very heavy commitment to formal training, reflected also in arrangements for higher education of engineers etc. Moreover, the National Plan for Community Development, prepared with USAID support in 1981, takes this emphasis further without any discussion of its pros and cons, in proposing a great expansion in the provision for training and the numbers to be trained (including the opening of three new community development training centres in francophone provinces, and the training of 60 engineers "over the next ten years to enable the technical Service to achieve its goal of providing an engineer for every division by the year 1992." (p. 26)¹. This policy appears to be expensive and time-consuming. An alternative might be to train on the job a cadre of water project officers who would learn both the technical tasks and liaison with communities, while working with existing staff (in addition to which they could be given short courses at the training centres during the season when rural work is least possible, in the manner of the community caretakers' courses now).
- 2) The support of SATA is given under an arrangement which preserves the independence of SATA and its engineers (the organization has its own administrative hierarchy in Cameroon) while the engineers perform a role (in charge of the construction of water projects) which would normally be performed by a member of the Department. The SATA engineer is provided by SATA with logistic support, insulating his work from the difficulties caused, in particular, by

1. For technicians, the goal is to train 40 every two years at the Building Training Centre, to provide one technician per sub-division within the same 10-year period.

the low recurrent budget available to CD. Clearly, the need is to find a way in which the whole department can work as smoothly as the SATA engineers can. This may be a matter of being able to divert more of the investment budget to recurrent requirements, perhaps by saving on estimated costs of construction. For 1977-1978 it was stated that "the running budget of one SATA field engineer is higher than the running budget of all CD field offices together¹". One wonders whether, if they had not been insulated but had had to depend on the same recurrent budget, they would not have generated more pressure for a realistic increase in this recurrent budget as a whole, as well as a fairer use of it for various aspects of the work.

- 3) The community is required to make a cash contribution to the construction of projects, and this is said to provide about 10% of the total cost, while total community contributions, including labour, are said to provide 18% or 20%. This puts the value of self-help labour at only 8% to 10%, considerably less than has been estimated to be its value in other countries for gravity piped supplies built with community labour (e.g. Malawi, 30%).
Either the value of self-help labour in Cameroon is being underestimated (this seems likely to be at least part of the explanation) or there are opportunities for further cash savings by making more use of voluntary labour.
- 4) In the design of most water supply programmes in general there is a trade-off between the technical sophistication of designs and the number of people who can be served, assuming that resources are not sufficient to achieve 100% coverage within a very short time (and this is certainly the position in Cameroon). But while any local project is being designed, there are generally pressures toward higher sophistication: all those concerned with a particular project are concerned with its quality, not least the engineer designing it.

There are indications that CD and SATA engineers have tended toward unnecessary sophistication and quality of individual supplies, at the expense of rapid extension of coverage (see, especially, Müller, page 15-16: "the engineer in charge of the area who tries

1. Müller, p. 27 (English version).

to increase the quality of the projects", "The more independently the engineers operate, the more the entire programme is influenced by personality factors", "the described tendency, i.e. to build bigger and more expensive water supplies with a longer construction time"). It may be the time to give more emphasis to smaller and cheaper solutions.

- 5) The policy in the anglophone provinces has been to design for a consumption level of 50 l/c/d by a population double its present size, and to allow private household connections. This level of service is likely to prove impractical in less well watered areas. It may be that household connections will prove a divisive factor for community participation (the interest of the whole population being no longer always the same). It may be, however, that the potential saving from reducing this level of service and eliminating the possibility of household connections would be only small and not enough to justify such a step.
- 6) For each scheme (average size: 17 public standpost taps) a local caretaker is trained and appointed, to be paid either by the rural Council (i.e. for a local government area much larger than the community served) or by the community through a Project Maintenance Committee.

It appears that frequently caretakers are not paid and do not work very well, though in one village visited, a larger one with a system requiring full time work by a caretaker, it was working satisfactorily. It may be necessary to consider a different system, for instance one in which more emphasis is put on voluntary work by the users of particular taps, less on regular payments which may or may not be forthcoming. Paid caretakers might be employed to cover several small supplies to check on intakes etc. This might also obviate a problem which has been mentioned (Müller, p. 42), namely that caretakers returning from a short course at the Building Training Centre expect to be able to give orders to other villagers, and this is resented by chiefs. The current practice of training village caretakers at Kumba rather than in their own locality may represent another aspect of the possibly over-formalised approach to training mentioned above.

- 7) The whole water supply system of a community is regarded as belonging to the whole community, rather than to any extent the particular tap being the responsibility of the users of that tap. There does not seem to be, for example, a meeting of the users of a tap at the time it is installed, to discuss its proper use. This could be changed to take advantage of the fact that it is the users of a particular tap who have the greatest interest in its upkeep.
- 8) Selection of communities for a water supply is supposed to occur through a process whereby the Community Development Assistant consults each village in his area on their needs, and if a need for water is expressed he takes the matter further; a project is undertaken if a feasibility study is positive and when the community has raised 50% of its initial cash contribution. Clearly, there are also likely to be other influences determining which villages are chosen out of the many expressing a need for water. Given the finding of all surveys that water is the most frequently expressed need (albeit these findings result in part from the fact that the local people who are asked know that water is something they might get if they say they need it), it may be that a more "objective" or technical approach, based on the identification of communities with the least satisfactory current water situation but where a supply could be provided at relatively low per capita cost, might allow a more rapid extension of coverage without detracting from the principles of community development and its approach through felt needs and community effort.
- 9) The system of raising community cash contribution does not work well and leads to long delays in the completion of projects. Projects are started when only 50% of the people have made their contributions, then later second or additional contributions are asked for further work or completion, or for maintenance, before all the people have made their initial contribution. Naturally, people are reluctant to pay more when others have not paid at all. There are provisions for the village authorities to force villagers to pay, and if necessary to bring them before higher authorities, but often this does not work very well because chiefs can not exercise such powers without causing resentment. An alternative system is required, preserving the total value of community

contributions but making them easier to collect. The system might have to be different in different parts of Cameroon and types of villages, but in general it might put more emphasis on labour as opposed to cash contributions, on graduated contributions according to ability to pay, and on collecting all cash contributions before work starts.

Workplan

A. Studies

Social scientific research will be carried out on a number of aspects of the existing programme of the Community Development Department and on the potential for increasing the coverage and effectiveness of community participation in water supply, and extending it in the area of sanitation and health education.

The aspects to be studied will include:

- (i) Questions related to coverage and to site selection for projects. The policy of the Community Development Department emphasises community readiness to contribute. It does not have the information on which to base selection also on objective criteria of need; nor does it have information on the resources available to the villages.
The study will inventorize villages, their needs and resources; it will also look at the present processes by which certain villages are selected for projects, and at possible alternatives which might combine the requirement that communities be prepared to contribute with a policy of cost-effective coverage and priority for those with the greatest objective need.
- (ii) The potential for the involvement of home-area associations ("élite groups") in the cities, as contributors to water projects in the home areas from which their members come and to which they intend to retire.
- (iii) The traditional methods of participation in water supply, and the potential for approaches which take these methods as their starting point, particularly for the villages which cannot be provided with a piped supply.
- (iv) The problem of regional differences in pattern of social organization and hence in the propensity to cooperate for community development. The boundaries of group solidarity are apparently very narrow in some parts of the country.

The significance of this, and of the respect accorded to traditional authorities in other areas, will be studied primarily through an examination of the experience of participatory projects¹ in water or other fields. The aim will be to develop approaches appropriate to local socio-cultural patterns.

- (v) Cost-effectiveness of community participation in construction. Data will be gathered in ongoing projects of the Community Development Department, to estimate the true value of the labour contribution, and the true costs incurred in using this participatory method. If possible, comparative data will be gathered on the costs of alternative methods used by other agencies.

A detailed comparison will be made of the procedures used in Cameroon with those used in Malawi's similar programme of gravity piped supplies, to identify possible improvements in cost-effectiveness.

Cost-effectiveness of different technical solutions will also be compared, with the aim of contributing to the formulation of it.

- (vi) The problems associated with the requirement for cash contributions from individual villagers (toward capital cost). The collection of contributions may cause considerable delays.

- (vii) The consequences for villagers' willingness to contribute in cash or labour, of the policy of allowing house connections.

- (viii) The policy and procedures for village involvement in maintenance. The study will include a survey of the existing maintenance situations. Data will be collected at provincial, district and division levels and through a sample of completed projects where an in-depth approach will be used.

1. Preliminary discussions have been held with the Practical Training for Health Education project, which supports community health committees in the South-Central and Eastern Provinces; and the Italian volunteer organization, supporting community well-digging.

- (ix) The potential for an increased health education and sanitation element in the procedures of the Community Development Department in the implementation of water projects, and in particular the greater involvement of the Women's Service (the female Community Development Assistants).
- B. Discussions of the results of the studies, and development, together with the Department of Community Development, and the Swiss Association for Technical Assistance (SATA, which provides strong support for the Department), of further participatory procedures and methods.
- C. Pilot or trial implementation of alternative procedures in specific areas/water projects, by the Department of Community Development, to be advised and monitored by the project.
- D. Final analysis of results and reporting. Participation in a regional seminar of inter-country exchange of experience.

Timetable

The project will start after funding approval is received. Preparations for the study phase will start immediately.

Study phase A (including preparation and implementation): One year.

Phase B will begin during the study phase.

Completion of phase B and Phase C: 9 months.

Phase D: 3 months

Total : 2 years

Persons contacted

Department of Community Development, Ministry of Agriculture

Mr. A. Ndonyi	Director
Mr. J. Biket Bassilekin	Provincial Chief of Service, Littoral Province
Ms. Atabong	Provincial Chief of Service, South-West Province
Mr. C.J.B. Kange	Divisional Chief of Service, Fako Division
Mr. Gauus	Divisional Engineer, Fako Division
Mr. N. Benjamin	Ministry of Agriculture Chief Delegate, Fako Division

SATA: Swiss Association for Technical Assistance

Dr. R. Fischer	Director
Mr. J.F. Tschopp	Engineering Advisor to the Community Development Department

Pan-African Institute for Development, Buea branch

Dr. L. Kirya	Director, Du Sautoy College
Dr. P. Langley	Research Fellow
Mr. G. Ssenkoloto	Lecturer in Community Development

Practical Training in Health Education Project (PTHE)

Dr. D. Candy	Director
Mr. M. Davies	Staff member

Private Agencies Cooperating Together (PACT)

Mr. T. Franklin	Director for Africa, Yaoundé
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Centre pour le Développement Auto-Centré (Ce.D.A.C.)

Mr. G. Polimi Italian volunteer

Chief Mondoa of Bonadikombo village; water maintenance committee members
of the villages of Bolifamba and Mutengene, all of Fako Division.

Royal Netherlands Embassy

Mr. P.J. Wolthers 1st Secretary

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2. Franklin, Tom: Cameroon: rural water sector: a preliminary study. USAID, Yaoundé, 1979, 60 pp.
3. Müller, Hans-Peter: Die Helvetas-Wasserversorgungen in Kamerun: eine ethnologische Evaluation. SATA-Helvetas, Yaoundé, n.d. (c. 1980), 94 pp. plus English version of 45 pp.
4. 1964-1974 Dix Années de Coopération Département du Développement Communautaire - SATA dans la République Unie du Cameroun. Buea, c. 1975;
5. A.W. Ndonyi: "Community participation in community water supply and sanitation projects", situation paper, International Conference on Slow Sand Filtration, Bafoussam December 1981;
6. A.W. Ndonyi: "Position paper on community development and human investment in Cameroon";
7. R.B. Isely: "A community organization approach to clean water and waste disposal in Cameroonian villages", Progress in Water Technology Vol. 11, Nos. 1/2, 1978;
8. WHO/IBRD Cooperative Programme, W. African Regional Office, Report No. 902-CM: Cameroon: Water Supply and Sewerage Sector Study (2 Vols.), 1975.
9. D. Curtis and T. Franklin: (project proposal for) An evaluation of the community development approach to Cameroonian rural water supply development: A case exercise in organizational research and development.

KENYA (Visit by A. White 20-27 January 1982)

Discussions on the proposed project were held with the Ministry of Water Development, the Ministry of Health (Public Health and Health Education Divisions), and with the Principal Community Development Officer, Social Services Department. All expressed a considerable interest in the project and intimated that they would be able to make available senior staff members to participate in the appraisal studies and other work involved. A draft proposal with a workplan (Annex C)¹ was presented and it was agreed that this proposal will be submitted for approval to the National Action Committee for the International Drinking Water Supply and Sanitation Decade. If it is approved, it is expected that the Ministry of Water Development will play the leading role in Kenyan participation in the project, and appoint a staff member (economist) to be responsible for it. An inter-ministerial committee will be convened to coordinate the project.

The Chief Water Engineer, Ministry of Water Development, suggested certain additions to the content of the proposed workplan. It was agreed that changes along these lines can be incorporated in the final version. They concern: (1) the question of water tariffs²: a study of the way in which tariffs will affect the reaction of the people to the manner the water supply system is developed, and of the feasibility of a localised tariff for the community; (2) the question of the best target group for an educational effort - possibly schoolchildren; (3) the need to choose 3 or 4 representative geographical areas to focus upon; (4) the need for a regional workshop toward the end of the project.

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1. Annex C, prepared in advance by Drs. Christine van Wijk. See also Annex D for the background to the project in Kenya.
 2. In this area coordination would be required to ensure there is no duplication of effort with another proposed study, supported by WHO and SIDA (Jan Valdelin: Proposed Plan for Kenya Rural Water Use Study, December 1981).

Current situation with respect to community participation in water

Kenya has developed a distinctive pattern of community participation in local development projects of all kinds, including water projects: it is known by the Swahili word "Harambee". It is characterized by the encouragement of local initiative (often the initiative of local political representatives) to set in motion projects which will rely both on the raising of substantial amounts of money through voluntary contributions and on support by government agencies. The local community or group approaches the technical agency to establish the technical feasibility of the project, then applies for a permit to raise the money. The amounts contributed and raised by locally prominent individuals (including those from the local area who have achieved high status in the capital) become a matter of rivalry for prestige.

It is the operation of this system in the sphere of water supply which would be the particular focus of the CEP in Kenya. A detailed presentation concerning community participation in water supply in Kenya will be found in Annex D.

Karen Village Technology Unit

Mrs. Kamau	Administrator
Mr. F. Yoya	Demonstrator

Mazingira Institute

Mr. D. Lamba	Founder
Ms. D. Lee-Smith	Director

Swedish Embassy-SIDA

Mr. Tikannen	Programme Officer, Water Sector
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Royal Netherlands Embassy

Mr. M. Hilberts	2nd Secretary, Development
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Note on practical aspects of the project in Kenya

Manpower

The Ministry of Water Development expects to be able to contribute the services of an economist; the Chief Public Health Officer, Ministry of Health, of a public health officer; the Principal Health Education Officer, Ministry of Health of a health education officer, and the Principal Community Development Officer, of a community development officer. In each case, it will be part-time work and periods of full-time involvement as specific types of input are required in the course of the project. Apart from these contributions, there will be a need for visits by international consultants and/or central project staff, and a local coordinating role which may be undertaken by the MWD economist. It will also be possible to engage the services of national consultants for this and for substantive work in appraisal and in the development of new approaches, e.g. in the field of participatory health education.

Transport

It was kindly suggested by Mr. Hilberts of the Royal Netherlands Embassy, that a landrover, with camping equipment, used until February 1982 by the Dutch expert Mr. G.A. Beaufort and to be transferred to the Embassy upon his departure, would be made available for use by the project.

MALAWI (Visit by A. White, 27 January - 3 February 1982)

Discussions were held with the Department of Lands, Valuation and Water (DLVW) of the Office of the President and Cabinet.

It was explained that, because of the danger of over-commitment of the CEP project to more than the four countries envisaged, firm proposals for a project in Malawi could not be presented during the visit. It was agreed that, should we be able to proceed, proposals will be submitted by mail. In any case, it is envisaged that there will be a CEP component in the Malawi sub-project of the IRC's Public Standpost Water Supply Project which is to be located in small urban centres. It would be highly desirable if this could be coordinated with work within the CEP project in respect of the rural water supplies of (1) the Rural Water Section, Water Supplies Branch, DLVW (gravity piped supplies), and (2) the Ground Water Section, Water Resources Branch, DLVW (wells and boreholes). The Rural Water Section is well-known for its extensive use of participatory methods, and much can be learned from its experience for the benefit of other participating countries, while the CEP project can also be of use to the Rural Water Section in the fields of evaluation and the development of a health education component (see below, Possible Workplan). The Ground Water Section is embarking on a new participatory approach to a combined borehole and well programme, and there are clear possibilities for collaboration with the CEP project (again, for detailed discussion see below).

Summary of Water Supply Situation in Malawi

The Department of Lands, Valuation and Water (DLVW), within the Office of the President and Cabinet (OPC) is now responsible for all water supplies, rural and urban. This Department was established in 1979. Previously, beginning in 1968, a section of the Ministry of Community Development under Mr. Lindsay Robertson as Principal Water Engineer (Rural) had developed the pattern of rural provision using considerable community participation, which has become well-known for its cost-effectiveness. This programme involved primarily gravity piped supplies, but also protected wells. Now, the gravity piped supply programme continues under Mr. Robertson as Principal Water Engineer of the Rural Water Section, part of the Water Supplies Branch of the Water Division of DLVW. It continues to use and develop participatory methods.

Following the establishment of DLVW, however, responsibility for shallow wells has been combined with that for rural boreholes (these boreholes are drilled up to 30 metres in depth, and provided with handpumps), in the Ground Water Section of the Water Resources Branch of the Water Division of DLVW. The borehole programme had previously been carried out by the Geological Survey (between 1968 and 1978 the private Christian Service Committee had financed 694 boreholes).

There were no significant elements of community participation in the borehole programme of the 1970's, but now the Ground Water Section intends to adopt a fully participatory approach for boreholes as well as for wells (see below, Pp. 45-51 esp. Pp. 49-50).

It is hoped to achieve virtually 100% coverage by 1990 through expansion of both the Rural Water Section (gravity piped) and the Ground Water Section (shallow wells and boreholes) supplies, throughout rural Malawi.

Currently, coverage is of the order of 10-15% by gravity piped supplies and possibly 15% or 20% by boreholes and wells with pumps taken together. (It is stated that "By the mid-seventies a third of Malawi's people already had access to safe water"¹, but my impression of the position with regard to the use and breakdown of older boreholes and protected wells suggest that it might really have been less than this). For the future, between 25% and 33% of the rural population may by 1990 or shortly thereafter be supplied through gravity piped systems, the rest by the Ground Water Section using a combination of boreholes and wells with handpumps. The exact proportion to be covered by gravity piped supplies depends on final assessment of physical feasibility in a number of locations, but also is a matter of some disagreement since it is argued that some streams should be reserved for use in irrigation schemes. There is also a question whether some catchments can be preserved from encroachment by cultivators (currently the gravity piped supplies are taken from streams above the level of habitation, and the water is not treated; a need for treatment would of course raise costs considerably).

1. Ref. 8 Cf also Ref. 4, P. 73: "About 70% of urban dwellers and half of all rural families now have safe water supplies" (i.e. in 1981). This too may overstate the coverage.

Urban Malawi contains only 10% of the total population. It consists on the one hand of the 3 main centres of Blantyre, Lilongwe and Zomba, and on the other of 50 small towns. Blantyre and Lilongwe have water boards which supply the poorer sections through kiosks (see below for a description of the kiosk system at Lilongwe) with the possibility of private connections.

The small towns are the object of a new Water Point Project financed by a grant from the UN Capital Development Fund (UNCDF) and with technical assistance from WHO (Mr. Raymond Carrié, WHO Sanitary Engineer, arrived in Malawi to take up the post of WHO Water Engineer for the project, in December 1981).

Currently, some towns have the same system as in Blantyre and Lilongwe whereby water is sold in the poorer sections at kiosks; elsewhere, standpipe water is provided against a fixed monthly charge upon surrounding households, or in some cases is provided free of charge to the consumer, the cost being met by the local authority. The Urban Water Point Project will encourage a uniform approach to tariffs and methods of charging. IRC will participate in this Project through the IRC Public Standpost Project.

Possible workplan in Malawi

It would be desirable to work in collaboration with 3 branches of DLVW: the Rural Water Section, the Ground Water Section, and the Urban Water Point Project. The work to be done would be rather different in each case, reflecting the different degree of experience with participatory techniques in each of the three sections.

Water Supplies Branch, Rural Water Section (gravity piped supplies)

The experience of this section is the most extensive in Africa in the construction and maintenance of rural water supplies through community participation. A detailed description of the methods followed up to 1979 has been given in an M.Sc. thesis (Ref.9) by Colin Glennie, former second-in-command of the section, shortly to be published in a revised version.

In addition, there are two recent partial evaluations by Malawian authors based at the Centre for Social Research, University of Malawi (Refs. 5,6). Finally, the Rural Water Section itself has established a Monitoring and Evaluation Programme as part of a Training and Research Unit. This programme is now coordinated by a US Peace Corps volunteer. An IRC input into evaluation and social research in connection with the Rural Water Section should be complementary to these existing initiatives.

One important area which is not covered by the existing studies is the analysis of cooperation with the programme at community level. For other countries, the most crucial question about the Malawi programme is: Are there special features of the local social situation in Malawi which make the elicitation of large-scale community participation especially easy in that country, or could similar methods work in many other countries also? An answer can only be given to this question through comparative research in Malawian communities (and preferably at the same time in communities in other countries) looking at the process of cooperation within the community at the time a water supply project is introduced and constructed - preferably also while it is being maintained later. Such a study should also be of valuable assistance to the programmes of the Rural Water Section and also the Ground Water Section in Malawi, in helping to overcome the difficulties which they encounter with cooperation in some communities (or at least in explaining them).

The existing studies do not really address themselves to this question, or concern themselves with what goes on within the community. At the level of practice, the Rural Water Section staff, particularly the Project Assistants and their Supervisors, undoubtedly have considerable knowledge and experience in this field, and a study should begin with extensive interviewing of staff aiming at systematic presentation and discussion of this experiential knowledge. This should be followed by interviewing of villagers in a number of villages where different types of problems appear to exist (as becomes evident in discussions with staff).

Village interviewing must get beyond formal interviews with village leaders: sufficient time must be allowed in each village so that there is an opportunity to talk with a cross-section of villagers. This may mean two or three days to a week per village. In some few villages, the understanding gained in this period should be checked by a longer stay, especially at a time when construction activities are in progress, so that observation is possible of the day-by-day process of mobilisation, of which kinds of people actually turn up for the collective work etc.

There is an important general question here: in all voluntary communal work, there is a tendency for a fall-off in the number turning up for work after the first day, usually accounted for in terms of a fall-off in interest and enthusiasm. However, the decline in enthusiasm should presumably affect everyone: there is a need to focus attention on who comes for work and why, and who doesn't come and why not.

Moreover, one would expect that each person will to a great extent take his cue from others, so that if he sees one day that others are failing to turn up, the next day he will not turn up himself (or herself). Is this borne out in the Malawi projects, or are there mechanisms which ensure that some of the people will complete the construction, even if it is not all those who are called upon to do so?

A second area of possible collaboration with the Monitoring and Evaluation Programme of the Rural Water Section concerns the arrangements for community participation in maintenance. The attention paid by the Section to this question has increased markedly since Glennie's thesis was written, particularly with the establishment of the Monitoring and Evaluation Programme itself. It is now recognised fully that it is not possible simply to leave maintenance to the community, but that a well-organized effort to support, liaise with, and monitor community maintenance activities is required. 16 monitoring assistants and 2 supervisors have been appointed, drawn from previous project assistants with the required attributes including community mobilisation skills.

This system is now being supported by a USAID grant (the bulk of which goes to new construction), but it is considered that it will be quite possible to sustain it after the end of the 5-year period covered by the grant, from a Malawi Government budgetary allocation of K.50,000 (approx. \$ US 50,000) per year available for maintenance and rehabilitation.

Given the problems with maintenance in other countries, increasing attention generally is likely to be paid to systems which combine some community responsibility for maintenance with a monitoring and support staff funded by government, and to maximising the cost-effectiveness of this cadre of staff. It will be of great general interest, therefore, to analyse the strengths and possible weaknesses of the system established by the Rural Water Section in Malawi. Clearly, among the important characteristics of this system are the following:

- 1) It has been established within the same section of the water agency;
- 2) That section has never let down local communities completely after they have fulfilled their part of a bargain in doing work for a water supply. There have been some occasions in which a delay in the arrival of pipes has led to the caving-in of trenches which have been dug, necessitating re-digging, but there has been no failure and the good faith of the Section is evidently apparent to the villagers.
- 3) The monitoring assistants have themselves worked on the installation of supplies within the section.
- 4) They have been trained entirely within the Section, largely on the job, and in both technical and community development tasks: there is no need for integration of effort between different services or different sections of the same service.
- 5) Their prior educational qualifications were low.
- 6) At community level, a hierarchy of committees/repair teams is established corresponding to the hierarchy tap/branch line/overall scheme.
- 7) Women are included and given the small training as members of repair teams, as well as men in the villages.

- 8) The water schemes generally fall within the jurisdiction of a traditional chief and benefit from his authority (schemes crossing boundaries of chiefdoms are found more difficult to manage).
- 9) At the moment a new tap is installed, a project staff member addresses the future users, securing their agreement to certain rules about tap use (principally, all water must be carried away: there is a prohibition of washing clothes, or even of hands, at the tap); at this meeting the 'tap users' committee/repair team is chosen.
- 10) No house connections are allowed (a few cases have occurred in which powerful people have installed such connections, and it is one of the prime concerns of project staff to combat this: it is hoped that a law will soon be on the statute book to prevent it more effectively). The reason is that house connections divide the local community over water, while a system without house connections unites it.

In particular, it is considered that people would be less inclined to work voluntarily on the construction or maintenance of the water supply if they knew that some other people would benefit from it more than themselves through having a house connection. There is an additional technical argument: in designing the system it is at present not known where demand for house connections would be concentrated, with its implicit requirements for additional design capacity.

- 11) There is no community contribution is cash at the time of construction. In my opinion it would probably also be divisive if there were, since the capacity of Malawian villagers to pay varies very much from household to household: during the current rainy season in progress at the time of my visit to some Mulanje villages, a large number of villagers said that they had run out of maize from last year's harvest, and were able to eat at the moment only by working for other villagers in return for food. This is in part an effect of the expansion of population to fill all available land in this area: traditional landholding arrangements which enabled all members of the community to have access to sufficient land in the past, now mean that some people have plots which are too small to sustain them. There is therefore considerable differentiation of wealth and income within an apparently subsistence village economy.

The labour contribution, which is said to be worth some 30% of the total construction cost of the water supplies, is demanded from everyone however well off, and is a unifying factor. (Conceivably, there are villages in which some people successfully exert power to escape the obligation: it would be a question to investigate: the only cases of which I was told were of government employees stationed in the villages who claimed the labour obligation did not extend to them: teachers, and in one case a sanitary assistant!)

- 12) If the tap itself is damaged or wears out, the tap users have to pay for a new one (it costs K 4, and may be bought from the Section or from a private shop, in line with the principle of community ownership). This money is then specially collected from each household. Some poorer villages do have a problem in raising this small amount for a specific purpose.

If the standpost itself is damaged (vandalism, esp. drunks), the tap users also have to pay, but not for replacements or damage elsewhere in the system (pipes, intake destroyed by flood etc.). Their repair obligation is only for labour as with construction. No information has been gathered on how cash is collected in the community: such information would be valuable.

- 13) Washers are provided free (the parallel struck me between this and the provision in some countries of free preventive medicine, while curative medicine is charged from; but in Malawi, medical treatment is free too).
- 14) The work done by committee members and repair teams of villagers is voluntary and unpaid. It is important that the work required is relatively small and occasional. It appears that usually committee members are not needed to do much cleaning of the site around the taps on a day-to-day basis, because users themselves take care and any woman may do the odd bit of cleaning when required. It seems there is the usual problem of committees becoming inactive because of lack of things to do, and of members moving away and not being replaced. But women are very much more likely to stay put (most Malawian societies are uxorilocal, with men moving to where their wives have always lived; while in contemporary Malawi men must often seek work away from home), so the recently increased emphasis on involving women in training for repairs should bear fruit.

In the past, before the establishment of the Monitoring and Evaluation Programme, the work of water committees was often taken over when they became inactive by other village committees - development committees etc. Perhaps this will have been changed by the increased effort to maintain active water committees. But it might be worth investigating whether this is necessary.

- 15) The rather great amount of work involved in keeping an eye on, cleaning and occasionally replacing the mesh at the intake and sedimentation tank (mostly a matter of walking several miles to the intake from the nearest inhabited area) has been a problem. At the largest schemes men have been employed at a full government wage; but this is unsatisfactory, especially for rather smaller schemes, since there is no need for a full day's work.

It is impossible to allow a villager to cultivate a field near the intake, because it would create a precedent leading to encroachment on the catchment (already a major problem and likely to be an increasing one as land gets scarcer while the sites for new gravity supply schemes get progressively less ideal as the best ones have been used). Yet there is too much work for a villager to be expected to do it without payment, and the idea of a small community payment to a community member is not attractive either.

A third area of collaboration with the Rural Water Section might be in the development of arrangements for the incorporation of a sanitation and health education component into the system. This should be done in relation to the Health Impact study which forms a part of the intended work of the Training and Research Unit. The Health Impact study will be based on comparing the areas covered and not covered by piped water supplies in terms of the nutritional status of young children as determined by arm-band measurement and measures of height and weight by age. The reasoning is that as improved water supply reduces diarrhoeal disease among young children, they enter less often into debilitating disease episodes which worsen nutritional status (sometimes also leading to death though this would not be separately measured).

There are obvious problems with this approach, notably that the effect will be masked by other factors affecting the incidence of disease among young children or affecting their nutritional status directly (probably in particular parasitic disease related to poor hygiene and sanitation, and the amount of food fed to the children, related to the socio-economic situation of the mother and to seasonal factors). Other studies of the health impact of water supplies elsewhere have failed to demonstrate conclusively an improvement of this kind (what has been demonstrated is only a reduction of specific diseases, cholera and typhoid, and this not in every case). It is generally thought that a "package" of measures, including sanitation and health education as well as water supply improvement, is likely to be much more effective in improving child health than water supply improvement in isolation.

The Rural Water Section is, in any case, intending to extend its activities in this direction to the extent that the monitoring assistants are to impart to the communities where they work "increased understanding and application of improved hygiene practices in relation to water quality and disease" (Ref.7). It is suggested that the IRC document on "Health Education and Community Participation in the Slow Sand Filtration Project" could be used as the basis for the development of guidelines for the monitoring assistants and their supervisors in carrying out sanitation and health education. This could be done first on an experimental basis in one part of the area covered by the Section's water supplies, and the effects measured through the Health Impact study. It is proposed that the Ministry of Health should collaborate in this exercise through the newly-appointed MoH Water Sector Coordinator (a parallel exercise could also be undertaken within the Ground Water and Urban Point programmes, see below).

Water Resources Branch, Ground Water Section (wells and boreholes)

This section was only recently formed (1980). It is directed by a UK ODA Groundwater Team. It took over responsibility for shallow wells from the Rural Water Section, taking over also the lower-level staff of project assistants who had been trained in community mobilisation as well as technical aspects.

Apart from this Government wells programme, wells had also been dug (by local communities) and protected with assistance from District Development Committees, often using funds from a Christian Service Committee grant (ref.5, P. 26). Thus, well-sinking had been a matter of wells dug by self-help labour. However, the Section also took over a borehole programme in which community participation had been practically non-existent.

The section inherited from Geological Survey a set-up which was over-stretched to maintain the existing 4,000 boreholes-with-handpumps, and which was also committed to a dispersed drilling programmes funded by the Christian Service Committee, for 4 boreholes in each District (100 throughout Malawi).

There has been, and continues to be, a considerable problem in the financing of borehole maintenance. The District Councils were supposed to pay DLVW an annual maintenance fee of K 120 for each borehole, but a District with a number of boreholes and few sources of income other than a meagre Central Government subsidy could not afford to do so, and were often defaulting. This led or contributed to a poor maintenance record: 15% of a sample of boreholes were found to have been out of order for at least a month, in 1980 Ref.5, P. 14), and there was little or no preventive maintenance. A new system has now been introduced under which the District Councils are charged for what is actually done, but this does not solve the basic problem that many Councils have too little money to pay: they still default.

In this situation, the strategy of the new Ground Water Section has the following main features:

- 1) The borehole and well programmes will be combined into one to the maximum extent possible. To reinforce the idea that the two techniques are equally valid, the external appearance of the completed borehole and dug well will be exactly the same (above-ground parts of handpump, apron, soakaway, washing slab).

- 2) Community participation in construction and maintenance is intended to be maximised. The intention is to include more elements of participation in the drilling and maintenance of the boreholes than are usually found elsewhere.
To equalise the community labour requirement for the two techniques, it is intended to require communities where boreholes will be installed to contribute some labour for wells in other villages (by hand-knapping stone for their wells). Since it is in the area of community participation that IRC collaboration is suggested, this will be discussed further below.
- 3) Construction programmes will be geographically concentrated (once the inherited obligation to complete 4 boreholes in each district is fulfilled).
A project in a given area will complete 100% coverage of that area. The application of this approach is starting in January 1982 with the Upper Livulezi Project covering a population of 60,000. Through this project, financed by a number of donors (Christian Service Committee, ODA), the Section is participating in the UNDP/World Bank Global Handpump Project.
Following this, 8 further areas will be covered as part two of the 8 integrated regional projects under the National Rural Development Programme. One of these projects, Dowa West (pop. 70,000) will also start in 1982.
- 4) The Section is developing technical solutions (esp. new handpump designs) intended to maximise the potential for local maintenance (by the community, with help from the Section at minimum cost). As with the Blair Pump developed in Zimbabwe and the Volanta Pump developed in Guinea-Bissau and Upper Volta, the Section's Malawi Pump is designed to be easily removable from the borehole by the local people, without much equipment. Unlike the Blair Pump, it will work at depths below 12 metres (up to 30 metres). Unlike the Volanta Pump, it is mainly made of light PVC (using PVC drop pipe rather than steel rope; and reciprocating handle action rather than a fly-wheel). The cost of the pump is K 250 (approx. \$ 250), and the total cost of a borehole complete with such a pump and drilled as part of a concentrated project is K 1.500. A borehole is intended to serve 250 people, so the cost is K 6 per capita. The

cost of the previous borehole programme, at 1982 prices, was around K 6,000 per borehole or K 24 per capita. (It should also be noted that of a sample of boreholes of the old type visited in 1980, 42% were not being used for drinking water: 17% because they were broken down or dry, and 25% for reasons of taste and availability of preferred sources (Ref.5, P. 9, Table II (iv)).

However, the number of people actually using boreholes may be on average rather higher than 250.(Ref.5, P. 12) The shallow well handpump being developed will cost K 150, within a total dug well cost to the Section (excl. free labour) of K 750, to serve 125 people, i.e. also K 6 per capita. This identical figure discounts, of course, the difference between the amount of voluntary labour required.

- 5) Maintenance will follow a three-tier system. At village level, pump attendants will be chosen by the Village Development Committee to be responsible for all pumps in one village (note: this might be a mistaken approach - those drawing their water from a particular pump are those interested in its upkeep). This will cover minor activities up to preventive maintenance and "minor replacement". Any payment for the work will clearly be left to the village. The next level is that of an Area Pump Mechanic, responsible for 50 pumps, to see each one at least every four months, on a bicycle. It is the payment for this level of maintenance which is the main unsettled question in the programme. It is calculated that an annual flat rate fee of K 2 per household would cover it (and presumably also the higher tier backup), but this would be contrary to the government policy of free rural water supplies. Otherwise, it could be paid by Central Government either through an additional subsidy to the District Councils which are falling down on their present obligation, or directly to the Borehole Fund. One possible way in which the actual work might be organized is by a contract between the District Council and pump mechanics as individual entrepreneurs.

The higher tier, which will certainly depend on the Section at District or Regional level, will involve supervision of 1000 pumps by a District Pump Technician with a vehicle and driver.

- 6) The existing boreholes will be maintained and rehabilitated. The old pumps are regarded as so difficult to maintain that they may often be replaced and discarded. Current maintenance cost is K 60,000 per year (i.e. K 150 per borehole).
- 7) The existing borehole staff, with no experience in or inclination toward community participation, will not be trained or used for it. Maintenance officers will be recruited and could be given training in this field and that of health education. The existing wells staff can be used for community liaison. There is no parallel sanitation or health education element at present, except as these may be covered in the integrated rural development projects.

The IRC CEP Project could collaborate with the Ground Water Section in the development of the provisions for community participation, in particular in the evaluation of their effectiveness at village level and possibly suggesting modifications. As in the case of the Rural Water Section, a participatory health education approach could be introduced using the document "Health Education and Community Participation in the Slow Sand Filtration Project" as a basis. Indeed, application of a similar approach in both programmes would constitute a valuable comparative double test.

The elements of community participation in the Ground Water Section's planned programme are:

- 1) Site selection. The community is to be involved within technical constraints. "The community will choose the site, within reason": in practice, the Project sometimes has to find spurious technical grounds to overrule headmen who want the site outside their houses. On this point, it may be possible to find out, through a close monitoring of the actual procedures used at community meetings etc., exactly how the siting needs to be presented in order to achieve the solution which is most satisfactory to most community members, without needing to overrule headmen or find spurious technical arguments.

The Section does not offer the community the choice between different levels or types of service: between wells and boreholes

(nor does the DLVW as a whole offer communities the choice, where feasible, between gravity piped and hand-pumped supplies.)

- 2) A village water committee organizes the village contribution to construction.
- 3) Village men dig wells.
- 4) In borehole drilling, a village man helps the drilling team. The main objective is that at least one villager will have a clear idea how boreholes are made, that there's no mystery about them, and he can be the attendant afterwards. But there have been problems from the 4-man employed team, which does not like to have a different extra man each week.
- 5) Clearing access routes for borehole equipment or for the lorry bringing concrete rings for the wells. (Men).
- 6) Making about 1,000 bricks for the apron. (Men).
- 7) Women bring the water needed by the borehole team until they reach the water table. (Usually the women living closest by make many trips).
- 8) After completion, keeping surroundings clean. (Women).
- 9) Village level maintenance, as mentioned above. Up to now, a village man has been appointed. In view of the greater interest of women in keeping water supplies in operation, and the much greater likelihood that a man designated as pump attendant will leave the village temporarily or permanently, it may well be better to appoint a woman.

On this point, an internal evaluation report (Ref. 16) states (P.2) that "Most women, however, feel that it is a man's job"; on the contrary, on P.9 the same report contains the more detailed information on which that statement was presumably based, and there it states: "Most women were prepared to be trained to maintain or

repair the boreholes and shallow wells. 81 per cent of the women were prepared to be trained whereas 19 per cent think it is a man's job".

Urban Water Point Project, Water Supply Branch (supplies to poorer sections of towns)

It is proposed that there should be a Community Education and Participation element in the input provided by the IRC Public Standpost Project to this Project.

As the Urban Water Point Project is planned at present, the element of community participation or education is hardly present at all and certainly not comparable to the practice of the Rural Water Section or the plans of the Ground Water Section. There is no element of consumer choice other than the individual choice whether to have a house connection; no labour contribution to construction; no participation in maintenance.

As for sanitation, there is a legal requirement to have a latrine, and houses are demolished if their occupants do not comply. There is the intention to bring in the Health Inspection staff for parallel improvements on the sanitation side; and the newly appointed Ministry of Health coordinator for the water sector will be involved in discussions of parallel health education initiatives.

The basically non-participatory approach corresponds to usual practice in Malawi for urban areas. It is paradoxical that, while in Malawi there are many surviving elements of traditional social organization in urban areas, these are not used for community development purposes by government agencies, in spite of the successful experience in rural areas (Ref. 10). In contrast, in Zambia where the towns have a much looser social organization, self-help projects have been successfully promoted by government agencies there.

Perhaps the reluctance to do so in Malawi is related to the policy of limiting rural-urban migration by creating obstacles to settlement in towns. This is said to be the reason for the contrast between the policy of free water in rural areas and the requirement to pay for standpost water supplies in poor urban areas. This statement is made in Ref. 4, P. 74, where it is said that "Some low-income sections of urban centres such as the Traditional Housing Areas are served by public standpipe sales points at which water is sold cheaply".

The problem is that water sold by the bucket ("kiosk supplies") cannot be cheap if costs are to be recovered. The water vendor has to be paid from the proceeds.

The differing systems in operation in Blantyre and Lilongwe until December 1981 also illustrate some other practical difficulties. In Blantyre, water was sold at 1 tambala, the smallest coin, for 36 litres - rather too much to carry with comfort. This price corresponds approximately to the cost of the water itself to the agency, not taking into account the wages of the 57 attendants, 2 revenue collectors, 2 drivers and 2 watchmen operating the kiosk system (47 kiosks).

Thus the revenue collected amounted in 1980-1981 to 50% of what would have been required to break even. 80% of the revenue collected was needed just to cover the cost of collection. In Lilongwe, the system was that the consumer bought a booklet of 72 tickets each entitling her to 18 litres, for 25 tambala (this means that 1 tambala bought 52 litres, a subsidised price). At this price it would be impracticable to use the system of paying directly with the coin, since 52 litres cannot be carried away. However, this system has higher operating costs because of printing tickets. Moreover, there was no adequate control over the vendor, who could allow some people to draw more water than they paid for; in fact, about half of the water expended was not actually paid for, and the money collected did not even cover the cost of collection. In December 1981 the system has been changed to the one previously operating in Blantyre: strict control over the vendor is maintained by monitoring a meter at the standpost. However, at the same time the price has been raised to 1 tambala for 18 litres, i.e. by 2.9 times!

With existing levels of consumption, this will amount to between 8% and 10% of the lower incomes (the minimum wage: in Lilongwe it is said that women do not generally contribute an additional income to the household). When I visited the kiosks, the majority of women did not complain about the new system or prices - it appeared they had not made the calculation of how much more the water costs them, simply because the form of payment has changed. Some approved the fact that the vendor could not exercise favouritism. One vendor complained on the grounds that she now had to pay for her own water. The only strong complaint was from a local councillor (living next to one standpost, but with his own private connection), on two grounds: (1) that people cannot buy the booklets when they have money, immediately after the fortnightly or monthly receipt of pay, but have to set aside large quantities of 1 tambala coins, and (2) the vendor can be seen carrying the box of coins home and runs the risk of being assaulted (as an additional control on the vendor she has to put the coins into a box to which she does not have the key, and is therefore unable to hide the money about her clothing; nor is she able to give change).

If the reason for not adopting in urban areas a participatory approach similar to that used in rural areas (self-help labour in construction, but no payment for water) is primarily to discourage rural-urban migration by making urban life more expensive, it applies much more strongly to the main urban centres it does to the 50 small towns are the subject of the Urban Water Point Project. Indeed, the policy is to promote a decentralised urban growth through the provision infrastructure in secondary towns (Ref. 4, P.53). If the economic break-even price of a kiosk system's water to the consumer amounts to 10% of the consumer's income, the system is unacceptable (income will be diverted from other essential expenditures, or recourse will be had to polluted sources).

Therefore, it is suggested that on an experimental basis within the IRC Public Standpost Project, the Urban Water Point Project should adopt a participatory approach including self-help labour and, instead of the kiosk vending system, the exploration of alternatives such as the levying by local authorities of rates upon those living within access to

standposts. It may even be possible to ask tap committees to collect flat rate payments from those households habitually drawing their water from a particular tap.

As a participatory approach in urban areas is advocated by Dr. Kandaŵire, the Head of the Sociology Department at the University of Malawi, he might be asked to advise in the establishment of a system. An essential feature of a participatory approach, however, is that its form should only be finally settled after consultation with the population to be affected.

The first step to be taken should be that of exploratory consultations in the three towns designated for the IRC Public Standpost Project. A 2-person team is proposed: one from IRC and one from the University of Malawi (possibly Dr. Kandaŵire or Mr. Louis Msukwa, both of whom are social scientists who previously worked with the Department of Community Development when it was responsible for rural water projects with self-help). A period of 3 weeks is required for the consultations and the writing of a short report.

A further possibility, which should be explored at the same time, is that of incorporating a participatory sanitation and health education element. For sanitation, a Ventilated Improved Pit Latrine could be popularised through the system of users' committees established for the water project, and/or there could be a more thorough approach to the discussion with the local population of all water-related aspects of hygiene and health. The exploratory consultations should establish what is feasible in this respect. Again the IRC document prepared for the Slow Sand Filtration Project can be taken as a basis for discussion.

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Persons contacted

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Dr. J.A.K. Kandaŵire

Head, Department of Sociology

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Economist, Centre for Social Research

TOGO (Visit by L. Hoffman 21 December - 6 January, 1982)

Summary of Discussions

Department of Community Development: Mr. Tcha-Tokey

- Expressed great interest in CEP Project and requested that Togo becomes a member. Hopes an appraisal of the existing experience in community participation can be carried out.
- An interregional seminar should be held to permit not only member countries but other countries as well to exchange ideas and benefit from the community participation experience.

Division of Sanitation and Hygiene - Plateau Region: Mr. Zozo

- Expressed interest in CEP Project.
Specifically interested in receiving information materials from IRC on low-cost sanitation options. Although the conventional pit latrine and ventilated improved pit latrine are the options under consideration for the latrine construction component, they are interested in use of composting latrines as well. Copies of IRC document "On-Site Sanitation Options Manual" have been provided for use in waste disposal latrine construction programme.

The Division of Sanitation and Hygiene within the Ministry of Public Health is responsible for environmental sanitation in the rural areas. Upon a request for a waste disposal programme from a community, a team of sanitary agents will visit the village and carry out a health and sanitation education campaign.

Various options are presented to the community: for example the pit latrine, ventilated improved pit latrine, pour-flush latrine. The agency provides technical assistance, the cement and the mould to construct the slab for the substructure, and the villagers construct the substructure and superstructure.

European Development Fund (EDF) Project

EDF-BRGM (Bureau de Recherches Géologiques et Minières)

Because the brief appraisal mission was carried out during the holiday period, it was not possible to meet with the EDF or BRGM representatives responsible for the project nor to visit any of the villages involved. The information provided here was obtained from reports (references 4 and 5 as well as discussions with CIEH staff and the EDF delegate representative to Upper Volta, Mr. Ebersberg, who was previously posted in Togo and involved in the 4th EDF Project. He felt that given the general maintenance problem with water supplies in most countries, an evaluation of the weaknesses and strengths of the maintenance system established during the 4th EDF project would be of great general interest.

USAID: Mrs. Agma Prins

- Had visited IRC in September 1981 and obtained a copy of A. White's Community Participation in Water and Sanitation - Concepts, Strategies and Methods. This document was used as a resource when designing the community participation elements of the project.
- Expressed interest in CEP Project, specifically in collaborating in evaluation phase of USAID water and sanitation project which is scheduled for sometime between November 1982 - January 1983. In addition, she hopes to involve the community in the evaluation study and requested assistance from IRC in developing procedures whereby village health committees can carry out an on-going evaluation.

Peace Corps: Mr. Phillips

Expressed interest in CEP Project.

Conseil des Organismes Non Gouvernementaux en Activité au Togo
(CONGAT-Mr. Akpalo)

Expressed interest in CEP Project and requested assistance in developing their operational procedures for community participation.

CONGAT is a consortium of voluntary agencies in Togo, coordinating the NGOs' activities and assisting them in developing project designs and implementation, as well as securing external financing and technical assistance. This is carried out by CONGAT Service, a team of four persons. Recently an "assistante sociale" joined their staff so that in addition to providing technical assistance, it will be possible to advise NGO's in operational suggestions for community participation and in a participatory approach to health education.

Summary of Rural Water Supply Situation

The Department for Water Affairs within the Ministry of Mines, Energy and Hydraulic Services is responsible for both urban and rural water supplies.

This Department was created in 1977 in an effort to reorganize all the various governmental agencies involved in water supply activities and combine them into one Ministry.

The rural population comprises 75% of the total population. In the past twenty years only 500 modern water points have been constructed (wells, boreholes and public standposts). Of these 350 provide water perennially as many dry up during the dry season. Only 350,000 rural inhabitants are served with an adequate supply of water.

It is estimated that only 10% of the rural sector is supplied with safe drinking water.

For the majority of the rural population the water sources are traditional shallow wells, small dams, streams and domestic rainwater cisterns. During the 4-5 months long dry season, there are often extreme water shortages.

Surface water resources are important, but, the unevenly distributed rainfall as well as the extreme variability between seasons does not facilitate their exploitation.

Because of the geological conditions (a layer of surface bedrock covering a major part of the territory) as well a ground water table at 18-50 m, hand-dug wells are for the most part not feasible and blasted wells have been found too costly.

This has been the constraining factor to self-help constructed hand-dug wells, as well as to the extent of village labour participation possible in past well construction projects.

In the present 1981-85 plan for the provision of rural water supplies, the construction of wells has been abandoned as a solution and 50 metre boreholes with handpumps (and possibly at some later date, although there are no current projects, the use of dams, water reservoirs and gravity pipelines in the mountainous regions) are viewed as the most feasible technical solution. In order to meet the Decade's objectives, 4,250 new water points will need to be constructed, by 1990, one water point per 500 rural inhabitants.

In order to reach this goal, the government hopes to be able to create around 500 new water points per year during the coming nine years.

If these plans for full coverage by 1990 are to be fulfilled, it will primarily have to be through external financing (80% of the costs).

The majority of external funds received until now have been allocated to the urban water supply sector, which has had first priority.

The short list of externally financed rural water supply projects completed, under construction or planned includes: 1977-1980 4th European Development Fund (EDF) financed (Bureau de Recherches Géologiques et Minières (BRGM) executed) project in which 283 boreholes with Vergnet foot-pumps were installed, an on-going multi-donor USAID-FAC¹- EDF- BRGM, a Peace Corps project to construct 400 boreholes equipped with Vergnet "hybrid" hand pumps, and a planned BOAD² financed, BRGM executed, project for 400 boreholes with handpumps.

Within the Department of Water Affairs, the national agency responsible for the construction and maintenance of boreholes is the Service de Forages.

In addition some Non-Governmental Organizations, in particular the Catholic and Protestant Missions have also carried out a small number of

1. FAC - Fonds d'Aide et de Cooperation

2. BOAD - Banque Ouest Africaine de Développement

shallow-wells or boreholes, where the request for a water point originates from the villages, and the villages contribute 25% of the costs, as well as volunteer labour¹.

None of these earlier borehole/handpump projects included any provision for village level maintenance or user education for the hand pumps.

Moreover, the Service de Forage was a centralized service, lacking any regional bases of operation from which mobile maintenance teams could operate.

Cost and logistical reasons also prohibited any repairs of hand pumps located in sites which are scattered throughout the country. In addition hand- or footpump spare parts, if available at all, could only be purchased from a commercial supplier located in the capital.

No social-cultural preliminary studies were conducted as to local beliefs regarding the suitability of particular sites for water points, or as to the maximum well or borehole depth that would be acceptable to the community².

The only forms of community participation that were included in rural water supply projects were cash and labour contributions. For the most part the beneficiaries of the water supplies were not consulted as to the choice of technology, the design of the pump (foot or hand operated) or the siting, nor were they involved in the decision-making process³.

1. In one village visited the population had requested a well from a Protestant mission. Given the geological conditions, a borehole with handpump was the only solution. The villagers contributed 25% of the cost, and assisted in digging to the bedrock level. Six months after the handpump was installed in 1974, it broke down at the axle, and has been until now out of service.
2. In some areas of Togo it is believed that a deep well or borehole violates the sacredness of the earth. During the 4th EDF project, a case was reported in which a fetish priest had thrown earthworms into one borehole (for this reason).
3. The Protestant Mission, however, was an exception to this, in that village participation was an integral part of their projects. On the other hand, the Mission's water supply projects included no provision for training villagers or local bicycle repairmen to carry out preventive maintenance of the pumps or repairs.

These factors, as well as the lack of animation, information or user education campaigns may have been the cause of the high rate of misuse (whether intentional or wilful) and pump breakdowns. In many cases, therefore, the villagers looked upon the newly installed waterpoint as something imposed upon them, not belonging to them and for which they took no responsibility. Needless to say, the operation and maintenance record for these installations was quite poor.

The potential health impact of the improved water supplies was considerably reduced as no provision was made for keeping the area around the pump clean, or for draining off spilled water around the pump apron, so that the dirty water could seep back in and contaminate the borehole water. Moreover no complementary health education and environmental campaigns were incorporated into the water supply projects, so that there were very few changes in the water- and hygiene-related behavior of the communities benefiting from an improved water supply.

As a result, past investments in rural water supply projects were not felt to be producing the scale of benefits which ought to have been possible. In fact, a 1979 WHO Country Report summarizing the progress of the water supply activities with regard to meeting the Decade's objectives, states that although several international financing agencies were interested in investing in the development of the rural sector, they questioned the past cost-effectiveness of boreholes with hand pumps (even though this was the most appropriate technical solution). "The Government and financing agencies taught by the past experience, distrust the use of boreholes. Notably, because of the imperfection of the means of extracting water, as well as the imperfection of the methods of carrying out health and user education, the waterworks rapidly cease to function and represent an entirely lost investment"¹.

1. Reference 1

Addressing itself to these problems, the Technical Committee for Water recognized that any improvement in the rural water supply was contingent upon their success in effecting the following measures:

- a reinforcement and decentralization of both the Service de Forage and the Service Nationale d'Assainissement, the two agencies most directly involved in the sector;
- the creation of regional maintenance centres;
- the development of a maintenance system in which the potential for village level maintenance would be maximized.
- the incorporation of animation (community mobilization), user education and health education campaign, and waste disposal programmes into the water supply projects so that the water supplies would be correctly used and maintained and the health gains could be maximized.

Current situation with respect to community participation in water

4th EDF Project 1977-1980

In this context, the outcome of the 4th EDF project was of decisive importance for the future strategy for rural water supply programmes:

This project was to serve as a pilot study:

- in developing procedures for, and implementing, a village level operation and maintenance system;
- in providing a monitoring system for the community maintenance activities;
- in training national technicians and village pump caretakers as well as establishing an on-going training programme;
- in creating regional services for heavy-duty pump repairs and similar work;
- in setting up a regional distribution system for the supply of pump spareparts.

The two-tier maintenance system organized in the 283 villages where a borehole with Vergnet foot pumps was installed is now entering its fourth year of operation.

This project constitutes one of the first examples in West Africa of a village level operation and maintenance system combining community responsibility for normal operation, preventive maintenance and minor repair tasks with a professional maintenance team providing the necessary support and supervision.

The emphasis of the project is to organize the community involvement in operation and maintenance through the training and support of community members in carrying out the necessary tasks, both mechanical and administrative.

Two teams of Togolese technicians were sent to the Vergnet pump manufacturer at the Montargis factory in France to receive the necessary technical training. Additional on-the-job training in pump installation was provided on the borehole project sites in Mali and Togo. In addition to receiving technical training, this staff was given training in community mobilization, community organization and health education methods, and in how to conduct training courses for the village pump caretakers and for the women responsible for the hygiene of the pump and surrounding area.

A training manual was specially prepared for use by the technical staff in training the community members. It also serves as an aide-memoire to the villagers themselves (See Annex I).

During the initial public meetings with other villagers, the topic of consultation includes the financial and labour contributions expected from the community and the fixing of exact responsibilities for the operation and maintenance system.

The project would dig the borehole, install the foot pump and construct the apron around it. The villagers are responsible for providing the material, paying a mason's services and contributing the labour necessary to lay the stone cemented floor surrounding the pump, construct a drainage channel, clothes washing basin, animal drinking trough and fence.

One or two men, often bicycle repairmen, are chosen by the community to be trained as pump caretakers. Two women are also selected to be responsible for the daily cleaning of the pump area and its surroundings. The technical staff conduct one week training courses in the normal operation of the footpump preventive maintenance and minor repairs and in the replacement of foot pump parts.

At the time of the pump installation, the pump caretaker(s) are given a wrench (spanner) and an initial small stock of footpump spare parts. Fifteen points of sale of pump spare parts are located within the country. The technical staff monitors the village maintenance activities, visiting each village every 2-3 months, or whenever there is need to carry out any pump maintenance.

During the one week period that the pump caretaker's training course was carried out, health education and user education were also taught. This included the relationship between water and health; the measures that have to be taken to ensure the hygiene of the pump so as to prevent pollution; the need for hygienic collection, storage and water drawing as well as the need for sanitary excreta disposal facilities.

During the project a competition was organized between the villages and a certificate was awarded to the village which had kept the pump and surrounding area in the most hygienic conditions.

Although until now there has been no evaluation carried out of the maintenance system or its degree of success in maintaining supplies relative to the existing forms of community participation, a recent CIEH-CEFIGRE report comparing various solutions to village maintenance provides a brief appraisal¹. The first results show that the community members trained to be pump caretakers are very capable of carrying out the preventive maintenance, minor repairs and replacement of footpedal parts. On the other hand, the approach of the community health education course left something to be desired.

The appropriateness of assigning the health education activities to the technical staff was questioned. It seems difficult to give this aspect to a team of technicians, subject as they are to the constraints of time (and cost efficiency). In health education, time should never be a limiting factor. The report suggest that an evaluation would be desirable to judge the results of this operation after three years of functioning¹.

1. Reference 5.

USAID (Multi-donor) Rural Water Supply and Sanitation Project 1981-1985

This is an integrated water supply, sanitation and health education project consisting of two components: a borehole and footpump installation component as well a community development, health education and sanitation component.

It will be financed by USAID, EDF, FAC, the Government of Togo and the Peace Corps. The project has been designed to last over a period of four years. It will be executed in two geographical regions. Project activities (borehole construction, participatory health education, latrine construction) started in the Plateau Region located in the Centre and South of the country in November 1981 and will continue during the coming two years. Project activities are scheduled to start in the sahelian Savanna Region located in the North in about 18 months. Principal elements of this project are borehole drilling, the installation and maintenance of Vergnet footpumps, the creation of village health committees, latrine construction, collection of baseline data, an evaluation, and a variety of other secondary projects to be identified and undertaken by the villagers themselves.

The borehole drilling component is to be implemented by the Department for Water Affairs and calls for boreholes with Vergnet footpumps to be installed in 250 villages in the Plateau Region and 150 villages in the Savanna Region. The EDF, FAC and the consultancy firm BRGM, will be responsible for the installation of the Vergnet foot pumps as well as the training of Togolese technicians who are to be the maintenance staff. They are to provide back-up support to the village maintenance activities and carry out heavy duty repairs..

In this respect the maintenance scheme developed during the 4th EDF project will be followed with one important difference. The local extension agents of the Community Development Department, and not the technicians of the maintenance staff, will carry out the training of the community members in preventive maintenance and minor repair.

The community development, health education and sanitation activities are to be executed by the Ministry of Social Affairs in collaboration with the Ministry of Health (Division of Sanitation and Hygiene), Peace Corps and the USAID Public Health Consultant.

The project is to be coordinated by the Director of the Department of Community Development assisted by the USAID Public Health Consultant as well.

Community Development extension agents are to carry out all community participation and health education tasks at the village level assisted by the sanitation agents for the latrine construction activities in the 250 villages of the Plateau Region.

The village health committees are to take responsibility for the water supply facilities, ensure their maintenance and repair, supervise health education campaigns and undertake other secondary health and sanitation projects. It is thought that the village organizational patterns created for this project - the committees and the arrangements for voluntary labour - as well as the enthusiasm generated by one success may serve as a catalyst for further self-help development efforts.

The depth of participation which is aimed for - the community's active involvement in the planning, construction and operation and maintenance of the water supply and sanitation system - requires much time, effort and skill on the part of agency personnel carrying out the community organization, mobilization and education tasks at the village level. However, the Department of Community Development, feels that the gains will be more important than the completion of the project and thus justify the costs of the greater extension effort.

It is planned that the mobile community development agents will continue to provide logistical support to the village health committees in continued health education activities as well as in undertaking further development efforts and in monitoring the village maintenance activities. The community development agents will be supervised by the Community Development District Department Heads.

The training programme for the extension workers as well as their supervisors is an important component of the project. The Peace Corps and USAID are providing assistance to the Community Development Department in, first, training the supervisors in community mobilization and organization techniques. In addition they will be trained in participatory health education procedures as well as in the technical skills necessary to maintain and repair the footpump. The supervisors will in turn train the extension workers. This project is to serve as a demonstration area to experiment and develop participatory methods and procedures which are to be applied and extended on a larger scale in other rural areas in the country in the future.

Possible Workplan

A. Appraisal of existing procedures for community education and participation.

1. An appraisal study will be carried out of the procedures used in existing participatory programmes. These include:
 - i. the participatory elements in the USAID Water and Sanitation project, in particular the programme of the Department of Community Development.
 - ii. the on-going procedures for community participation in the completed EDF project area.
 - iii. The elements of community participation in the voluntary agencies' (CONGAT-supported) water supply and sanitation project.

These existing programmes will be evaluated in respect of:

- their success in terms of continued operation, practical problems of maintenance and repair;
- their impact in terms of water use and health behaviour patterns;
- their success in terms of broader goals advanced for community participation: that it increases the sense of responsibility of the population for "their supply", that it acts as a catalyst for further development efforts.

2. Options for special focus in the project

- i. As the village maintenance system has been functioning for three years in those villages equipped with boreholes and Vergnet footpumps during the 4th EDF project, it would be desirable to carry out an appraisal of the current situation with respect to the maintenance of the water supply facilities.

The aim would be to explore the factors leading to a good or a poor history of operation. Particular attention will be paid to the relationship between existing forms of, or approaches to, community participation, and the degree of success in maintaining supplies. Continued operation may be seen as a function of the appropriateness of the original design and the effectiveness of arrangements for preventive maintenance and for repair.

Different forms of participation relate to each of these aspects. The water committee will play an active role in the collection of the data. Data collection will begin with a survey of the basic facts in a large number of the villages as to:

- what types of participation have been used;
- whether the supplies are currently working;
- date and type of installation;
- model of pumps;
- pump conditions;
- hygiene of site area;
- productive use of water;
- user satisfaction.

ii. In addition it would be desirable to do a comparative evaluation of the functioning of the village level operation maintenance system set up in the villages in the Plateau Region under the USAID project. This would permit an evaluation comparing the types of participation and education procedures used and the degree of success in maintaining the supplies. A technical staff carried out all community education and participation tasks in the EDF project, whereas in the USAID project a group of specially trained community development extension workers carried out these tasks.

iii. A further area for study is to carry out a comparative evaluation of the health education procedure applied in both the EDF and AID projects areas in order to assess their effectiveness in terms of water use and hygiene behaviour.

It is hypothesized that a participatory health education programme which emphasizes a dialogue approach will bring about a greater improvement in health practises.

Moreover, although it is generally thought that a "package" of measures including sanitation and water supply improvements as well as a concurrent health education programme will have a great impact in improving the community's health, there are very little data available to verify these hypotheses. Such a comparative study may provide data to develop the existing body of knowledge on community participation.

B. Discussions of results of appraisal study

The resulting report will be discussed with the staff of the agencies concerned to review the findings of the appraisals. If the existing information already indicates with a sufficient reliability that the present procedures do generally lead to a good functioning of the supplies, improved water use and health practices, the existing CEP procedures can be extended on a larger scale.

C. (Optional) Development of alternative CEP models

If, however, the existing information indicates that the present CEP procedures do not lead to a good functioning of the supplies and improved water use and health practices, various options for alternative CEP procedures within the existing organizational set-up will be identified, taking into account their feasibility for the villages as well as the villagers.

D. Final analysis of results and reporting.

A summary report will be prepared and the result will be discussed at a national workshop attended by staff of the concerned ministries, agencies and projects. Where appropriate, local workshops may be held in the communities where participatory programmes were applied, with the active involvement of the villagers themselves. Dissemination of results to other countries will be through regional workshops.

E. Input

The project will be a joint activity of the Department of Community Development and the International Reference Centre for Community Water Supply and Sanitation.

Persons Contacted December 21 - January 5, 1981

Department of Community Development (Min. of Social Affairs)

Mr. Takouda Bouilo	Secretary General Social Affairs
Mr. J. Tcha-Tokey	Director of Department of Community Development, National Project Director of USAID Rural Water Supply and Sanitation Project
Ms. Zumarou	Regional Director of Social Affairs and Community Development, Plateau Region

Ministry of Health

Mr. Nenonéné	Sanitary Engineer, Director of Division of Sanitation and Hygiene
Mr. K. Zozo	Chief of Division Plateau Region, Sanitary Engineer, Department for Water Affairs and Energy
Mr. Katakou Kokou	Head Engineer, Delegate in National Policy Committee for Water

WHO

Dr. M'beya	Resident Representative
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UNDP

Mr. Gabre-Madhine	Resident Representative
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USAID

Mr. S. Sherman	USAID Project Manager
Mr. S. Bliss	Project Officer
Ms. A. Prins	USAID Project Coordinator for the Water and Sanitation Project, Public Health Consultant

CONGAT-Council for Non-Governmental Organisms and Activities in Togo

Mr. K. Akpalo Coordinating Director

World Neighbors

Ms. A. Foly Resident Representative, Coordinator for
Village Health Committee Project

Peace Corps

Mr. W. Weinstein Director
Mr. R. Phillips Associate Director, Training Coordinator
for AID Water and Sanitation Project
Barbara Weiss Peace Corps Volunteer, Health educator/trainer
in Water and Sanitation Project
Gail Guitenplan Peace Corps Volunteer, Health educator/trainer
in Water and Sanitation Project

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1981-1985, République Togolaise
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UPPER VOLTA

Visit by A. White, 4-10 January and L. Hoffman, 7-25 January 1982

Summary of Discussions:

WHO

Dr. F. Martin-Samos, Programme Coordinator

Promised full assistance in the realization of the CEP project in Upper Volta. Pointed out that at the First National Planning Workshop for the Decade Activities for Upper Volta, several recommendations were made calling for community participation. It was viewed as the very condition for the success of water supply and sanitation programmes. During the workshop, it was recommended that a study be carried out to investigate the possibility of including more elements of participation in the rural water supply programme.

Dr. T. Niyungeko, Coordinator for International Water Decade

Activities in seven countries (including Upper Volta and Togo), based in Ouagadougou (WHO/GTZ). Offered close collaboration with the CEP project, including the use of his office as a base, and support in organizing a regional workshop.

Mr. D. Nikiema, Département de l'Hydraulique et de l'Équipement Rural (HER) (Department of Water Affairs)

Very interested in CEP project. Expressed his openness to a formal proposal from IRC. Suggested either IRC make official request to Upper Volta Government or that IRC request WHO in Ouagadougou to do so on our behalf.

Mr. Bom, Mr. Poisson

Outlined existing approaches to community involvement by HER and possible future plans.

Ministry of Health - Dr. Kagoné

Expressed interest in project. He is setting up a training programme for itinerant health workers and village health workers, The Ministry of Health has asked that more applied research be carried out as to the effectiveness of the participatory health educational approach and primary health care.

National Centre for Health Education - Dr. Gué

Expressed interest in CEP project and promised full cooperation.

European Development Fund - Mr. Ebersberg, Mr. Pratt, Mr. Charpin.

Very interested in CEP project. Felt an appraisal of the experience in community participation in rural water supply projects would be of value.

A national seminar would provide the opportunity for Department of Water Affairs and the Ministry of Health personnel and extension workers to meet and discuss. With regards to EDF project, they requested an evaluation be carried out of their programme. In addition, IRC's assistance was requested with their training programme.

UNICEF - Mr. Zerbo.

UNICEF would welcome an IRC project to the support of planning for community involvement.

USAID - Mr. Dominessy, Mrs. Plopper.

Expressed interest in CEP project and requested IRC collaboration in evaluation of USAID rural water supply and sanitation project.

Volta Noire Water Supply Project - Mr. Blom.

Interested in CEP project. Would provide members of staff to assist in carrying out appraisal of Volta Noire project. Specifically interested in evaluation of real costs of maintenance, as well as an evaluation of the use of water.

Autorité des Aménagements des Vallées des Volta (A.V.V.) -Mr. Binsbergen and Mr. Heyboer

Expressed interest in project. Specifically requested IRC assistance in developing a policy for financing maintenance of pumps, as well as an appraisal of participatory aspects of their water supply programme.

Cellule d'Appui - Mr. Alassane.

Expressed interest in project. Requested IRC assistance in developing participatory procedures in voluntary agencies' support rural water supply projects.

Royal Netherlands Embassy Mr. Sciarone, Coordinator for the Sahel

Mr. Sciarone suggested that in the context of the CEP project, IRC should try and collaborate both with the HER and the Ministry of Health at the national level. At the regional level, the ORD's (Organismes de Developpement Rurale) are to have a strategic organizational role in providing support to village level maintenance systems, as well as that of coordinating the maintenance brigades which will carry out heavier repairs of the pump and work such as relining of well and replacement of pump. For this reason, he felt that the CEP project should work closely with the ORD's at the regional level.

Comité Inter-Africain d'Etudes Hydrauliques (CIEH) - Mr. Hassane

Expressed great interest in CEP project and hoped the project could commence in Upper Volta within the shortest possible time. CIEH could be a collaborating institute in the implementation of the CEP project in Upper Volta. In addition CIEH could specifically contribute to studies of the comparative costs of different types of rural water supply, as well as in preparing training manuals, disseminating information, and in a regional seminar.

Summary of Rural Water Supply Situation

Of the 7,400 villages in Upper Volta, 4,500 suffer from a water supply shortage, particularly towards the end of the dry season. Their water supply is that of traditional shallow wells or surface water, both of which tend to dry up during the driest months of the year. Within the context of the International Decade for Water, a National Planning Workshop for Water Supply Policy defined the rural water needs for the coming five years: To provide each inhabitant with a minimum 10 litres of water/day and, by the end of 1990, 25 litres daily.

The coverage envisioned by 1986 is to have approximately one modern water point per village and, by 1990, to have 12,000 water points, or approximately one per 250 inhabitants¹.

Given the prevailing geohydrological conditions, shallow wells and boreholes with handpumps are the most feasible technical solutions for the rural areas.

In order to reach the mid-term goal, it will be necessary to create some 5,300 new waterpoints (3,300 shallow wells and 2,000 boreholes with handpumps) as well as to deepen the existing 1,200 shallow wells².

The realization of such an extensive rural supply programme is beyond the financial means of the national budget, and beyond the technical means of the national services responsible for well and borehole construction. Accomplishing the programme will therefore necessitate a massive recourse to bilateral and multilateral donors for funding to carry out the work as well as for reinforce most of the existing national staff.

Ninety percent of the funding for the 1981-1986 Five Year Rural Water Supply Programme is provided by external financing: the Netherlands, West Germany, France, USA, Canada, Denmark, EDF, Comité Inter-Etats de Lutte, contre la Sécheresse Sahélienne (CILSS), the World Bank, the Islamic Fund, and OPEC³.

1. Reference 1.

2. As there is some discrepancy in the reports reviewed as to the number of existing water points, the number and type still needed, and the number planned for construction in the various water supply projects, the figures cited should be taken as approximations.

3. Reference 2.

The European Development Fund, UNICEF, Communauté Economique de l'Afrique Decidentale (CEAO), the French, German, and Dutch bilateral aid programmes, USAID, and the Islamic Fund will each be executing a rural water supply project in one (or more) of the geographical regions. In this way, a rural water supply project will be carried out in all areas of the country.

By 1985, HER (the Department of Water Affairs) will be responsible for the maintenance of some 10,000 wells and boreholes with handpumps (the 3,000 existing ones, as well as the 7,000 planned ones). In the past there has been a very poor record of maintenance. Inasmuch as HER was a centralized organization, all maintenance teams and equipment were located in the capital. Moreover, there was no provision made for training community members or local artisans to carry out village-level maintenance activities. This meant that in the event that a pump breakdown did occur and was reported by the village (which was often not the case) a maintenance team might have to travel long distances over poor roads to repair the pump. Moreover, the necessary handpump spare parts were often unavailable from commercial dealers.

In addition to these infrastructural and logistical constraints, there are financial constraints as well. The real cost of pump maintenance and the renewal of equipment would amount to double the total annual budget of the Department of Water Affairs.

Recognizing these problems and the measures which must be taken in order to develop a national maintenance programme, the present priorities of the Department of Water Affairs are as follows:

- To decentralize HER and set up an HER regional office in each of the 11 district regions (at the ORD level);
- To install maintenance team service at each of the regional offices; They will be responsible for carrying out heavy duty repairs, as well as providing support to village-level maintenance systems;
- To experiment with various organizational approaches to village maintenance in the pilot rural water supply projects;
- To develop a policy for funding the maintenance and recurrent costs of rural water supply systems;

- To determine the feasibility of transferring, as much as possible, the maintenance and recurrent costs to the beneficiary communities;
- To develop a supply and distribution system which will guarantee the supply of the spare parts for the six or more types of hand pumps installed throughout the country;
- To seek the legal framework which will permit the creation and control of revolving funds at the district governmental level (sous-préfecture) in order to pay for the overhead operating costs of the regional maintenance service teams. (This includes changing the fiscal laws so that local taxes can be retained at the district level);
- To investigate the possibility of setting up a National Water Fund which could provide an additional resource for funding the regional budgets.

The CIEH is carrying out a study investigating various solutions for the organization and financing of a maintenance system. HER has received the funding for its decentralization plan, and the regional offices and maintenance services are to be implemented through the regional rural water supply projects.

Under consideration at present by HER is a three-tier maintenance system wherein the regional maintenance teams will carry out heavy duty repairs and well lining; trained local artisans (bicycle repairmen) will be paid by the villagers to do regular pump repairs at the village level; and a pump attendant will be chosen by the village water committee to carry out preventive maintenance and minor repairs. The village water committee is responsible for the collection of the maintenance fund. In this system, the village attendant's services would not be paid.

The economic feasibility studies conducted to determine whether it was within the villagers' means to pay for handpump maintenance have found in the affirmative¹.

1. It is found that in collecting water from a traditional well, a family spends approximately 500 CFA a year for the rubber "container" and 400 CFA for the ropes, amounting to approximately 900 CFA a year. In comparison, the contribution of each family to a village maintenance fund would be approximately 100 CFA a year. This would provide the 50,000 CFA it is estimated would be needed to finance the village contribution for handpump maintenance costs.

This would include paying the artisan for his labour and travel costs, as well as for the handpump spare parts. For certain types of handpumps, i.e. the Vergnet and Volanta pump, the 50,000 CFA would probably cover the payment of the regional maintenance team costs for the heavy duty repairs as well. Because of the design and nature of these pumps, the regional maintenance teams would not need heavy equipment or vehicles so that the overhead costs would not be high. Moreover, these handpumps are relatively low in cost to replace so that their replacement cost might also be within the financial means of a community. This is probably not the case, however, with the ABI and Indian Mrak II handpump. The heavy duty repairs for these pumps are also more costly, so that the village fund would probably only cover the artisan's repair and spare parts costs. Therefore, in those regions where the latter two types of handpumps are used, a provision will have to be made to finance the heavy duty repairs and recurrent costs.

In implementing a three-tier maintenance system, there are a variety of arrangements possible for the community's participation and the degree of responsibility entrusted to the village committee in managing the village-level maintenance and administering the fund. The organization of the village-level maintenance system reflects the depth of community participation striven for and the overall strategy of the rural water supply programme. If the goals are those of achieving the fastest possible extension of coverage as well as maintaining the supplies, the villagers' participation may be seen as functional and an instrument for achieving these objectives. The emphasis may then be on the community's contribution of labour, materials and funds for the achievement of these goals in the most efficient way. The community may not then be involved to any great extent in the planning, decision-making, and implementation of the water supply system.

An example of such a question is who should have the responsibility for administering the fund of 50,000 CFA collected by the villagers. Should the community have complete responsibility for collecting and administering the committee funds, so that the "executive committee" consisting of a President, Treasurer, and Secretary would be the committee to manage all financial matters such as paying for the artisan

and the spare parts; if possible, paying the regional maintenance service for heavy duty repairs; and allocating a fixed amount to the HER regional office for its regular obligations for overhead costs?

This type of arrangement is being implemented in the European Development Fund's regional rural water supply project in the Comœ and Yatenga departments. In this project, a great amount of emphasis is placed upon involving the community in all aspects of the planning and implementation of the water supply system, as well as organizing and training the community members to carry out the administrative and maintenance activities. Although this initial community mobilization, organization, and education phase will take six months, the project leaders view this depth of participation as a project goal, as well as fundamental for the success of the project.

A similar arrangement for payment is proposed in the Volta Noire rural water supply project. Seventy five percent of what the committee collects would make up the committee funds which the committee would use to pay for the artisan, spare parts, and the repairs done by the HER regional maintenance service. The remaining 25% of what was collected would be paid to the HER regional agency for its regular obligations.

An additional possibility proposed by the National Planning Workshop was that the committee would only be responsible for collecting the fund, passing it on to the sous-prefecture who would, in turn, pay the bills presented to it by either the rural artisans or the HER maintenance teams. The spare parts for the various handpumps would be stocked at the ORD or at the HER regional warehouse.

In this three-tier maintenance system, HER will have responsibility for ensuring that there would be a supply of all the various handpump spare parts available. In the EDF project, the spare parts will be available from two commercial suppliers, one in each of the departments. The problem with this type of arrangement is that the Vergnet pump manufacturer can only be obliged to guarantee that the spare parts are available during the life of the project.

Although the logic could be put forth that it is in the Vergnet pump manufacturer's economic interest to continue supplying and selling the spare parts afterwards, the fact is that in the recent past when spare parts were needed in areas with boreholes equipped with Vergnet pumps, they were often unavailable at commercial dealers. One of the primary determinants of the success of the maintenance system is the convenient availability of the spare parts. For this reason, it is questionable whether an arrangement of channels of commercial supply would be the most feasible to be applied on a national scale in the future.

The plan developed by HER for the national rural water supply programme also includes a provision for creating an on-going training programme for the rural artisan mechanics. The arrangement that HER has made with each of the donor rural water supply projects is that within their project terms of reference either the handpump manufacturer or the project itself will train two instructors at the National Training Centre for Professional Rural Artisans (CNAPR) in the maintenance of hand pumps used. The instructors will, in turn, train the rural artisan mechanics.

The fiscal laws have recently been changed, so it is now possible to retain taxes at the departmental level (the sous-prefecture). A part of the departmental budget could be allocated to the HER regional office to cover part of its overhead costs, as well as the cost of the maintenance team. CIEH is presently carrying out a study for HER on the legal, administrative, and financial aspects of setting up a National Water Fund in order to finance the recurrent costs. The problem of financing recurrent costs was the topic of a CILSS conference held in January, 1982.

As mentioned earlier, various donors are executing rural water supply projects in the different regions of the country. Although the national water supply plan envisions the creation of a three-tier maintenance system, the projects are given freedom to experiment in implementing this. The extent of community participation, its forms, the techniques used, as well as the methods of organizing the community's involvement in the operation and maintenance of the supplies varies from project to project.

In addition to the primary goal of creating new water points, these projects also serve as pilot areas to experiment with different procedures involving the communities in the planning, construction, and maintenance of the water supplies.

The Yatenga area of the EDF project is viewed as a test area for the effectiveness of increased investment in community mobilization and education in the periods prior to, during, and after construction. The measure of success can be determined by the successful operation and maintenance of the supplies after the termination of the project.

The national rural water supply programme is in theory to be a coordinated activity of both the Department of Water Affairs (HER) and the Ministry of Health (MoH). HER is responsible for the construction and maintenance of the water points, and the MoH is responsible for providing water- and sanitation-related health education in conjunction with the introduction of the new supplies.

In 1980, the MoH drew up a sectoral plan for an extensive primary health care programme based on a preventive approach in which a sanitary agent at the sous-préfecture level will elaborate hygiene and sanitation plans and coordinate the activities of the itinerant health agent. Some 57 itinerant health agents are to execute latrine construction campaigns, as well as supervise the 7,000 village health workers. The village health workers are to work with the village water or health committees, carrying out participatory health education and environmental sanitation activities¹.

It is also suggested that the village health workers, known as "secouristes", carry out the function of pump attendants as well. The village health worker will be selected and trained locally and his/her remuneration should depend on the villagers. Progress has been slow in implementing this primary health care programme, so that in many of the regions where rural water supply projects are being carried out, there

1. References 1 and 12

is no existing community level health personnel to perform education activities. If there are dispensary nurses in a village receiving a new water point, their curative duties may be too time-consuming for them to devote much time to health education activities. Moreover, when health education is given, it may not be specifically related to water and hygiene. Apparently, the Islamic Fund is allocating 6,000,000 CFA in order to implement health education activities in conjunction with the introduction of water supplies.

The curriculum for a two year training programme for itinerant health agents is now awaiting the approval of MoH, and 22 candidates have been selected for this programme. Some 62 village health workers are currently undergoing a two month training programme in the USAID rural water supply project. The Voltaic medical officer for the Hauts-Bassins region is responsible for the health component of this project. He and the USAID public health specialist have drawn up a training course curriculum for the village health workers. This training programme is being tested in the project with a view to applying it in other areas of the country. This USAID project is the only example in Upper Volta of an integrated water supply, sanitation, and participatory health education project. As such, it serves as a pilot area for developing and testing the effectiveness of these methods.

The National Centre for Health Education submitted a proposal for the health education component for the planned UNICEF water supply project. UNICEF's policy regarding its water supply project is that there must be a concurrent health education component to insure the hygienic use of the water¹.

Elements of community participation in rural water supply projects

Autorité des Aménagements des Vallées des Volta (A.V.V.)

AVV has resettled some 2,400 families, creating 60 new villages. Eighty percent of the water points that have been installed are boreholes with

1. Reference nr. 6

ABI handpumps, the remaining twenty percent being shallow wells. In many places shallow wells are unfeasible because of the low water table.

During the first year the villages are formed, AVV male agricultural extension workers and female community development extension workers carry out community mobilization with the men and women respectively. After one year, a meeting of the village is called and the organization of a village council is discussed. All villages can take part in the elections, but only men can serve on the council. This council is the village organ which organizes community projects, including the village involvement in the rural water supplies.

The council organizes the village mens' participation in contributing sand and gravel, and where appropriate labour in the construction phase. The women are responsible for laying a gravel floor around the pump, as well as for cleaning the pump and its surrounding area. These activities are organized by the female community development workers. The men are also responsible for building the apron, drainage channel and animal drinking trough.

The village council selects a community member to be trained as a pump attendant. The AVV has its own Service de Forage maintenance team. The pump attendants are trained in groups to carry out preventive maintenance, minor repairs as well as the "minor" replacement of parts. The villages are organized in blocks, 6 villages constituting one block. Each block received one tool chest for all the 6 pump attendants to use.

The villages are responsible for paying for the spare parts for the ABI pump. However, for major works, such as the relining of the well or the replacement of the pump, AVV pays for the cost. At present there is no village committee fund to cover the cost of spare parts. Instead money for buying spare parts is taken from the "Blocks" fund consisting of the profit made from selling grain and cotton. When spare parts are needed, the pump attendant must travel to Ouagadougou to purchase them from a commercial dealer.

In theory, the block or village should notify the AVV maintenance service when major repairs are necessary.

The design of the pump necessitates the use of heavy equipment in dismantling the pump. In practice this maintenance system has not been successful. Given the fact that the AVV maintenance service is centralized, and the villages with the ABI pump are located in various parts of the country this centralized service is not able to service the pump.

Plans exist to decentralize AVV's maintenance service as well as to make changes in the organization of the village level maintenance. It is proposed that the village council should collect a contribution from every family to cover maintenance costs and spare parts. It must be noted, however, that the costs of ABI pump spare parts are very high, and further studies are needed to ascertain whether it is feasible to expect the community to bear the entire costs. An additional problem concerns the level of technology of the pump itself. It is not the best suited for maximizing the potential for village level maintenance activities.

Given the present strategy of AVV to maximize the villages' self-reliance, the pump used may be in contradiction with this very strategy.

A problem raised during discussions with AVV staff was that the villages are not maintaining the hygiene around the pump area, nor the cleanliness of the animals' drinking trough.

This raises a question as to the effectiveness of health education given, as well as to the methods used by the female extension workers in teaching. At present health education related to the use of water and pump area hygiene is directed towards the women of the village. It appears that the village water council entirely composed of men does not receive any health education. An intermediary measure would be to carry out health education for the village water council as well, with the more long-term goal of creating a village health committee composed of both men and women.

USAID Rural Water Supply Project 1980-1985

The purpose of this project is to provide rural villagers in the Southwestern drought-prone region (parts of Hauts-Bassins and Bougouriba Regions) with a potable water supply system to meet their minimum daily requirements (10 liters per person per day), as well as with an effective community health education programme to maximize the potential health benefits inherent in an improved water system. The project area was specifically defined by the Upper Volta Government in its request to AID for financing a part of a nation-wide rural water supply programme.

The project has two major elements: well construction and health education. The well construction will include the construction of 620 wells in an estimated 550 villages. Two different well construction methods will be employed: cement-lined hand-dug wells (300) and borehole wells (320). The villages are expected to contribute labour for the construction of the hand-dug wells. Village participation is not only in the well construction, but also in the selection of the well site. The selection of the site is viewed as important to ensure that the wells are used by the villagers.

All wells will be equipped with the Moyno pump. This pump was especially selected because of its reputation for durability and minimal maintenance requirements. However, it must be ordered from the U.S. and is expensive. It is hypothesized that a locally made, less sophisticated pump, may be more appropriate in the long term, if it can be produced at a reasonable cost and local mechanics can repair it. In the event that the Volanta pump gives positive results and is ready for large-scale application while the AID project is still in its early stages, it could be installed. Otherwise it could be installed in ten years' time when the Monyo pump needs to be replaced.

The project will train and equip four pump installation/maintenance teams. Four Peace Corps volunteers will work as part of the Voltaic pump crews and train the other crew members. A stock of spare parts will be ordered to facilitate on-going maintenance. By the end of the project,

it is estimated that four maintenance teams will be visiting each pump on an average of four times per year for routine maintenance. Each team will be responsible for the maintenance of 155 wells. In the event of a pump breakdown, the village health worker, who is responsible for mobilizing villages to maintain sanitary conditions around the well, is to report the breakdown to the maintenance team.

Although the Government's planned policy is that the villagers should contribute to the recurrent costs of the water supplies, the present policy of the USAID project is not to require the community to make a financial contribution initially. The contributions expected from the villagers are unpaid labour in well construction and maintaining sanitary conditions around the well. It is not known if the villagers are to be responsible for any maintenance activities. Various schemes for dealing with recurrent costs will be considered during the project implementation. A formula under discussion will include a staggered payment of recurrent costs beginning in the fourth year of the project so that by the end of the project the recurrent costs are already being met (e.g., the villagers might pay 1/3 of the costs during year four, 2/3 during the year five, and all costs thereafter).

The provision of a relatively safe water source will be synchronized with a health education/sanitation programme to exploit fully the potential health benefits of a safe water supply. The focus of the participatory health education programme is to reduce to a minimum the water-related diseases and to create a community health infrastructure (primary health care) which will be used to improve the general health of the villagers.

The major goal of the project, aside from the provision of a permanent water source, is to create a health education infrastructure of trained village level health workers. An important component is the training programme for these workers. One hundred and ten village health workers are to be trained in community organization and mobilization methods, as well as in participatory health education techniques. One of the important criteria in the selection of the village health workers is that they will remain in the village. They will cover their own village and four neighbouring ones. In addition to the preliminary training of

the health workers, there will be periodic refresher courses not only for the village health workers, but also for interested and village-based people (e.g. male extension agents, nurses, midwives, teachers, etc.). Three institutions are to assist in producing appropriate health education materials: Centre d'Études Économiques et Sociales d'Afrique Occidentale (CESAO), Groupe de Recherche et d'Appui à l'Autopromotion Paysanne (GRAAP¹) and the National Centre for Health Education.

The village health workers, in conjunction with other village-based people such as those mentioned, will help identify individuals who will be trained as "health leaders". One health leader will be chosen in each of the 550 villages receiving a well. They will receive some training and will become the village health workers' primary contact at the village level. In addition, the health workers will be key people in the village health committees, and will themselves be health trainers among their fellow villagers.

Provisions for Monitoring Activities and Evaluation during AID Rural Water Supply Project.

Several evaluations are scheduled to be carried out during the project duration:

Evaluation of economic productivity and social benefits:

- The imputed value of the time-savings for women as a result of the more conveniently located water source;
- An analysis of village water use;
- Evaluation of effectiveness of health education programme: an evaluation of changes in knowledge and behaviour, of which water source is used, of water use patterns and of the incidence of one or more water and sanitation-related diseases.

1. GRAAP is an institute attached to CESAO that prepares health education materials geared to the level of the village health worker and the village health committees.

These types of evaluations will attempt to draw conclusions on:

- The degree of success of the health education component and its various aspects;
- Lessons that can be learned and applied later in the project or elsewhere;
- Further actions that may be desirable.

UNICEF Rural Water Supply Project

The project plans to construct some 230 boreholes equipped with the Indian Mark II pump in 340 villages. The boreholes are to be located near primary schools or agricultural youth training centers.

The project includes a health education/sanitation component as well.

In the proposal submitted to UNICEF by the National Centre for Health Education, the Centre will provide a sanitary agent to train the primary school teachers in the methods of teaching health education specially related to water and sanitation in the schools and agricultural centres¹. The proposal suggests the use of flannel boards, posters and films as aides to assist the teachers and sanitary agent(s) in teaching health education. It is not known if a dialogue/participatory health education approach will be used. In addition this sanitary agent will organize village health committees. The village will be responsible for building a fence to enclose the waterpoints, constructing a drinking trough for the animals and maintaining cleanliness around the pump. An additional component is the construction of five demonstration latrines in every village receiving a new water-point.

The project will provide the mould and cement and the village is to provide the labour for making the slab and constructing the latrines. The latrines will be located near the schools or agricultural centres.

A pump specialist, provided by the project, will train a team of technicians who will be responsible for the installation and maintenance of the Mark II handpumps as well as for training a group of animateurs whose task will be that of mobilizing the communities and training the village pump attendants.

1. Reference nr. 6

According to the terms of reference of the UNICEF project the pump specialists' and animateurs' tasks include the preparation and execution of an education and mobilization campaign which is to:

- mobilize the community's participation in the construction of the pump apron as well as latrines and latrine stalls;
- organize village water committees who will be responsible for the village level maintenance activities and selecting community members to be pump attendants;
- train the pump attendants and the local artisan mechanics¹.

The project is still in its planning phase so that it was not possible to obtain more specific information as to what organizational procedures are envisaged for the creation of the village water and health committees or for the village level maintenance activities.

The 5th European Development Fund (EDF) Rural Water Supply Project

This project is based on the policy guidelines and recommendations for rural water supply programmes made during the ACP-EEC² Conference of Experts meeting held in Bamako in 1979 calling for the participation and "responsibilization" of the communities at the base. It is felt that the potential exists for community participation to solve some of the persistent problems of water supply programmes: the breakdown of the facilities; the failure of the population to use them at all, or in the way intended; or the water supply's inadequacy to meet the needs of the population.

The underlying hypothesis in the EDF project is that the active participation of the community (including women) in the design and planning of the water supply system will contribute to the continued use, operation and maintenance of the facilities as well as to the realization of the intended health benefits for the community.

1. Reference nr. 5

2. ACP-EEC: Africa, Caribbean and Pacific (countries) - European Economic Community.

A great amount of emphasis is placed upon involving the villagers in all aspects of the planning and implementation of the water supply system, as well as organizing and training the community members to carry out the administrative and maintenance activities.

In this EDF funded, BURGEAP executed project, 600 waterpoints are to be installed in the Yatenga region, and 200 in the Comœe region. Unlike the 4th EDF rural water supply project executed in Togo, in which EDF continues to subsidize the costs of the maintenance activities, the objective of this current project is to transfer the cost of the maintenance and as much as possible of the recurrent costs to the beneficiaries.

The elements of community participation in the project are the following:

1. Choice of well or borehole.

The community is offered the choice between an open well or a borehole with a Vergnet handpump. Only in 5% of the cases is a choice not possible because of geohydrological conditions. A survey has revealed that more than 50% of the villages favour a borehole with handpump. During the preliminary meetings with the village, an animateur from the regional ORD trained and employed by the project, informs the community: of the project objectives, the advantages and disadvantages of a well or borehole, the labour, financial and maintenance contributions expected from them with respect to each of the options, as well as the responsibilities of the community with regard to the formation of a water committee and the village level maintenance system¹.

1. In one of the villages scheduled to receive a waterpoint in the Comœe region, a lively debate occurred between the older and younger men of the village. The older men preferred a well because they felt it would cost less. The younger men, however, preferred a borehole with handpump, because of the better quality of water it provided. The younger men decided to enlist the aid of a prominent official who had originated from the village to use his influence to persuade the elders of the superiority of a borehole.

2. Organization of village water committee and village maintenance fund. During a subsequent meeting the organization of a village water committee and the village level maintenance activities are discussed. The village committee presided by an executive committee composed of a President, Secretary and Treasurer are to have the responsibility for managing the village level maintenance activities and for administering the village fund. The committee is responsible for the collection of the fund. A suggestion is that each taxable inhabitant is to contribute 250 CFA per year, however the manner of collecting the fund is left entirely up to the community. As discussed earlier, the committee is to have complete responsibility for administering the village fund for payment of the local artisan mechanic, the cost of the spare parts, for the heavy duty repairs done by the HER regional maintenance team as well as for the cost of replacing the pump.

During one of the village meetings attended, the village had decided to deposit the committee fund in the National Savings Bank. The project carries out a four-day training in course in simple management and accounting techniques for the village committee members.
3. Organization of village maintenance. The village selects a member of the community who will be trained to be the pump attendant. The pump attendant is responsible for preventive maintenance, simple repairs and replacement of minor parts of the footpump. The pump supplier is responsible for providing a technician to carry out a two day training course for the village pump attendants.

In this three-tier maintenance system (as described in earlier pages) local artisans are trained to carry out pump repairs. Each village submits the names of five local artisans (bicycle repairmen). A selection is made from those names of repairmen who are most frequently listed. The handpump supplier is responsible for training two instructors at the National Centre for Professional Rural Artisans. These instructors will hold a week-long training course for the local artisans. The goal of this training component of the project is not only to train the local artisans but also to contribute to the establishment of an on-going in-country training programme.

4. Signing of Contract

This system is based entirely on the handing-over of responsibility to the villagers. The construction of the water-point does not begin until the community accepts the contractual conditions of agreeing with the choice of well or borehole, assuming responsibility for the maintenance of the pump, and for financing (as much as possible) the maintenance activities.

An official ceremony is held at which the village formally agrees to the arrangements.

5. Construction of waterpoint, apron, drainage channel, animal drinking trough, and wash basin. The village committee organizes the village labour contribution to the construction. The men are responsible for the construction of the above-listed items. The women are responsible for laying a stone floor around the water point and for maintaining the cleanliness around the area.

6. The organization of the health education component of the project is not yet known. In January, 1982 a public health specialist was sent by the EEC to discuss arrangements with the Ministry of Health. In the Banfora area of Comœ region there are 30 UNESCO extension workers conducting health education for women concerning the hygienic use of water, the fabrication of carbon/cloth water filters for home use and the cleanliness of the area around the water. The activities are not an integrated component of the EDF project however, and do not occur in all villages receiving a new waterpoint. There are also some 25 village health workers in the Yatenga region.

7. Provision for the monitoring of village level maintenance activities and liaison support for village water committees. The project provides for continued mobilization of and support to the communities after the waterpoints are installed. The animateur staff in each of the respective ORD's is to supervise the village maintenance activities as well as provide administrative support to the village water committee. In addition the HER regional maintenance team is to provide technical support to the village level maintenance system.

Volta Noire Rural Water Supply Project

It was within the villages' means to pay for handpump maintenance¹. The purpose of the study was also to determine water needs and water use.

The project plans to construct approximately 520 shallow wells and 150 boreholes equipped with the Volanta pump. This pump was selected because of its potential for maximizing the village level maintenance activities.

The pump was designed for use in a village level operation and maintenance system: the cylinder can be raised for repair without need of heavy equipment. Unlike the other handpump installed in Upper Volta, this pump will be produced locally so that costs of the pump and spare parts will be considerably reduced and the spare parts will be obtainable.

A hydrogeologist and technical extension worker ("animateur", trained by the project), visit the village selected to receive a new waterpoint, and meet with the village chief and leaders. During the second visit to the village, the animateur meets with the entire village to inform the village of the objectives of the project, what the project will provide the village and what are the contributions expected from the community as in materials, voluntary labour for construction (when appropriate) and a community fund for regular annual payments for maintenance. The formation of a village water committee is also discussed at this time.

Until now, the major emphasis of the community mobilization has been upon organizing the village for providing materials and labour for the construction phase.

In the future, a Dutch volunteer will be continuing the mobilization of the communities, by organizing the villages to form water/health committees. Although some village committees have already been formed, this is not the case in the majority of the villages. The volunteer will also conduct health education activities in the villages.

1. Reference 8

Although the arrangements for the maintenance system are still under consideration, the plans envisage a three-tier maintenance system in which the village will be responsible for preventive maintenance activities. One possibility that has been proposed is that a village health worker or "secouriste", would be trained to be the pump attendant. The animateur is to supervise these maintenance activities and intervene when necessary to see that the maintenance is carried out, as well as to carry out small repairs. Local artisans are to be trained in repairing the Volanta pump.

The project has already set up and equipped a maintenance centre and will provide for a maintenance team. In the future this will become the HER regional centre from which the maintenance team will carry out the heavy repairs of the Volanta pump. The pumps' spare parts will also be stored at this HER regional centre as well.

On some aspects, consultation with the villagers during the planning phase would be advantageous for the engineer, for example with regard to the siting of additional facilities such as the clothes washing basin or animal drinking trough, or as to the ease of operation of the pump by specific user groups (children, pregnant women)¹.

In comparing the extent of community participation in the maintenance system in the EDF project with that planned in the Volta Noire project, the degree of responsibility entrusted to the community, in particular the village water committee and pump attendant for managing and carrying out the maintenance system is considerably less in the Volta Noire project.

1. One of the villages visited in the Volta Noire project area is an example. Here, the cattle drinking trough which is installed at a sanitary distance from the well, is not used by the people because it is located too far away from the well. Instead, the villagers pour buckets of water down in ground right next to the well to water their cattle. A dialogue with the community members preceding the construction during which time the health aspects, existing habits and various possibilities for siting the drinking trough were discussed, might have led to the villagers' needs being better met.

In the EDF project, the animateurs are to provide back-up support and monitor the maintenance activities. Moreover the village water committee and pump attendant have the responsibility for deciding when the services of a local artisan are needed for small repairs and when the HER regional maintenance team should be contacted to do the heavy-duty pump repairs. An underlying assumption in the EDF project's approach is that given the necessary training, the village water committee will be able effectively to manage the village maintenance activities, and the pump attendant will be willing and able to perform his maintenance tasks.

In the proposed plan for maintenance in the Volta Noire project, the animateur is to act as an inspector, making sure that the village takes action and contacts the local artisan to carry out small handpump repairs. In addition the animateur is to contact the HER regional maintenance team when heavy repairs are needed. This raises the question as to whether the village committee and pump attendant will assume the eventual responsibility for the continued functioning and maintenance of their water supply system when they are, in fact, not given complete responsibility for assuming the tasks.

Moreover given the villages' dependence upon the animateur, the potential for the community self-sufficiency in maintaining its water supply system is diminished.

Workplan

It is desirable that the project be a joint activity of the Ministry of Rural Development, HER, (the Department of Water Affairs), the Ministry of Health, and the International Reference Centre for Community Water Supply and Sanitation.

A. Appraisal of existing procedures for community education and participation.

1. An appraisal study will be carried out of the procedures used in the existing participatory programmes. In particular these include:

- i. the A.V.V. rural water supply programme;
- ii. the donor-funded regional rural water supply projects:¹
 - the Dutch bilateral aid project (Volta Noire)
 - the 5th EDF project
 - the USAID project
 - the UNICEF project
- iii. the voluntary agencies' supported community self-help rural water projects such as those of the Cellule d'Appui and possibly others.

These existing programmes will be evaluated in respect of:

- their success in terms of continued operation, practical problems of maintenance and repair;
- their costs, and therefore their success in terms of

¹ It should be noted that not all existing donor-funded regional rural water supply projects have been included in the proposal for appraisal under the CEP project. Other on-going or planned water supply projects include those of the French bilateral aid programme (FAC), the German bilateral aid programme, the World Bank-Fonds de Développement Rurale (FDR project), the Caisse Centrale de Cooperation Economique (CCE-CEAO) project and the Islamic Solidarity Fund project.

contributing to faster extension of coverage or savings for other purposes;

- their impact in terms of water use and health behaviour patterns;
- their success in terms of broader goals advanced for community participation: that it increases the sense of responsibility of the population for "their supply", that it acts as a catalyst for further development efforts.

2. Options for special focus in the project

- i. It would be desirable to carry out an appraisal and comparative study of the above-mentioned water supply projects, of the processes for involving the villagers in the local planning (do the leaders and members of the water/ health committees represent the needs of all community members, including women and disadvantaged groups?); in the process of construction of the well or borehole/handpump and additional facilities; in the maintenance procedures, including the collection of funds from the community, and in the on-going administration of their water supply system.
- ii. A comparative evaluation will be made of the organization and operation of the respective village level maintenance systems; the system for collecting village contributions for financing the well or borehole and pump maintenance, and the system for the stock of pump spare parts. An attempt will be made to calculate the costs of the maintenance systems.
- iii. In addition an appraisal will be made of the procedures used for carrying out the community mobilization, animation and education. Which manpower carries out these tasks?

During what phase(s) of the project does this occur? What provisions are made for training the community members to carry out the administration and maintenance of their waterpoint?

It is hypothesized, for example in the EDF project, that an important factor in contributing to the "responsibilization" of the villagers for the continued use and maintenance of their water supply system is the continued mobilization of the villagers before, during and after the construction of the supplies.

- iv. A further area for study is to carry out a comparative evaluation of the health education procedures applied in order to assess their effectiveness in terms of water use and hygiene behaviour. It is assumed that a participatory health programme which emphasizes a dialogue approach will bring about a greater improvement in health practices.

Moreover, although it is generally thought that an integrated programme consisting of water supply and sanitation improvements as well as a concurrent health education programme (such as us being applied in the USAID project) will have a greater impact in improving the community's health, there are very few data available to verify these hypotheses. The USAID project is viewed as a pilot project to test these various methods.

An evaluation of the health education techniques and primary health care programme as applied in the USAID project area, and where relevant, in other areas, could provide data to assist the Ministry of Health in developing its future policy an national programme for health education.

- v. Within the USAID projects' terms of reference, several provisions are made for evaluations to be carried out during the course of the project. The CEP project of IRC could provide technical assistance in the evaluation of:

The economic productivity and social benefits derived from the improved water supply:

The imputed value of the time-savings for women (and children) as the result of the more conveniently located water source. The distribution of these benefits amongst the villagers.

- An analysis of village water use;
- An evaluation of the effectiveness of the health education programme: an evaluation in terms of the changes in knowledge and behaviour, of source selection, of water collection and water use patterns and the incidence of one or more water- and sanitation-related diseases.

vi. The EDF project is taking place in two areas of the country, in the Yatenga and Comöe regions representing two very distinct social, cultural and political environments. Similar procedures and participatory techniques for the involvement of the villages are being operationalized and applied in both project areas. The same procedures can yield differing results in different communities. The present state of art of knowledge may be described as inadequate in the sense that, while some successful programmes of community participation exist, it remains unclear what are the social parameters of the success, and therefore whether similar techniques would work equally well elsewhere. A comparative analysis of the experience in these two regions of the project area could further the general understanding of how participatory techniques can be implemented in accordance with different local social, cultural and political environments.

Country objectives

The main objectives for the Upper Volta project are:

1. The appraisal of the different CEP procedures which are being applied within the various rural water supply pilot project areas;
2. Discussion of results of the appraisals with the Ministry, agency and project staff. If the existing information already indicates that the procedures used do generally lead to a good functioning of the supplies, and to improved water use and health practices, the existing CEP procedures can be extended on a larger scale;
3. If necessary, the identification of alternative CEP models;
4. Support to extend the CEP procedures to other areas of the country and to incorporate and operationalize these procedures into the national rural water supply programme. Procedures should involve communities in the planning, construction, where appropriate, and maintenance of water supplies and in community health education in relation to water and sanitation.
Support will be given in establishing a national programme for village maintenance; for extension of water- and sanitation-related health education programmes in rural water supply programmes on a national level; the project appraisals may also be of assistance in the formulation of a national policy for financing the maintenance of rural water supplies.
5. A summary report will be prepared and the results will be discussed at a national workshop attended by the Ministry, agency and project staff. Where appropriate, and if feasible, local workshops may be held in the communities where participatory water supply programmes were applied, with the active involvement of the villagers themselves taking part in the workshops.

Practical observations regarding available manpower and resources for
CEP project in Upper Volta

There are several foreign consultants (social scientists or public health specialists) who are contracted to work with national agencies or externally funded projects, and who have agreed to assist in carrying out an evaluation of the participatory elements within their respective projects.

These include:

- Mr. Charpin, a social scientist contracted by BURGEAP to execute the community mobilization and training components of the EDF project;
- Mrs. S. Plopper, a public health specialist contracted as a consultant for the USAID project;
- Mr. Blot, a socio-economist working with the Volta Noire project;
- Karya Butayn, a NOVIB volunteer carrying out the community mobilization and health education activities in the Volta Noire project.

Persons contacted

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Visit to Documentation Centre

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IRC Inter-country Project

Draft proposal for Zambia

1. Background

The Zambian project will be part of the inter-country project on community participation and education, to be carried out by the International Reference Centre for Community Water Supply (IRC) in about four African countries. The objectives, input, output and general workplan of this project are set out in the overall project proposal (IRC/CEP/81.1 draft rev. 1, June 1981). The individual country projects are to be adapted to the national needs of the participating countries, in consultation with the agencies concerned. As far as possible, the country projects will be carried out by staff from these agencies, with financial and technical support as outlined in the overall project proposal.

2. Country objectives

- (1) the development of appropriate community participation and education procedures to be adopted as part of the planning and implementation of the Rural Water Supply Programme under the International Drinking Water Supply and Sanitation Decade. Procedures should involve communities in the planning, construction and maintenance of water supplies and in community health education in relation to water.
- (2) the demonstration and testing of these procedures.

3. Rationale

While Zambia is planning a rapid expansion in the construction of rural water supplies to meet decade objectives, there are very limited funds available either for construction or for maintenance of these facilities. It is therefore considered necessary to mobilise the resources of the local population.

Local contributions to construction have the potential of reducing the cost to government and thereby enabling more rapid extension of coverage, while community involvement in maintenance activities will be essential for many supplies to remain in working order, given the current low capacity of the local authority organizations charged with maintenance. There is a need for detailed planning and development of participatory approaches for use on a large scale. They should be based on a critical analysis of existing experience in Zambia and current international knowledge and understanding in this field. Participatory methods will need to be developed in relation to each of the three or four technical solutions to be adopted: piped supplies with standposts, boreholes with handpumps, and wells with and without handpumps. A participatory approach should include also a provision for water related health and sanitation education through dialogue with the local population, since one of the main goals in providing water supplies is to improve health, and this will not result to any significant extent if the water related,

especially faecal-oral, diseases continue to be transmitted by routes which an improved water source does not interrupt. Communities should also be given the opportunity of participating in the planning of their water supplies and sanitation facilities.

4. Workplan

1. Appraisal of existing procedures for community education and participation.

An appraisal study will be carried out of the procedures used in existing participatory programmes. These include (1) the water projects initiated by the Community Development Departments; (2) the self-help programme of the Water Affairs Department and the authorities of Eastern Region and possibly other regions, for the digging of wells; and (3) the element of community participation in planning in the well programmes of rural councils.

These existing programmes will be evaluated in respect of

- their success in terms of continued operation, practical problems of maintenance and repair.
- their costs, and therefore their success in terms of contributing to faster extension of coverage, or savings for other purposes .
- their success in terms of broader goals advanced for community participation: that it increases the sense of responsibility of the population for "their" supply, that it acts as a catalyst for further development efforts and others!

I.A.2. Discussion of results of appraisal

The resulting report will be discussed with the staff of the agencies concerned to review the findings and decide where additional field studies are needed. If the collection of additional information is deemed necessary, studies can be carried out as outlined in Annex A, sections 3 and 4 of the main project proposal: an analysis of the current situation in respect of the maintenance of water supply facilities, and a study of health practices and water use. If the existing information already indicates with a sufficient reliability that the present procedures do not generally lead to a good functioning of the supplies, the project will proceed to the development of alternative community education and participation models.

IB. Additional evaluation (optional)

1. Development of additional evaluation studies.
2. Implementation.
3. Discussion of results.

IC. Development

1. Identification of alternative CEP models.

Various options for alternative CEP programmes within the existing organisational set-up will be identified, taking into account their feasibility for the agencies as well as the villages.

Phase IIA: Field test/demonstration

1. Section of an option for field testing.
2. Preparation for field testing.
 - establishment of a time schedule.
 - preparation of detailed plans.
 - training and instruction of manpower.
 - developing a monitoring and process evaluation system.

3. Implementation

The field testing will be fitted into existing project plans and will use existing local staff as implementors. Regular review sessions will be held with agency staff and with community representatives. The support will include the development of a monitoring system to allow the collection of data necessary for evaluation.

A detailed plan for field testing will be prepared using a model the IRC document "Outline for the Extension Component of the slow sand and filtration project" (A. White, 1978).

IIB. Evaluation/reporting

The result of the models applied in the field test/demonstration will be evaluated in a report. This will also make recommendations for the participation procedures to be adopted in the national Rural Water Supply Programme.

5. Input

The project will be a joint activity of the Community Development Department, the Department of Water Affairs, the Ministry of Health, and the International Reference Centre for Community Water Supply and Sanitation. The Community Development Department will make available one of its staff for identification

(programme appraisal) and Development. This staff member will assume the duties of local project manager. IRC will provide technical support and channel funds for these tanks to be carried out (transport and subsistence costs). The field testing demonstration phase will require the close co-operation of all the above participating institutions (since each has expertise to contribute and each should benefit from the demonstration of the techniques developed), and also the District Council(s) of the district(s) involved.

Phase II: The demonstration phase, will be closely co-ordinated with the parallel demonstration phase of the IRC-Zambia Public Standpost Water Supply Project. The community participation and health education component of this project will develop and test procedures for use in reticulated supplies, while the demonstration phase of the present project itself will concern other types of supply (with handpump or windlass, chain and bucket). The standpost supply demonstration, insofar as the participation and education elements are concerned, will also contribute to the wider goals of the present project for the development of procedures for use on a national scale.

6. Output

The expected direct project outputs are :-

- 1) An evaluation report giving (a) the relationships between the CEP procedures in existing programmes and the result of these programmes, and appraising the procedures, and

(b) the various planning options for CEP programmes integrated in or linked to the Rural Water Supply Programme.

2. A field tested CEP programme for drinking water supply and related health and sanitation education in Zambia, including procedures for evaluation and manpower training.

More general results will be (1) The building of evaluation capacities within the agencies concerned; (2) a greater insight into the possibilities and limitations of CEP as a tool for better drinking water supply and environmental health behaviour; (3) some training of various levels of staff and local people in innovative CEP methods (4) an increased awareness of possible positive and negative consequences of CEP procedures on village development and a willingness to adapt procedures accordingly.

7. Timing

The duration of phase I, Identification and Development, will be 9 months starting in early 1982. (This may be extended by up to 6 months to allow for additional evaluation activities as described under IB).

The duration of phase II will be 15 months: 12 months for the implementation of the field test, and 3 months for the finalization of evaluation and reporting. The total duration of the project will be 24 months.

8. Funding

The Netherlands has funded the initial preparatory phase of the IRC inter-country project and is likely to fund the implementation of the project, including in Zambia. Current understandings specify the amount of financial assistance available for inter-country activities at \$25,000.

COMMUNITY EDUCATION AND PARTICIPATION IN WATER SUPPLY

IRC Inter-regional project

Draft proposal for Zimbabwe

1. Background

The project in Zimbabwe will be part of the inter-regional project on community participation and education, to be carried out by the International Reference Centre for Community Water Supply and Sanitation (IRC) in several African countries. The objectives, input, output and general workplan of this project are set out in the overall project proposal (IRC/CEP/81.1 draft rev. 1, June 1981). The individual country projects are to be adapted to the national needs of the participating countries, in consultation with the agencies concerned. As far as possible, the country projects will be carried out by staff from these agencies, with technical (and some financial) support as outlined in the overall project proposal.

2. Country objectives

- (1) the development of appropriate community participation and education procedures to be adopted as part of the planning and implementation of the Rural Water Supply Programme(s). Procedures should involve communities in the planning, construction where appropriate, and maintenance of water supplies and in community health education in relation to water.
- (2) the demonstration and testing of these procedures.

3. Rationale

The process of planning how water supplies will be extended to the rural population is now under way in Zimbabwe, a strong commitment to their extension having been made. It is generally agreed that the rural masses should be actively involved, but the forms which this involvement should take have not been determined. The current project can contribute substantially to the formulation of these plans.

4. Workplan

- (1). Appraisal of existing procedures for community education and participation, and of the potential for the development of further participatory programmes.

An appraisal study will be carried out of the procedures used in existing participatory programmes. In particular, these include the programme of the Ministry of Community Development and Women's Affairs for the digging of wells with the people of local communities.

Simultaneously, the study will involve discussion of alternative possibilities for community involvement with personnel at all levels of relevant ministries, local councils, and with village leadership and members of the rural population, particularly women. Study visits will be made for this purpose to rural areas selected to represent the important types of rural situation from both the social and technical points of view (e.g. involvement or not in the commercial economy; density of settlement; availability of shallow ground water).

The study of existing programmes will include an analysis of the difficulties which they may have faced at community level, and where relevant will involve in-depth studies in particular communities (but it is not envisaged that research in any one community would require longer than two or three weeks, to elucidate the nature of the problems encountered).

The study will be undertaken jointly by the Ministry of Community Development and Women's Affairs, and the IRC. It will be coordinated by the Director of Research to be appointed by the Ministry of Community Development and Women's Affairs, and by the IRC Project Manager. It is envisaged that the Ministry of Community Development and Women's Affairs will make available a staff member for a period of some six months to carry out and report on the study, while IRC will send an international consultant to support the study for shorter periods, particularly at the beginning and writing-up stages. Another possibility, subject to discussion and the availability of a suitable person, is the appointment of a Zimbabwean consultant to participate in the study (but not to carry it out as an entirely external exercise).

(2). Discussion of the results of the appraised study.

The resulting report will be discussed with the staff of all the agencies which will be likely to be concerned with the development of participatory procedures in water supply. These include the Ministry of Natural Resources and Water Development, the Ministry of Health, the Ministry of Community Development and Women's Affairs, and the Ministry of Local Government and Housing. At this stage if not before, a Project Management Committee will be established with representatives of the ministries involved.

(3). Development

Detailed plans will be developed in collaboration with the relevant ministries, for a participatory approach to rural water supply development in Zimbabwe: an approach which also involves an appropriate coordination with Primary Health Care and in particular with health education and sanitation. It is premature at this stage to predict the form the plans might take, but it is clear that their preparation will involve collaboration with and between the Ministry of Natural Resources and Water Development (which plans nationwide coverage), the Ministry of Health (which is already involved in rural water supply, and has pioneered appropriate technologies through its Blair Research Laboratory, as well as being responsible for health education and sanitation), and the Ministry of Community Development and Women's Affairs. The District Councils which are to be formed will also presumably have a major role to play.

(4). Field test/demonstration

The form of field testing or demonstration will be decided during stages (2) and (3); the alternatives range from testing of techniques first in one or two local projects in particular demonstration villages, to the introduction of techniques on a regional or national scale and their monitoring in their initial stages. In whichever type of field test chosen, the involvement of the IRC will be in the provision of support to the agencies carrying out a test of what, if it proves successful, will be procedures they will adopt more generally and on a wider scale: and in the monitoring and evaluation of the test or demonstration.

Within one year, a final evaluation will be carried out and a report presented.

(5). Evaluation/reporting

The result of the field test/demonstration will be evaluated in a report, to be presented within one year from the initiation of the test. This will also constitute the major report of the Zimbabwe project, and will make recommendations for the participation procedures to be adopted in the rural water supply programme(s).

5. Input

The project will be a joint activity of the Ministry of Community Development and Women's Affairs, the Ministry of Natural Resources and Water Development, the Ministry of Health, and the International Reference Centre for Community Water Supply and Sanitation. The Ministry of Community Development and Women's Affairs will make available one of its staff for the appraisal study, i.e. for a period of about six months in the initial phase of the project. IRC will provide technical support and channel funds for these tasks to be carried out (in particular, costs for transport will be met on the basis of the use of a government vehicle for which a charge is made to the Ministry).

The field testing stage will require the close cooperation of all the above participating institutions (as well as local authorities in the area or areas where it is carried out).

6. Output

The expected project outputs are:

- (1) An appraisal report giving (a) the relationship between the community education and participation procedures in existing programmes and the result of these programmes, and appraising the procedures, and (b) the various planning options for participatory programmes integrating Rural Water Supply with Primary Health Care and in particular its health education and sanitation elements.

- (2) Development of further plans (in cooperation with participating agencies) for community participation in rural water supply.
- (3) A field test of the participatory procedures developed.
- (4) A final evaluation report on the field test and the project as a whole, with full recommendations for procedures to be adopted in the rural water supply programmes being planned.

More general results will be: (1) the building of evaluation capacities within the agencies concerned: (2) a greater insight into the possibilities and limitations of participatory techniques and mass involvement in the planning and implementation of rural water supply schemes: (3) some training of various levels of staff and local people in innovative methods.

7. Timing

The project will start in early 1982. The total duration is expected to be 2 years (24 months), The appraisal study (1) will require 6 months. Phases (2) and (3) will require a combined total of 6 months (at this stage much depends on the state of readiness of planning for rural water supply in general); finally, phases (4) and (5), the field test and evaluation/reporting phases, will take 12 months.

8. Budgeting

The Netherlands has funded the initial preparatory phase of the IRC inter-regional project and is likely to fund the implementation of the project, including in Zimbabwe. The funds which will be available for in-country work in Zimbabwe are sufficient to finance appraisal studies, or such occasional expenses as the holding of a national workshop if this is found desirable. They are not sufficient for financing demonstration water supply projects.

Community Education and Participation
Inter-regional project: Kenya

1. Background

The project will be part of the inter-regional project on community participation and education in 4 African countries. The objectives, input, output and general workplan^{of this project} are set out in the overall project proposal. The individual country projects are adapted to the national needs of the participating countries, in consultation with the agencies concerned. Where possible, the projects will be carried out by staff from these agencies, with financial and technical support as outlined in the main project document.

2. Country Objectives

The main objectives for the Kenyan project are:

- (1) the development of appropriate community participation and education (CEP) procedures for the existing national rural water supply programme
- (2) the identification of CEP options to increase the percentage of rural population served by improved water supply and sanitation

3. Workplan

A. Identification

(1) Appraisal of existing CEP procedures

The existing CEP procedures will be inventorized and their relationship to the general problems of coverage, operation and maintenance, costs and environmental health behaviour investigated, as indicated in the main project document

The scope and depth of this study will depend on the need of the Kenyan government for evaluations that supplement the already existing material (see ref. 1-¹₁, A). In first instance, this material will be reviewed to isolate possible relationships between the existing CEP procedures and the four indicators for a successful rural water supply programme (coverage, O&M, costs to agency and community, and environmental health behaviour). Gaps in the existing information will be identified, and if possible filled from the existing records

(2) Discussion of preliminary results

The resulting report will be discussed with the staff of

the agencies concerned to review the findings of the study and decide where additional field studies are needed. When the collection of additional information is deemed necessary, studies can be carried out as summarized in annex A, section 3 and 4 of the main project document. When the existing information already indicates with a sufficient reliability that the present C&W procedures do not generally lead to a good functioning of the supplies, and improved water use and health practices, an alternative programme will be developed. The field studies will then be carried out in selected areas as a baseline for the evaluation of an alternative approach.

B. Additional Evaluation (Optional)

- (1) Development of additional evaluation studies
- (2) Implementation
- (3) Discussion of results

C. Development

(1) Identification of alternative C&W models

Various options for alternative C&W programmes within the existing organizational set-up will be identified, taking into account their feasibility for the agencies as well as the villagers. Options that may be considered include:

- adaptation of existing procedures but no changes in existing manpower arrangements
- adaptations of existing procedures and a reallocation of C&W tasks between the various community workers and their respective departments
- establishment of a special section to take charge of C&W in drinking water supply and sanitation

(2) Preparation for fieldtesting

selection of one or more options for fieldtesting in demonstration projects. Preparation will include

- establishment of a time schedule
- preparation of educational material
- (sub)contracting third parties involved
- training and instruction of manpower
- developing a monitoring and process evaluation system

D. Fieldtesting and process evaluation

The fieldtesting will be fitted into existing project plans and budgets to allow for an optimal replicability. Outside support, in the form of regular review sessions with project staff and community representatives will however be necessary. ^{The support} will include the development of a good monitoring system which allows the collection of data necessary for evaluation (especially on cost-effectiveness) without becoming a bureaucratic burden to the fieldworker.

E. Project evaluation /Reporting

After ca. 6 months the results of the applied CEP models will be evaluated and their application on a larger scale appraised in a summary report and a national workshop. Where appropriate, the workshop will be held in the communities where the CEP programme was applied, with active involvement of the villagers themselves, as indicated in the main project document. Dissemination of results to other countries will be through regional workshops.

4. Input

The project will be a joint activity of the Ministry of Water Development (MWD), Ministry of Health (MOH) and the International Reference Centre for Community Water Supply and Sanitation (IRC). MWD and/or MOH will make available a member of its staff for CEP programme appraisal and development. IRC will provide technical support and channel funds for these tasks. If additional local consultancies are necessary, these will preferably be found within appropriate Kenyan institutions, such as the Institute of Development Studies and the African Medical and Research Foundation.

5. Output

The expected direct project outputs are:

- (1) an evaluation report giving (a) the relationships between the CEP procedures in existing programmes and the result of these programmes and (b) the various planning options for CEP programmes integrated in or linked to the ongoing drinking water supply and sanitation programmes

(2) a field-tested CEP programme for drinking water supply and sanitation in Kenya, including manuals for implementation, evaluation and manpower training

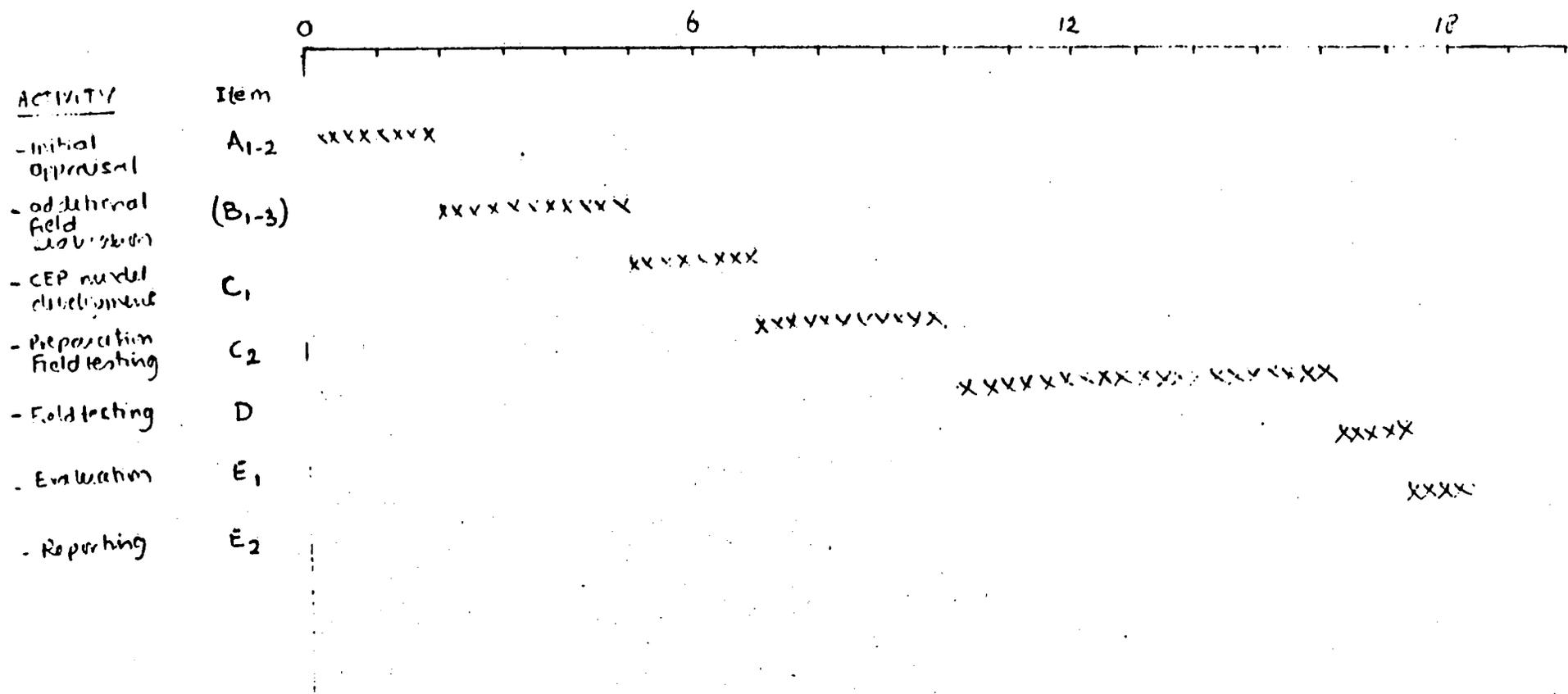
More general results will be (1) the building of evaluation capacities within the agencies concerned (2) a greater insight into the possibilities and limitations of CEP as a tool for a better drinking water supply and environmental health behaviour, and (3) an increased awareness of possible positive and negative consequences of CEP procedures on village development and a willingness to adapt procedures accordingly.

Furthermore, the project will provide important material for the comparison of experiences in the other African project countries and elsewhere, as outlined in section 5 of the main project document.

6. Timing

The total duration of the project will be 15-18 months, depending on the addition of field evaluations to the appraisal study. For a bar chart of project activities, see annex B

CEP project Kenya
 total project duration: 15-18 months



Additional field observations (B₁₋₃) will take another 3 months.

KENYA - COMMUNITY EDUCATION AND PARTICIPATION IN WATER SUPPLY AND SANITATION

by Drs. Christine van Wijk-Sijbesma

1. History of Major Rural Water Supply Programmes with Community Participation

1.1. UNICEF/WHO/Ministry of Health Rural Water Supply Programme (1960-1972)

In 1960 a rural water supply programme was initiated by the Ministry of Health with financial, material and technical assistance from UNICEF/WHO: It involved the provision of adequate drinking water for people and livestock and the improvement of waste disposal in public places (schools, health centres, markets, etc.). Technologies included diesel-pumped and gravity-based piped supplies, roof catchment and wells with handpumps and some windmills.

From 1960 to 1972, 561 schemes were completed or taken up, serving 664,000 people.

Potential schemes were proposed by the Public Health Officers at district level (DPHO) to the Ministry of Health. The PHO's are trained in design and construction of water supplies and waste collection and treatment, health education and administration. PHO's are stationed at district and division level. At sub-division level are Public Health Technicians, who get a shorter training in the same fields. Proposals included information on site and type of population to be served and distances to source. After a preliminary allocation the DPHO designed the scheme. The community participated in the construction, with labour, materials and cash (40% community - 60% UNICEF until 1970, when the Kenyan government began to take over from UNICEF). Skilled labour was provided by contractors hired by the community group or county council. The council or community group (which may be anything from a school committee to a cooperative or users' committee) was also responsible for operation and maintenance costs, including payment of a local operator, selected and trained by the supervising health officer. In 1970-1972 the programme was taken over by the Ministry of Health (see 1.7). It planned the construction of 295 new schemes and the rehabilitation of 225 schemes. In 1974, when the Ministry of Water Development was set up, approximately 1 million rural people out of 11.6 million had been served.

1.2. Water Supply Programmes for Settlement Schemes

After independence, the Ministry of Lands and Settlement began to allocate farms in the former "White Highlands" to landless farmers. Two types of schemes were established, Shirika (planned development, including services and central organization) and Haraka (plots only). Cooperative societies (150 in 1977) can get foreign loans for water supplies on the scheme at an interest rate of 6.5% over a period of 20 years. Most systems are gravity supplies with yard connections. The schemes were constructed by a special technical team of 2 hydraulic engineers and American volunteers, attached to MWD, but under the responsibility of the Department of Settlement. Criteria for priority favouring Shirika schemes were: ability to get the necessary funds in time and secondly number of livestock and existing water supply.

The design is made at a basis of 100-200 gallons per household for human and livestock consumption, allowing a little extra for public centres and farms adjacent to the schemes. When the design is made, the society is called in to sign the construction and loan contract. The society also clears all financial arrangements for construction on a day-to-day basis. Self-help labour is included occasionally. After completion, the supplies are turned over to the society.

No clear arrangements for maintenance are made.

The cooperative societies may take on some workers as operators who are trained on-the-job during construction or given a short workshop-course by the pump manufacturer. Neither is the financing properly arranged. The management of the society, involving many other tasks beside administration of the water supply is done by elected officials on a honorary basis.

1.3. Ministry of Water Development, Self-Help (Harambee) Projects

The Ministry was established in 1974, taking over from the Ministry of Agriculture. In 1978, it owned and operated 90 rural schemes. It also designs and implements schemes that are initiated by local governments and self-help groups, which co-finance construction, provide self-help labour and operate completed schemes. For this purpose a special section for self-help projects exists since 1977 in the Development Branch, which concentrates on the construction tasks. The initiation of projects and their operation are the responsibility of the self-help groups. The Ministry

of Cooperative and Social Services (now Culture Social Service and Housing), administers grants for all kinds of self-help projects, including water. These are channeled through the Community Development Officers (?). These officials also have to give permission for independent or additional fund raising.

For financial contributions to construction, an elected water committee organizes private donations or the committee of the local cooperative allocates a part of the cooperation funds to the scheme. The local MP's play an important role in the initiation of self-help projects and the organization of financial contributions, as a means for political prestige in their district. For additional government funds the local organization can appeal to MWD through the DDC's. The acceptance of this request probably means that from a harambee project, the project becomes a regular MWD project (see 1.5). Alternatively they can apply for financial and technical support to the Ministry of Health, thus the DPHO (see 1.7). The water committee also organizes self-help labour for the digging of the trenches when the design for the net is completed. Usually this happens long before the construction team arrives for pipe laying. After completion, the scheme is managed by a local organization. There seems to be no systematic inventorisation on the type and status of these organizations.

1.4. Ministry of Agriculture: Range and Ranch Water Programme

Under this programme water for humans and livestock is provided to nomadic populations. No details are given on the participation procedures. MWD is involved in technical work. The programme is part of a 5 year integrated range management programme (Marginal Agricultural Lands Survey and Livestock Project). In the Habeswein area, for instance, 120 reservoirs and 30 boreholes were made. Maintenance by MWD.

1.5. Ministry of Water Development: Rural Water Supply Programme (RWS I-IV)

Since 1970 MWD has formulated 4 RWS programmes. Of each programme, projects with the highest priority are implemented first. The others are "kept on". These programmes also have community participation components. The available funds are allocated to district level, in principle in proportion to the number of people not yet served. It is not clear how

corrections are made for other factors such as drought conditions, health risks and existence of other water supply programmes.

For the initiation of projects the office of the District Commissioner or a department head will make a proposal when funds become available. This proposal will then be presented to the District Development Committee.

Members of the committee are the heads of departments at district level, the DC, the elected county councillors and chiefs of the district, sometimes the MP.

Alternatively a local harambee committee will put a request to DDC members, e.g. to support a scheme already started by the people (material bought, pumphouse built, etc.). The DDC assigns priorities on the basis of economic benefits, need (distance, quality), political influence, willingness of participation and equity. A ranked list of projects is sent to MWD for a pre-feasibility study of the first scheme. When technically/financially unsuitable, the proposal is referred back to the DDC. All projects are piped supplies with farm connections, communal water points and kiosks. After preliminary allocation a local feasibility study is carried out. This includes public meetings of the study engineer with local leaders, lower government officers and people of the area, to (1) inform the people about the proposed scheme and its financial consequences; (2) get applications for farm connections and forecast total number of private connections; (3) get names of people wanting to share a communal water point and (4) propose rate payment procedures (time, place). Upon problems, the DDC can reconsider the selection.

Upon registration as a user of a communal water point the people pay several months water rates in advance, private connection owners pay for the full connection costs (?). Occasionally, the people also pay voluntary contributions to construction in harambee meetings organized by the MP, the chief, or an appointed or selected water committee.

After the completion the schemes are operated, maintained and administrated by the county councils (40), using paid staff. Alternatively, MWD remains responsible through the provincial offices. Many county supplies have in the last few years been transferred to MWD, without expanding the staff of the latter.

Payment collection is not by MWD, but by the local administration under the Office of the President - revenues are then transferred to MWD.

1.6. Ministry of Water Development: Proposed Reorganization

With regard to community participation activities, the reorganization for the fourth rural water supply programme of MWD proposed by the World Bank foresees :

- a. abolition of the independent section for Self-help Water Supplies and transfer of its responsibilities to the Development Division;
- b. continuation of MWD organized design and construction of Self-help and Settlement Supplies. No details given on any change in procedures for participation;
- c. expansion of the feasibility study, to include indirectly collected data on geography, population, economic background and potential, existing water supplies, water demand, functioning of water organizations, health and sanitation status and needs;
- d. addition of a marketing study to the feasibility study, assessing (by record study and public meetings) willingness to pay, acceptance of proposed scheme and its financing and forecast of future connections.
- e. appointment of a Public Relations Officer for the marketing studies and contact with appropriate persons for a health education programme.

1.7. Ministry of Health: Rural Water Supply Demonstration Programme

The Ministry of Health has a demonstration programme for small-scale water supplies (1978 - 1983: 270) for the smaller communities and public institutes, mostly on a self-help basis. Technical assistance is provided by their sanitarians (District Public Health Officers) and WHO sanitary engineers. The district budget of MOH foresees approximately 2 small water supply projects per year. These are identified by the District Public Health Officer. He can also receive a request from a harambee group for support of a locally planned/initiated project.

1.8. Ministry of Health, Environmental Sanitation Division: Proposed Reorganization

An alternative proposal for the harambee programme of MWD has been made by USAID consultant and handpump specialist prof. Eugene McJunkin. Harambee projects are needed for a rapid coverage. Yet MWD is unable to give them sufficient technical support, tends to see harambee as equivalent to self-help labour, and reinforces the people's inclination to look for higher level technologies. McJunkin therefore suggests the creation of a special

Harambee Rural Water Supply Assistance Unit, within the Ministry of Health. This unit would provide technology assistance to MOH projects and harambee projects channeled through the District Development Officers, and also cooperate with CARE.

Alternatively, he suggests that USAID gives capital and technical training assistance to MWD for selected projects of RWS I-IV (i.e. those in low potential - low density areas) when it appears that the reorganization of MWD leads to better project success.

Other projects proposed are rehabilitation of RWS I-III systems and support to the existing MOH projects.

The proposal is still under consideration and will be part of the next budget assignment discussions between Kenya and USAID - probably late spring 1982.

1.9. Other Community Water Supply Programmes

The East African Railways Corporation operates approximately 100 schemes serving their staff houses and adjacent villages. No information on any CEP.

The National Council of Women of Kenya acts as an umbrella organization for 33 of the 35 women organizations that raise funds for water supply projects benefitting rural women. Through the Women's Bureau of the Ministry of Housing and Social Services, the funds are directed to those of the 5000 registered women groups who have requested an improved water supply or related inputs (sanitation, vegetable gardening, health care) (selection criteria?). In total 17 projects were planned, varying from upgrading of existing supplies (pumping, distribution system, storage tanks) and rainwater collection tanks at harambee service centres and cooperative production centres to gravity supply systems.

No details are given on participation in allocation and planning. The local women groups contribute labour and cash contributions to construction. Some projects are partially financed by Kenyan government, though from what funds is not clear. Neither have details been given on operation and maintenance arrangements of the more complicated schemes.

CARE also carries out rural water supply projects with community participation (49). These are linked to the MWD's self-help programme and follow the same procedures for CP.

1.10. Community Water Supply in Low-Income Urban Settlements

No information is available on drinking water supply to urban fringe areas but this is presumably the responsibility of the respective city councils, when these communities are within its boundaries. IRC has no information as to whether and to what degree users are informed, consulted, or participate in these schemes. It could be asked if it is possible to serve rural communities within each of the existing schemes but outside city boundaries, with or without self-help.

A U.S.A. based NGO, the Institute of Cultural Affairs, has a self-help project in the Nairobi fringe area.

Another small urban project, in Kisumu, is part of the UNICEF/NGO women's programme.

2. Health Education and Sanitation

2.1. Present Linkage to Water Supply and Type of Programme

It appears that only in the programme of the Ministry of Health are health education and sanitation linked to rural water supply, through the use of the existing field staff (mainly VHS, nutritionists and occasionally the DPHO). Little information on procedures and actual activities is given, however. Neither is it clear to what extent the local population is involved in planning, implementation and evaluation of health education and sanitation programmes and how locally specific the programme is.

The MOH is responsible for the CEP component in the IRC's Slow Sand Filtration Demonstration Project in Kenya (Mr. Waweru). The procedures followed in this project were (1) community diagnosis, including baseline survey on health status, water supply and waste disposal facilities and reported use, and blood, stool and urine samples; (2) establishment of an elected village committee and discussions on project acceptance and participation in construction and maintenance of the filters (3) stimulation of environmental health knowledge of the people through films, barazas, discussions with other opinion leaders and women's groups, schools, pamphlets, posters, folk songs and public media. From the above it appears that the present health education focuses on (1. general information and stimulation of private improvements of health behaviour and conditions and (2. the stimulation of acceptance and support of the technical project. The education for improved excreta disposal appears to be limited to the installation of the common pit latrine. This essentially one-way approach may reflect the initial function of CEP in the SSF project: as a tool to make the community accept solutions that the agency has identified as appropriate after investigating the community.

Since then, the definition of CEP has expanded to the making of joint local choices on technological improvements and changes of behaviour, within a given period of time and technical/administrative options.

In other RWS programmes there seems to be no linkage with HE and sanitation. One of the tasks of the PR-officer proposed by World Bank in RWS IV (see 1.6) will be to make necessary contacts in such programmes.

(public meetings)

2.2. Other HE programmes with a participating element

Another health education programme with a participation component is the Family Life Training Centres Programme of the Ministry of Culture and Social Services. Households with malnourished children are identified by health educators, other health field staff and other extension workers. The workers convince the mothers of these households to come with these affected children to one of the 14 regional centres for a three-week nutrition education and rehabilitation programme. The housing and living conditions of these centres are meant to resemble the home conditions, except in simple improvements which they could themselves also realize at home (e.g. a raised stove). The mothers carry out their usual household tasks, cultivate the centre's demonstration vegetable garden and attend lectures and discussions on nutrition, hygiene, housing improvements etc.

Since 1978, the African Medical and Research Foundation is involved in both research and training in this programme. The research concentrates on the identification of social and behavioural facts underlying the malnutrition patterns. This was done through interviews with mothers who had attended the three-week practical training course at 2 centres (Kirathimo, Kiambu: a land-shortage area, and Kirinyaga, Busia, near an irrigated rice settlement). It is not clear if this research has led to the introduction of a joint analysis of the local situation and behaviour by the women and the nutritionists at the centres themselves. Other problems are the formulation of follow-up actions in the home-area and individual follow-up of course participants themselves. The AMREF now seeks to improve the working with the communities, especially by creating continued linkages between the centres and the communities (open days, ex-trainee groups for mutual help and community education etc).

2.3. African Medical and Research Foundation: Rural Water Supply Activities

The Health Behaviour and Education Department of the AMREF is interested in starting a special environmental health division. The head of the department, Norman Scotney, has acted as a consultant for MWD, in the evaluation of the background to user problems in 3 selected RWS I schemes. He was also asked to give recommendations on (1) methods for similar evaluations, (2) improvement of design and participation, and (3) questions and manpower for a major social research study. His recommendation on participation is to expand participation to the planning stage, starting

with consultation of potential beneficiaries on their needs and desires and informing them about the technical options and the advantages, costs and long-term implications of each. Only his recommendation for adding socio-economic aspects to design criteria seems to have been taken over in the proposed RWS IV programme (feasibility and marketing study, see 1.6.).

Health practices and health education were not included in the terms of reference and the discussion of this aspect was limited to some remarks on observed practices. But in a separate consultancy Scotney has worked out a health education component for the Unicef water supply programme in S. Kordofan, Sudan.

3. Available data for in-depth appraisal originating from previous evaluations

A number of evaluations have already been carried out within some of the above programmes. The evaluations were mostly carried out by national or expatriate "outsiders": engineers, social scientists and administrators. Here, the result of these evaluations (see references) are reviewed in relation to the IRC/CEP project proposal for in-depth appraisal.

3.1. Coverage

3.1.1. Present situation in RWS

The most complete figures on a number of people served are given by McJunkin (Ref.3, table 2).

The following observations can be made on this table:

- a) The figures on RWS I-III need to be checked on project status; as some of them may still not be implemented.
- b) Not included are RWS data from Ministry of Agriculture, Mombasa Pipeline Board, Tana River Development Authority, the E.A. Railways (ca. 100 schemes) and the Unicef/NGO project. Some of these schemes are integrated into MWD and other service programmes (e.g. those of the Ministry of Agriculture and some Unicef/NGO projects) but it is not clear if and in what sections of this table they are presented.
- c) It is not clear if all projects of the Ministry of Health since the termination of the Unicef/WHO programme (1972) have been

included in this table, and if so under what categories.
(Self-Help, County Council).

- d) The figure for Unicef schemes is not clear. Wignot states in his evaluation that in the period August 1960-end 1972 (fiscal year) Unicef assisted in the construction of 561 rural schemes for a design population of 664.000 people, and that some 50 schemes had yet to be complemented at the time of the evaluation (p. 2 of his report). Apparently this figure is not Wignot's but VIAK's (vol. I. p. 39.).
- e) Should the table be expanded with figures for urban fringe coverage?

3.1.2. Rate of Progress

Though the percentage of rural people served has increased from 9.4% to 15%, the number of rural people unserved has also increased due to population growth from 8.9 to 10.6 million.

3.1.3. Geographic distribution of access to RWS

For a preliminary evaluation of the geographic distribution of supplies under the major programmes, the available documentation does not contain sufficient data. Information available is limited to MWD's self-help programmes and RWS I-III. Of the 125 schemes implemented in Phase I-III till 1979 under MWD's self-help programme the distribution was as follows:

<u>Province</u>	<u>Total pop. in thousands (1975)</u>	<u>nr. of projects</u>
Central	2.000	48
Coast	1.140	2
N. Eastern	250	-
Eastern	2.250	34
Rift Valley	2.640	23
Nyama	2.630	7
Western	1.650	11
	<u>13.250</u>	<u>125</u>

In Phase I, 70% of the total budget was allocated to Central Province. Additional information is needed however on size of projects, costs, % of unserved population in each area and type of area (high, medium, low potential) to evaluate the geographic distribution of the schemes.

For % of unserved population in each province/district, data are available that are used for the allocation in the major rural water supply programme of MWD (RWS I-IV).

The following remarks can be made on this table:

- There is no relationship given between the number of people not served in each district and the actual number of people in the district. Some of the districts with a low proportion of unserved people (e.g. Samburu and West Pokot in the Rift Valley) are also thinly populated. It is well possible that in such districts the low-percentage of people unserved in fact represents nearly all the people living in the area. It will be possible to check this with the 1969 census data.

- The table does not allow any study of the fund distribution in relation to % of population unserved for RWS I-III. For this, data on the distribution of the national rural population unserved at earlier stages of the programme is needed. I do not know if the same allocation policy to districts was used for RWS I-III. I thought that the type of district (high, medium or low potential) played an important role at that time.
Now this distinction in potential seems only to be used as a criterion for service level (house connection/kiosk/communal water point/maximum distance).

- Provincewise the fund distribution for RWS IV seems generally balanced. Nyama, with the highest proportion of unserved people, has the highest allocation, when the exceptionally large allocation to Kericho in Rift Valley province is deducted. Also noticeable is the almost equal proportion of funds allocated to Eastern and Central province, despite a considerable higher % of unserved population in the latter.

3.1.4. Excreta Disposal

No separate figures are available for urban and rural populations, except that 4% of the population (568.000 people or 33.4% of the urban population) uses septic tanks and 40% (both rural and urban) uses pit latrines (World Bank). A WHO appraisal gives a total of 56% of the population with excreta disposal facilities, but again without distinction in urban, urban fringe and rural.

3.2. Costs

The available documentation gives very little information on the cost-savings of participation in the various participation programmes. Here, the little information available has been summarized:

3.2.1. MWD-Self-Help Rural Water Supply Programme

Value of local contributions in Phase I, II and III of the programme (128 projects) was put at 20% (Ksh. 36 million). The actual percentage is much lower, however. McJunkin mentions 5% or less of the total construction cost as the typical value of local contributions.

Whiting and Krystall, however, report that 41% of the construction costs in 49 MWD self-help water projects assisted by CARE/USAID in 1976/1977 were paid as local contributions.

It is likely that the value of self-help labour and cash contributions differ with the scheme's potential for self-help. As to cash contributions: it is not clear whether some kind of general key for local contributions is used (i.e. voluntary contributions to a given percentage of the construction costs), or whether these are totally voluntary donations. Some sources mention 50%, others 20%, and 10% respectively as the proportion of the total estimated costs to be met by local fund raisings.

The organization of the self-help contributions, including the monitoring of accounts is supervised by the District Development Officer (DDO). These supervision costs are not taken into account.

It is questionable whether the value of local contributions, especially labour, is a gain to the project under the present circumstances of very limited technical supervision. This lack of technical support results in pipes laid too near the edge of roads, without a proper lining of the trenches so that the pipes are frequently broken by heavy lorries running off the road; in pipes laid uphill, stored in the sun and in great piles so that the bottom ones get deformed, etc. The pipe storage is formally the responsibility of the supplier - however, MWD was not aware of this, and in one case self-help labour and cash were used to build storage sheds. Because of the lack of technical manpower trenches are also dug long before the pipes can be laid - so that extra labour is needed to open them up again by the time the technical team arrives.

No mention is made in the documentation of other hidden costs to the people, except for a complaint of women that they felt their health was negatively affected by the digging of the trenches (Whiting and Krystall, referring to 3 out of 4 MWD/CARE projects).

3.2.2. Unicef-NGO RWS programme

Self-help contributions in 7 of the 17 planned and ongoing women's projects account for between 6.6% and 33.3% of the total construction costs.

Absolute figures vary from 5000 to 1 million Ksh.

In projects with a high percentage of local contributions (25-33%) they are both cash and labour, or labour only. In other projects the women have raised funds. More details are needed on final value of local contributions and on the way they were organized.

Kirsten Jørgensen who has carried out research on women and water in East Africa, including a study of these Unicef/NGO projects, may have investigated this aspect as well.

For the other participatory WS programmes no information on the cost-aspects of self-help could be found. Labour and cash contribution are also made in other programmes (e.g. MWD, at least before the creation of the self-help section, and MOH) but details are lacking.

3.3 Maintenance

3.3.1. Unicef-WHO assisted programme of MOH

Wignot evaluated 225 out of 561 schemes completed or initiated between 1962 and 1972 when the programme was taken over by MOH. The evaluation was carried out ^{through} meetings with DHO of 11 districts visited, and personal visits to 62 schemes in these districts.

The results were as follows:

Status of UNICEF/WHO schemes	<u>report DHO</u>	<u>observation</u>
	n	n
working	104	23
not working	71	31
not completed	22	8
no info	<u>28</u>	-
	225	

Of those completed on which information existed, 59% were working and 41% were not working.

Reasons for non-functioning

	<u>report DHO</u>		<u>observation</u>	
	N	%	N	%
design (esp. (source) failure	16	23	10	31
equipment (esp. handpump)	42	59	20	62
overlap	8	12	1	3
misuse	<u>5</u>	<u>7</u>	<u>1</u>	<u>3</u>
	71	100	32	99

Breakdown for Technology used (as reported by DHO)

	mech.pump	HP	GRAV.	H.RAM
working	55 (61%)	9 (16%)	22 (79%)	18 (75%)
not working	<u>35 (39%)</u>	<u>46 (84%)</u>	<u>6 (21%)</u>	<u>6 (25%)</u>
	90	55	28	24

No information is given as to which supplies are operated by county councils and which by local water committees, schools, and other local organizations and institutions. It might be possible to repeat the evaluation through the DHO's ascertaining present status of all MOH supplies for various types of participation, including various forms of local management.

For O + M of schemes operated by MWD see VIAK data. (Do these include schemes built for Ministry of Lands and Settlement and Ministry of Agriculture?)

Other O + M data to be collected concern (1) schemes built by MWD but now by county councils and community groups and (2) supplies built through self-reliance (e.g. assisted by UNICEF/NGO project) and other NGO programmes.

3.3.2. Relationship between Supplies Functioning and Com. Participation

It is not yet clear what the relationship is between various types of participation and O + M results. It is however clear that O + M is generally poor. Some factors which have already been identified in present evaluations as contributing to a poor functioning of the

supplies are related to shortcomings in the existing participation procedures.

These factors are:

- 1) In the design, sources are selected that run dry or have too low yield in periods of drought, partly because of the lack of involvement of people who know all potential sources in the area and their yield even in periods of severe drought;
- 2) In the design, the scope of the system is not clearly established and/or adhered to. When a scheme is planned, many people try to get access to it and the boundaries are not always established in consultation with the people concerned. Many expectations are raised, most people must find out by themselves that they will not be served after all. Also, once a scheme is functioning, neighbouring areas press for expansion often beyond the capacity of the source and the equipment. In supplies for settlement schemes, some overcapacity has to be reserved for adjacent farms, but who draws the line where and is this known and accepted?
- 3) Frequently, clear arrangements in O + M and management are not made in the planning stage. It should be clear from the start what the consequences are in the community in terms of financing, training and employment of manpower, for these tasks if they are to be borne by the community. Preparations should not wait till the supply is actually functioning.

When the agency remains responsible for O + M and Administration tasks, there will still be arrangements needed for some community participation, e.g. in reporting of breakdowns, social control, or, when one operator is responsible of several schemes an arrangement that a local person (VHW, sub chief etc.) switches on the pump and checks the essentials.

- 4) Women, who are the direct beneficiaries of the supply and are therefore likely to feel a greater responsibility for it are not sufficiently involved in the planning (though very extensively in the digging). Their involvement, especially in arrangements for O + M, is essential.
- 5) In the planning, arrangements for land-donations and rights of way are not always properly agreed or not by all concerned. Neither are provisions for cattle and payment arrangements for water used by them a standard part of the planning with the community.

- 6) The formation of user-groups for community water in the planning stage is just a matter of registering users for already planned sites. No attention is paid to (1) the relationship between the size of the pump and the number of taps, (2) siting of the tap in relation to the settlement pattern of the people (which could be done through consultation - or - if conflict arises, by studying the settlement pattern and network of small patterns) (3) the chances that the collection of standpost users forms a real group (either by taking existing relationships into account when planning the CWP's or, by stimulating the group-formation process afterwards, including discussion of local needs and responsibilities. When some group formation has developed naturally, and is recognized by MWD (delegation of responsibilities and authority), CWP's function well.
- 7) Leaking and broken pipes are also a consequence of the relative low technical quality of the self-help labour. Compare the well-organized procedure in Malawi.
- 8) The quality of the training of local operators varies considerably. This is to be remedied by the UNICEF organized operators' course, which is to provide ca. 100 trained operators by 1981. No information is yet available as to participation of self-help operators in this course.
- 9) Wilful damage is done by people who feel prejudiced by the supply, its design, its functioning and/or its regulations. Examples are loss of employment by water carriers and kiosk holders, misunderstandings about the scope of the system, no arrangements for cattle watering and frustration about irregular operation or long breakdowns without information about reasons and planned action. Theft of parts increases when neighbouring areas have self-help projects. All are shortcomings of the planning procedures.
- 10) Accidental damage is caused by playing children, cattle, farmers, woodcutters, etc. Often the tracks of pipelines are not generally known, consequences of behaviour (such as closing of

valves in pumping mains) not realized etc. Compare user-education for the prevention of such problems in the Malawi programme.

- 11) Even when the supply is functioning, the water quality is often not acceptable. The preoccupation of the public and staff is with quantity/reliability, because of the many problems and the relatively low user appreciation for the health aspects of a RWS (Whiting and Krystall).
- 12) The type of handpump used at the coast is not suitable for local participation in maintenance and repair.
- 13) Once functioning, wastage is very high, even though there is a shortage of water, especially for those towards the end of the line. Reasons are: poor quality of taps, people used to running water, no curbing of wastage through metering, illegal irrigation. Individual households are willing to assist, but there seems to be no specific policy to control this problem, even where demand problems exist.

3.3.3. Relationship between Community Participation and Financial Problems

Major reasons identified for poor payment of rates are:

- 1) Experiences with free (e.g. county council) supplies and no discussion of consequences of an improved scheme for payment because of disagreement with flat rates by those living at a greater distance or with relatively smaller households.
- 2) The demand of voluntary donations and a deposit for O + M at registration for a user-group may also make people think that no further payment is demanded unless this is explicitly discussed.
- 3) Dissatisfaction with poor service (long waiting lines at CWS, intermittent supply at irregular hours, last households on lines regularly not served at all, etc).

- 4) Dissatisfaction with payment arrangements (period, place).
- 5) Availability of alternative sources, whose advantages and disadvantages are weighed against those of supplied water (distance, quality, social pressure, waiting lines etc.) (An institutional reason is that billing is done by RWO but collection by Office of the President staff).

A reason identified for the slow taking out of house-connections in some schemes was ignorance (even by the staff) of technical possibility to make a cluster of yard-connections which will make the individual cost of each connection (to be paid by hh) lower than when all connections are made into the mains. Actual procedures can be very bureaucratic (i.e. long, complicated and even involving some duplication of the applicant's expenses), and guidelines are lacking.

4. Health practices and water use

No systematic study as proposed in IRC/CEP interregional project has yet been carried out, except for Fenwick (Ref. 8), but the health behaviour aspects of this study were limited to presence, observed conditions and reported use of latrines, and housing conditions.

The non-operation of supplies will be a serious intervening variable. Some water use and health knowledge aspects are discussed by Scotney, Whiting and Krystall.

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