THE WATER UTILIZATION PROJECT

A Case Study on a Water and Health Education Project in Northern Ghana

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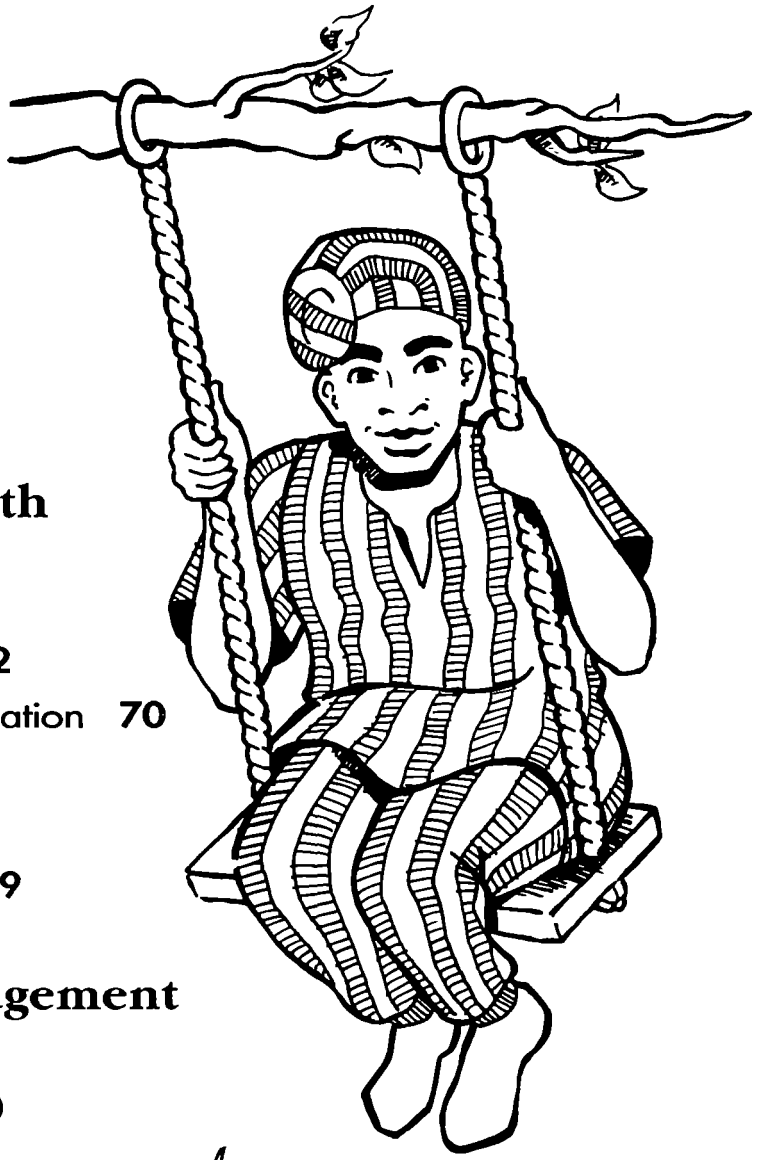
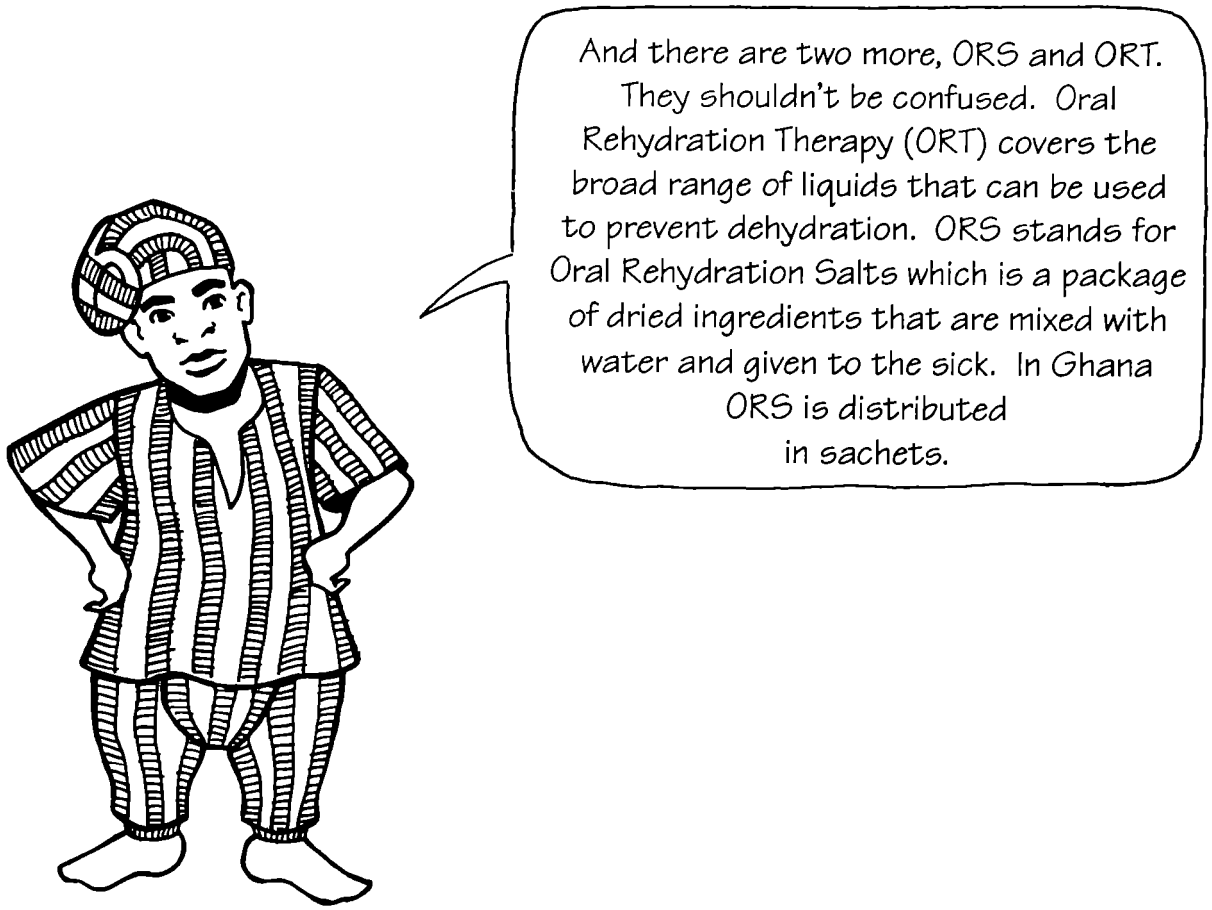


First, we'll give you an overview of the project and then we'll look at the education in detail.

Alphabet Soup

CBW	Community-based Worker
CDR	Committee for the Defence of the Revolution
CDU	Commercial Development Unit
CEA	Canadian Executing Agency
CIDA	Canadian International Development Agency
CWO	Community Water Organizer
GBC	Ghana Broadcasting Corporation
GWEP	Guinea Worm Eradication Programme
GEP	Group Extension Programme
GWSC	Ghana Water and Sewerage Corporation
HPC	Hand Pump Caretaker
IBRD	International Bank for Rural Development
M&E	Monitoring and Evaluation Unit
NCWD	National Council on Women and Development
NGO	Non-governmental Organization
RLG	Radio Learning Group
RMP	Radio and Materials Production Unit
RWSU	Rural Water Supply Unit
SSM	Sugar-Salt Mixture

UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
URADEP	Upper Regions Agricultural Development Programme
VEW	Village Education Worker
VLOM	Village Level Operation and Maintenance
WB	World Bank
WEFH	Water Education for Health
WHIP	Water Health Integrated Programme
WUP	Water Utilization Project



CONTRIBUTIONS

Like much of the work on the Water Utilization Project (WUP), the preparation of this case study has been a team effort. Fati Alhassan, Louisa Nitori, Mary Hamidu, Kenneth Godomah, Sam Joe Kumbaare, Matthias Zana and Don Sharp, all members of the WUP team, contributed their ideas in the early stages.

The study draws on the field papers that describe many of the activities undertaken on the project. It also draws on the memories of the people involved; their recollections of how things developed and of some of the memorable incidents that took place are recorded. Clement Addo, Simon Aanyeh, Ian Ellis, Linda Hope, Ross Kidd, Garld Malin, Bob Rhodes and Constance Tampanga contributed to the writing. Graphics are by Sammy Aninga with Hughes Ofori Domppreh and Martin Byram. Martin Byram and Ann Taylor were editorial consultants.

Gerald Chauvet and Charles Morrow of the Canadian International Development Agency (CIDA), and Alan Foy of Wardrop Engineering, commented on earlier drafts. (Wardrop Engineering was the Canadian Executing Agency from 1985.)

The project was funded as a joint venture between the Government of Ghana, represented by the Ghana Water and Sewerage Corporation (GWSC), and the Canadian International Development Agency.

Additional copies of this case study may be obtained from the Social Dimensions Division, Canadian International Development Agency, 200 Promenade du Portage, Hull, P.Q. Canada, K1A 0G4.

INTRODUCTION

At the official ceremony in October 1987 marking the opening of the Upper West administrative region, the Chairman of the Provisional National Defence Committee (PNDC) and Ghana's leader, J. J. Rawlings, singled out CIDA for an official tribute and presented the agency with a plaque in appreciation of its support and contribution to water supply in Ghana. CIDA's assistance with the provision of potable water in the Upper Regions was a major part of that contribution.

Water supply in Ghana is the responsibility of the Ghana Water and Sewerage Corporation which has traditionally concentrated on urban services. The joint CIDA/GWSC Upper Region Water Supply Programme was the first substantial attempt by the corporation to supply rural dwellers. Between 1973 and 1981, 2,700 boreholes were sunk and hand pumps installed in over 1,000 communities. For the first time, 600 to 700 thousand people had access to clean drinking water — water that would help to improve their standard of health and quality of life.

CIDA's involvement has spanned an 18-year period and has gone far beyond just providing assistance with the basic technical resources. In 1979, a maintenance component and — more significantly — an education component were added to the project. These were the Maintenance and Stabilization Project and the Water Utilization Project; both focussed on sustainability of the hand pumps and user education.

User education, aimed at maximizing the health benefits of a supply of potable water, has been a priority since 1985. Wardrop Engineering, the Canadian Executing Agency (CEA), and GWSC have fielded a team of up to seven advisors — including a coordinator, adult educators, a

radio specialist and an evaluator — and nine counterparts. Working with other government and non-government agencies in the Upper Regions, they have:

- developed and trained a cadre of Community Water Organizers (usually one man and one woman per pump), at 2,700 pump sites. Potentially, this network of CWOs can now support a variety of extension activities;
- used this network to communicate a variety of water/health messages to over 600,000 pump users. Specific water/health messages have included causes and prevention of diarrhoea, management of dehydration, preparation of ORS, pump site maintenance, use and maintenance of the pump, and payment of tariff; and,
- promoted the involvement of women in development by encouraging each pump community to select one woman CWO, who subsequently worked with women in the communities.

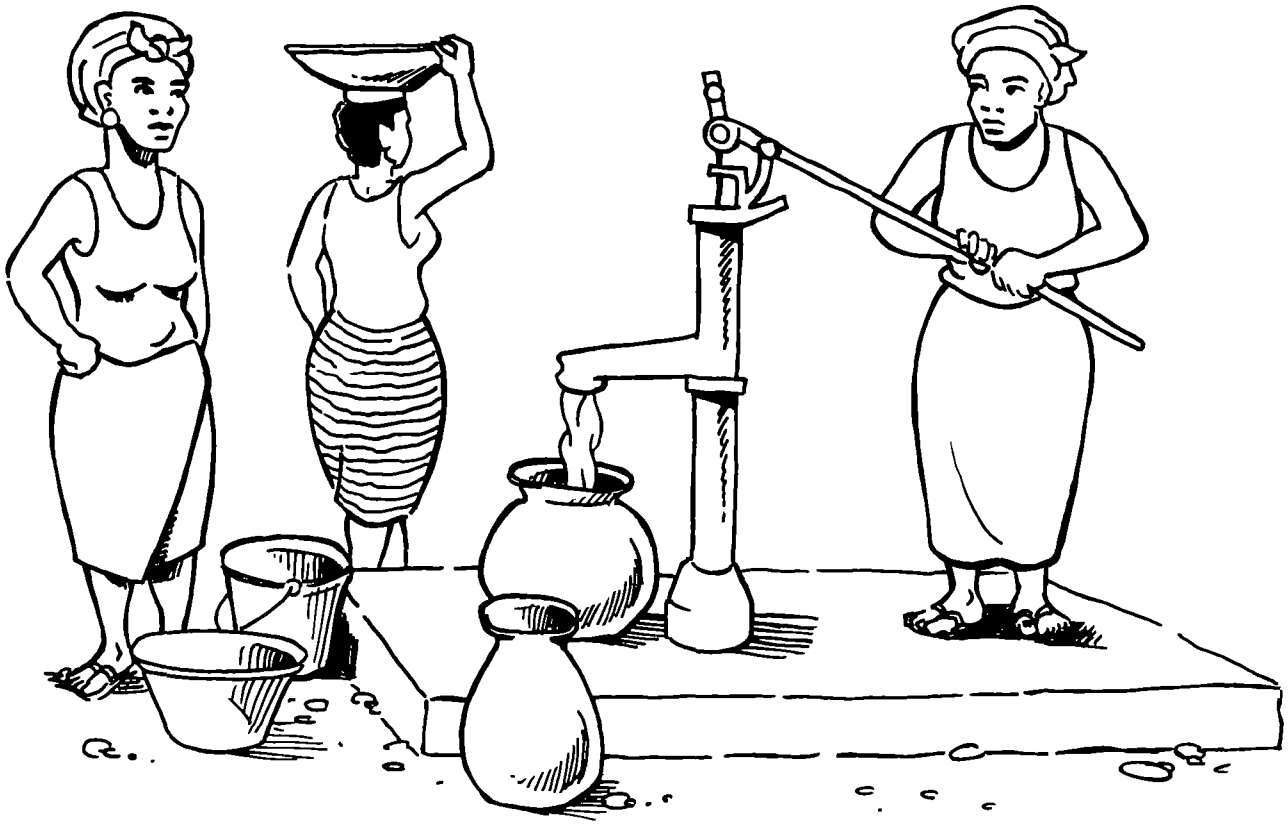
In many respects, the Water Utilization Project has been a success. It has helped to improve the quality of life for villagers in the Upper Regions. Women spend less time and effort fetching water. The availability of pump water has helped to reduce the incidence of such water-borne diseases as guinea worm and diarrhoea.

WUP has also had a positive impact on the organization and utilization of development resources in the Upper Regions. Through its educational programme, the project has been able to pull together and obtain the cooperation of government and non-government extension agencies. Their combined effort has created a network that can reach into all rural communities.

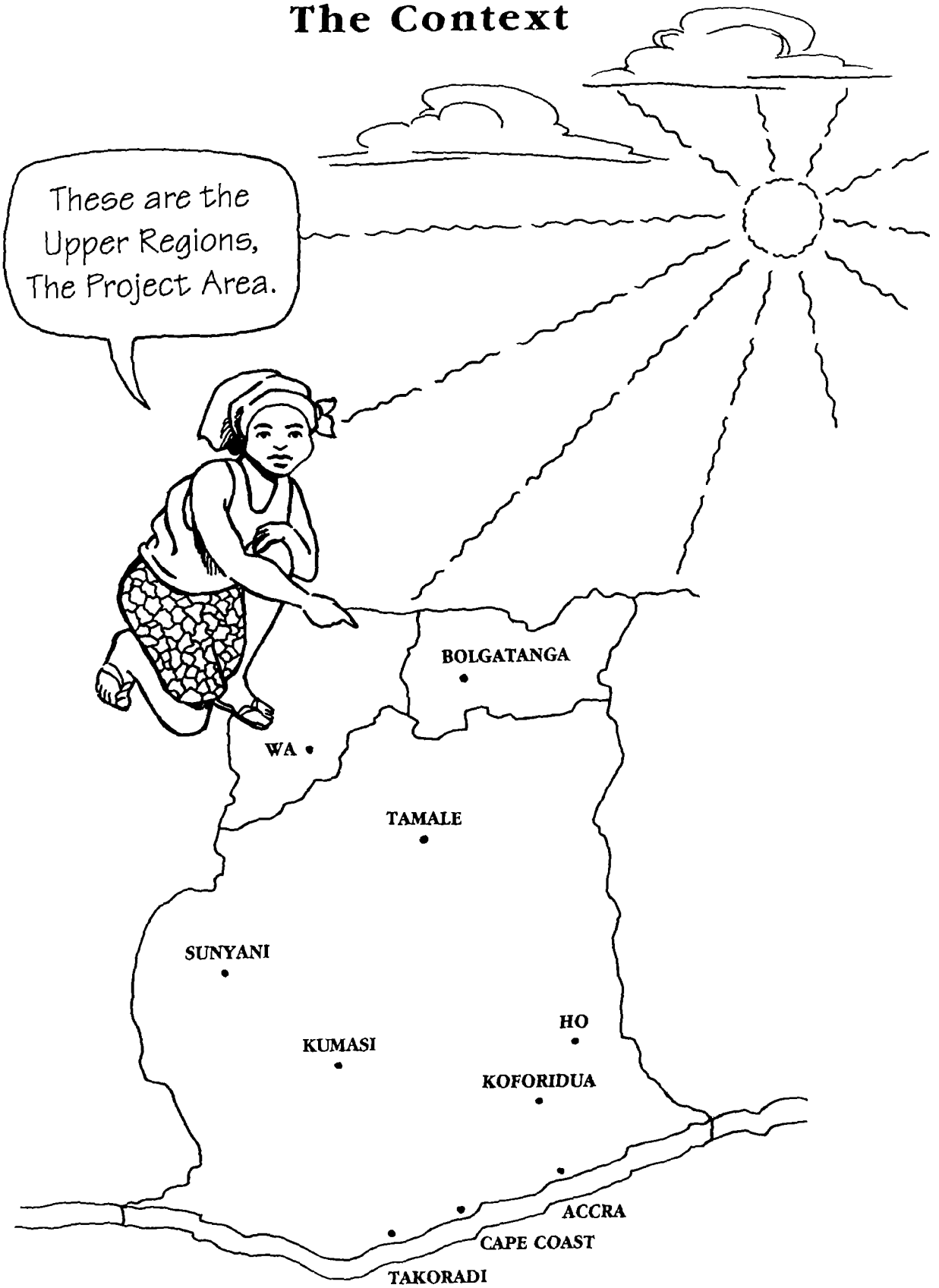
Over time, a strategy evolved for organizing large numbers of village volunteers who, in turn, mobilize even larger numbers of rural dwellers in a mass education effort. Through a process of trial and error and critical analysis of the field experience, lessons learnt from each successive education campaign — and from elsewhere — have been applied to develop this strategy.

Of course, were CIDA to start this water project today, it would change many aspects of its original design. This is, in part, a reflection of how much has been learned about water over the past 18 years. But it is also a reflection of how much has actually been learned from the experience in the field and applied to the development of the project.

With the current phase of the Water Utilization Project drawing to a close, this is an opportune time to look back on the experience and take stock of what happened. By describing the evolution of the project, documenting what has been done and how, and drawing out the lessons learned, it is hoped that the experience gained in the Upper Regions of Ghana will be useful elsewhere.



SECTION I
The Context



THE UPPER REGIONS

The Water Utilization Project operated in the two Upper Regions of Ghana, the most northerly area of the country bordering Burkina Faso.

With a population of 1.2 million — 770,000 in the Upper East and 440,000 in the Upper West — they are the least populated regions in the country. Most of the people live in rural areas; only 10 percent live in the major towns of Bolgatanga, Bawku and Wa.

It is a diverse population. This part of Ghana has more ethnic groups than the south but, combined, they account for less than 10 percent of the country's population. There are six major languages used in the regions — Gurune, Dagaare, Sissala, Buli, Kasem and Kusaal. Very few people are literate in these languages. The literacy rate in English for the country as a whole is estimated at 25 to 30 percent; in the Upper Regions the literacy rate is considerably lower.

People live in small, scattered villages and hamlets with subsistence farms in and around their communities. Agricultural technology is simple, relying extensively on manual labour, particularly by women. Approximately 70 percent of the labour force is engaged in agriculture.

In the patriarchal farming communities of the Upper Regions, women have subservient but interdependent relationships with male family and community members. Polygamy is common in rural areas. Both men and women participate in subsistence activities, with labour and responsibilities organized along distinct gender lines. Men are primarily responsible for the production and use of staple crops and livestock,

women for household management, the preparation of food, childcare and up to 80 percent of all agricultural labour. Primary responsibility for care of the family falls on women. Women are also the primary collectors, managers and users of water and make the decisions about sources used, quantities collected, storage and use.

Agricultural activity is organized around two seasons — a rainy season from April to October, followed by a dry season when humidity is low and the temperature often reaches 42°C or more. Rainfall rarely exceeds 125 centimeters annually. During the dry season almost all vegetation withers; the region is barely able to support subsistence agriculture and livestock pastures, although — when the rains are good — some agricultural surplus is produced and sold to markets in the south. Prolonged cultivation and bush burning have caused serious degradation of vegetation.

As a result of soil depletion, deforestation and uncertain rainy seasons (including several droughts in recent years), as well as male migration to urban areas, women spend increasingly more time in collecting water and fuel in addition to their other responsibilities. The northern regions are comparatively disadvantaged economically and, to cope, women engage in surplus production and food processing activities.

Roads in many areas are poor; in the wet season, many are impassable. Communications are also difficult, with telephone and telex services available in larger centres only.

In Ghana, as in other developing countries, water- and sanitation-related diseases are responsible for most illnesses and death, particularly of young children. UNICEF estimates that the average child in a poor

community in a developing country will have between six and 16 bouts of diarrhoea a year. Diarrhoeal diseases are responsible for over 25 percent of all child deaths.

UNICEF also estimates the infant mortality rate in the Upper Regions at between 250 and 300 per 1,000 births. The serious tropical diseases — guinea worm, schistosomiasis, malaria and onchocerciasis — are all present in the regions. Recent studies by the Ministry of Health in the Upper West show an increasing incidence of guinea worm infection, particularly where villages do not have access to pump water or use other sources. In the Wa District, for instance, 106 of 139 villages inspected had cases of guinea worm.

Traditional beliefs and practices play a major role in the lives of people in the North. These traditional religions are characterized by spirit worship and ancestor veneration. Animists explain sickness in terms of witchcraft and superstition.

During the past decade, health institutions in Ghana, like those in other parts of Africa, have experienced severe shortages of essential drugs, medical equipment, laboratory items and funds to support primary health care systems. The country has also been affected by the emigration of skilled health personnel. In 1988, the government instituted a "fees for services" health care policy.

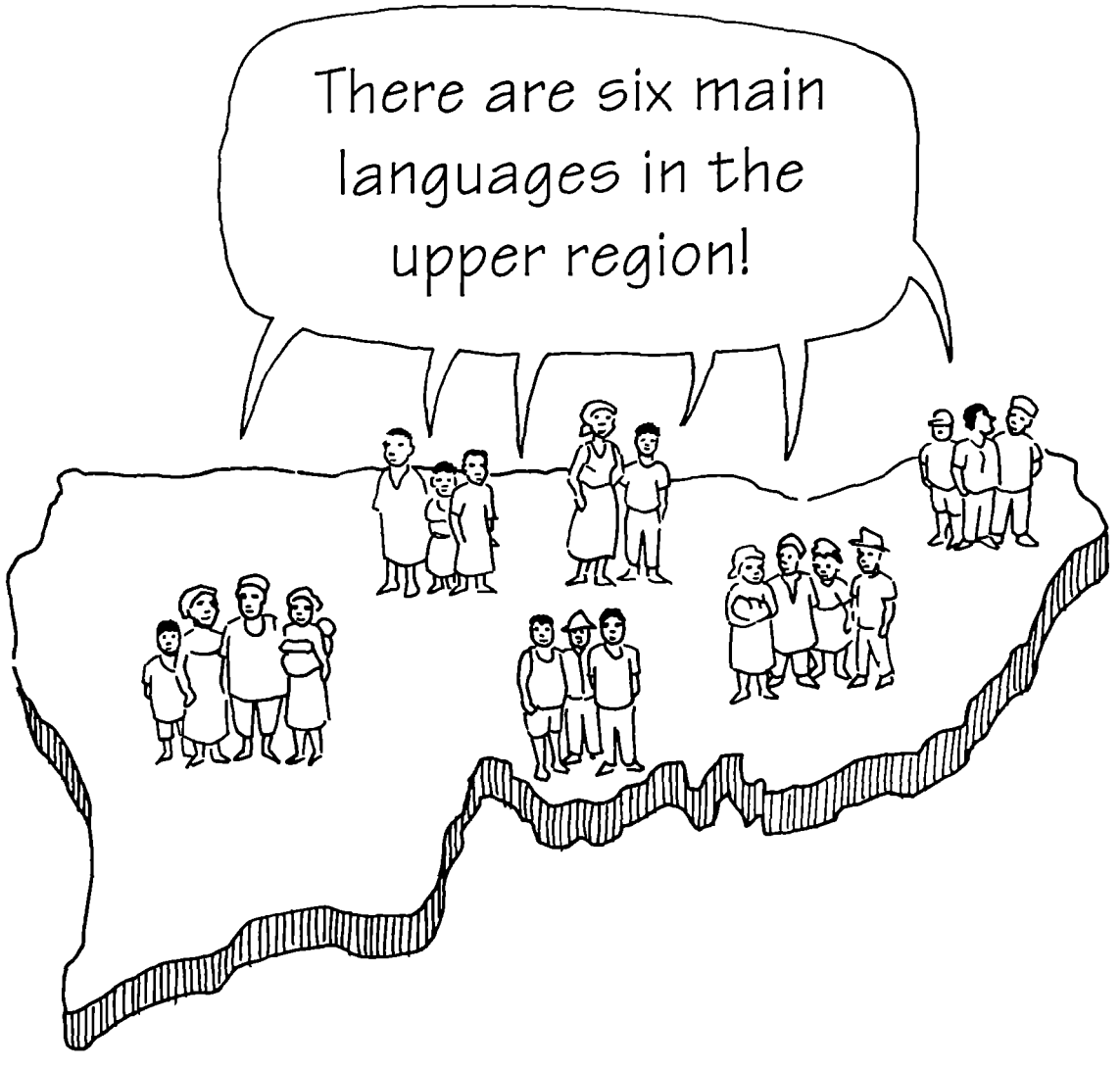
The rural component of the Upper Region Water Supply Project started in 1973. The 2,600 boreholes and pumps installed are now being supplemented with pumps provided by non-governmental organizations. More than 275 NGO pumps have been installed, 95 percent of them in the Upper West. An estimated 75 percent of the rural population now has access to safe water.

The Water Supply Project was implemented during a period of political and economic turmoil in Ghana. In the early stages of the program, from 1972 to 1976, the economy was relatively stable and the northern regions enjoyed a period of political strength. In the late 1970s and early 1980s the economy declined, and serious shortages of foreign exchange affected the government's ability to meet its commitments to implement the program and maintain the infrastructure. Although there has been some improvement in the economy, meeting their agreed financial contributions to the project continues to be a problem for the Government of Ghana and the Ghana Water and Sewerage Corporation.

In 1982, the government announced plans to decentralize from the capital of Accra to the regions, districts and local communities, at the same time retaining the right to appoint regional and district secretaries. The secretaries exercise executive power, and chair regional and district councils which consist of both elected and appointed members. The single Upper Region was divided into two regions — the Upper East and the Upper West — in 1987 and recently the seven administrative districts in the two regions were increased to a total of 11.

Because each region had its own priorities, the administrative division of the Upper Regions had a major impact on the project. Staff located in each region operated within the regional context, although this made administration more difficult.

The conditions, circumstances and resources of the two regions have influenced and shaped the activities of the Water Utilization Project. The scattered population, seasonal farming activities, and low levels of education and literacy have been significant factors in the design and operation of the project.



THE WATER UTILIZATION PROJECT

An Historical Overview

Water- and sanitation-related diseases are responsible for most deaths of young children in Ghana. Improvements in the availability and quality of water can play an important role in improving health. Better access to clean water allows standards of hygiene to improve; this in turn can lead to a reduction in diarrhoeal diseases, infections of the skin and eyes, cholera, typhoid, infectious hepatitis and guinea worm.

The goal of the Water Utilization Project was to make a significant improvement in the health and productive capacity of the residents in the Upper Regions of Ghana by providing "in adequate quantities... a clean and hygienic supply of water". CIDA has worked with GWSC since 1973 to install 2,700 hand pumps in over 1,000 communities, to develop a maintenance support system and to organize a user education programme.

Throughout its involvement in the water project, CIDA's objective has remained unchanged. As with any project that spans 18 years, there have been inevitable changes in focus and strategy. Administratively, these changes are reflected in four phases:

- **the Upper Region Water Supply—1973 to 1981;**
- **the Water Utilization Project Phase I—1979 to 1984;**
- **the Maintenance and Stabilization Project—1982 to 1988; and,**
- **the Water Utilization Project Phase II—1985 to 1992.**

Within these four phases, there have been four overlapping periods of activity:

- Hand Pump Installation;
- The Community Education Programme;
- Hand Pump Maintenance; and,
- Water Education for Health.

These changes in focus and strategy reflect a growing understanding of what is involved in promoting a rural water supply project. CIDA's project was initially perceived as a technical project to introduce hand pumps into the communities. By WUP Phase II, it was clear that the impact of the technical input — the hand pumps — would be maximized only if the users fully understood and accepted the benefits of using and maintaining a potable water supply. The development of an extensive Water Education for Health programme that eventually involved over 4,000 Community Water Organizers recognizes the importance of user education.

A number of factors have influenced the evolution of WUP from a technical project to a social/educational project; these include:

- experience in the field: an education component was introduced into the project in 1979 when it was observed that during the wet season women abandoned the pumps in favour of unprotected water sources closer to their homes;
- specific project planning interventions (summarized on the next page); and,
- broader developments in the hand pump sector, particularly the concept of Village-level Operation and Maintenance.

PLANNING INTERVENTIONS

Implementation Stage	Planning Interventions
Stage I HAND PUMP INSTALLATION 1973–1981	COMMUNITY EDUCATION PROPOSAL 1976
Stage II COMMUNITY EDUCATION PROGRAMME 1977–1984	REVIEW AND REDESIGN MISSION 1982
Stage III MAINTENANCE STABILIZATION 1982–1986	PROGRAM EVALUATION 1984–1985
Stage IV WATER EDUCATION FOR HEALTH 1985–1990	RADIO LEARNING AND REDESIGN 1986 RADIO LEARNING GROUP FEASIBILITY STUDY 1987

Hand Pump Installation

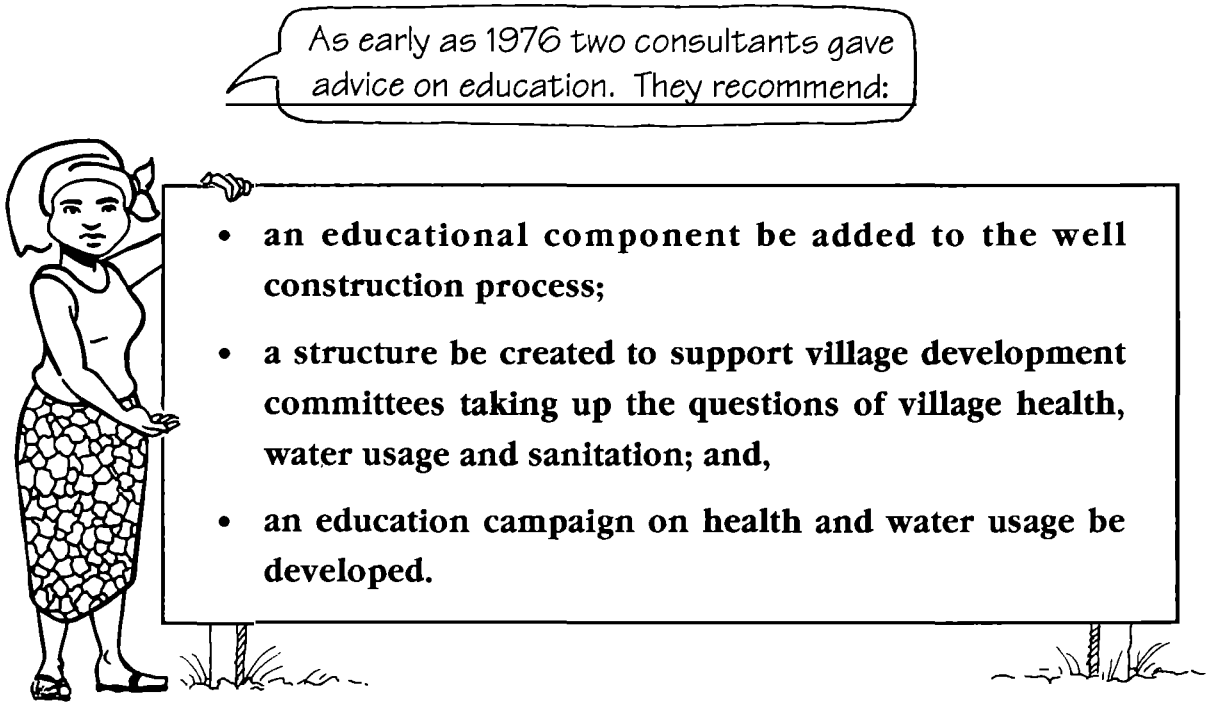
The Upper Region Water Supply Project was launched in 1973. Over an eight-year period almost 2,700 wells were sunk and hand pumps installed in rural communities. Urban systems were built (or rehabilitated) in three major towns and several smaller communities.

The process of introducing villagers to a pump was handled by a team of drillers and hydrogeologists who met with the local traditional leaders and their male advisors. Villages were selected using population distribution figures from the 1966 census. Boreholes were sited based primarily on geological criteria, and little consideration was given to such issues as proximity to compounds or traditional boundaries between villages and clans.

The location of the pumps subsequently proved to be an important factor in their use. It soon became apparent that, while the pumps were greatly appreciated for providing a reliable source of water during the dry season, in the wet season many women chose to use unprotected water sources closer to their homes.

Within the first year or two it became clear that drilling wells and providing hand pumps was not enough to realize the project's aims. It was evident that important issues had not been addressed. These included users' lack of awareness of the potential benefits of clean water;

their responsibility for pump maintenance; and, traditional beliefs that linked diseases to causes other than water.



To support the educational activities, the consultants recommended that:

- relevant training materials be prepared and extension personnel trained;
- an interministerial Health Education and Water Usage Committee be formed; and,
- positions for a district coordinator and one part-time village worker for every 50 sites be established.

They also recommended that a maintenance system, using village-level Hand Pump Caretakers (HPCs), be developed to help sustain the benefits of the hand pumps.

The recommendations for a community education programme and a community-based maintenance system were agreed to, with GWSC, in a 1977 Memorandum of Understanding. Based on this memorandum, the Water Utilization Project Phase I was launched in 1978.

Community Education

The Water Utilization Project Phase I added a social dimension to what had been primarily a technical project. The new focus emphasized community participation in the management and maintenance of the hand pumps, and community education in the skills, knowledge and habits needed to maximize the health benefits of potable water.

It was intended that the Water Utilization Project should improve:

- **access to potable water through site development;**
- **health and water use through education programmes;**
- **sanitation through a latrine building programme;**
- **village level maintenance through the training of pump caretakers**

These functions were assigned to two units:

- the Rural Water Supply Unit, charged with keeping the pumps functioning and making physical improvements to the immediate area around the pumps; and,
- the Community Education Programme, given the task of educating and mobilizing the communities on health-related issues.

Community involvement began in mid-1977 with a pilot project in six villages. Village "pump men" were appointed and trained in preventive maintenance, proper pump usage, and site cleanliness.

However, the emergence of a full-fledged community education programme was hampered by the lack of qualified full-time education personnel. Responsibility for the education component rested with three successive WUP team leaders until 1980, when a full-time Ghanaian adult educator was appointed; a year later, a Canadian adult education advisor was also appointed. By mid-1981, a community education strategy had been outlined. It involved one coordinator, 10 instructor-trainers and 100 instructors (called Village Education Workers — VEWs), working in 1,000 villages each year.

In the implementation plan, the acronym SPARE was used to summarize the education programme's characteristics:

A final principle was standardization of operations to "ensure quality, uniformity and simplicity".

The objectives, however, were far from simple. The aim was to:

- reinforce behaviours that favoured good health;
- change unhealthy behaviour;
- increase awareness of the relationship between water and health; and,
- encourage community efforts to care for water supplies and improve sanitation.

In 1981, the community education programme was initiated in three districts — Lawra, Wa and Bawku. By the end of the 1982 dry season, the districts of Navrongo and Sandema had been added. A total of 72 VEWs were trained, including 11 women. In the district of Bolgatanga, the programme started in 1983 with 21 VEWs being trained.

In principle, the VEWs were to be community-based paraprofessional volunteers; in practice, most were government fieldworkers doing a second job in a private capacity, attracted by incentives.

The "volunteers" were given eight hours of training on specific water-related health messages and on the use of teaching aids. Each was expected to give three talks at 10 different pump sites over a 12-month period. As incentives the VEWs were loaned bicycles, which they could keep after three years of satisfactory service; as well, they received T-shirts, caps and shoulder bags.

The VEW strategy was assessed by the CIDA Review and Redesign Mission in 1982. The mission considered the overall strategy "viable", the training of VEWs "thorough", and the "exponential" model of one

VEW for every 10 villages "manageable". It was, however, a qualified endorsement; the mission made a number of criticisms that reached to the core of the community education programme. It noted the need to determine "the effectiveness of the message" and "the educational task", and recommended: investigating the potential of a mass radio campaign; developing interagency cooperation; recruiting more women VEWs; hiring more staff for the community education programme; training counterparts; and, making women the primary target group of the community education programme. Many of these issues were to resurface in later reviews and evaluations.

Several of the recommendations were implemented and, by 1984, the community education programme had expanded to include:

- public information using a range of media (posters, calendars, puppets, drama, concerts) to raise water consciousness; and,
- community outreach using extension agents from other organizations to disseminate water messages.

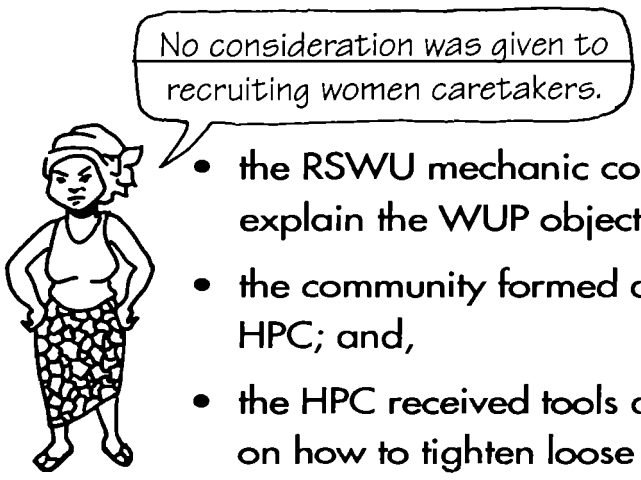
Although the VEW programme suffered when a substantial number of volunteers dropped out, and in 1983 was scaled down to 70 volunteers covering 700 villages, it continued to be the main medium for water education in WUP Phase I.

Maintenance and Sustainability

To a large extent, the activities of the Rural Water Supply Unit overshadowed the community education programme. A major concern in WUP Phase I was that pump users assume responsibility for hand pump operations and maintenance.

Volunteer Hand Pump Caretakers were recruited in the villages. They had to be residents living near a pump who could do preventive maintenance and help the RWSU monitor the performance of the pumps.

The job required people with mechanical aptitude; as a result, volunteers were recruited from among village bicycle repairmen, blacksmiths and others. The process for recruiting and training HPCs was as follows:



- the RSWU mechanic contacted the village chief and elders to explain the WUP objectives;
- the community formed a Water User Committee to select a HPC; and,
- the HPC received tools and instructions on a one-to-one basis on how to tighten loose bolts and lubricate moving parts.

The first pump installed — the Beatty pump — proved unsuitable for vigorous use by a community (although well suited to domestic use on western Canadian farms). As more and more pumps broke down, sustainability of the hand pump scheme became a matter of concern. The Beatty pump was eventually replaced by Moyno and Monarch pumps. While the Beatty pump did lend itself to a community-based maintenance system, the Moyno and Monarch pumps did not. This meant there was an increased role for the RWSU and a diminished role for the HPCs in preventive maintenance of the pumps.

With the maintenance function now falling directly on the RWSU, a decentralized structure for regular pump servicing was created. Motorized mechanics, operating from the district centres, answered requests for repairs and monitored the performance of the pumps. This became the priority activity of WUP Phase I.

The shift of responsibility for pump maintenance set in motion a process of redefining the HPC's role and eventually created an opening for the participation of women. Two interventions were significant in refocussing attention on community participation — the Programme Evaluation (1984) and the Review and Redesign Mission (1985).

Evaluation of WUP Phase I

Phase I of WUP ended in 1983 and was followed by a comprehensive programme evaluation. Women drawers of water were surveyed to investigate patterns of water-related behaviour in both wet and dry seasons; as well the technology, project costs, organization and management, and education components were reviewed.

The evaluation concluded that the project had been a qualified success. The pumps were being maintained to provide a source of relatively reliable water for 600 to 700 thousand people. On average, each pump was used by 400 rural residents, 60 percent of whom resided within 800 metres. (This level of use reflects the highly dispersed settlement pattern.) Data from the survey suggested that the choice of water source was based largely on proximity, especially during the wet season, although hand pumps were the preferred source when located within a reasonable distance.

The evaluation also concluded that health had improved: there was a reduction in guinea worm and, possibly, in diarrhoea. However, bacteriological test results suggested that both the pumps and traditional sources of drinking water provided relatively pure water, and that the principal impact of the pumps had been to improve access to water. Although women had been largely excluded from active participation in the programme, some of their burden had been eased by the provision of a closer source of water.

In its assessment of WUP's educational work, the evaluation team felt that no more than a start had been made. Coverage had been low; some of the messages were redundant; and, the educational approach was overly didactic, with presentations trying to cover too many topics. Efforts to promote the building and use of latrines were questioned since they seemed to have little impact. By September 1984, only 393 household latrines had been constructed and about 130 of those were not being used. The survey also showed that stored water was contaminated in about one compound in three, with no improvements in the compounds of those with access to the education.

The evaluation team argued that inadequate educational resources had been spread too thinly, with a resulting low payoff. Constructing latrines, supporting volunteer educators, and encouraging villagers to form Water Users Committees (whose functions were not ongoing), had not resulted in any significant change. In addition, too little attention was paid to selecting messages that convey a health benefit, developing effective educational materials, and building cooperation with other rural extension agencies.

This paved the way for an extension of WUP, with an emphasis on education. WUP Phase II was launched in 1985. To address the deficiencies of the first phase, educational resources were substantially increased and a new approach developed. The latrine-building component was dropped; priority was given to the organization of a water/health education programme and to the training of pump caretakers. The site development programme was continued and a new component — the development of a system for hand pump tariff collection — was added. The goal was still to improve the health and productivity of the rural population — only the means to achieve that goal had been revised.

The revision meant that there were now two broad areas of focus:

- upgrading the capacity of pump communities and the GWSC in order to maintain and to manage the pumps, and to improve sanitation at the pump site; and,
- maximizing the health benefits through an educational programme.

These functions were assigned to three units:

- Water Education for Health (WEFH);
- Rural Water Supply Unit (RWSU); and,
- Commercial Development Unit (CDU).

WEFH was given responsibility for the water education programme and RWSU for site improvement and caretakers training; CDU took on the task of developing a system for tariff collection. A fourth unit, Monitoring and Evaluation, was also established. The M&E Unit was to have a significant impact on the formation of the education strategy by continuing formative research on the educational process.

The evaluation also marked a change in the management of the project. Until then, the project had been managed directly by CIDA, with Canadian advisors recruited as individual cooperants. Following the evaluation process, management was transferred to a Canadian Executing Agency: Wardrop Engineering.

Water Education for Health

By 1985, the education activities of the Water Utilization Project had been strengthened to include a team of six advisors (a coordinator, four educators and one evaluator) and nine counter-parts. A radio specialist was added to the team in 1989.

Based on the recommendations in the Project Evaluation, and the Review and Redesign Mission, substantial revisions were made to the programme strategy. The Village Education Worker approach was shown to have limited impact. Because the volunteer teachers had inadequate training and too little support in the field, and tended to use lectures rather than discussions to cover too many topics, their talks reached only a small percentage of the potential audience.

The Village Education Worker scheme was disbanded and the educational unit within WUP was given a new name — Water Education for Health — to reflect its narrower focus on water-related health issues. Instead of depending only on the didactic approach, the new programme set out to experiment with a number of educational strategies. The aim was to broaden the coverage and deepen the impact, using a mix of appropriate, carefully-tested methods. Mass programmes would be launched only when they could be adequately supported with training, educational materials and field supervision.

In June 1986, Water Education for Health (WEFH) organized a pilot campaign to test the use of government fieldworkers as frontline village teachers. Fieldworkers in two areas were trained in participatory, interactive teaching methods and water-related health content, and assigned to organize educational meetings in 100 pump communities. There were some weaknesses. Fieldworkers were not mobile; they had difficulty reaching communities on a regular basis; and, they could not provide the continuity needed in an education programme at the village level. WEFH was forced to find an alternative. The solution was to form a cadre of community-based paraprofessionals, called Community-based Workers, to extend the outreach of government fieldworkers. This strategy was tested in 1987 in a second pilot programme, called the Group Extension Programme, implemented in three out of the seven districts in the Upper Regions.

Work on the pilot programmes helped WEFH gain experience in a number of areas crucial to the implementation of a mass programme. Knowledge was acquired on how to organize training, material production, logistical support, extension resources and evaluation in the context of the Upper Regions. Perhaps the most important gain was the initiation of interagency teamwork at the regional, district and field levels. The Group Extension Programme was planned and implemented on a collaborative basis; through it, WEFH started to develop close working relationships with a number of agencies and to establish procedures for building interagency cooperation. This approach gave WEFH the resources to organize the mass education campaigns, something it could not have done alone.

WEFH, however, was not the only unit involved in education and training. The Rural Water Supply Unit's programme also had a substantial education component, concerned with training hand pump caretakers and encouraging communities to improve their pump sites. Under the pump site improvement programme, communities were encouraged to use the sites for dry season gardening, tree planting, bath houses and laundry facilities, and to build extended pads.

Both the Project Evaluation and the Review and Redesign Mission had recommended that greater priority be given to training HPCs. Consequently, in November 1986, the Rural Water Supply Unit (RWSU) began to design a training programme, train trainers, and test a training course. In the process they made a number of significant changes to earlier initiatives. The existing cadre of exclusively male HPCs was complemented with women, one male and one female caretaker per pump. The caretaker's role shifted from on-site maintenance to fault-reporting, increased involvement in tariff collection, and greater

emphasis on community education and mobilization. The role of the HPC changed from that of village mechanic to one of generalist "water organizer", able to carry out a range of educational and organizational responsibilities.

This new focus had implications for the management of the project. It meant that there were two education units — WEFH and RWSU — operating within GWSC. Both units were in the process of creating their own paraprofessionals in the pump communities, competing for and duplicating community resources. Communities could not necessarily distinguish between the role of the HPC and CBW, causing confusion.

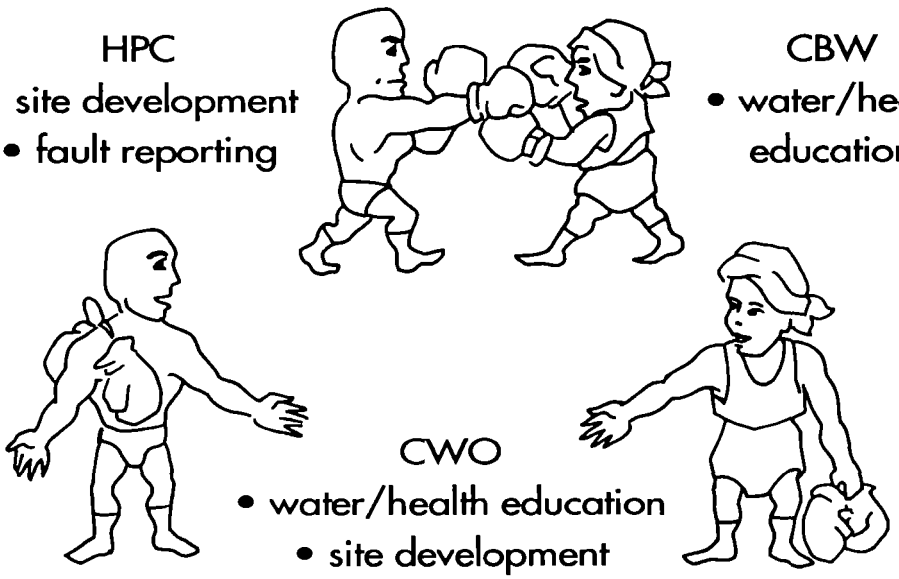
This situation was further compounded by a growing concern with tariff collection. Surveys by WUP's Commercial Development Unit had highlighted a serious problem with the payment of tariff. Many communities were substantially in arrears. From GWSC's perspective, tariff payments had to be boosted by making communities aware of the importance of potable water, the reasons for the tariff, and ways of collecting and raising funds. For the villagers, tariff was a sensitive issue. Many felt that since tariff had not been mentioned when the pumps were installed, they should be free of charge and that the cost of maintenance should be borne by government. An educational response was clearly needed.

Each of the three units had a significant educational focus, and it was increasingly evident that their different efforts needed to be coordinated and integrated. The Review and Redesign Mission had recommended that WEFH integrate its work with other components of WUP. Closer coordination would ensure that WUP units worked with a common strategy, avoided overlap and duplication, reinforced each other's efforts, and built on each other's initiatives.

In mid-1987, the roles of the HPC and the CBW were combined:

HPC
- site development
- fault reporting

CBW
- water/health education



CWO
- water/health education
- site development
- tariff education and collection
- fault-reporting

The new Community Water Organizer (CWO) became the focus for all community-level education activities and WEFH took on responsibility for all educational programmes.

WEFH began to develop a systematic education strategy. Building on the experience of the 1986 and 1987 campaigns, efforts were concentrated on recruiting and training Community Water Organizers. The RWSU's policy of recruiting two people per pump was adopted. A deliberate effort was made to recruit women, the major users of the pumps. During the 1987-88 campaign 3,000 CWOs were trained, 48.5 percent female. During the 1988-89 campaign a total of 4,100 CWOs were trained in 60 training courses. Over 50 percent of these CWOs were women.

The Changing Role of the HPC

CIRCUMSTANCE	RESPONSE	SIGNIFICANCE
Increasing number of pumps breaking down	Recruitment of village volunteers to do preventive maintenance	Job description emphasized mechanical skills Criteria for selection excluded women
Beatty pump replaced with more robust Moyno and Monarch pumps that required maintenance by skilled mechanics	RWSU personnel take on servicing and repair function	Maintenance role for HPC eliminated, their role reduced •fault reporting •assisting RWSU mechanics during their visits •supervising pump site improvements
Introduction of tariff	HPC given additional responsibility for tariff collection	
Programme Evaluation and Review and Redesign Mission	HPC programme revised to focus on their educational role vis-à-vis site development and community organization	Decision to recruit two HPCs for every pump — one male and one female
WEFH and RWSU education strategies overlap, duplicate each other	HPC and CBW roles combined to CWO cadre	Responsibility for RWSU and CDU education mandate shifted to WEFH RWSU focus on strengthening GWSC's maintenance capacity

At this stage they recognised the importance of involving women

One of WEFH's noteworthy achievements was the speed with which it built up the experience and the resources to organize a mass education programme. With a planned increase of 25 percent each year it achieved a complete coverage — 5,300 CWOs — by the 1989-90 campaign.

WEFH TRAINING 1986-1990

PERIOD	NUMBER TRAINED		
	EXTENSION WORKERS		*CWOS*
1986 pilot	30		
1987 pilot	71		132
1987/88	400	as recruiters and supporters	3,000
	175	as trainers	
1988/89	"		4,105
1989/90	"		5,000

Developing the project on an interagency basis has been a fundamental part of this mass education approach. Obtaining the practical support of such departments as Community Development and Environmental Health enabled WEFH to create a network of extension teams to train and supervise CWOs.

The development of an annual campaign cycle also helped to make the large-scale operation possible. The campaigns were built around seasonal agricultural activities. They involved a series of operational

steps. Each campaign started with "Topic Research", and ran through such activities as "Fieldworker Training" and "Mass CWO Training", to culminate in "Planning for the Next Campaign".

During the 1989-90 campaign, a new dimension was added — the use of radio directed towards village learning groups. Both Review and Redesign Missions (1982 and 1985) and the Programme Evaluation (1984) had recommended radio for mass education. This became possible with the opening in 1986 of URA Radio, a regional station of GBC in Bolgatanga.

A feasibility study on a radio learning group approach to mass education was conducted in 1987. Although the study generated much debate among WEFH personnel, the recommendations of the report were the basis for extending WUP Phase II by a further two years. However, plans for a radio learning group approach got off to a number of false starts, partly because of staffing problems and partly as a result of overestimating the resources of URA Radio. In 1989, a Canadian radio specialist joined WUP; this enabled WEFH to make greater use of radio to support CWO activities in the 1989-90 campaign.

Throughout WUP Phase II the education programme benefitted from the presence of an inhouse Monitoring and Evaluation Unit. While the importance of these functions is almost universally acknowledged, this project actually committed resources to an internal unit that could give immediate feedback in a supportive and collaborative form to help guide decision-making. The unit provided a steady stream of findings dealing with crucial issues like tariff performance, the proportion of women among CWOs, the teaching of SSM, the effectiveness of extension worker training, and the effectiveness of site development promotion. The on-site monitoring and evaluation capacity also meant that topics were thoroughly investigated before deciding which specific messages

should be promoted. This was instrumental, for example, in focussing the diarrhoea message on the "management of diarrhoea" and abandoning teaching of the SSM solution in favour of purchasable ORS sachets.

Conclusion

There have been many modifications in strategy since the project began in 1973. This reflects both the tremendous advances made in the technology of rural water supply, and the realization of the crucial role that communities must play in choosing and managing their water supply, and paying for water fees. It also reflects the responsiveness of WUP field staff and management, and of GWSC and CIDA personnel, to criticism and changing circumstances.

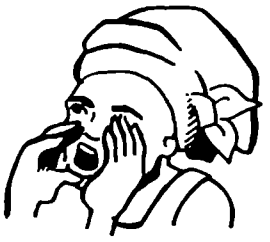
RESULTS

- A water supply project with 90 percent of the pumps working and potable water available to over 600,000 people.
- The development and training of a cadre of Community Water Organizers, usually one man and one woman, in 2,700 pump communities and the creation of a network which can be used to support a variety of extension activities.
- The rapid expansion of this network through a system of "staged" training involving WEFH staff, fieldworkers and CWOs.
- A focus on women by encouraging communities to select one woman CWO, and subsequent work by CWOs with the women of the village.
- Low-cost, self-help site development activities at a substantial proportion of hand pump sites.

SECTION II

Water Education For Health

INTRODUCING WEFH



Water Education for Health (WEFH) started in late 1985 with a series of objectives linked to the overall aims of the Water Utilization Project, a set of targets laid out in the inception plan for WUP Phase II, and a number of lessons drawn from the Community Education Programme of WUP Phase I.

Water Education for Health referred to both the programme and the organizational unit created to plan, organize and manage the water/health education programme. It was set up as a temporary structure within GWSC, made up of Canadian adult education advisors and Ghanaian counterparts seconded from other agencies with a water/health mandate. Other locations for the WEFH Unit were examined — the Department of Community Development, the Ministry of Health and the Ministry of Education, for example — but the decision was made to leave it as a unit within GWSC because of the corporation's water focus and logistical strengths.

Its temporary status within GWSC reflected its tentative nature. It was established on a short-term basis to implement an experimental water/health education programme. There were no plans to institutionalize the unit or to make it permanent. Its future depended largely on its success in mounting a high quality mass programme.

WEFH was a small, tightly-knit group of highly trained adult educators. It was designed as a centralized unit without a field arm of its own. Its role was to define the overall strategy, messages, methods and materials, and then work through the field cadres of other agencies to implement a mass programme in the villages, serving as the overall coordinator.

WEFH established two teams — one in the Upper East and one in the Upper West. This geographic separation affected the way the work was structured. The teams commuted back and forth between Bolgatanga and Wa, the two regional offices, holding planning meetings and operational workshops and then assigning specific tasks to each team.

In view of earlier evaluation comments, a special effort was made to recruit women as counterparts for the WEFH Unit, ensuring that women played key roles in all aspects of the programme, including management.

For the first three years of the project, the Canadians on the team assumed the role of line managers. In the final year, one of the counterparts on each team became the line manager.

WEFH's main job was to create a water/health education programme and manage it. The creative process can be described in terms of:

- the starting points; and,
- developing an education strategy.

Phase I: Consultation and Planning
(July 1985 - June 1986)

- WEFH team — 1 Canadian, 1 Ghanaian, 2 part-time consultants
- consultation and planning meetings with other agencies
- an experimental training workshop involving fieldworkers from other agencies
- design of initial set of messages and materials
- development of a programme design

Phase 2: Experiments and Pilots
(July 1986 - June 1987)

- establishment of a second team to be based in Upper West — 1 Canadian, 1 Ghanaian
- pilot field projects (GEP I and II): the first tested the use of extension workers as frontline teachers, the second experimented with the idea of community-based paraprofessionals
- feasibility study on Radio Learning Group campaigns
- redesign: integration of the Group Extension Programme and Hand Pump Caretaker training into a new programme — Water Health Integrated Programme (WHIP)

Phase 3: Expansion and Network Development
(July 1987 - June 1989)

- planning and implementing the first two mass campaigns: a series of training courses followed by village-level education and action organized by CWOs
- development of the interagency network to implement the campaigns

Phase 4: Consolidation of Network and Sustainability
(July 1989 -June 1990)

- introduction of radio as a teaching tool, support to CWOs and year-round educator
- formation of a network of radio learning groups and the organization of a Radio Learning Group campaign
- counterpart training and development

Starting Points

WEFH started with a number of programming assumptions and operational principles. The assumptions — set by the Water Utilization Project — defined the parameters within which the water education programme was expected to operate. They included:

- **Project Support Communication** WEFH was not a generalized health education programme but one specifically designed to complement and reinforce the earlier Water Supply Project, which had established the network of 2,700 pumps. It was expected to teach communities how to make better use of the pumps with the aim of maximizing health benefits.
- **Adult Education Process** While it served as a complement to an engineering project, as an adult education programme WEFH was expected to facilitate an active learning process through which participants developed a full understanding of the messages and then made changes in their lives based on that understanding
- **Target Pump Communities** The programme was expected to reach out to those communities served by the pumps. Each became an organizational unit for the water/health education programme. A new term — "pump community" — was coined to describe the population served by the pump.
- **Mass Coverage** While starting with small-scale experiments, the programme was expected over time to operate on a mass scale, reaching out to the more than 2,600 pump communities in the region. This meant the programme had to adopt approaches and methods that could be used on a mass scale. This affected the choice of field educators, methods and materials, and type of organization.

- **Sustainability** WEFH was expected to design and develop a programme which — while starting off with a number of one-off and short-term experiments — would lead to the creation of a sustainable delivery system for water/health education.
- **Women** The major beneficiaries of the programme were expected to be women, given their key role in managing household water and caring for children. Women were also expected to play key roles in the management and implementation of the project at all levels.

Working within these parameters, WEFH adopted the operational principles that were set out in the Review and Redesign Report:

- a narrow focus with a limited number of topics and messages;
- close collaboration with other agencies with a water/health mandate;
- use of interactive, learner-centred educational methods;
- an experimental and phased approach, starting with small pilot projects and expanding to a mass programme;
- an attempt to achieve both mass coverage and high quality programming; and,
- formative evaluation as an input to programme design and summative evaluation in order to ascertain the overall impact of the educational programme.

A number of experimental programming models were also decided on, including:

- village education meetings conducted by extension workers;
- radio learning groups;
- drama and puppetry; and,
- open-ended public information.

Developing an Educational Strategy

WEFH's strategy was deliberately kept open-ended, allowing room for new ideas to emerge from experimentation in the field. The Review and Redesign Report established a direction, some targets, a number of optional programming ideas, methods and media, and a way of getting started. However, the authors deliberately avoided giving the programme implementors a fixed strategy. Instead, implementors were given a chance to experiment and, as experience developed, to shape a more detailed strategy.

This evolutionary process was consistent with the idea of interagency collaboration. There was a need to consult and plan with partner agencies so that the emerging strategy was developed jointly rather than imposed by WEFH. This approach allowed for some innovation. The idea of CWO teamwork at the village level, for instance, was first initiated by some CWOs and later incorporated into the system.

The general approach was to develop a programme model, then try it out and evaluate it. Changes were then made to the original model. The first pilot project, for example, started out with the idea of using fieldworkers as frontline teachers. Evaluation of the pilot indicated a number of limitations with the fieldworkers and, as a result, the second pilot incorporated a new cadre — community-based paraprofessionals — in an attempt to increase the coverage of the programme and its local

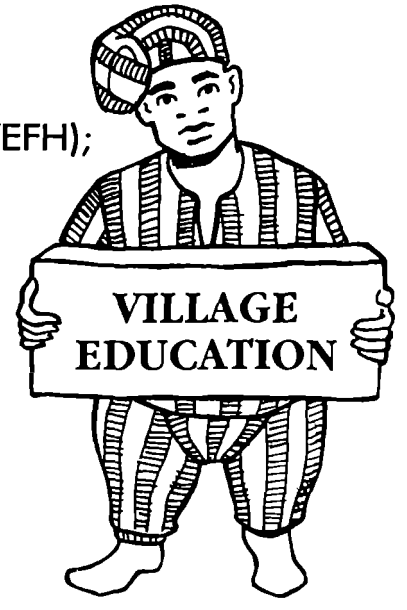
sustainability. Success with this new cadre persuaded WEFH to drop the idea of using government extension workers as field educators and instead to rely on community-based paraprofessionals. This idea was implemented in the third programme — the first mass campaign.

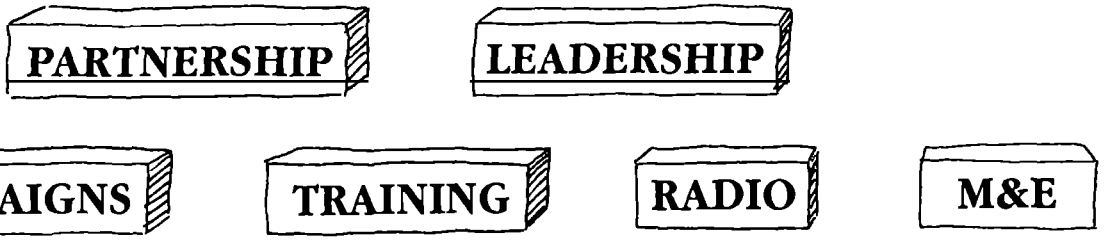
This process was built into WUP's six-month planning phases. Each plan set out the new points in the strategy as well as summarizing the total strategy. Having a full-time Monitoring and Evaluation Unit made it possible to evaluate each phase; as a result, new insights could be incorporated into the overall system.

The process continued with the aim of building up the programme gradually, trying to achieve high quality results on a small scale before applying them on a mass scale, for example The expansion of the programme in turn required new ideas appropriate to the large scale, for example a system to decentralize tasks and responsibilities to teams in each district.

The water/health education strategy that emerged was characterized by:

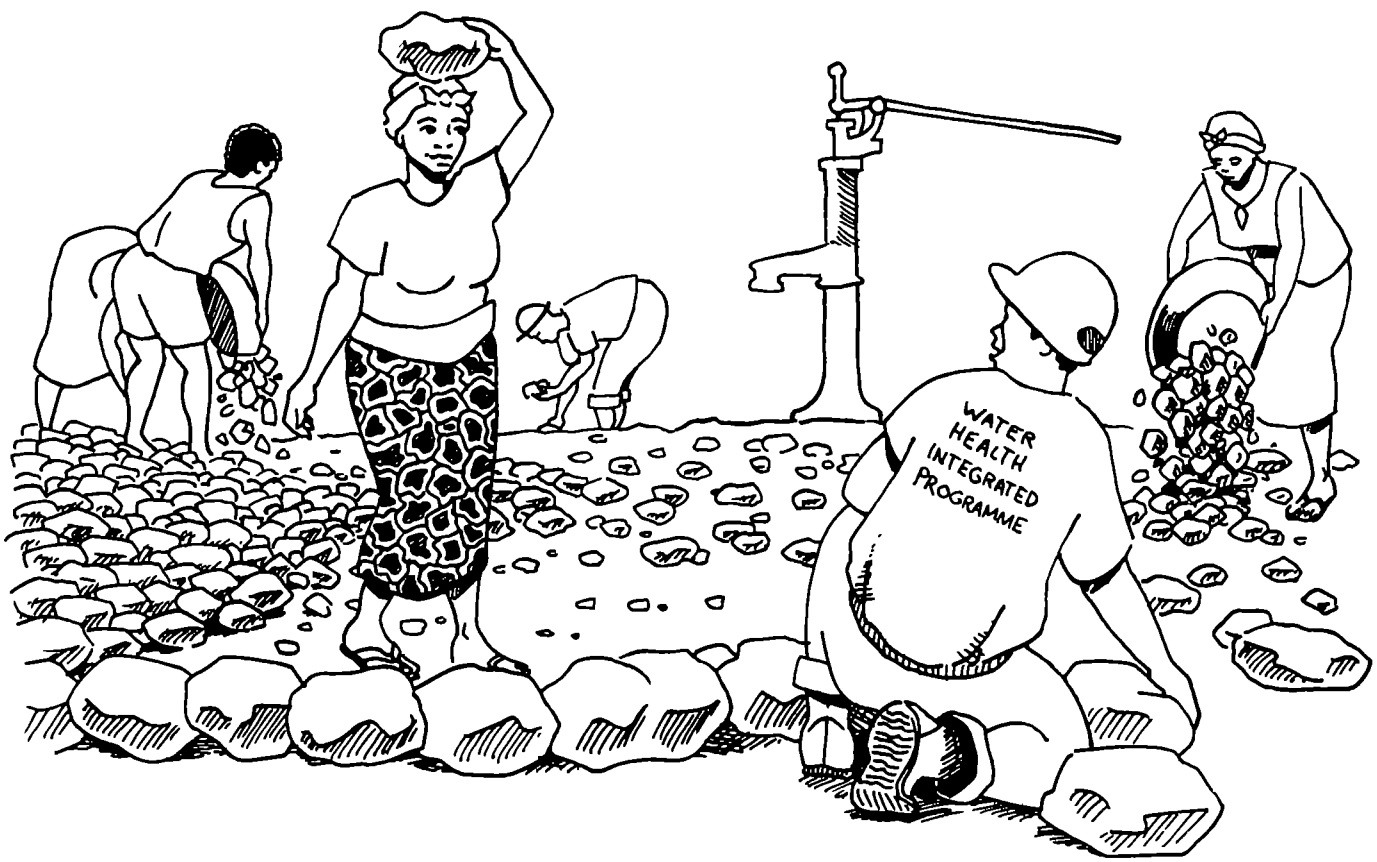
- an integrated approach;
- a multi-agency partnership;
- a leadership and coordinating agency (WEFH);
- an annual campaign cycle;
- a continual training programme;
- a radio support medium;
- a village paraprofessional cadre; and,
- full-time monitoring and evaluation.





The programme brought together a number of diverse elements in a single cohesive programme. It integrated:

- the efforts of different agencies;
- two distinct and historically separate water-related programmes — the pump/pumpsite/tariff programme and health education;
- different cadres — the Hand Pump Caretakers and Community-based Workers — into a single group, the Community Water Organizers; and,
- diverse programming methods — drama, radio and village-based group extension — into a single comprehensive programme.



Message Design and Material Production

For WEFH to have any impact, it had to ask, "What do people need to know that will make a difference to their lives?" The theme of "water and health" could encompass a whole range of issues. During the first phase of WUP, in the Community Education Programme, a catch-all approach was taken; as a result, the impact had been limited.

The Water Education for Health programme, in seeking to maximize its impact, concentrated its efforts on a few carefully chosen topics and messages.

1986
Causes and Prevention of
- Diarrhoea
- Malaria
- Schistosomiasis
- Pump Site Cleanliness

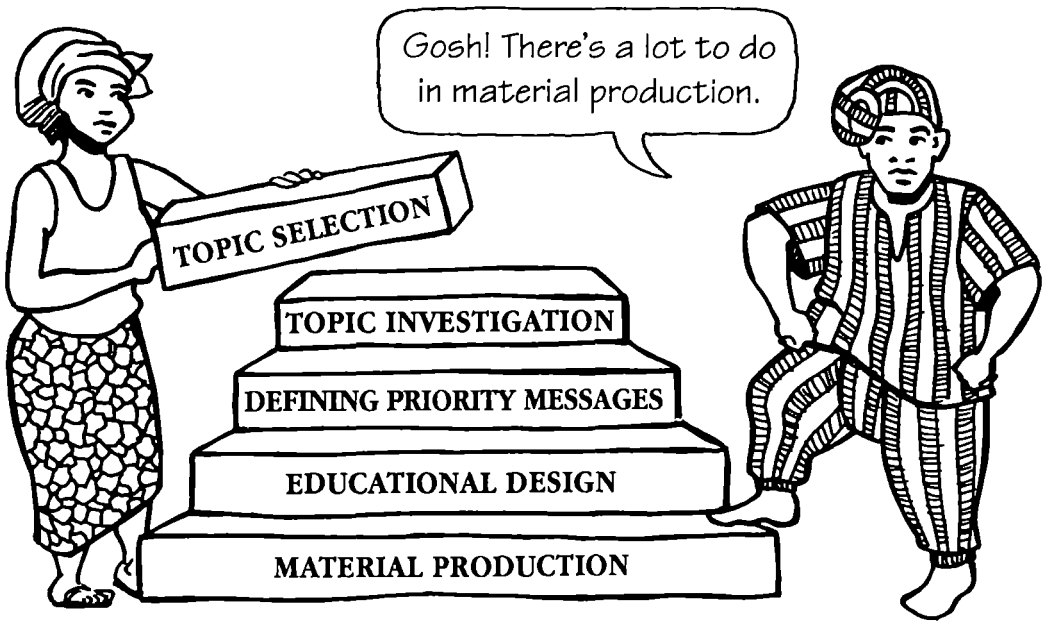
1987/88
- Pump site development
- Causes, effects and prevention of diarrhoea

1988/89
Diarrhoea
- Signs and symptoms of dehydration
- Preparation of ORS
- Causes and prevention
- Pumpsite development

1989/90
- Role of CWO
- Diarrhoea and dehydration
- Guinea worm
- Tariff

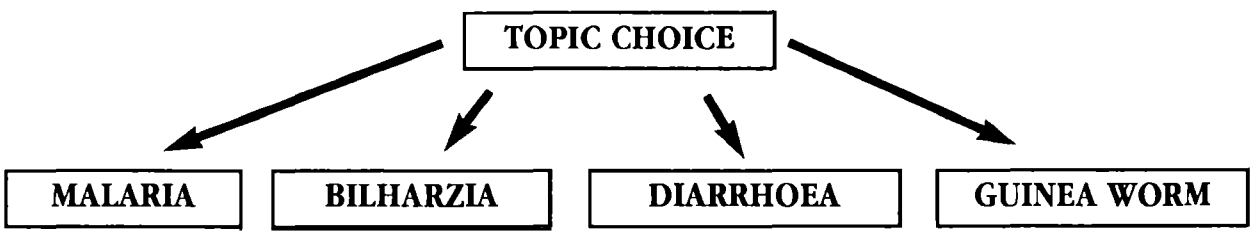
Each campaign reinforced the messages of the previous year.

Over a period of time, WEFH developed a five-step process for determining its message focus and for producing relevant materials:



Topic Selection

To build on and reinforce the educational messages of previous years, there were four possible health topics to choose from for the 1988/89 campaign:

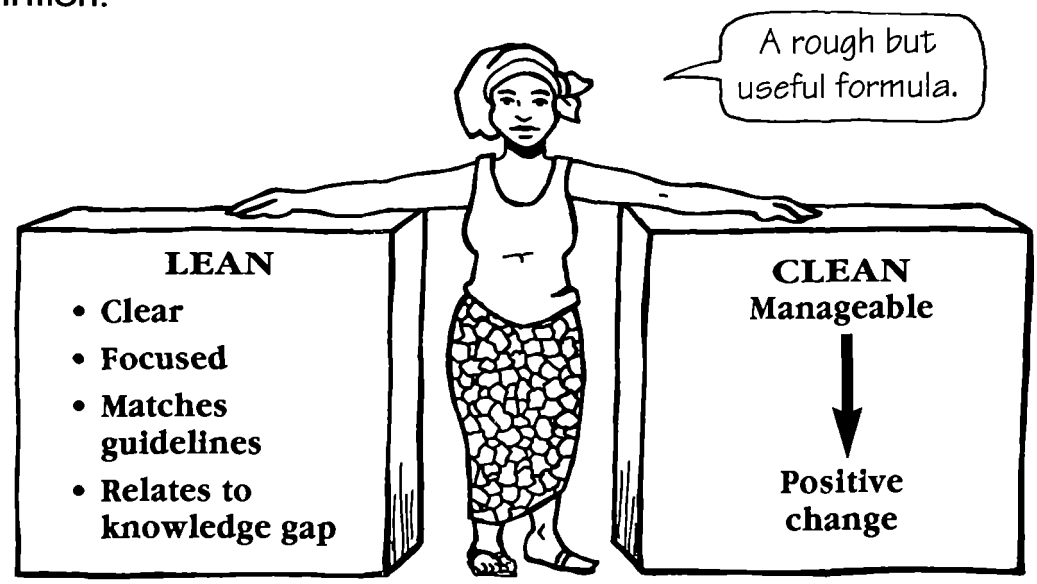


To help with topic selection, a rough formula — the LEAN and CLEAN FORMULA — was devised.

A topic was considered LEAN if the content was clear and focussed, related to gaps in the villagers' knowledge, and matched guidelines provided by international health organizations such as WHO. A CLEAN topic was one where the potential message was pedagogically manageable, with achievable goals for the villagers and a reasonable chance of effecting positive change.

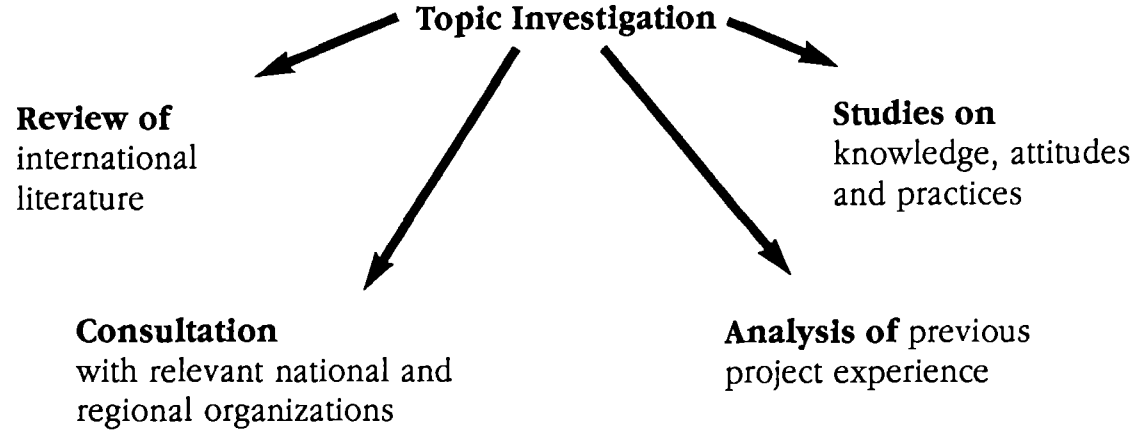
The preliminary investigation of possible topics suggested that diarrhoea fit the "lean and clean" criteria best. Although malaria is endemic in the Upper Regions, investigation suggested that there was no practical, efficacious message that could be promoted to assist with the disease. Similarly, preliminary investigation suggested that there was little useful, practical information to teach villagers about guinea worm and bilharzia.

In contrast there were a number of specific messages about diarrhoea that could have an impact on villagers' knowledge and behaviour. Diarrhoea is a very common disease in the Upper Regions and mothers recognize it as a serious disease that can kill their children. Dehydration from diarrhoea is, in fact, internationally recognized as a major health problem. Fatal dehydration can occur in as little as 24 hours in patients suffering from diarrhoea and vomiting. Malnutrition is a serious complication associated with diarrhoea. Simple therapeutic measures can be initiated in the home to prevent and treat both dehydration and malnutrition.



Topic Investigation

Once diarrhoea had been selected, a more thorough investigation of the topic was made to define specific messages for the educational campaign.



The 1986 pilot campaign provided some insights. It focussed on teaching villagers how to prepare a home-made sugar-salt mix (SSM) to treat dehydration. Follow-up studies by the M&E Unit raised questions about the feasibility of teaching villagers how to prepare such a solution.

Two trials were conducted on the teaching of SSM. In the first trial, 66 percent of community-selected CWOs trained by WEFH staff at a residential course were able to mix the SSM within acceptable limits when tested six weeks later. In contrast, in a second randomized trial only six percent of village women trained in their homes by fieldworkers were able to prepare an acceptable mixture when tested after an interval of six weeks.

These differing results may have been due to a variety of reasons. In the first trial, women were trained in groups in a residential setting conducive to learning. In the second trial, the selected group of women

were trained individually in their homes during an unexpected visit by a fieldworker. In the first group participants had been selected by their community to attend a training course as its representatives; they were presumably more motivated than the second trial group who were selected by fieldworkers. The fieldworkers in the second experiment also had to cope with the complexities of the random trial (women were either taught about SSM or pump site development). In addition, fieldworkers did not have support media with which to reinforce their instructions. Finally, and possibly most importantly, the fieldworkers were only taught SSM preparation skills and not how to instruct village women in SSM.

The limited success of the randomized trial opened up a debate within WEFH on the desirability of teaching SSM as opposed to other methods of treating dehydration. This previous experience cast some doubt on the usefulness of selecting SSM as a priority message for the 1988/89 campaign.

These doubts were reinforced after consultation with the Ministry of Health. The Ministry's national Oral Rehydration Therapy (ORT) strategy did not support the teaching of SSM as a means of treating dehydration. Instead it favoured the promotion of commercially-packaged Oral Rehydration Salts and, if ORS were not available, the use of home fluids as the first line of treatment. ORS sachets are produced commercially in Ghana and, with the support of UNICEF and USAID, a social marketing programme was organized to promote their use. The recommended selling price (in January 1990) was Cedis 30.

WEFH's review of the international literature showed that the international community strongly supported introducing the routine use of ORS. The literature also noted that ORS was being introduced into a highly competitive market where traditional therapies have long existed and western medicines have dominated the commercial market for decades.

The World Health Organization (WHO) recommends the use of home fluids based on local foods as a possible alternative to ORS. WHO's total ORT package, presented as a rational strategy for most developing countries, involves three levels of treatment:

Level 1	**In the home:** Fluids based on local foods (such as rice water and vegetable soups) or a solution of sugar, salt and water should be administered. Packets of ORS should be used if available but, generally, these are not necessary. Continued breast-feeding of infants should be emphasized.
Level 2	**In health clinics:** ORS should be administered. Patients who do not respond to this treatment should be referred to a higher level health centre.
Level 3	**In hospitals:** Intravenous therapy should be administered to severely dehydrated patients.

Ghana's national ORT strategy was similar to this, although it totally excluded the promotion of SSM.

The review also showed that the challenge of changing existing knowledge, attitudes and practices remained largely unmet. The international literature suggests that it is important that the concept of drinking in response to diarrhoea becomes a reflex action for any mother whose baby has loose stools. Most promotional strategies to date had had only a short-term effect.

WEFH's assessment of ORT promotional efforts concluded that education on ORT should not be a short-term effort. Experience suggested that the education programme should be designed to:

- be continuous rather than sporadic;
- repeat messages in many different ways
- over several years; and,
- make use of a variety of communication channels.

The literature review highlighted the need to take into account traditional methods of dealing with diarrhoea and incorporate the use of local foods into educational messages. WEFH also conducted its own study of local beliefs and practices in the treatment of diarrhoea. Specific areas of interest for the study were:

- assessing the general awareness among the village population of the dangers and signs of dehydration;
- identifying commonly used treatments for either diarrhoea or dehydration;
- determining the level of understanding among the village population of the causes of diarrhoea;
- identifying diarrhoea strategies commonly in use; and,
- identifying barriers to recommended prevention strategies.

A total of 540 interviews in 30 villages were conducted by 28 field-workers. The majority of respondents were adult women.

The research revealed a mix of correct and incorrect knowledge about diarrhoea. For instance, many women continued to breast-feed children who had diarrhoea, gave home fluids, and recognized some of the symptoms of dehydration as well as the seasonality of diarrhoea. They also thought it might be connected to a new moon, knew of SSM but could not mix a correct solution, and practiced the forced feeding of liquids. Some gave enemas as a treatment to "wash out the stomach".

The causes of diarrhoea given by the respondents were separated into those with a sound medical basis and those without; responses to questions on how to treat diarrhoea were analyzed on the same basis.

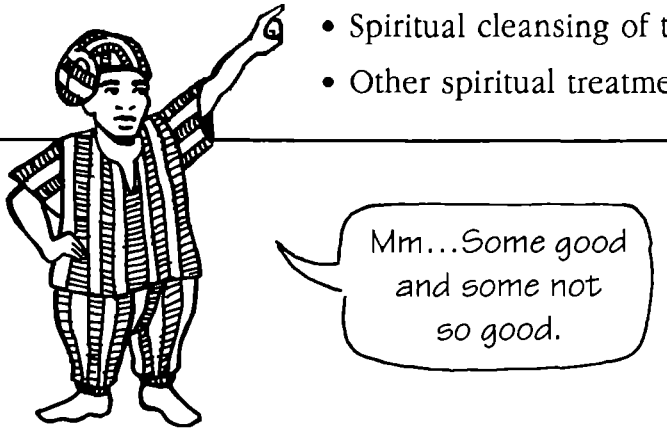
Management strategies used by villagers

Medically sound basis

- Drink tea made from local herbs
- Go to hospital or clinic
- Drink sugar-salt mixture
- Continue feeding
- Drink fluid cereal mixtures
- Drink oral rehydration solution

Uncertain / incorrect basis

- Give enema
- Drink salt and water mixture
- Drink sugar and water mixture
- Self-medication with drug therapy
- Consume mashed cow dung
- Apply hot water to the anus
- Spiritual cleansing of the breast
- Other spiritual treatments



Few of the respondents voluntarily recalled oral rehydration therapy as a treatment they knew of or used for diarrhoea; however, when questioned, some mothers remembered having heard of these therapies. Few mothers had a sound awareness of how to correctly prepare a sugar-salt mixture. It was clear that people had a misconception of the role of ORT. No respondent recognized it as a means of restoring body fluids. Rather, it was perceived to be a medicine to cure diarrhoea.

Defining Priority Messages

Data from the field, experience from elsewhere, and Ministry of Health and WHO guidelines provided WEFH with extensive information with which to make decisions about the focus of its educational campaign.

Villagers had described many practices that were medically sound (such as the use of home fluids) to prevent dehydration. They also described some practices that were generally not supported by the medical profession. Thus a major consideration for WEFH was whether or not the messages should actively discourage the negative practices, or merely ignore them in the hope that such practices would give way to positive behaviour as a result of the messages.

WEFH decided to avoid attacking negative practices and thereby arousing feelings that might interfere with learning. Instead they elected to concentrate their efforts on reinforcing the positive practices.

To help define priority messages the M&E Unit assessed possible prevention strategies and barriers to their implementation. A summary of this assessment is given on the following page. Villagers were aware of some of the practices promoted by extension services to prevent diarrhoea. For example, they were often encouraged to cover food and to reheat leftovers before eating. The respondents, however, pointed out that there were shortcomings to such a practice and that, in the absence of refrigeration, covered food spoils quickly. Boiling water from traditional sources was also recognized as a possible preventive measure but, as the women pointed out, their heavy workload did not leave them with either the time or the energy to do it. Furthermore, the scarcity of fuel increased the cost of boiling water.

PREVENTION STRATEGIES AND BARRIERS TO THEIR IMPLEMENTATION

1. **Strategy:** Cover food, heat leftover food and wash vegetables to avoid bad or contaminated food.
   Barrier(s): Covered food will spoil quickly. Reheating and washing add to the workload.
   Rating: Moderately difficult.

2. **Strategy:** Eat moderately to avoid overeating.
   Barrier(s): Requires self-discipline.
   Rating: Easy.

3. **Strategy:** Limit the diet to avoid unaccustomed foods.
   Barrier(s): There may be no choice about the availability of foods.
   Rating: Difficult.

4. **Strategy:** Drink pump water.
   Barrier(s): The pump may be far away. Tariff must be paid.
   Rating: Easy for those with hand pump nearby and the ability to pay tariff. Difficult for others.

5. **Strategy:** Boil water from non-pump sources.
   Barrier(s): Boiling consumes time, energy and firewood.
   Rating: Very dificult.

6. **Strategy:** Store water in clean, covered containers.
   Barrier(s): Takes a little extra effort to keep containers clean. A cover must be made.
   Rating: Very easy.

7. **Strategy:** Avoid other diseases.
   Barrier(s): Numerous other diseases cause associated diarrhoea. These are hard to avoid.
   Rating: Very difficult.

8. Strategy: Break the faecal-oral transmission route.
   Barrier(s): Poverty and environment provide numerous sources of contamination.
   Rating: Very difficult.

9. Strategy: Bury faeces to avoid fly contamination.
   Barrier(s): During the dry season the ground becomes too hard to dig with a hoe.
   Rating: Difficult.

10. Strategy: Defaecate far from the house.
    Barrier(s): Common belief that children's faeces are not harmful. In crowded areas there may be no room.
    Rating: Moderately easy in most circumstances.

11. Strategy: Trim a child's fingernails to overcome accumulation of dirt.
    Barrier(s): Local belief states that children will become thieves as a result.
    Rating: Easy.

12. Strategy: Wash pots, utensils and bowls before and after use.
    Barrier(s): Soap is rarely available in the home. Local belief suggests that bowls should not be washed after evening meal.
    Rating: Easy.

13. Strategy: Keep infants on mats or other protection to prevent them from eating sand.
    Barrier(s): Infants are naturally curious. Children are left with sitters. Local belief considers it normal for children to eat sand.
    Rating: Difficult.

It was evident that WEFH would have to avoid repeating the same tired messages imploring villagers to be clean and hygienic. Furthermore, WEFH's analysis of possible prevention strategies suggested that — although the ideal solutions for reducing the incidence of diarrhoea would be breaking the faecal-oral transmission cycle and burying faeces — in reality, there was little likelihood of this happening.

The data from the investigation were presented at a two-day consultation workshop. In keeping with WEFH's interagency approach, national and regional representatives from collaborating agencies were invited to analyze WEFH's draft technical content in comparison to medical advice and national programmes. With the support of the various agencies, a four message approach was adopted for the 1988/1989 annual campaign on diarrhoea:

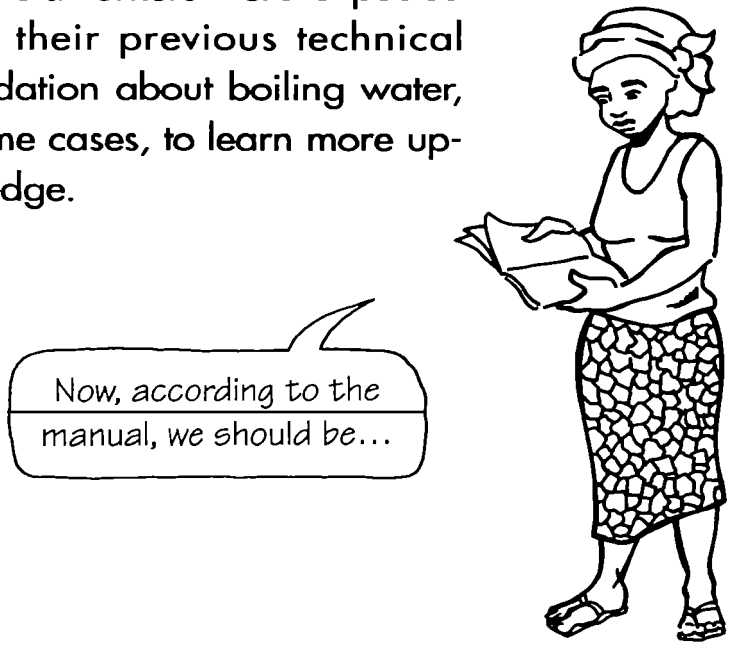
- signs of dehydration and the self-limiting nature of most bouts of diarrhoea;
- a "fluids first" approach by villagers at the first signs of diarrhoea;
- continued breast-feeding; and,
- the stimulation of demand for the ORS sachets.

ORS can help

Your CWO can tell you about ORS

The emphasis was on simple, rational and practical messages; reinforcing the positive, rather than attacking the negative aspects of village practices; and, supporting strategies promoted by the Ministry of Health — a key collaborating agency.

The last step in defining priority messages was the production of a technical manual. This captured the main points of the message design process, and served as the first consultation document for negotiating agreement on the messages to be included in the campaign among the partner and national agencies. Once finished, this manual became the campaign "bible", setting out the messages to be communicated through various materials and media at each stage in the communication chain. It also served as a teaching tool for fieldworker training and helped ensure message consistency among a disparate group of fieldworkers with different backgrounds and levels of training. It was the authoritative textbook covering all possible information on the topic and it consisted solely of those points agreed on as part of the campaign messages. Using this as a guide, fieldworkers were expected to "unlearn" some of their previous technical training (the recommendation about boiling water, for instance) and, in some cases, to learn more up-to-date technical knowledge.



DIARRHOEA AND DEHYDRATION

Diarrhoea can cause dehydration.

Dehydration is the loss of body water.

DEHYDRATION CAN KILL YOUR CHILD

TREAT DEHYDRATION BY:

- **giving plenty of home fluids**
- **giving your child good clean food to eat**
- **giving the baby breast milk to drink**
- **giving Oral Rehydration Solution**

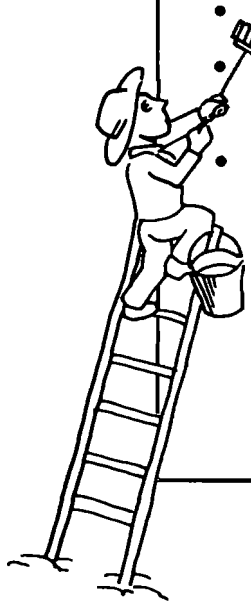
DRINK! DRINK! DRINK!

ORS is used to treat DEHYDRATION and not to stop diarrhoea.

ORS is better than other purchased medications.

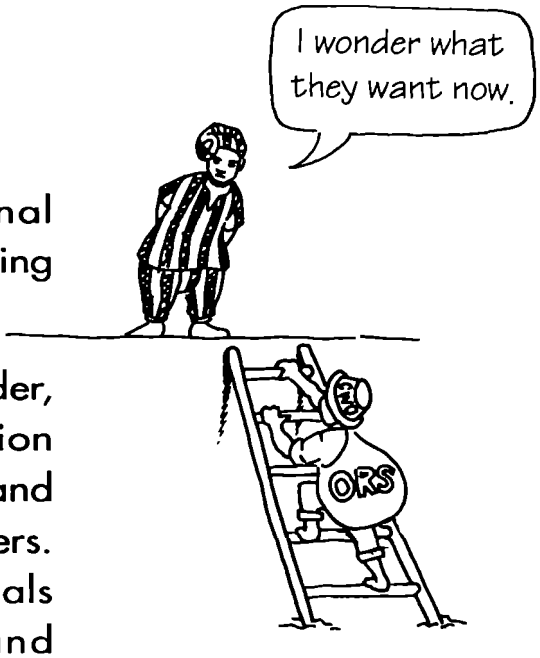
ORS is available in the markets and at health clinics.

Continue giving ORS untill the signs of dehydration have disappeared and the diarrhoea has stopped



- **Drinking pump water**
- **Covering your food**
- **Cleaning and covering**
- **Burying your faeces**
- **Burying the faeces of your children**
- **Washing your hands your water pots after using the toilet**
- **Washing your hands before preparing food**
- **Washing your hands and your child's hands before eating**

Educational Design



The next step was to plan the educational methods and the materials to be used in teaching people at various levels.

This process was carried out in reverse order, starting with designing the village education programme, then developing the methods and materials for training CWOs and fieldworkers. This ensured that the methods and materials selected were tailored to the needs and circumstances of those at the top of the communication ladder — the villagers. It also helped to ensure that a consistent set of methods and materials was used at different levels, and that trainees at one level were taught with the same methods and materials they were later expected to use in training people at the next level. During the 1988 campaign, the following methods and materials were designed for the village education programme conducted by CWOs.

Topic	Method	Material
Dehydration	picture/discussion	picture book
and Treatment	song	model song
ORS	demonstration	demonstration materials
Preparation	picture/discussion	picture book
	song	model song
Diarrhoea:	drama	model drama
Causes and	picture/discussion	picture book
Prevention	song	model song

The subject matter was first broken down into a number of subtopics, each intended as the basis for a single lesson. A teaching order was established based on the principle of teaching the most important content first.

The choice of methods and materials involved a number of considerations:

- appropriateness to the subject matter (for example, teaching a skill such as ORS preparation required a demonstration);
- appropriateness to the primary audience — the villagers;
- appropriateness to the teachers (CWOs), that is, simple and manageable "teacher-proof" methods and materials (not necessarily the best possible methods and materials but those best suited to the capabilities of the teachers);
- appropriateness to WEFH's interactive, learner-centred educational approach; and,
- use of a multi-media approach, repeating messages using different methods and materials to teach each topic, each one reinforcing the others.

Songs, drama and pictures were chosen to suit the village audience and the primary teaching force, the CWOs, both largely illiterate and apt to rely on oral media for communication. In 1990, WEFH introduced radio as a primary teaching medium at the village level. Radio served as a source of information and as a means of focussing a group discussion, which took place after the radio programme.

Material Production

Material production usually started with one or two in-house workshops involving the staff of the two WEFH units and, in some cases, other WUP staff. After a brainstorming session on contents and design of materials, the task of producing a first draft was assigned to one of the two units. Drafts were circulated for comment before finalization. Some of the materials, including CWO training manuals, cassette programmes and picture books, were tested in the field in a trial training course before a final draft was produced.

The cassette programme used in CWO training was originally designed to introduce only one of the three campaign topics — the causes and prevention of diarrhoea. The idea was to produce a drama that would arouse interest in the topic, spark an effective discussion and ensure that the same technical content was taught at each of the training courses. The success with this medium in one of the preliminary training courses prompted WEFH to extend the cassette programme to another campaign topic — the signs and management of diarrhoea. The initial experience also demonstrated that the cassette could help teach model songs; as a result, songs were added on all three campaign topics.

WEFH Materials

TITLE	TARGET GROUP	FUNCTION
Technical Manual	Fieldworkers Regional and District Heads	Reference guide to the messages and technical content
CWO Training Manual	District Training Teams	Detailed guide to conducting the CWO training workshops
Logistics Manual for CWO Training	Logistics, Programme and Catchment Area Coordinators	Guide to logistical requirements for each CWO training course
Cassette Programmes	CWO Group Trainers	Introduction to the standard technical content for CWOs and focus for group discussion
Picture Book	CWOs	Pictorial guide to the educational messages for use when teaching community members

It was also decided to introduce discussion at intervals throughout the drama. Instead of one discussion at the end of the drama, the narrator told CWO groups to stop at strategic points in the programme to discuss the issues raised. This helped to avoid long sessions of uninterrupted listening and made it easier for CWOs to focus on specific aspects of each topic.

The programmes were produced by GBC and WEFH staff using a simple recording approach. Programmes were recorded:

- in the open;
- using a Uher recorder and a single microphone; and,
- item-by-item, taking breaks after each item to re-record (where necessary) or to prepare for the next item.

Editing facilities were not available but the item-by-item approach produced an acceptable quality for training purposes. Narration, rather than music, was used as the link between scenes. The narration allowed for extra emphasis to make sure everyone understood what had happened, and was a useful way of introducing the discussion sessions.

A model script provided a basic plot and structure. Actors improvised suitable dialogue within the basic parameters of the story line, technical content and time limits. The dramas were recorded in each of the local languages. As a result of the improvisation, the dramas could reflect the local culture, using metaphors, activities, jokes and other instances of local colour. Technical content, however, was sacred. Every effort was made to adhere to the agreed messages. The actors — WEFH staff and fieldworkers — were briefed on the technical content prior to recording and programmes were vetted for accuracy of information.

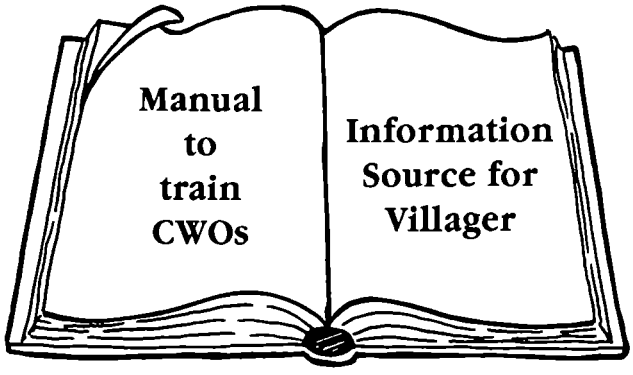
Developing educational materials for use at the village level presented a greater challenge. Illiteracy was a major problem, yet WEFH had to ensure that the CWOs would be able to remember and effectively put across the campaign messages during their village education sessions. A set of loose-leaf flipchart-sized pictures was used in the first pilot project, not as the primary teaching medium but as a reinforcement and review of the main points introduced through discussion. In the second pilot, pictures were abandoned; drama was used instead as the codification medium.

When drama proved to be a relatively difficult medium for fieldworkers teaching on their own, pictures were revived as part of the WEFH teaching methodology. A series of pictures on the role of the CWO had been developed as an aid to their training. This pictorial guide, called the Community Water Organizers' Manual, also served as a teaching aid at community meetings. The pictures served as starting points for discussions conducted in small groups, and were the primary medium for introducing technical content. The pictures were no longer flipchart-sized. Instead, a set of small pictures stapled into a booklet was used. This had the advantage of giving CWOs a set of pictures to remind them of tasks and technical points on site development — the content of the first mass campaign. The picture book proved to be a simple medium, easily manageable by the trainers (and later by the CWOs).

Based on its successful use in the 1988 campaign, it was decided to develop the visual medium further by designing a picture book for use specifically by the CWOs. A consultant joined the WEFH team in the preparatory stages to provide on-the-job training for WEFH's local graphic artist, and to assist in producing visual aids to the campaign messages.

Before artwork could be done, a decision had to be made about the type of visual aids that would be beneficial to the programme and about the target audience. Flip charts, posters, photographs and flannel graphs were difficult to transport, had a short lifespan, and were not easily used by the village population. It was decided instead to prepare a small picture book for distribution in large numbers.

The book would act as:



Although the original idea was to use a comic book format, awareness of the audience necessitated a change in favour of simplicity. The picture book had to deliver its message without text and its presentation had to be clear to people unaccustomed to using visual aids or books. It was decided that the pictures would be simple, descriptive and sequenced to tell a story; there would be only one picture per page and every picture would reflect the local cultural context.

The picture book went through several drafts and numerous revisions. To ensure that the correct messages were being transmitted, pretesting exercises were conducted with every group who would ultimately use the book:

- government fieldworkers who worked with WEFH and would use the book in training courses;
- community representatives — the CWOs — who would eventually use the book to teach villagers;
- villagers (mainly men) who had some experience with WEFH's work; and,
- villagers (mainly men) who had had little or no contact with WEFH's work.

The pretesting determined whether or not villagers:

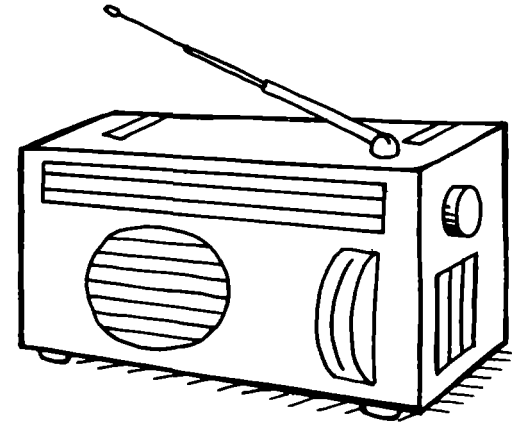
- understood the message without explanation;
- could see and verbalize the meaning of the picture easily and quickly;
- could get a story from the sequence; and,
- found the pictures culturally acceptable.

As a result of the pretesting, the sequence of pictures was changed and the clarity of some pictures improved through enlargement. One illustration was changed after it was discovered that it gave the impression that a child with diarrhoea was being given an enema — a practice that WEFH wished to discourage. Another was revised when it was discovered that it gave the impression that the child was dead.

A sequence of pictures from the book, called How To Manage Diarrhoea, is shown on the following page. Although the pretesting had shown that the picture book was effective without words, simple text highlighting the topic of each picture was added as an aid to literate members of the target audience.

The use of the picture book was taken a step further in the 1990 radio learning group campaign.

CWO's, give a book to each group member. Use it:
- to focus discussions
- for individual reading; and
- with other community members



Flies cause diarrhoea

Cover your food

Wash hands

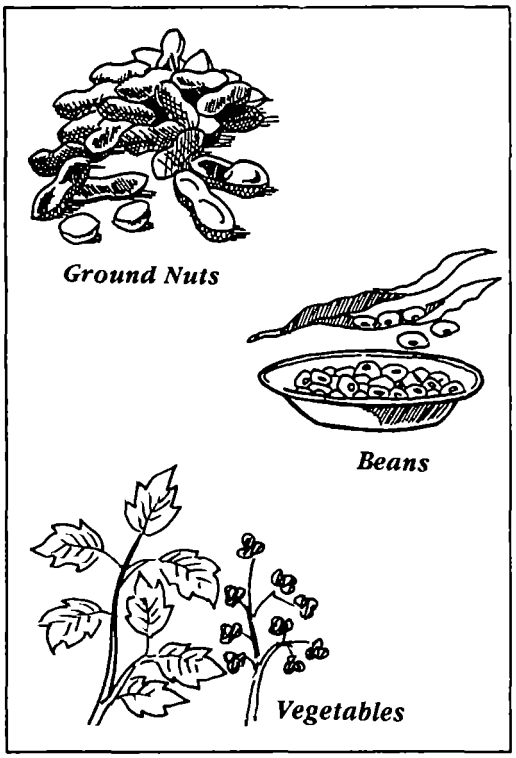
Cover your water pots

Child easing in compound

Bury faeces

What you should do: Breast feed

Drink liquids

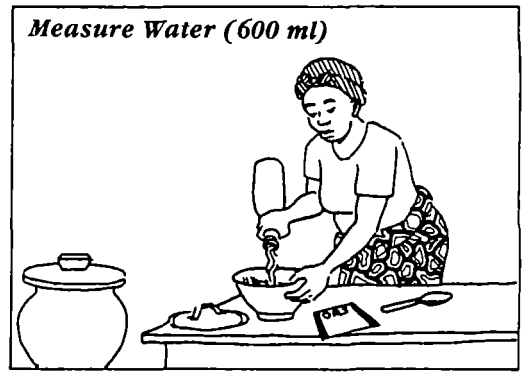


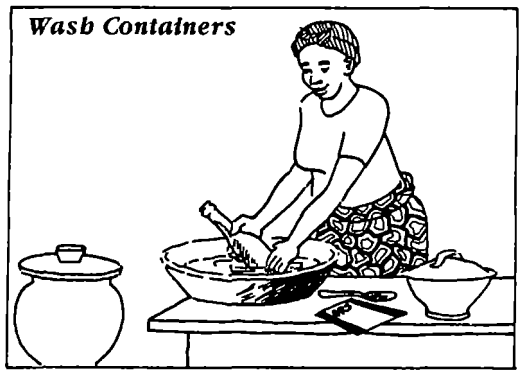
Good foods to eat

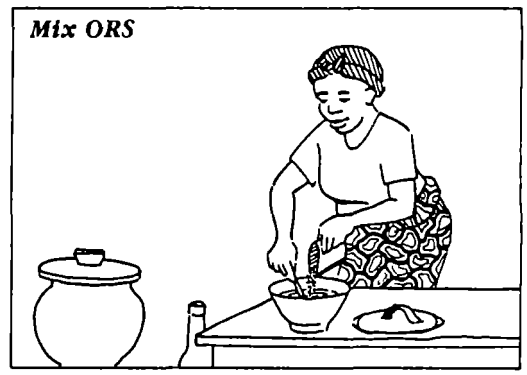
Continue feeding good food

Use ORS

Your CWO can tell you about ORS







Preparing ORS

Preparing ORS

Radio Learning Group discusses prevention of diarrhoea

The picture book also solved a major problem with the RLG or Radio Learning Group meetings by providing a convenient way of circumventing the literacy constraint. In earlier radio learning group campaigns in Tanzania and Botswana, printed discussion questions were used by the RLG leaders. In the WEFH programme a CWO did not have to be literate, so there was no guarantee that printed questions could be read out. The pictures became the cues for discussion.

Conclusion

With each successive campaign, the effectiveness of the WEFH programme improved as a result of increasingly rigorous message design. The task of topic investigation was undertaken primarily by the Monitoring and Evaluation Unit. This reflected a legitimate concern that campaign objectives be measurable and likely to result in improved health. The M&E Unit helped WEFH to move to more sharply focussed campaigns with fewer topics and specific messages.

With experience, material production became more focussed. In the 1986 pilot and the 1987/88 campaign, emphasis was placed on developing manuals to support fieldworker and CWO training activities. Less time was spent developing support materials, such as songs and dramas for use by the CWOs in the villages. By 1988, the format of the manuals used to support the fieldworker training had been sorted out, and greater attention could be paid to designing materials for use in the villages. The traditional media — particularly songs — were complemented with visual aids and radio programmes. From 1987 on, radio played an increasingly important role and, in the 1989/90 campaign, became the focus for village-level group learning activities.

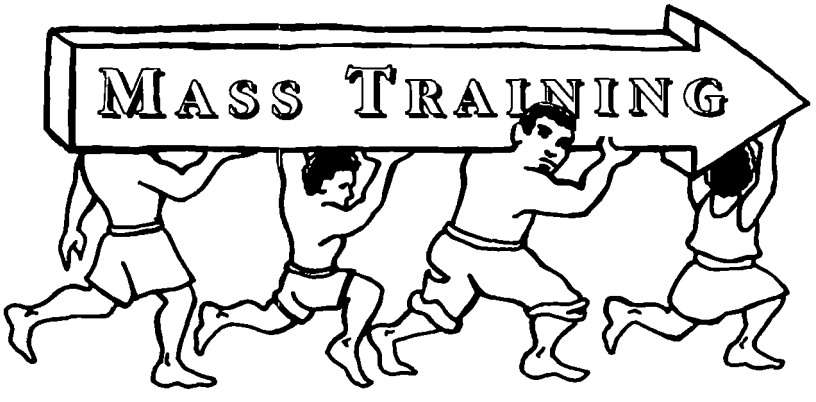
Mass Training and Village Education

During the 1989 campaign approximately 100,000 people attended education sessions in 2,000 pump communities throughout the two regions. To reach such large numbers of people WEFH conducted — over a three month period:

- **six courses to train 400 fieldworkers; and,**
- **60 courses to train 4,100 Community Water Organizers at which they provided 27,000 meals.**

By any standards, organizing an education programme on this scale was a considerable achievement.

In the first two years of operation, WEFH experimented with and developed its training strategy. In 1986, only 30 fieldworkers and 200 CWOs were trained and, in 1987, 71 fieldworkers and 132 CWOs. Once a strategy had been worked out and an organizational framework put in place, WEFH went to a mass scale very rapidly. In 1988, 400 fieldworkers and 3,000 CWOs were trained and, in 1989, the number of CWOs attending training courses passed the 4,000 mark.



Annual Campaigns

The education programme was delivered in a series of annual campaigns. Each campaign consisted of a two-step process:

- the training of fieldworkers and CWOs; and,
- village education activities conducted by CWOs and, occasionally, by fieldworkers.

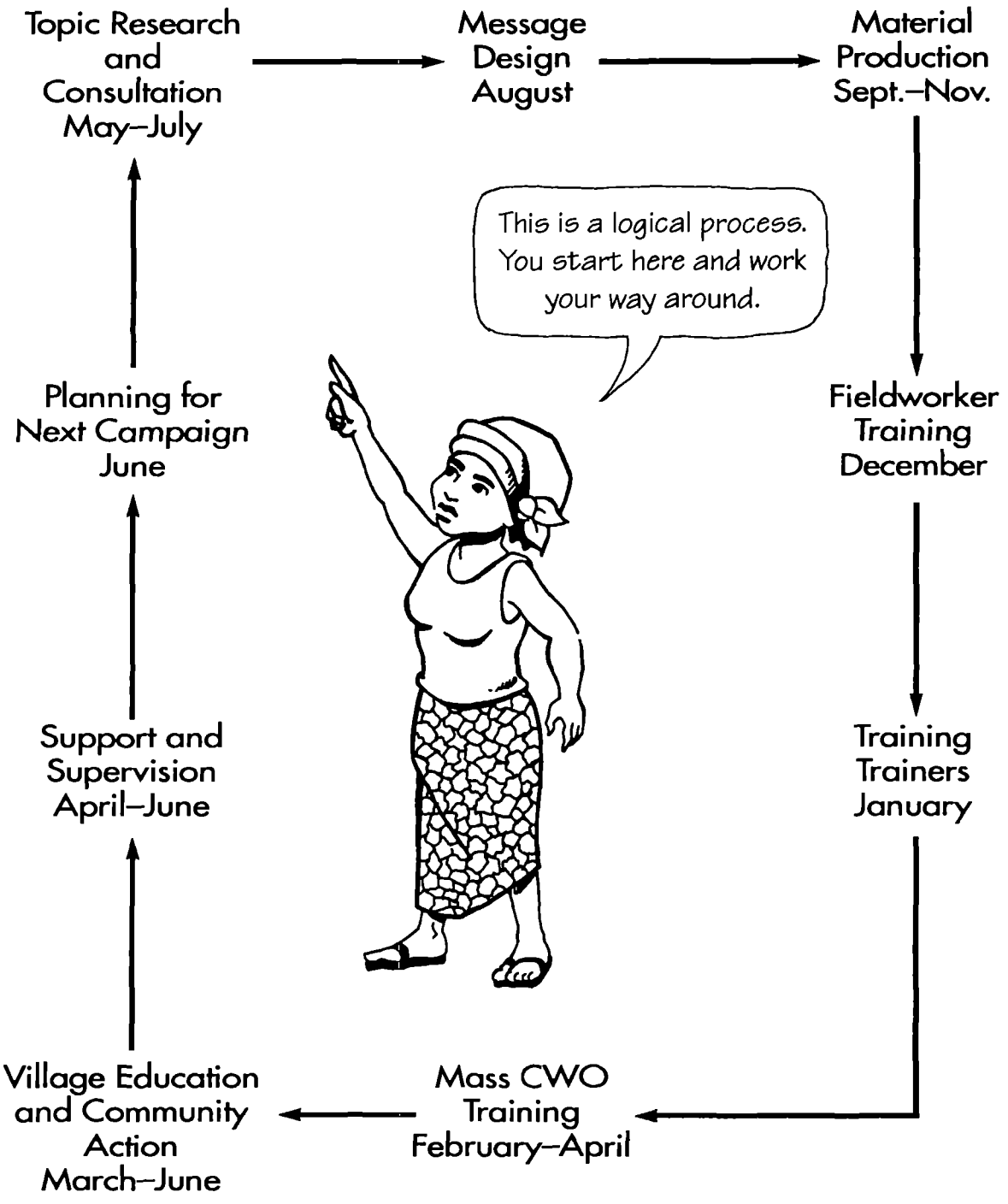
The campaigns were short; they were held during the optimal season of the year — the post-Harmattan dry season (February to April) — when villagers were least busy.

While the actual campaign took only four or five months, preparatory activities such as planning, message design, material production, training, support and supervision, and evaluation kept staff busy the other half of the year. Thus the annual cycle of events was comprised of the preparatory phase and the actual campaign period.

Each campaign served a number of functions. The basic purpose was to teach villagers specific water and health messages aimed at improving their knowledge and skills and, ultimately, their health. At the same time, each campaign served as an operational laboratory through which:

- methods, materials and strategies were tested and developed;
- the skills, knowledge and experience of network personnel at different levels were built up; and,
- the delivery system built up its planning and organizational capacity.

Each campaign not only provided a short-term benefit in relation to the project's aims but also the long-term benefit of strengthening the water/health education system.


Topic Research and Consultation May–July
Message Design August
Material Production Sept.–Nov.
Fieldworker Training December
Training Trainers January
Mass CWO Training February–April
Village Education and Community Action March–June
Support and Supervision April–June
Planning for Next Campaign June
This is a logical process. You start here and work your way around.

Choice of Field Educator

Who was to teach the villagers about water and health? What cadre or combination of cadres could do the job and satisfy the project's aim of reaching out to a mass audience scattered across 2,600 communities? These were some of the most crucial issues in the WEFH programme.

The initial pilot worked with extension workers from three different departments — Community Development, Environmental Health and Home Extension of the Ministry of Agriculture. The pilot showed that there were not enough fieldworkers for a large-scale programme, even if other departments were drawn in. Distribution of fieldworkers was also a problem; only the field staff of Environmental Health had systematic coverage, with at least one health inspector assigned to each zone. Staff in the other departments were concentrated in a few towns and large villages. Without transport it was difficult to get to the large network of pump communities. Fieldworkers could visit each village only at intervals and, with no funds to support an overnight stay in the village, fieldworkers' visits were usually quick in-and-out trips with only enough time for a community meeting. As a result, follow-up work involving visits to individual compounds to reinforce messages and support action was rarely carried out.

The alternative was to identify resources within the community. WEFH decided to experiment with the concept of a community-based paraprofessional:

- someone resident in the community;
- not employed by government;
- chosen by the community;
- given basic training;
- assigned a set of practical and manageable tasks; and,
- working on a voluntary basis.

Using community-based paraprofessionals was expected to have a number of advantages:

- mass coverage — selecting a paraprofessional for each pump would ensure that all pump communities were covered;
- continuity — a community-based volunteer would be able to carry out regular and systematic follow-up;
- accountability — communities had limited control over fieldworkers who were accountable to their employer (the government) and not to the community. The paraprofessional chosen by — and a member of — the community was responsible to the community and expected to respond to their issues and concerns;
- community participation — one of WUP's objectives was to involve villagers in managing their own water supplies. Using a volunteer from within the community to organize the water/health education programme was one way of ensuring this objective; and,
- peer communication — government fieldworkers often talked down to villagers, using inappropriate jargon and concepts. Community-based volunteers, on the other hand, talked as equals with fellow villagers and were more likely to use concepts and vocabulary suited to their audience.

Community-based volunteers had been used successfully in primary health care and literacy programmes in other parts of Ghana and in other developing countries. It was felt a similar approach could be used for the WEFH programme. Unlike the multi-faceted and time-consuming job of a Village Health Worker, the water/health education job was seen as much simpler and less time-consuming.

The job could be carried out on a casual part-time basis, thus avoiding the thorny issue of compensation, which had proven to be a difficult one for the primary health care programme. A Village Health Worker was expected to be on duty each day. The water/health educator would not have this daily obligation, fitting the work into a regular round of activities in the village instead. A female community-based worker, while drawing her own water at the pump, could use the opportunity for informal education on water-related health issues, for example.

The second pilot programme tested the feasibility of using community-based paraprofessionals. On the whole the participants proved capable of managing this teaching job. Based on this success, WEFH made a major shift in its strategy, dropping fieldworkers as its primary teaching force and concentrating instead on the development of village-based paraprofessionals.

This coincided with efforts to integrate two different projects operating within WUP — WEFH's group extension programme and RWSU's training programme for hand pump caretakers. The newly created cadre, the Community Water Organizers, absorbed the two job descriptions — the pump-related duties of the hand pump caretaker and water/health education. RWSU's strategy of selecting one male and one female CWO for each pump community was also adopted. This satisfied WEFH's basic principle on women's participation. CWOs selected had to be:

- respected by the community;
- active and involved in community life;
- mature and responsible;
- cooperative and friendly;
- willing to be a volunteer; and,
- able to spare enough time for the job.

Literacy was not a requirement, given the low levels of literacy in the Upper Regions. Dropping a literacy requirement was not a handicap in the first two mass campaigns in 1988 and 1989, during which messages were simple and pictures took the place of words. In later campaigns, however, as WEFH moved into more complex issues, adopted more distance teaching approaches, scaled down its face-to-face CWO training programme and depended more on radio, literacy skills became an asset to the programme. In the 1990 radio learning group campaign, a literate assistant was recruited for each group, largely to perform the task of completing a report form on the RLG meeting.

Training the Community Water Organizers

The cycle of annual campaigns involved continual training. Each year fieldworkers and Community Water Organizers attended short, manageable training sessions and were then assigned a number of practical tasks such as conducting a series of educational meetings. The following year, they were given additional things to learn — both technical content and teaching methods. This allowed skills, knowledge and self-confidence to build up gradually over a period of time.

Being able to train the Community Water Organizers effectively was pivotal to WEFH's educational strategy. Their training had to be both knowledge- and skill-based; CWOs had to understand the content of the educational messages and be able to teach that content to others. At each of the 60 training courses in 1989 there were approximately 70 CWOs. Training this number of people was a major challenge.

All training was done in an informal, relaxed atmosphere; activities took place outside and in small groups. Training was interactive, with trainers working in pairs and asking participants open-ended questions. That way, everyone got an opportunity to share their thoughts, ideas and personal experiences. Community-building activities were interspersed throughout the day, allowing participants to feel at ease and promoting a "we" feeling. These activities usually consisted of composing and singing action songs.

CWOs were grouped by geographical area so that they could get to know each other better, work together and form strong teaching teams at the village level.

Each learning event at CWO training lasted approximately 1 to 1 1/2 hours, and the format changed so that CWOs were kept motivated and interested. The same messages were delivered and reinforced through a variety of media. Usually an initial discussion took place to ensure each participant was involved and felt part of the group. A picture book, developed specifically for the illiterate, was used to demonstrate the technical content. CWOs then practised teaching each other using the picture book. They received feedback from each other and the trainers as they taught.

Discussion was at the heart of the WEFH teaching methodology. This involved participation and interaction, the key learning principles of the WEFH programme. Through discussion, participants had an opportunity to express themselves, learn from each other and develop their own ideas.

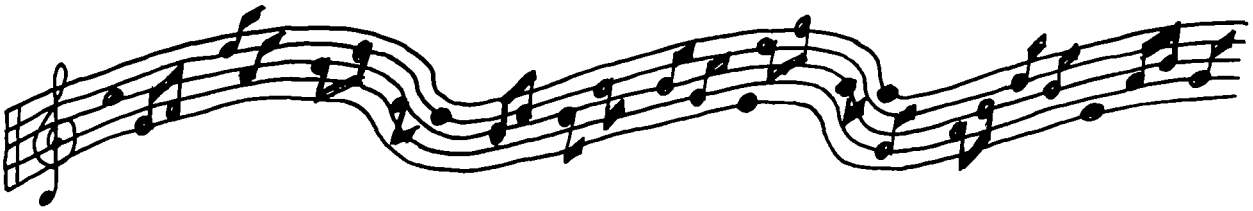
Using questions to facilitate discussion was a new skill for most fieldworkers and CWOs. Fieldworkers were conditioned by their own education and training to give long talks; they rarely involved their audiences, apart from a few questions invited at the end of a talk. The focus was on the information to be communicated rather than on the concerns or problems of the villagers. Villagers were expected to sit back and listen passively, rather than become involved in the learning process. Discussion turned this methodology on its head, making the villagers — not the teacher — the central focus of the learning process.

Many fieldworkers found that discussion improved their teaching. An active village audience, stimulated by questions, meant a more dynamic and effective educational meeting. A few fieldworkers, however, found it difficult to use the new methodology. Lacking the confidence or skill to draw out ideas from the villagers, they fell back on telling their audience what they should know.

Based on this experience with fieldworkers, WEFH introduced a simplified approach to discussion. Instead of expecting the CWOs to produce their own questions, WEFH built the discussion process around one or two basic questions used with a set of pictures:

- What do you see in the picture?
- What does it mean to you?

CWOs found this teaching methodology relatively easy to manage and quickly developed confidence in using it to stimulate discussion and participation.



During the 1990 campaign, WEFH decided to deepen CWO skills in discussion leadership by adding a few questions: What does this mean for our village? What are some of the problems and their causes? How can we improve things or take action? The aim was to move from a generalized "textbook" understanding of a specific health or water topic to a discussion of the relevance of the issue to the learning group's own situation.

Songs were used in every phase of the WEFH programme as a major tool for teaching the basic messages. Villagers were accustomed to message songs and had little problem improvising new words to existing tunes. In almost every village gathering there were two or three people with this improvisational skill. Once they took the lead, especially in call and response songs, other villagers quickly joined in.

Songs were used in the WEFH teaching strategy as a reinforcing medium rather than as the primary teaching tool. The content was first introduced through a picture-discussion, drama-discussion or demonstration; then, the basic message was reinforced with a song. Songs also served, with the pictures, as a way of circumventing the literacy constraints. Songs were a good memory device, the lyrics helping CWOs remember basic messages.

The songs also served a community-building, inspirational function. Group singing, often combined with dancing, built up the group spirit of the CWOs and added a lot of enjoyment.

During the first mass campaign in 1988, it was realized that not all CWOs were natural songmakers, though a large percentage were proficient at it. It was also learned that some of the songs improvised by

CWOs contained contradictory or irrelevant messages. To get around these problems, the idea of "model songs" was introduced during the second mass campaign in 1989. A number of model songs were designed beforehand and introduced at the CWO training. This helped less confident groups get started and guaranteed the integrity of the message.

Throughout the training, trainers modelled the teaching activities required of the CWOs. The training occurred at two levels — technical content and teaching skills. The technical content was learnt through the CWOs' own medium of songs (which were easily remembered), through the picture book (which was taken home as a memory aid) and later through cassette programmes. Demonstrations and practice ensured the CWOs knew how to do it correctly. They learned both the content and teaching methods by teaching each other, using the picture book and ORS demonstrations.

All CWO training sessions included an opening and closing ceremony presided over by a local chief or elder. In some instances, a senior government official such as the Regional or District Secretary officiated. This helped to legitimize the training at the local level and many of the training sessions became community events. Sometimes local people came to watch and participate.

the WUP Newsletter

VOLUME # 1 ISSUE #1 JUNE 1989

THOUSANDS GREET CWOs

At long last!! Our battle against the three D's (diarrhoea, dehydration, and death) is over victoriously, and the hand pump communities shall be free!

There occurred an exciting and glorious moments during the CWOs mass training in the Bolgatanga and Bongo Districts.

Most of our nights at the training grounds throughout the catchments were very entertaining. There were films shown by WHIP. In the absence of films, CWOs sang and danced. However, at Feo Namoe, Sherigu, Zoko and Sirigu women groups from these mentioned catchment areas entertained CWOs by singing and dancing to midnight! (voluntarily).

On May 2nd, which was closing day at Sherigu a large group of women "The Ananore" approached the training centre singing happily. The leader of the group on arrival claimed they came to entertain their CWOs and host them back.

We hardly finished greeting the first group when two other groups arrived for the same purpose. All these groups were in their various ceremonial uniforms.

Since lessons were in session, we advised them to sit under trees. The CWO's were in small groups under different trees.

Soon J. K. Wuminaya the programme manager of URADEP and one of his officers, Roy Ayariga the regional co-ordinator of GLOBAL 2000 programmes, were there to perform the closing ceremonies. It was chaired by the Sherigu Chief.

Apart from the Co-operative Farmers' Union members, who came to witness the closing ceremony, there were elders also from all sections.

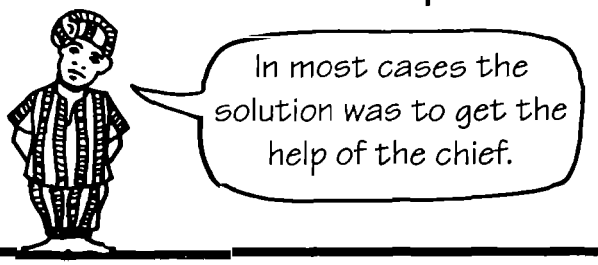
During the closing ceremony, women's groups, and CWOs took turns to sing and dance to entertain guests of honour. The crowd that day could be compared to Bolgatanga market in full session.

One would pause to think about the role of these elders, chiefs, women's groups, dignitaries etc. in WHIP. We count on their assistance to the CWOs.

All were privileged to have these dignitaries participate in various ways. THANK YOU!

The Village Education Sessions

The last session of the CWO's training focussed on planning for their return to the communities and on considering problems that they might encounter. CWOs helped each other with solutions based on their own individual experiences. Some of the problems related by CWOs included:



- **villagers who thought CWOs were paid and should therefore do all the work themselves, including pump site development;**
- **tariff — always a big concern. People felt the CWO was taking money, since use of pumps had been hitherto free. There were often complaints and arguments about what constituted a fair levy for families or individuals;**
- **how to handle complaints at the pump site;**
- **how to make home visits and be accepted by community members;**
- **how to handle a variety of conflicts like jealousies, family disputes and politics; and,**
- **how to win over people who were unwilling to attend meetings.**

It was sometimes necessary to ensure that the CWOs did not use force to carry out their duties. In one instance, an overzealous CWO "beat up" a community member for refusing to pay tariff. In another incident, a CWO was extremely rude to a villager who refused to use the pump.

WOMEN AND WATER

In northern Ghana, women are the primary carriers and users of water. They are the traditional guardians of family health; they teach sanitation, hygiene and disease prevention to their families and in their communities.

Women make the decisions about the source of water, how and in what quantity it will be used and stored. Yet women's work in carrying water and maintaining sanitation facilities is not perceived as having economic value.

The Water Utilization Project aimed to improve the productive capacity of all people in the region. But a clean, reliable source of water was seen as saving women time and energy which could be used for more productive activities.

The 2,650 hand pumps installed provided one pump for every 400 rural residents, with about 60 percent living within 800 metres of a pump. A survey of 360 women conducted in 1984 showed that hand pump users travelled about 700 metres less each time they went for water in the dry season than those without access to a pump.

Despite the important role they played in water use, women were largely excluded, in the early years, from village education activities, and from the Water Users Committees established to develop and maintain pump sites. During the early years of the project, the committees were made up mostly of chiefs and elders; only men were appointed as hand pump caretakers; only one Village Education Worker in 10 was a woman.

During the second phase of the Water Utilization Project, WEFH placed special emphasis on involving women at all levels of the project. WEFH's objectives stated that women should be involved in the program in equal numbers with men and that new health knowledge should be directed specifically at women. Female fieldworkers gave the programme their support but it was still difficult to recruit women as trainers. The need for travel to attend training sessions, as well as traditional attitudes about women's roles, restricted their participation.

To ensure the involvement of women at the local level, it was specified that one of the two CWOs from each pump site must be a woman. WEFH has been successful in reaching and involving women in this way. It was initially thought that women would not be able to leave home to come to CWO training sessions because this would take time away from domestic duties. Many feared that women would not speak out at training and that, when they returned home, they would not lead education meetings or receive support from the community. All these fears were unfounded.

Four thousand CWOs were trained in 1990, 49 percent of them women. The women are becoming more confident and are more likely to speak out during training sessions. Mixed teams appear to work well, with men and women sharing tasks and labour. Women are respected in their communities and are effective educators (particularly of other women) according to WEFH staff.

A man involved in community development summed it up by saying, "I never thought it would work. Putting women in leadership roles went against tradition, but it has worked. Now women are more involved in the community and we know it can work."

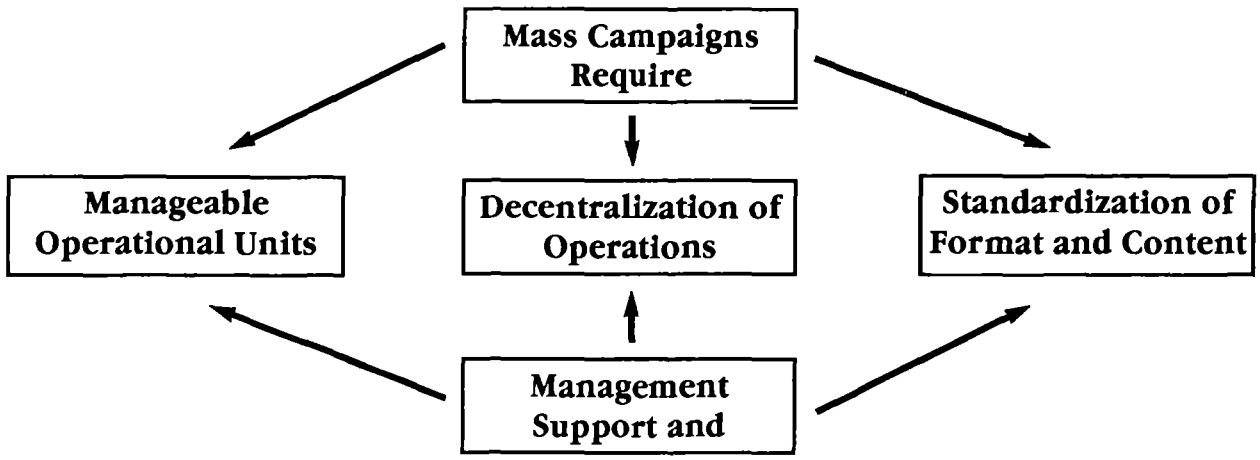
When CWOs returned home from training, they were expected to:

- report to the chief and elders;
- organize village education meetings;
- carry out home visits and calibrate calabashes;
- meet with women's groups;
- give advice on preparing ORS;
- meet with other CWOs; and,
- coordinate pump care, site development and tariff education.

The teamwork between the two CWOs in a pump community, and among a number of CWOs living in the same area, proved to be an important form of mutual support. CWOs helped and encouraged each other, often worked together to run village education meetings, and held their own local planning and education meetings. The collective approach gave the work a certain legitimacy, bolstered the confidence of the CWOs and helped to make village education meetings more effective. The educational dramas used in village meetings required a group of actors. Not every CWO was skilled or confident in leading the songs or group discussion; working as a team made it easier to manage the different teaching methods and present an impressive teaching front to the community.

Organizing Mass Training

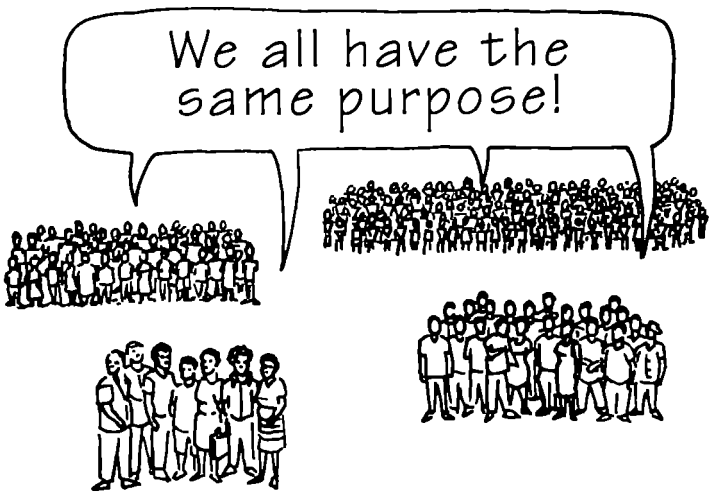
The key to the successful organization of mass training events was recognizing that:



WEF separated the overall training target into district and sub-district targets, and created an organizational framework that shifted responsibility for conducting the training courses to the district level. For the WEFH team, campaign organization became a management task that involved:

- deciding WHAT HAS TO BE DONE;
- deciding WHO WILL DO IT;
- training THEM TO DO THE ASSIGNED JOB; and,
- providing SUPPORT AND SUPERVISION TO ENSURE THE JOB IS DONE WELL.

A "staged" training approach was taken. WEFH trained District Training Teams; they in turn trained CWOs; the CWOs subsequently conducted the community education sessions.



At each level, participants were taught the content of the campaign, their job and how to train the level above.

Training for all groups — fieldworkers, trainers and CWOs — was standardized. The messages used for each group were always the same. The intention was to ensure that the same sharply-focussed message was taught throughout the system. To achieve this standardization, manuals were developed for fieldworkers and trainers. At training sessions for trainers, participants were given manuals that outlined procedures and schedules for the CWO training; they practiced teaching each other to make sure they were clear on content, methodology and timing of activities.

The CWO training timetable was predetermined; each training team followed the same schedule and sequence of activities. At CWO training sessions in the East and West, similar activities occurred at the same time. To ensure this occurred, WEFH counterparts and advisors attended training sessions. With few exceptions, the timetable was adhered to. As a result, there was consistency; each CWO received the

same message using the same methodology; and, evaluation of CWOs became possible, thus providing WEFH feedback about messages which needed to be repeated or revised.

Four hundred fieldworkers were trained to provide support and supervision to the CWOs. Their training covered the technical content of the mass campaign so that they were always clear on the messages. Trainers were chosen from among the fieldworkers to carry out the training of CWOs. The chosen trainers were fieldworkers who showed the most promise. They had good leadership skills, were outgoing, and were committed to the training and the programme. The majority of trainers were men because the training involved travel and nights away from home, and women tended to be tied to the home front because of small children.

Each district had a training team of ten to 12 people. In the project area, there were 11 District Teams with a total of 132 trainers (trained by WEFH staff and counterparts). Training was based on the principles that adults learn best:

- in an environment that provides for trust and freedom from threat;
- when content is relevant to participants' experience and concerns;
- when novel information is presented using a variety of sensory modes, with enough variations and repetitions; and,
- through two-way communications which emphasize talking and self-reflection on the part of the student, and listening and reflection on the part of the teacher.

The training teams had their own management structure. Each team selected their own leader, known as the Programme Coordinator. In addition there was a Logistics Coordinator and a Catchment Area Coordinator. These people, and the team as a whole, were supported and supervised by a member of the WEFH staff. The Programme Coordinator organized all team meetings and made sure someone was in charge of each aspect of the training events: registration, opening and closing ceremonies, teaching sessions, and warm-up activities. It was the Programme Coordinator's responsibility to see to it that training courses went smoothly and ran on time, that training material and equipment was in order and stored securely.

Instructional manuals were prepared for the Programme and Logistics Coordinators. These manuals included job descriptions and outlined responsibilities.

The Programme, Logistics, and Catchment Area coordinators worked together to foster cooperation and mutual support among all those working on the courses. Despite the fact that they were a diverse group that included trainers, local fieldworkers, drivers, cooks and other local helpers, and despite the heavy demands on all those involved, the training went smoothly; there were few mishaps and conflicts.

The Logistics of Mass Training

The logistics involved in carrying out the mass campaign were extremely difficult; they required a great amount of time and energy to organize, monitor and follow up. Detailed planning was required to provide meals for 4,000 CWOs at 60 different locations.

A detailed plan and manual was designed as a guide to this crucial aspect of the campaign. It covered:

- the purchase, storage and distribution of food, materials and equipment;
- transportation management;
- food management at the training courses;
- advance preparation of each training site; and,
- financial accounting.

Advance preparation was essential. The Catchment Area Coordinator was responsible for consulting the chief, village development committee, Committees for the Defence of the Revolution or CDRs, women's groups and other local leaders about the upcoming training courses; inviting them to opening and closing ceremonies; and, contributing to local logistical preparations.

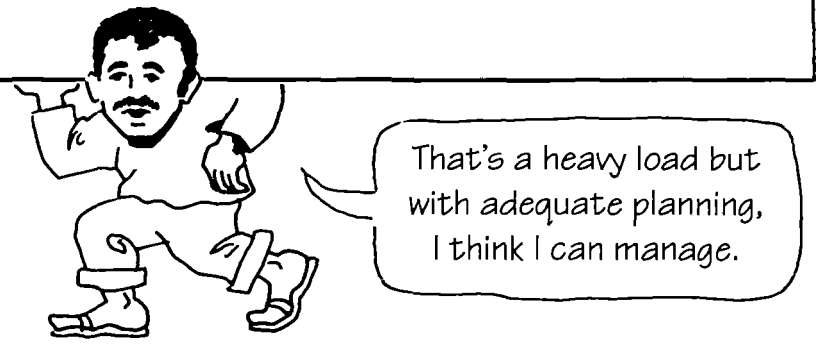
The training site selected had to include:

- enough space to accommodate participants;
- a locked storage room;
- trees for shading small group activities;
- a central location within walking distance of CWOs; and,
- access to water from a hand pump.

One senior cook and three assistants had to be hired for each training course. Training teams had the option of selecting a permanent mobile group of cooks, or a senior cook who would accompany the team to each training course. The cooks had to be briefed on menus, meal times, advance preparations and the importance of hygiene.

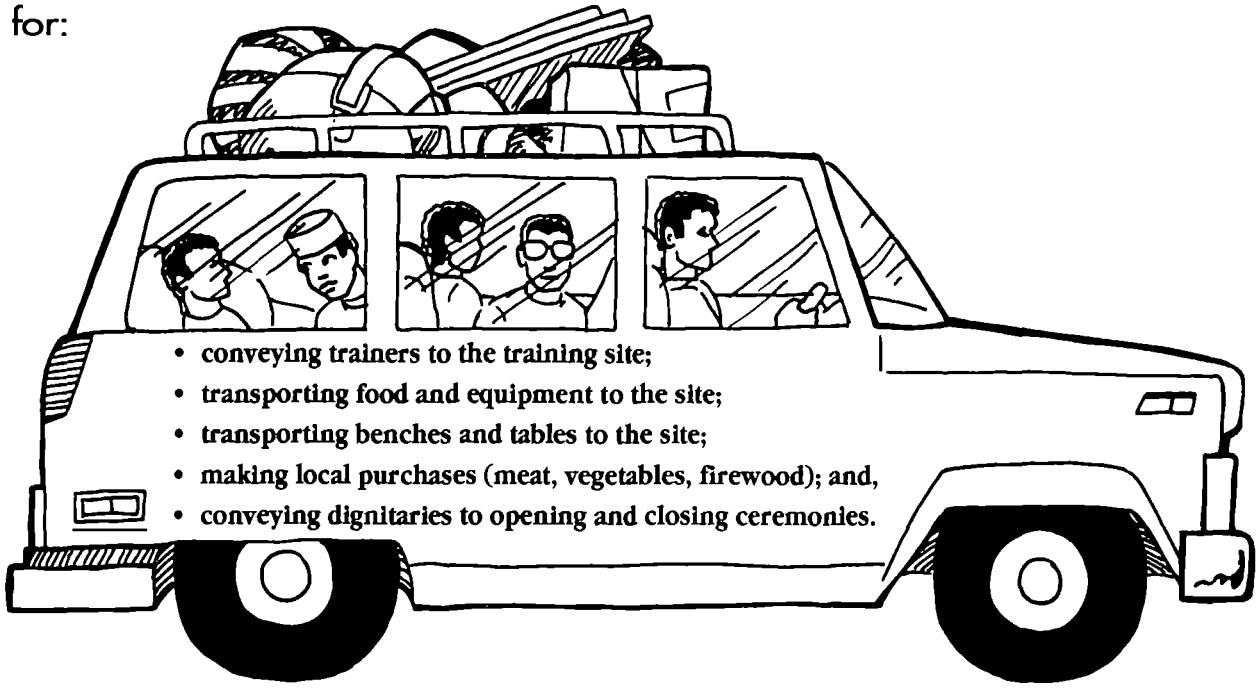
Physical preparations included:

- **weeding sites to drive away snakes or scorpions;**
- **cleaning rooms, and designating male and female dormitories;**
- **siting a kitchen area at a distance from the training area to minimize interference;**
- **collecting tables, benches and chairs (borrowed from churches, schools or other public facilities);**
- **constructing bath houses; and,**
- **cleaning toilets.**



Proper control and management of food was monitored by the Logistics Coordinator and the Catchment Area Coordinator to prevent waste and pilferage. Food was issued to the cooks meal-by-meal and menus for each training course were drawn up in advance. Food store inventories were kept during and after each course. Large quantities of bulk food was purchased by WEFH staff in November and December prior to the mass campaign. It was stored (in advisors' garages) and transported in case lots to each training site the day before the course began. All perishable food (including meat and vegetables) was purchased at the training site on the market day before training.

Vehicles had to be organized for each training team and made available for:



The Logistics Coordinator was given a budget to cover local purchases including bread, meat, vegetables, firewood, grinding, kerosene and cooks' salaries; signed receipts for this money; and, accounted for it using the form provided.

Summary

Experience in how to organize a mass campaign was gained through successive campaigns. During the 1987 pilot project, there were approximately 200 CWOs. A variety of topics were taught, including pump site development, causes of diarrhoea and measurement of SSM. From that experience WEFH learned that CWOs could not cope with too many subjects at one time, and that it was not realistic to conduct the training in English using an interpreter. Clearly, future training had to be done in the local languages. This decision — and the fact that WEFH planned to reach every pump community by educating one man and one woman per pump site — meant that a new approach had to be

found. The mass training target meant that large numbers of field-workers were involved to cope with the training. It also meant that these fieldworkers had to be trained to do the job.

During the 1989 campaign, two CWOs from each pump site were invited to the training sessions, increasing the total number of CWOs trained to approximately 4,000. A sharply focussed message was taught and content was reduced to one subject area; the CWOs were given the task of mobilizing their communities to clean and develop their pg the following year's campaign, messages were again sharply focussed and concise. They were repeated and reinforced using a variety of methods. As well, new methods were introduced to help standardize teaching throughout the training courses, and more emphasis was placed on CWOs as educators. In fact, their role evolved from mobilizing people for specific work to that of educating and instructing. Logistics were greatly improved through better organization and planning, and a more effective CWO supervision network was created.

However, the logistics of organizing so many training courses was still a heavy burden. Preparing training centres and food, distributing training materials, and providing the necessary support and supervision to the training teams required considerable effort and time; moreover, there were the problems of transportation.

To ease the burden during the 1990 campaign, changes were made to both the logistical and training structures. In order to lighten the logistical load, it was decided to contract out all the meals to local cooks. WEFH would not be responsible for the bulk purchase, storage or transportation of foodstuffs to training sites. Training sessions were reorganized from one two-day session to two one-day sessions. This meant it was only necessary to provide breakfast and lunch; moreover,

CWOs did not have to spend any nights away from home, a problem for many of them (particularly the women). The training teams' load was also lightened as they, too, did not have to spend as many nights away from home. This allowed more women to join the training teams.

The changes in the training structure meant that CWOs had one day of instruction and practice. They then returned home to lead Radio Learning Groups. They facilitated discussions with the help of the radio and a picture book. Approximately six weeks later, they returned for another day of face-to-face training. They were given an opportunity to discuss the work they had done and get support, encouragement and solutions for problems. They then returned to lead two more radio learning group meetings. Half-day debriefing meetings were held following these sessions. This way, improvement in follow-up and support was built into the training methodology.

THE INTERAGENCY NETWORK

WEFH could not have mobilized and trained 4,000 CWOs alone. As a unit, it simply did not have enough people to provide the mass training or do the work involved in preparing material and follow-up support. The mass campaigns were possible because other extension agencies in the regions provided support and committed resources to the WEFH programme.

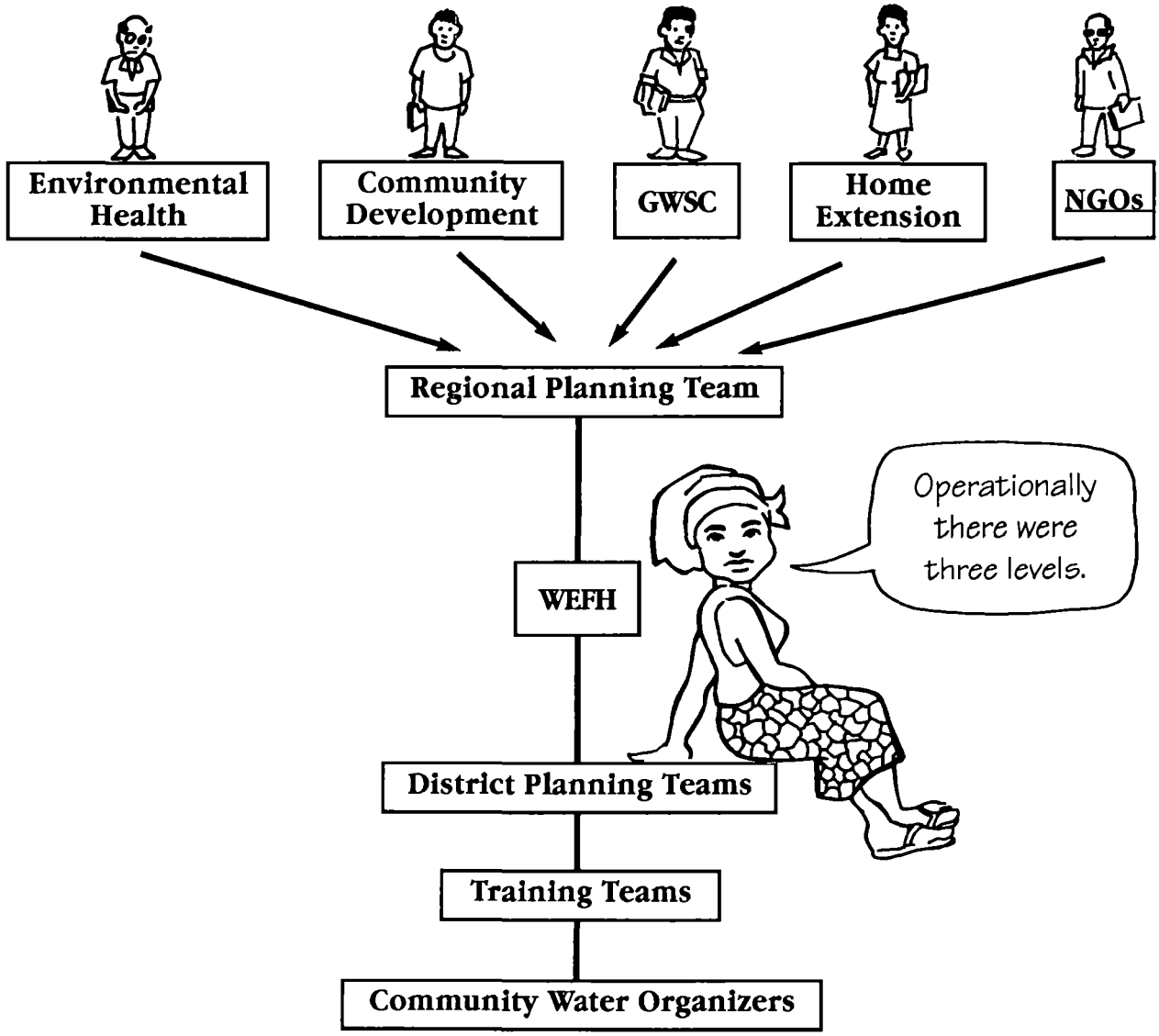
It has been no small achievement to obtain this interagency cooperation. Although earlier project planning reviews had urged that WUP adopt an interagency approach, few attempts were made to do so until 1986. A major criticism in the 1984 Project Evaluation was "the single sector approach which neglected other departments or agencies with health mandates". WUP had tried to organize that education programme in a vacuum, and without a great deal of success.

In 1986, there was a radical change in strategy. It was evident from the first pilot campaign that WEFH needed additional personpower to provide the mass education expected of it. A concerted effort was made to get the support and collaboration of extension agencies operating in the Upper Regions. During its four-year implementation period, WEFH was able to develop an organizational network which, by the start of the 1989 campaign, was well established and working efficiently. The term "Water Health Integrated Programme" (WHIP) was coined to describe the network and interagency collaboration.

The Network

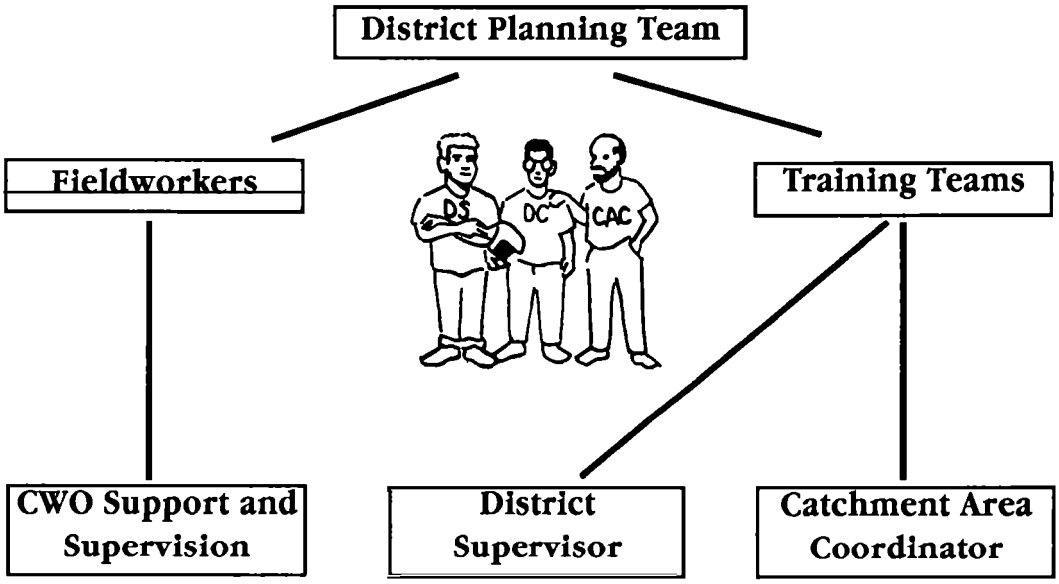
By 1989, 23 agencies had agreed to work with WEFH and to commit resources to the programme, mainly in the form of personnel but also transportation during the campaign period.

The network had two broad functions: the logistical organization and management of campaign events, and the implementation and supervision of the education and training content of the WEFH programme. Departments jointly organized their fieldworkers to respond to these needs.



The network was based on a division of labour. WEFH provided the "prototype" — a set of messages, educational materials, recruitment and supervision manuals, training course design and logistical plan — and trained people (fieldworkers, trainers, programme and logistics coordinators) to use this prototype. Each district team then implemented the prototype — a process of recruitment, training and support/supervision — within their own district.

At the district level, the network was organized as follows:



CWO training courses were run at the local level, with the campaign organization based on district administrative boundaries. The local course venues made it easier for CWOs to get to the events and simplified the logistical organization of the courses. To facilitate follow-up support by the fieldworkers, districts were divided into "catchment areas".

Each district planning team decided how many catchment areas it would have. Bolgatanga, Bawku and Wa had 12 areas; Navrongo and Sandema had five. Tumu and Lawra District Planning Teams divided their districts into six and 11 catchment areas. The number of catchment areas and CWOs per district determined the number of training teams. Districts such as Bolgatanga had two training teams while smaller districts (Tumu, for example) had only one.

CWOs were grouped into geographically-based clusters of three to five pumps, in order to encourage mutual support and teamwork among the CWOs, and to make regular follow-up support by fieldworkers easier. To encourage the latter, training teams appointed a district supervisor and each CWO cluster nominated its own representative as a contact person; this person acted as the first point of contact for the district supervisors. Dealing with a smaller number of contact persons simplified supervision.

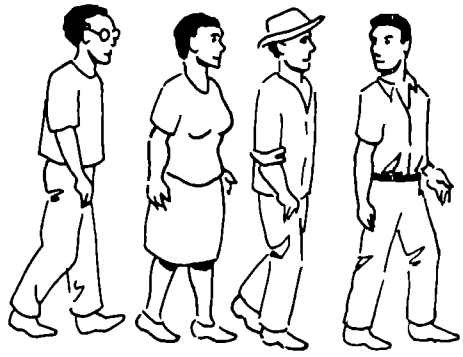
WEFH continued to take responsibility for a number of specialized tasks — topic research, message/educational design, material production, training of trainers and evaluation — best done by a small, centralized team of people. It was very much the driving force in the network.

Ideally, the general planning and management of the annual campaign would have been done by the Regional Advisory Committees and coordinated by WEFH. However, this had not been foreseen in the original project plan and neither CIDA, GWSC nor the line agencies pushed for this group to have more than an advisory role. The Regional Advisory Committees met infrequently and only at the request of WEFH. (These meetings allowed WEFH to keep regional department heads informed; they also gave department heads an opportunity to officially endorse their staff's involvement.) As a result, the Regional Advisory Committees were the weakest part of the network.

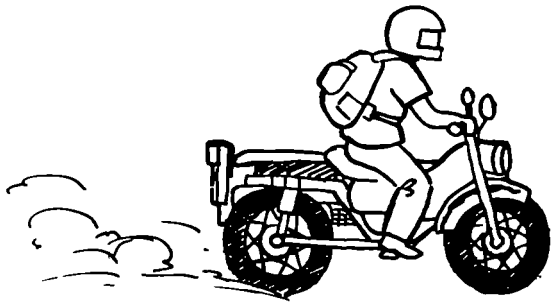
NETWORK FUNCTIONS AND TASKS

Part	*Membership*	*Functions and Tasks*
WEFH	Canadian advisors and Ghanaian counterparts	• overall coordination of programmes • facilitation of communication throughout network • monitoring and evaluation • production of materials • coordination of the training programme
REGIONAL ADVISORY COMMITTEES	Regional department heads of agencies direction making up WHIP	• providing advice on policy and programme • consultation on deployment of departmental staff • some monitoring and problem-solving

DISTRICT PLANNING TEAMS (DPTs)	District department heads of agencies making up WHIP	• interagency coordination at district level • planning district level implementation of annual campaign • organizing fieldworker training • selection and management of district training teams • logistics • coordinating and monitoring field support activities • identification, analysis and communication of district needs to WEFH
FIELD WORKERS	Extension workers from WEFH's partner	• support of CWOs and contact persons in their area agencies in WHIP • attending annual training course in their area
TRAINING TEAMS	Most skilled field workers selected by WEFH and DPTs to form training team	• running the CWO training courses in their area
CATCHMENT AREA CO-ORDINATORS	Fieldworkers recruited by District Teams	• coordinating the field support in a catchment area • liaison between those in the catchment, and the DPT and WEFH



DISTRICT SUPERVISOR (DS)	**A particularly active fieldworker recruited by WEFH**	• **coordinating the field support in a district** • **facilitating the work of the District Planning Team** • **liaison between WEFH and the DPT, and between fieldworkers, contact persons and CWOs** • **coordinating with CACs on catchment area problems** • **communication tasks associated with annual campaign**



CONTACT PERSON	**CWO selected by a cluster group of CWOs**	• **coordinating a cluster group of CWOs** • **supporting CWOs in the group** • **liaison between CWOs, DSs and CACs** • **mobilizing the CWOs for the annual training course** • **performing CWO task**
COMMUNITY WATER ORGANIZER (CWO)	**One man, one woman selected by each pump community**	• **educating and mobilizing at the village level in accordance with tasks designated in any given year's educational campaign** • **coordinating pump site maintenance**

Building the Network

The interagency network evolved over a four-year period. Relationships were formalized once it was recognized that, not only could WEFH not run an extensive education programme alone, but many other departments had mandates for water and health education, and for village development.

During the first pilot, WEFH carried out virtually all of the operational tasks itself, involving extension agencies only as sources of fieldworkers for village-level teaching. WEFH did the planning, designed the materials, conducted the training, organized the logistics and followed the fieldworkers into the field to observe, supervise and support them.

In evaluating this pilot, WEFH decided it needed to increase the involvement of the partner agencies in planning and managing future projects. WEFH felt that, in a true partnership, each agency would contribute resources, have an equal say in decision-making and share equally in the benefits. Full participation in the planning and management would produce a better plan and strengthen agency commitment to the programme. WEFH hoped participants would regard the programme as their own, and keep it going once WUP was phased out and Canadian resources withdrawn.

During the 1987 pilot campaign, WEFH began to implement this new policy by:

- organizing a planning workshop for regional and district staff prior to the start of the project;
- conducting a series of regular planning and monitoring meetings with regional and district staff;
- running a trainer training course for district heads and more experienced fieldworkers;
- involving the district heads and senior fieldworkers as co-trainers in training workshops for CWOs; and,
- assigning logistical responsibilities at the training workshops to district heads.

Later, expansion into a mass programme necessitated the transfer of even more responsibility to the partner agencies, especially at the district and subdistrict levels. WEFH could no longer be directly involved in all the training; they delegated this and other field tasks to teams of district heads and fieldworkers in each district.

At this point, the groups of district heads that had operated on an informal basis during the second pilot were formally established as district planning teams, each with its own management, tasks and responsibilities. These teams took responsibility for all operations carried out within the district — zoning the district into catchment areas, briefing the fieldworkers, selecting trainers, organizing CWO recruitment, setting up logistics for training courses, managing those courses, and carrying out field support and supervision.

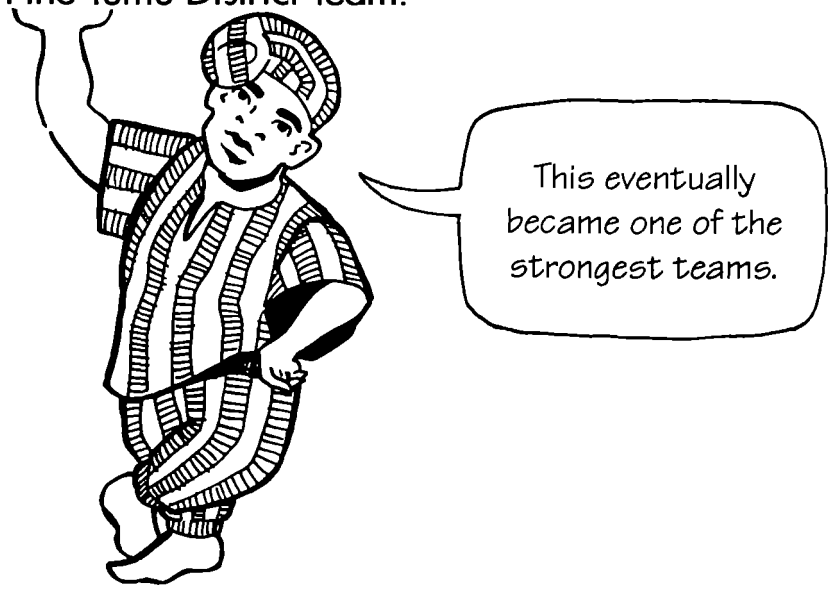
WEFH's role shifted from a hands-on to an indirect one: setting up, briefing and working through the district teams, and coordinating the whole exercise. WEFH staff met with each team on a regular basis, carried out joint planning, provided manuals to guide activities and monitored operations. Programme delivery was gradually decentralized, increasing the autonomy and responsibilities of individuals and organizational units lower down the network.

Training and supervision were the main activities delegated to the district teams. This was a gradual process. During the pilot programme, all the face-to-face training was done by one or two individuals. In 1987, most of the fieldworker training was done by the Canadian advisors; by 1988-89, it was done by the WEFH counterparts and, in 1990, by members of the district planning teams and the district supervisors. Similarly, the control of supervision was gradually delegated from the WEFH Unit, through the districts, to the catchment area level. This was made possible through the identification of talented individuals who could be nurtured and gradually given greater responsibility.

With each campaign there were increasingly realistic expectations of the various units and individuals. This was particularly apparent in the support and supervision programme. After the first mass campaign, it was expected that support and supervision would be handled by the fieldworkers. For various reasons this proved to be unrealistic and a new approach based on the idea of cluster groups was developed.

The initiative for this gradual decentralization came from the WEFH Unit, and evolved through a number of formal and informal processes. The use of interagency workshops to promote a decentralized operation was crucial. Equally important was setting clearly defined tasks that were within the capabilities of individuals working at different levels of the organizational hierarchy.

Informal processes were equally important in establishing and maintaining the network. Social contacts with key individuals; taking an interest in their agendas; and, arranging meetings with individuals and groups during field trips to their areas helped to maintain morale and motivation. The Tumu District, for instance, was initially one of the weakest; however, Tumu is on the route between Wa and Bolgatanga so that it was possible for a member of WEFH in Wa travelling to Bolgatanga to arrange a meeting with the Tumu District Team.



The quality of the district teams varied. Bolgatanga, because of its proximity to the WEFH office, received regular support and information. However, its real strength came from the strong leadership of four individuals: the District Health Superintendent, the District Head of Women Farmers Extension, the Officer-in-Charge of RWSU, and an RWSU mechanic. They had been associated with the WEFH programme since its start and had provided continuity in a team where there had been turnover due to departmental transfers. Over time they had developed the confidence to challenge planning decisions made by WEFH and take initiatives to improve campaign organization in their own district.

The decentralized approach gave the partner agencies at the district and subdistrict levels a substantial role. They developed a certain amount of ownership in the programme and commitment to its objectives. In contrast, there was no comparable set of functions at the regional level. WEFH monopolized the centralized tasks, including the planning of the annual campaign. Regional heads met two or three times a year to review plans or progress on the annual campaign but there was limited scope for changing or altering those plans. They were often consulted too late in the process to make a real contribution and, in effect, merely rubber-stamped plans devised by WEFH. They had little opportunity to place their own messages on the agenda and, as a result, were not very committed to the programme, which they regarded as a GWSC/WUP project.

This was most apparent in the cases of two district supervisors. Successful negotiations with the departments for which they worked were conducted at the regional and district levels. Both were seconded to the programme for three days a week; both reported problems with their departments concerning receipt of usual benefits. When WEFH followed

up with department heads, it found no problem had been reported. It appeared that those department heads felt they had to conform when approached by WEFH — a high-profile outfit with backing from the government and regional administration — but, in private, still felt that WHIP work was an extra load imposed upon them.

WEFH's aim to develop a partnership of equals was not fully achieved within the first four years. WEFH played the dominant role, setting the agenda and strategies while the other agencies danced to their tune.

Support and Supervision

During the 1987 campaign, the fieldworkers' role was defined as one of support and supervision. They were to provide this as part of their regular departmental duties. Many of them visited the field on a regular basis; as a result, they were asked to help the CWOs with village education meetings, encouraging them and assisting them with problems. A form was designed for them to provide feedback.

During the 1988 campaign, a system of contact persons was devised. It was felt that what was really needed was someone at the village level who could provide on-site support. All CWO clusters had someone amongst them who had leadership skills and could be looked to for help and advice. At the mass training, CWOs were asked to select one person to assume this role.

Each district had one supervisor equipped with a motorcycle. The supervisors were strong, responsible fieldworkers, who spent half their time on WEFH activities. They visited each CWO once every three months and the contact person on a more regular basis. The district supervisors were responsible for training the contact persons to assist them with their role.

This system of support for the CWOs was a great improvement. It resulted in consistent feedback and follow-up, and less dependence on outside support.

Ingredients for Success

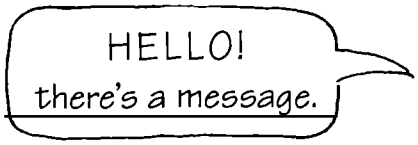
Even though WEFH's aim to develop a partnership of equals was not fully achieved, organizationally the network was effective. To a large extent this was because of the strong leadership provided by WEFH, but other important factors were:

- clear lines of communication;
- clearly defined functional levels;
- specific individual job descriptions; and,
- follow-up support and supervision.

WEFH provided the leadership for each of the campaigns. It was responsible for:

- planning, designing and managing the water/health education programme;
- coordinating and leading an interagency effort; and,
- carrying out specialized tasks, including topic research, educational design, material production and trainer training.

Communication within the network at the higher levels was mostly organized by WEFH. Decisions taken at the regional level concerning WHIP were communicated to the district level by WEFH. The programme did not figure highly in departmental communiques. Regional heads allowed WEFH to use their personnel at the district level but considered it WEFH's responsibility to inform them.



At the lower levels, communication was more informal. Passing information by word of mouth — the bush telegraph — usually worked well. A catchment area coordinator or a contact person could organize a meeting of CWOs with no more than a day's notice. This also worked in the opposite direction. Reporting of pump faults improved because of the network. Often, information was passed from CWOs to contact persons through catchment area coordinators or other field-workers to district supervisors and then to the RWSU.

Duplicated letters produced in the WEFH office were used to inform participants about training courses. These letters had to be sent far enough in advance to give people time to prepare, but not so much so that they forgot about them. They had, therefore, to be distributed quickly. Delivery was coordinated by the district supervisors who passed the letters through many different channels, from direct handover to sending them with somebody's uncle's brother who was travelling in the right direction. Invitation letters — sometimes more than 100 — were often delivered to a catchment within a day. The 80 percent attendance at 1988 and 1989 training courses showed that the system worked.

Setting clearly defined tasks and achievable goals for individuals within the network was also important. Individual and team tasks were documented and manuals made available to all. Events were organized by those in the best position to do so. Training helped to ensure a high standard of accomplishment. District teams and training teams grew in confidence and took on more responsibility.

A common system for passing letters was through the network of local markets and market lorries. Usually this worked remarkably well but sometimes the system broke down. In one case, a letter was sent on a market lorry to a catchment area coordinator asking him to organize the local CWOs for a debriefing meeting. When the letter arrived, the catchment area coordinator was not at home. Someone passed the letter on to another member of the same department. This person was not familiar with the programme but wanted to deal with the request. Unfortunately, he read COWs instead of CWOs. When the training team arrived a few days later, they met a lively group of cattle owners expecting to have their animals immunized instead of a group of CWOs reporting on progress.

While each annual campaign had a definite beginning and end, the support and supervision programme was ongoing. The needs of this programme led to the creation, within the fieldworker cadre, of district supervisors and catchment area coordinators who, as a result of decentralization, handled many of the tasks associated with the annual campaign (even though these were originally geared to field support).

WEFH provided the district supervisors with motorbikes. All were departmental fieldworkers, but they had been identified as particularly able and were nurtured over time to take on additional responsibilities. They were one of the most important elements in the network, galvanizing and acting as catalysts for most of the other units at the district

level. To a lesser extent, the catchment area coordinators performed the same important function at their level.

Benefits and Future Developments

There were obvious benefits in this interagency collaboration. For the villagers, for example, there was a reduction in the number of conflicting extension messages. The instances of two agencies visiting the same village in the same week with different water/health messages were fewer. The improved communication at the grassroots level allowed the design of more appropriate programmes that met the villagers' needs. The presence of trained CWOs in the villages meant there was effective reinforcement of any message delivered.

Those working within the network benefitted mainly through the training they received. Many used their improved educational skills in other areas of their work. Those given increasing responsibility and leadership roles benefitted through greater self-confidence.

Undoubtedly WUP benefitted most from the network. Other departments with a water/health mandate also benefitted, of course, but this was only a part of their agenda while it constituted the whole of WUP's.

Other departments could have derived further benefits but this did not happen. The network was not used for programmes other than water health. The agencies worked together on water health but not on other primary health care programmes. Two departments may not have visited the same village in the same week with the same message, but there was certainly more than one department working in the same village on different agendas.

The system for interagency collaboration on all aspects of primary health care, managed through the Ministry of Health, was weak. It was possible for WEFH to use its network to develop this system as well as to cover its own narrower agenda. However, this happened only in Lawra district where the WHIP district planning team became a sub-group of the District Health Management Team.

Such developments were important to the partner agencies' perception of the network. They saw it as WUP's network, responsible for WUP's agenda. Their support and commitment to the programme was a guarantee of its success and future sustainability.

RADIO SUPPORT

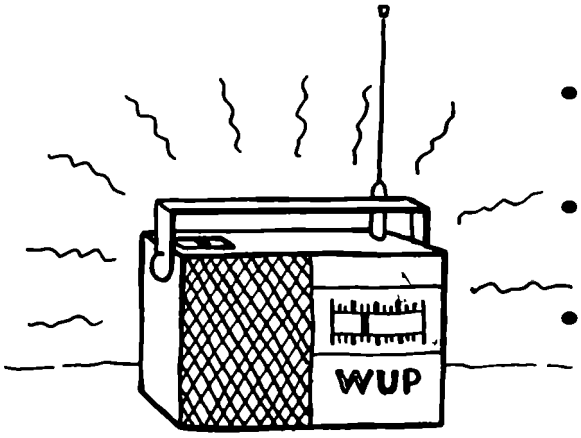
The value of using radio as part of WUP's educational strategy had long been recognized. The planning mission in 1982 recommended the use of this medium but, since the only production facilities at that time were located in Accra, the recommendation was not followed up. That situation changed, however, when the Ghana Broadcasting Corporation's URA Radio station was opened in Bolgatanga in 1986.

The potential of the regional radio station was recognized by the Review and Redesign Mission in 1986, when they suggested that a radio-supported education campaign might be a major component of the education programme. This suggestion was supported by a study, in early 1987, on the feasibility of organizing a radio learning group (RLG) campaign.

Preparations for a pilot RLG campaign started in 1987 but the pilot was not implemented. It coincided with the heavy workload of the first mass CWO training programme. Problems were also encountered in designing appropriate study materials for the group meetings. At the time, the rate of illiteracy among CWOs had not been thoroughly studied by WEFH, and it was assumed that they would be able to use a printed study guide. This was not the case as more than 80 percent of the CWOs registering in the 1988 campaign were illiterate.

Instead, it was decided to develop radio support as a year-round activity rather than limiting its use to a short-term campaign. At the time there was considerable discussion within WEFH about how radio should be used. Some members of the project argued against an RLG approach on the grounds that it would not promote behaviour change. However, this argument overlooked the strength of group learning and the fact that WEFH was building a cadre of CWOs whose role could be reinforced by a radio-assisted learning programme.

Although the postponement of the RLG pilot caused some disappointment within CIDA, it gave WEFH an opportunity to test, refine and develop various components of an RLG campaign approach. The postponement enabled WEFH to:



- strengthen its working relationship with URA Radio;
- rethink the design of the RLG learning package; and,
- further develop the field organization and CWO network.

It also gave the WEFH team time to build up expertise and confidence in organizing mass training programmes.

Plans for an RLG campaign were postponed again in the 1988-89 season because of delays in the purchase and delivery of radio sets and continuing discussions with URA Radio. However, the use of cassettes as a teaching medium was tried in the CWO training courses, and the resulting programmes of songs and drama served as material for a series of radio programmes. Collaboration with URA Radio on the production of the cassettes helped to strengthen the working relationship, and gave a better idea of their production capacity and work constraints.

The Radio Unit

By 1989, it had become evident that if WEFH was to capitalize on the presence of the regional radio station, it would need additional expertise. The existing WEFH staff had little time to develop or coordinate radio production, and URA Radio's facilities and personpower resources were limited.

The appointment of a full-time Radio and Materials Production Advisor in 1989 meant that a fresh look could be taken at how radio might be used to support the education programme. After discussion with WEFH and URA Radio, it was decided that a three-pronged approach would be taken using:

- peak time radio spots;
- weekly half-hour programmes; and,
- a radio learning group campaign.

The RLG campaign was scheduled to start in February 1990. To make this possible, additional resources had to be developed. A first priority was to strengthen working relationships with URA Radio. This was achieved through frequent contact between the broadcast group and the advisor, and by establishing a set of mutual goals. The Radio Unit supplied URA Radio with broadcast material and assisted with technical support, including desperately needed batteries, tapes and transport. In return, URA Radio — despite stretched resources — gave its support in preparing and packaging training tapes, and broadcasting radio programmes.

Additional personpower was created by selecting and training 12 radio production trainees from among the WEFH counterparts, fieldworkers and trainers. Two people were selected for each of the six local languages. Those selected had to be completely bilingual in one of the

broadcast languages and English. The trainees also had to be familiar with the Water Utilization Project and WEFH.

Training was based on learning-by-doing and included voicing, researching, scripting, interviewing, recording, editing and packaging programmes. The training involved three days of orientation and technical training in Bolgatanga with the advisor and URA Radio staff, followed by three days of fieldwork and material collection in the area where the trainees' first language was spoken. During the initial training, trainees met and worked with URA Radio's specialists working in the same languages. Through their training they became familiar with the demands and constraints of radio-assisted learning.

All trainees received the same six days of one-on-one training over a two-month period. Running the initial training for three days and fieldwork for three days allowed the Radio Advisor a day or so each week to change locations and trainees. The equipment used consisted of eight cassette recorders, two microphones for each recorder and two reel-to-reel portable tape machines with microphones. Constraints caused by shortages of equipment, materials and transportation, however, placed some limits on the training activities.

Programme material was collected in the six main languages of the regions — Dagaare, Kusaal, Gurune, Sisaala, Buli and Kasem. While broadcasting in six languages was a challenge that complicated programming, it was an efficient and effective way to provide people with information in their mother tongue.

Some of the material gathered during the field training became part of URA Radio's regular radio programming; other material was used in sample tapes of radio learning group programmes prepared for field-worker and CWO training. Each radio trainee worked half the week gathering material for radio programmes and half the week at regular duties.

The creation of a network of part-time broadcasters based in each of the different language areas strengthened the broadcasting potential of WUP, especially given the transportation constraints faced by GBC staff. These broadcasters can serve as local correspondents, collecting material and, in effect, extending the programming potential of URA Radio.

As a result of their involvement in the programme, the trainees learned mass communication skills that were useful in their regular work. This kind of experience also opened up new career possibilities for some of the radio workers and gave them the skills to train others in mass communication techniques. The project benefitted by having its message delivered to thousands of groups and individuals across the Upper Regions.

The Radio Learning Group Campaign

The use of radio was seen as strengthening the village education programme by delivering a quality message directly to villagers, providing a focus for a sustained educational process, reducing the teaching load of CWOs and helping legitimize both the messages and the CWOs. The logistics involved in the mass training in both 1988 and 1989 had been a heavy burden. WEFH was concerned about the costs involved and the long-term organizational capacity to maintain such an approach. Radio-assisted learning was seen as one way of reducing the logistics of organizing a mass campaign and, at the same time, continuing to reach large numbers of people with a high quality message.

RADIO LEARNING GROUPS: A BRIEF HISTORY

The Radio Learning Group campaign is a modification of a well-tried educational method first developed and used in Canada. Farm Forum, which ran from 1942 to 1962 in rural areas, and Citizens Forum, from 1944 to 1962 for urban residents, both dealt with a wide range of topics and ran year-round.

This method was so successful that several developing countries took up the idea in the 1950s and 1960s. A large-scale project was carried out in India in 1962. Ghana was the first country in Africa to use this method when the Radio Farm Forum campaign on agricultural development ran in 1964, reaching 60 organized groups.

The Farm Forum approach has been popular with broadcasters and is still used in many countries today.

In the 1970s, Tanzania and Botswana modified this approach and developed a campaign format dealing with a single issue over a short period of time. The campaigns in these countries focussed primarily on topics of major national importance, including political and civic education, health, and changes in national policies.

Tanzania and Botswana argued that a year-round continuous programme was not suitable for their audiences, given seasonal variations in farming and other activities. A short-term campaign was easier to organize and would attract a larger audience, programmers suggested. Many people who could not take part in an ongoing programme did participate in these shorter campaigns. The "Man is Health" campaign in Tanzania reached 75,000 groups.

Typically, the Radio Learning Group campaign approach is a programme of educational meetings, conducted over several weeks, on a topic of major importance. Information is conveyed to a large number of people through a centrally-produced package of learning materials including radio programmes and study guides. Listeners meet in locally organized radio learning groups, under the guidance of a trained group leader, to discuss the issues highlighted and formulate an action plan.

This type of educational programme uses mass media to extend an educational resource to a widely-scattered population while allowing this large audience to discuss the ideas and information presented in a small group setting. This, in turn, allows participants to develop a process for local problem-solving and collective action.

In effect the CWO network was a ready-made network of RLG leaders. The CWOs were the organizing focus for the radio learning groups. The two CWOs in each pump community provided the leadership necessary to bring group members together and facilitate the RLG meetings.

In Tanzania and Botswana, radio learning group campaigns have lasted five weeks or longer, with two programmes a week. This model was unworkable in the Upper Regions. There was not enough radio time available to broadcast in the six languages of the regions over such a long period. Given this constraint, WEFH's radio learning group campaign consisted of two two-week series in each language aimed at reinforcing the mass training sessions. For example, in Sisaala two programmes were broadcast in February on the role of the CWO and on diarrhoea; this was followed by a further two programmes in April on guinea worm and tariff. All RLGs heard the same four programmes in their own language — a total of 24 programmes in all. The programmes were heard on URA Radio from 7:10 to 7:30, Monday to Saturday evenings, during February and April; programmes were broadcast in one of the six languages on the same evening each week.

The same basic format was used for the radio learning group programmes in each language. A typical radio learning programme included:

- a scripted introduction;
- the radio learning group theme song;
- an interview with a mother who had experienced the problems of looking after two children ill with diarrhoea at the same time;
- a song on guinea worm prevention;
- an interview with a man who had had guinea worm; and,
- a scripted closing.

Other programmes contained short dramas, no more than 15 minutes in length, on such topics as the importance of paying tariff. Songs in the local languages were used, along with music played on local instruments. In interviews, the radio workers were encouraged to seek out interviewees whose personal experiences were relevant to their listeners. One interview was held with a mother whose children were infected with guinea worm; it was hoped that this type of interview might provide ideas and information more significant to the audience than the experiences of a research scientist, for example.

The dramas prepared for the RLG programmes also worked in getting WEFH's messages across to other audiences. Many of the fieldworkers and trainers were talented actors skillful in creating tension-filled and entertaining plots.

During training, two Sisaala-speaking specialists with the Radio Unit were called upon to stage a drama for 3,000 people on the subject of tariff. With the help of three other trainers, the two radio specialists put on the same drama heard in the RLG broadcasts. The audience included people involved in the National Supplementary Feeding Project, the government's Secretary for Health (who travelled from Accra) and the national Director of Nutrition. To add to the pressure of performing live, the deputy Regional Secretary for the Upper West and the Secretary of the District Assembly were also in the audience, along with chiefs from all parts of the region.

They demonstrated, in several highly emotional scenes, that while saving a few Cedis by not paying tariff, people might be risking their health. Many in the audience were in tears. The show was a tremendous success.

The programmes strived to be timely; as a result, material was not collected too far in advance. Topical references to current events were included. The stories and interviews were judged on their journalistic merit based on the criteria that they dealt with:

- someone,
- doing something,
- for a purpose.

Much of the recording was done in the field — a drama set at a pump site was recorded on site; songs were recorded at CWO training sessions, where people were less inhibited than they would be in their own communities.

Programmes in the radio learning group series were used to state problems, not to solve them. The aim was to stimulate discussion and feedback, and to formulate positive action among group members.

Radio Learning Group Theme Song

Radio Learning Group people come out,
Radio Learning Group people come out.
Come out and listen to the message.
The messages help us in our work
and promote good health.
Let us keep the messages in our minds
but also let us spread the message so others may benefit.
Let us listen to the messages
And let us think about what we hear on the radio.
Radio Learning Group people come out,
Radio Learning Group people come out.

When they were not collecting material for the RLG programmes, the radio workers produced a weekly programme on GBC, supplied raw material to GBC staff, and provided regular announcements and messages. In this way, the project was able to make use of radio throughout the year and not just during the relatively short radio learning group campaign.

RLG Formation and Operation

After the first training course, CWOs returned to their own villages and organized community meetings to explain the idea of the Radio Learning Group and to ask for the community's support. They then went around the community, inviting representatives from each household to join the group. By involving someone from each household, information and ideas discussed at the RLG meeting would be transmitted to each of the families in the pump community. An effort was also made to ensure that both men and women participated in each group. While gender-specific groups are seen as the norm in this rural society, Ghanaian staff argued that the issues discussed affected both men and women equally.

Each CWO was encouraged to form a group of about 20 people — the ideal size for a group discussion. In larger groups, few members would have a chance to talk and the RLG leader would have difficulty leading the discussion. This policy of limiting the size of RLG membership was not accepted in all communities; in a few places, the entire community insisted on attending the meetings despite attempts by the CWO to limit group size.

In total, 5,000 groups of 20 were formed, involving 100,000 listeners — one of the largest radio learning group campaigns ever attempted.

After forming the group, the CWO invited group members to attend the series of weekly RLG meetings. These evening meetings were conducted in the village meetingplace or at the CWO's home. Benches and lanterns were set up beforehand by the CWO, with the help of RLG members.

The broadcast time, and therefore the starting time for RLG meetings, was 19:10 — the time made available for the RLG campaign by URA Radio, and recommended as an ideal meeting time by CWOs and fieldworkers. This broadcast time was popular with most groups; however, for some it conflicted with meal times. Some female CWOs failed to organize RLG meetings because of this conflict. Other options, such as an additional broadcast period late in the afternoon, may need to be considered in future.

As a result of the general interest in the programmes, GBC repeated both series twice after the initial broadcast. The repeat broadcasts helped groups who missed a programme.

RLG meetings are conventional in format:

- a group of people meet around a radio;
- the radio serves as a gathering device, source of information and stimulus for discussion;
- after the broadcast, group members review printed materials (in this case, a picture book);
- they discuss the issues presented and agree on action; and,
- they write a report on the meeting.

Discussion at the end of the radio programme worked very well in most cases; they were lively, effective and seemed to get started without difficulty. RLG members were able to make a link between the radio programme and some of their own problems and issues in the village. However, some CWOs found it difficult to initiate a discussion and group members left soon after the end of the radio programme. More emphasis will be placed on this crucial learning and decision-making component of the RLG meeting in future CWO training.

The first RLG programme for the Upper West was disrupted by a sudden rainstorm at the start of the broadcast. Instead of scattering, the RLG members took cover in the local pito bar to continue listening to the programme. The other patrons of the bar also became involved in the programme and soon 40 people were having an animated discussion about the role of the CWO. The discussion finally concluded four hours after the broadcast.

The picture books proved difficult to use in the evenings. Even with several lanterns it was hard for group members to see the pictures and use them as a learning tool. Some CWOs, recognizing this as a problem, organized supplementary meetings during the day and used the picture books then as an effective form of review.

The RLG Report Forms proved to be a successful idea despite the low level of literacy among CWOs. Each CWO was able to find a literate assistant to help complete the form; many of the reports were expressive, thoughtful and carefully completed. They provided a tremendous source of data for the RLG evaluation, as well as identifying a number of issues for follow-up radio programmes.

Listen, discuss, plan and act are the four steps that make the RLGs work. Thirty-six hours after the first RLG programme was broadcast, one pump community had already done the planning and were ready for action.

Two Kasem-speaking specialists and the Radio Production Advisor were hurrying to prepare some interviews about guinea worm. In rushing to meet their deadline, they had already forgotten the first broadcast which suggested the public help the CWOs maintain a supply of fresh water to the villages. Ten miles from the interview site, they rounded a corner and almost ran into 40 people carrying rocks, digging trenches and plastering new cement over the hand pump pad.

"What are you doing out here this morning?", they asked.

"Pump site development — just like we heard on the radio the night before last. The radio said the group should discuss its problems and take action. We discussed fixing the cracks in the pump covering and putting new rocks all around. We would have done it yesterday right after the broadcast but we had to go to town to get cement."

Sitting in a prominent place on top of the pump were the radios lent to the CWOs. GBC's rural radio service was not scheduled to start for another three hours but the radios were the symbol of the group and the badge of office of the CWOs.

Radio Distribution

Few people owned a radio in the Upper Regions and, clearly, radio-assisted learning could not work unless the people had access to radios. To overcome this problem WUP purchased over 5,000 radios. These were distributed to CWOs and fieldworkers for use during the radio learning group campaign.

The question of whether radios should be issued on a permanent or temporary basis was discussed extensively. Selling the radios would reduce project costs; as well, radios would remain in the villages.

On the other hand, there was no guarantee that all CWOs could afford to buy radios. In the end it was decided that the radios should be issued on a temporary basis and a policy to that effect was formulated.

Distribution Policy

1. **The radio is issued for community education purposes related to the Water Utilization Project.**
2. **The people who receive radios are chosen from Community Water Organizers, fieldworkers, trainers and Water Utilization Project counterparts who have successfully completed the training for Radio Learning Group leaders.**
3. **The Water Utilization Project retains ownership of the radio. The project may assign radios to any of the above-noted persons on behalf of the pump community.**
4. **Each person who has the loan of a radio must conduct Radio Learning Group sessions in the appropriate language in accordance with the broadcast schedule.**
5. **Maintenance of the radio, including replacement of batteries, is the responsibility of the recipient.**
6. **Right after training, the Radio Learning Group leader must choose a deputy from the pump community who will be responsible for the radio and its intended use in the leader's absence.**

The radios, along with three batteries, were distributed to CWOs at the mass training.

While WEFH had developed a radio distribution policy, it did not always work as planned. The radios proved to be a popular item. WEFH staff were inundated with requests for radios from many people who had nothing to do with the WEFH programme — members of the district planning teams, GBC staff, NGOs and even GWSC watchmen.

In one location, trainers learned that a WUP radio was being offered for sale in the market. A trainer posed as a buyer and sent out word that he wanted to purchase a radio. He was soon approached by a person offering a radio for sale at a price three times higher than that paid by WUP. The trainer asked the seller to accompany him to pick up money but instead took him to the police station, where he was questioned. The seller told the police he had received the radio from a fieldworker. The seller was held in jail for several days and the fieldworker did not appear again at training sessions in his district.

One man attending an RLG meeting, however, thanked WEFH staff for giving his wife, a CWO, a radio. He told them how proud he was that his wife had been chosen to work on the programme. The recognition, he said, had made her an important person in their village.

Summary

The Radio Learning Group campaign was originally conceived as a separate programme, operating independently of the Group Extension Programme. The merits of these two models were debated in the RLG Feasibility Study with the aim of assessing which was more viable. After the Group Extension Programme had been piloted and a first mass programme launched, it became clear that certain aspects of the Group Extension Programme could be strengthened by incorporating radio as part of the teaching strategy. Radio could provide high quality and consistent information directly to villagers; moreover, the RLG meeting format could be an extension or refinement of the existing educational meetings conducted under the Group Extension Programme. The RLG

format made it possible to create a sustained educational process with a consistent audience of group members who would be expected to attend each week.

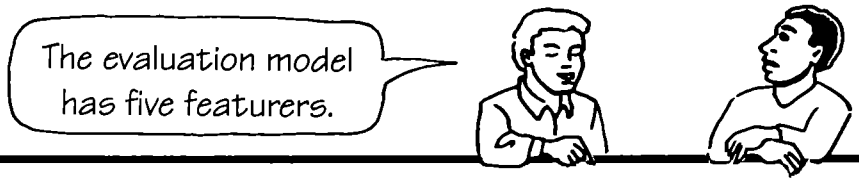
Combining the two models worked well. Radio made up for some of the limitations of CWOs conducting village education meetings on their own and ensured that the correct information reached villagers. In the Group Extension Programme, information was transferred through a chain of communication links — WEFH to trainers to CWOs to villagers — and the message could be diluted or altered in the process.

Although not planned, the delayed startup of the RLG campaign proved to be an advantage. The Group Extension Programme created the mass organization needed for the RLG campaign — the most difficult task. It also provided the skill, training and experience CWOs would need to run RLG meetings.

Monitoring and Evaluation

The presence of an inhouse Monitoring and Evaluation Unit has been one of the strengths of the WUP programme. A steady stream of findings on such crucial issues as tariff performance, the proportion of women CWOs, the teaching of SSM, the effectiveness of fieldworker and CWO training, and pump site development have helped to shape and guide the education programme.

The overall thrust of the monitoring and evaluation has been to provide data to help WEFH make decisions on the organization and content of the education programme. Early on, the M&E Unit introduced an evaluation planning model.



1. **"programme potential": assessing the potential of a specific strategy or approach;**
2. **"proper recipient identification": making clear choices about the target group for the education programme;**
3. **"provider compliance": testing the effectiveness of the programme implementers — the field workers and CWOs — and the competence and capacity of each link in the communication chain to teach the messages;**
4. **"recipient compliance": assessing the impact on the target population — the pump communities; and,**
5. **coverage — determining how many people and communities were reached using a particular education strategy.**

The evaluation model was the basis for reaching an agreement with CIDA that the impact of the education programme should be measured in terms of knowledge gained by the target audience, rather than by changes in the health status of the general population (which may take many years to measure).

Assessing the Impact of the 1986 Pilot Campaign

The first major activity of the M&E Unit was the evaluation of the 1986 Pilot Education Campaign. Twenty-five fieldworkers were trained to teach four specific health messages: causes and prevention of diarrhoea, preparation of ORT, causes and prevention of malaria, and causes and prevention of schistosomiasis. At the end of their training they had several lesson plans at their disposal. Each fieldworker was assigned four communities and asked to conduct a series of educational meetings over a 13-week period.

The aim of the pilot was to test the "programme potential" of an approach that utilizes fieldworkers by assessing the learning impact on the pump communities. The assessment of the knowledge gained was based on a pre- and post-intervention survey. Pump sites in the pilot areas — Lawra District, Upper West and Bawku District, Upper East — were randomly divided into intervention and control locations. The intervention locations were those where fieldworkers conducted educational meetings. At the control locations, no educational intervention was made.

The evaluation design required that respondents be seen on two separate occasions, once before the start of education activities and once afterward. Each respondent provided baseline information before the campaign. The same questionnaire was administered after the campaign. This allowed the calculation of net differences in a number of

measurable attributes, while the presence of a control group provided an external comparison for estimating changes that occurred independently of the education intervention.

Fieldworkers involved in conducting the community education sessions collected the data. They were given five days of training in random sampling procedures, questionnaire translation, interviewing techniques and data analysis.

The M&E Unit knew that using fieldworkers to collect data evaluating their own work could lead to a favourable reporting of outcomes. However, in a society with a high illiteracy rate, it was largely a question of using available resources.

In the final analyis, 253 respondents (116 in the control group and 137 in the intervention group) from 38 pump communities were included in the survey.

Before the intervention the following observations were made:

- Oral Rehydration Therapy (ORT): Although 70 percent of respondents had heard of ORT, only a small number (9.2 percent) realized that it is the preferred method for treating diarrhoea.
- Diarrhoea: Causes and prevention strategies were well known by the sample, as was the fact that flies transmit illness. From this, it was concluded that other barriers besides lack of understanding must inhibit the use of proper diarrhoea prevention strategies.
- Malaria: Treatment for malaria was well known (by 75 percent of respondents), but relatively few (38 percent) were aware of the mosquito's role in transmitting the disease.

- Guinea Worm: Few of those interviewed knew about guinea worm — its causes, treatment and prevention.
- Schistosomiasis: This was the most poorly understood of the four target diseases in the pilot programme.

After the intervention the data showed that:

- 27 percent of respondents in the intervention group reported having attended an education session;
- beforehand, respondents were capable — on average — of providing correct answers to seven of the 15 technical questions; afterwards respondents in the intervention group could provide — on average — two to three additional correct responses; and,
- the intervention group gained more knowledge than the control group; in fact, they improved their knowledge by 28.3 percent.

In terms of the evaluation technique, problems were encountered in tracing respondents for the post-intervention interviews; in fact, 217 respondents could not be traced. This, coupled with the fact that 80 questionnaires were incorrectly completed, meant that the usable sample was limited to 470 cases. The relatively small sample led in turn to some problems with data analysis. Moreover, it was not always possible to obtain statistically significant results.

Despite methodological difficulties, the evaluation results did have some influence on the WEFH programme. The data provided some "indicators" on effectiveness and, in some respects, the evaluation results

were encouraging: they suggested that — at least in the short term — the WEFH education strategy could influence knowledge levels on specific issues. For the WEFH team, this was a positive stimulant.

ORT Randomized Trial

The evaluation of the pilot programme had looked at the influence of the education programme on the use of Oral Rehydration Therapy. The M&E Unit concluded that "WEFH had no substantial effect on whether or not people used ORT". Yet an important objective of the WEFH programme was to teach ORT skills to village women. The Project Review and Redesign specified that WEFH should aim to reduce the lack of knowledge about the prevention and treatment of dehydration — and the consequent inappropriate behaviour — by one-third.

The pilot prompted a closer examination of how ORT should be taught to rural women. The M&E Unit posed a basic research question:

> **Can at least 25 percent of volunteer village women who are taught on a one-to-one basis by trained government extension workers learn to prepare ORT in the manner prescribed by the WEFH programme?**

The aim was to test the "programme potential" for introducing sugar-salt mixture (SSM) — rather than a commercial ORS package — as the method for ORT. The trial was intended to assess whether it was possible to teach villagers the use of SSM before WEFH introduced it on a large scale.

The method chosen was a randomized trial to assess the "best possible teaching situation". The M&E Unit proposed a one-to-one rather than a group teaching situation. It was argued that if SSM could not be taught under the "best possible" situation, then it certainly could not be taught under less than ideal circumstances. If this proved to be the case then another educational approach would have to be worked out.

In the trial there were two comparison groups. Members of the experimental group received instruction on ORT preparations; members of the control group received instruction on matters related to the pump site. Twice as many people were placed in the experimental group as in the control group.

Only adult women with at least one child under the age of five were eligible for inclusion in the trial. Women with prior knowledge of ORT or pump site development issues, and women who were likely to travel away from their homes, were not accepted.

To act as trainers in this trial, 40 government fieldworkers were recruited and trained at a three-day workshop. They were taught ORT preparation skills and given instructions on the trial protocol. Each fieldworker was asked to make six home visits and, at each visit, to open one envelope in a sequence of six numbered envelopes to determine which topic to teach on that occasion. Upon completion of the one-to-one teaching sessions, the fieldworker was asked to declare on the volunteer registration form whether or not the women had learned the lesson. Each volunteer woman was visited a second time, approximately six weeks after the training session, when her knowledge of dehydration and her ability to prepare SSM were assessed. Four trained, independent assessors were used for this task.

The M&E Unit had learned from its earlier experience in the pilot programme evaluation. By including a "travel clause" in the volunteer recruitment criteria, by using only four assessors, and by mounting a well coordinated field exercise, only eight women out of 216 were not traced in the follow-up.

At the time of the second visit, women were asked about diarrhoea and ORT. For example, did they know that dehydration was a consequence of diarrhoea? In the control group less than half the women (32 women or 46.6 percent) answered correctly. Amongst those taught ORT, more than two thirds (88 women or 67.8 percent) knew the answer. Note that the proportions are statistically different, suggesting that such differences between groups are unlikely to have resulted from chance alone.

The women were also asked what treatment should be given to a child with diarrhoea. In the control group, almost half did not state that ORT was the treatment of choice. In the ORT group, on the other hand, 119 of the 138 women stated that ORT should be given to children with diarrhoea.

Since the primary purpose of the trial was to test the potential of teaching village women how to prepare a sugar-salt mixture, at the second visit any woman claiming to know how to make SSM was given the opportunity to demonstrate her skill. Volumes of water, sugar and salt drawn by the volunteers were measured as being too little, correct or too much according to WHO recommendations.

The trial was designed to test the hypothesis that 25 percent of village women who are taught SSM would correctly prepare the mixture. This proved to be false. Less than five percent of the ORT group were able to prepare the mixture with all three volumes correct.

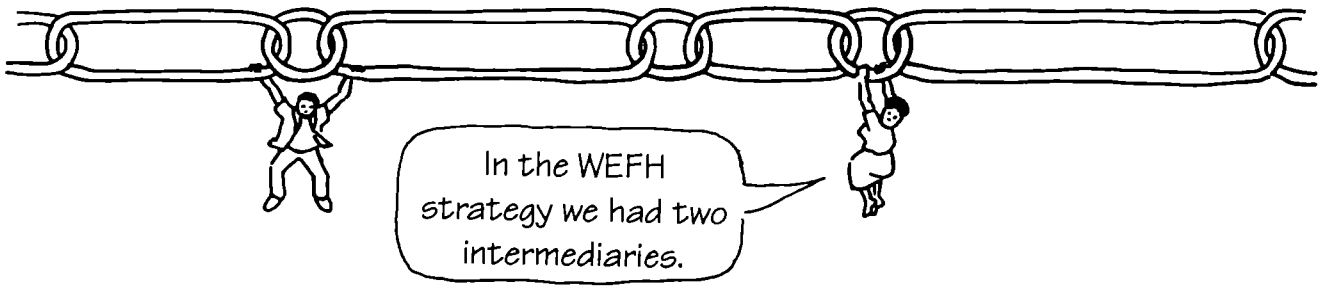
A larger proportion of the ORT group attempted to make SSM than did members of the control group, and almost 70 percent could correctly measure one or more volumes. Thirty percent of the ORT group either claimed not to know how to make SSM, or failed to measure any of the three volumes correctly.

One incidental but important piece of information from the trial was that sugar was not commonly stored in the homes of the village women visited. The assessment did not include a question on the availability of sugar in the home but it was a common topic of discussion among assessors. Until this point, WEFH had considered ORT to be a home-based treatment for diarrhoea. The absence of sugar in the home meant that this assumption was wrong.

Given the poor success rate in mixing SSM, the evaluation concluded that WEFH should not ask community-based workers to teach SSM preparation to other villagers. Rather, WEFH should capitalize on its ability to convey specific messages and place more emphasis on teaching:

- the role of dehydration as a consequence of diarrhoea;
- signs and symptoms of diarrhoea;
- the fact that ORT is not a cure for diarrhoea, but rather a treatment for dehydration;
- the task of replacing other commonly used treatments for diarrhoea with ORT; and,
- the importance of continued breast-feeding during bouts of diarrhoea.

The M&E Unit argued that the WEFH strategy had been tested "under better-than-average conditions", with only one intermediary (a literate, trained fieldworker) between WEFH and village women and using a one-to-one teaching session.



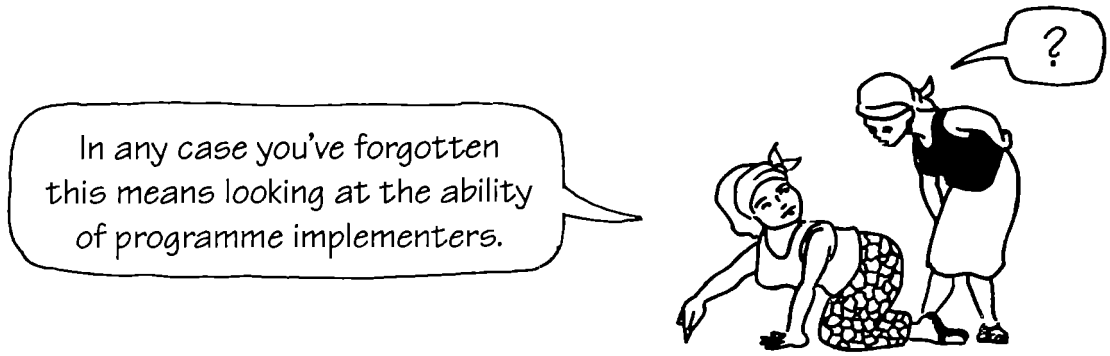
This strategy, M&E argued, was likely to diffuse messages as they passed down the lines of communication.

A later evaluation of CWO training suggested that this argument was not valid. Follow-up of 56 CWOs who attended a three-day training course, conducted by a district team, showed that 90 percent could prepare SSM with no errors or only one error, and that 66 percent could measure all three volumes of the mixture within the prescribed limits.

There were obvious flaws in the evaluation methodology. Compared to WEFH's education strategy there were substantial differences in the trial — differences which overlooked some of the basic educational principles being used by the adult education team. For instance, in the randomized trial the fieldworkers were given very little training in educational techniques. Nonetheless the trial was instrumental in helping WEFH focus its educational messages and formulate an ORT strategy.

The Trial Training of Community Water Organizers

After the village education trial, the M&E Unit looked at the effectiveness of the CWO training. WEFH organized a pilot workshop for CWOs at Babile in October 1987. The pilot workshop was intended to test the proposed training methodology and content, as well as the competence of the CWOs to teach the subject matter, before extending this type of training to other communities in the Upper East and West Regions.



This assessment of "provider compliance" was intended to determine the CWO's knowledge of:

- their functions;
- the features of a pump site;
- dehydration as the result of diarrhoea;
- the degree of transfer of SSM skills to the CWOs; and,
- the causes and prevention of malaria; and to assess:
- the actions taken by the CWOs after training to improve their pump sites and educate the community on health topics.

A total of 56 CWOs from 31 pump sites attended the training workshop. They were trained to do five tasks:

- inspect pumps;
- report on pump faults;
- educate the community on water-related diseases;
- educate and organize the community for tariff collection; and,
- organize the community to improve their pump sites.

The CWOs were expected to carry out some educational activities when they returned to their villages.

For the purposes of the evaluation it was decided to interview as many CWOs as could be located in the field. In the end 50 CWOs were interviewed six weeks after their training. A standard questionnaire with closed and open-ended questions was used in interviews done on a one-to-one basis.

An important element in the assessment was the rating of pump sites using a Pump Site Score Card. Ideally, the Pump Site Score Card should have been used to rate the quality of pump sites before the training as well as after to allow assessment of relative improvements; however, it was not.

This weakness in the research design meant that it was not possible to assess knowledge gain, or to measure improvements made to pump sites. Only a measure of absolute knowledge at the time of assesssment could be made.

The evaluation data showed that:

Duties of the CWO. No CWO was completely ill-informed about her or his duties. More than 80 percent of those interviewed could list at least three tasks. Pump site development, pump inspection and fault reporting were best known; tariff collection was least known.

Features of a Pump Site. CWOs were taught about the good features of a pump site: pad protection, drainage and site cleanliness. Each CWO was asked to describe the features of a pump site. Less than 20 percent mentioned all three features; more than half mentioned two. One quarter of CWOs mentioned only one feature.

The Pump Site Score Card was used to rate the quality of each pump site. A total of 22 pump sites were rated. Only two sites were found to be in "excellent" condition, while five were rated as "good". At the two "excellent" sites, CWOs had organized the community to make extensive improvements using local materials.

There were few other clear indications of positive action. However, the rating was done in the busy harvest season, which may have prevented villagers from undertaking such activities. To overcome this methodological constraint, the pump sites were revisited two months later, at which time very little additional improvement had occurred.

Malaria. The evaluation revealed an improvement in knowledge of the causes and prevention of malaria. Thirty-nine out of 50 respondents knew about the cause of malaria, where mosquitoes breed, and how to fight malaria by draining breeding sites.

Diarrhoea. All CWOs knew of SSM as the treatment of choice for diarrhoea, but only 15 (30 percent) knew that SSM was used to replace body fluids and thereby prevent dehydration; 33 of the CWOs (66 percent) could prepare the SSM correctly.

The evaluation showed that CWOs were well-informed about the causes and prevention of malaria, but did not report having taken any actions to prevent mosquito breeding. The M&E Unit, in fact, questioned the practical value of education about the causes and prevention of malaria, and its impact on morbidity and mortality.

The evaluation also showed that the training had successfully taught CWOs to prepare SSM. However, it was not well known that SSM is a treatment for dehydration and not for diarrhoea. This point was given more emphasis in subsequent training courses and in WEFH's educational materials.

The training seemed to have been least effective in terms of knowledge related to pump site development, and appeared to have very little impact on actual improvement of pump sites. The M&E Unit argued that strong follow-up support and supervision after training was needed to encourage villagers to translate knowledge into action.

The survey was pivotal to the future activities of WEFH. Although the number of topics being taught to CWOs had been reduced substantially from earlier programmes, the M&E Unit argued that it was still too many. Questions were also raised about relevance. As a result, malaria was dropped as a campaign topic, and the total number of topics for the 1988-89 campaign were reduced from eight to two.

The evaluation also helped WEFH to rethink its training programme. Teaching of the content and teaching methods had been combined. The feedback indicated that this was too confusing; consequently, the training programme was revised so that CWOs were first taught the content and then how to teach it.

Pump Site Development

The 1988 education campaign focussed on pump site development, emphasizing community participation in making specific improvements to pump sites. It was expected the campaign would:

- enhance the longevity of the pumps;
- increase the convenience of using the pump;
- raise hygiene standards at the pump site; and,
- create a sense of community ownership and control of the pump site.

The M&E Unit conducted a study to assess "recipient compliance" — the impact on the pump communities.

To evaluate the impact a method of distinguishing good pump sites from poor pump sites was needed — one able to detect changes that occurred in one pump site over a period of time, with the emphasis on assessing attributes that could be altered by villagers. The first steps in developing such a method were determining the features that are important in defining pump site quality and creating a means of rating each feature. The aim was to create a simple, easy-to-use and reasonably precise measurement instrument.

It was evident from discussions within WEFH that there were many different ideas and terms used to describe good and bad pump sites, and that a more specific set of features needed to be determined. To do this the M&E Unit prepared a series of photographs of different pump sites and asked observers to rate them. Each observer was shown a photograph of a pump site that was obviously good. When the observer agreed that the pump site was good, the photograph was placed on the right-hand side of the table. Next, a photograph of a very poor pump site was passed to the observer who placed it on the left-hand side of the table. These two initial photographs provided end-points to a range of pump site quality that was established by asking the observer to place 48 more photos within the range. This process yielded a spectrum of pump site quality.

In this manner it was decided that the following four features were the most important for distinguishing good pump sites from bad pump sites:

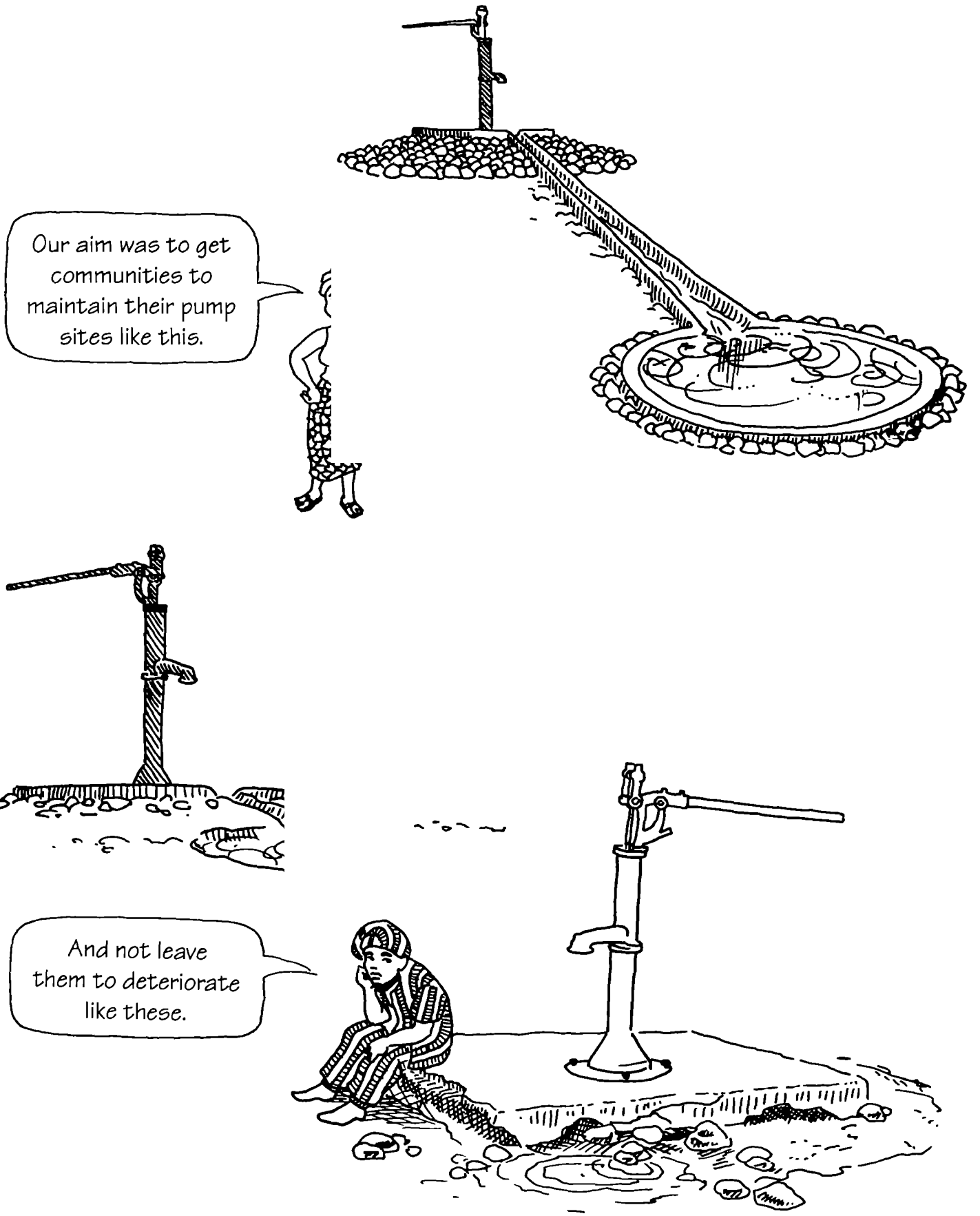
Water production:	**Sites where the pump failed to produce water, for whatever reason, were poor.**
Pad protection:	**The concrete pad providing the base for the pump had to be protected against undermining through erosion.**
Drainage:	**Spilled water had to flow far from the pump.**
Site cleanliness:	**Both the concrete pad and the area immediately surrounding the pad had to be clean.**

Once the four features were identified, criteria to distinguish different conditions within each feature were established. Emphasis was placed on considering those aspects of the pump site that villagers could be reasonably expected to alter.

Simple but specific yes/no questions were established. All features except water production were rated using the three categories of good, fair and poor.

The various categories used to describe the individual features of each pump site were combined to form the Pump Site Score Card. Each feature was given a numerical score and all the scores were combined to provide an overall rating for the pump site. The scoring system placed greatest emphasis on water production.

The Pump Site Score Card was used to measure the impact of the education on pump site development in the 1988 campaign. The research was designed so that data were collected from pump sites where CWOs were scheduled to be educated (education pump sites) and from pump sites where no CWOs were to be educated (control pump sites). Pump sites where CWOs were scheduled to be trained were scored before the training and again approximately one month after the training was completed. Control pump sites were evaluated at corresponding intervals. This approach yielded paired data to allow comparison of changes at each pump site. Inclusion of a control group made it possible to compare outcomes at education pump sites to changes that occurred in the absence of WEFH education. A total of 565 paired records were available for final analysis: 483 in the education group and 82 in the control group. This represented just under 25 percent of all pump sites in the two regions.


Our aim was to get communities to maintain their pump sites like this.
And not leave them to deteriorate like these.

Ratings taken before the training began indicated that improvements to pump site quality were required at almost all pump sites. The primary point of comparison after the training was between the education group and the control group. However, at some pump sites the CWOs did not attend training even though they were scheduled to do so. For the analysis the M&E Unit took advantage of this situation and subdivided the education group into "education with CWO", where the CWO was present, and "education without CWO".

The change was most impressive in terms of pad protection. In the education group 56 percent of all pads needing improvement were in fact improved. There was little change in the control group.

The impact of the education was, however, less striking with drainage and site cleanliness. Improvements in drainage occurred at only 15.8 percent (89) of all pump sites requiring such improvements. The rates of change for drainage were +12.4 percent in the education group and +6.5 percent in the control group. The education group where the CWOs attended training showed the best results.

Even though the rate of change on drainage was minimal the education did stimulate interest. A "good" rating required the presence of a solid gutter — constructed from either concrete or local materials. At the time, the best method of acquiring a solid gutter was to pay a fee to have GWSC construct a concrete gutter at the site.

An estimated 300 requests were made; unfortunately, GWSC was not able to meet the demand. Only 30 extended pads with concrete gutters were constructed in the two regions during 1988, just 10 percent of the number of requests received by GWSC. A major factor here was a change in policy that substantially reduced the subsidy on cement.

In a sense this reflected a weakness in both the evaluation design and the educational strategy. The M&E Unit stated that its methodology should

emphasize "assessing the attributes that could be altered by villagers". The construction of a concrete pad requiring the input of GWSC was obviously outside villagers' control. The evaluation results highlighted the need to choose educational targets carefully and to prepare to facilitate the desired effect.

On the fourth pump site feature, water production, the status was so good before training that there was little room for improvement. Most pumps produced water at the time of the initial assessment. Of those that did not at the second assessment, many failed for tariff reasons; significantly for the WEFH programme, CWOs from only 13 of those 29 pump sites attended training courses. This implies that education about tariff at the training workshops would miss an important portion of the pump sites that have already lost water because of tariff related problems.

Overall, the education was effective in bringing about improvements at the pump sites. Villagers responded well to requests to improve pad protection, probably because the task could be done at minimal cost and because it was a message that had been continually repeated from the early days of WUP.

Developing the Pump Site Score Card helped to provide a concrete measure of the effectiveness of the education campaign. But the value of the exercise went far beyond that. The exercise required careful examination of pump site development issues, which led to the establishment of the four main features of the pump site and creation of clear, objective definitions of the various states of each feature. This in turn contributed to establishing the curriculum for the education campaign. By providing criteria to assess whether or not improvements are necessary at a pump site, educators could describe the behavioural changes desired from the education in very specific terms.

Conclusion

The M&E Unit focussed its attention on conducting studies that made an immediate contribution to the development of the education strategy. The emphasis was on short-term studies that would provide information and direction to the adult education team. A lot of time was spent working with the WEFH team to help them clarify objectives and focus educational messages.

An effort was also made to test the effectiveness of specific strategies. The randomized trial prior to the 1987 pilot campaign on the teaching of ORT was one example of this.

Once it had been shown that WEFH could train fieldworkers and CWOs to an acceptable level of competence, more time was spent on assessing the impact of knowledge on the target population. In 1988, there was a large-scale study on the impact of pump site development and, in 1989, an impact study on ORS.

Information collected on the CWOs — name, gender, age, literacy — provided WEFH with information about "recipient identification" and coverage. A data bank on all CWOs was created.

The studies were designed to yield relatively quick results. At times this meant that there were methodological weaknesses and some bias in results — a fact readily acknowledged by the M&E Unit. But the contribution made by M&E to the education strategy outweighed any concerns for a more scientifically rigorous research design. Nonetheless, the M&E Unit did learn from its experience in the field and improved on its research methods. The difficulties encountered in tracing respondents in the study on the 1986 campaign, for example, were eliminated from subsequent studies by using a more select group of assessors, providing them with more thorough training and field support, and adding a "travel clause" to the selection criteria for respondents.

The focus on the effectiveness of the educational methodology in message delivery has meant that other aspects of monitoring and evaluation have received less attention. Nevertheless, the M&E unit realized the importance of assessing the longer-term impact on health and health-related behaviour in such crucial areas as the adoption of ORT as the first line of treatment for diarrhoea, or the acceptance of community responsibility for maintaining pump sites. The collection of baseline data for future evaluation of health impact began in 1989.

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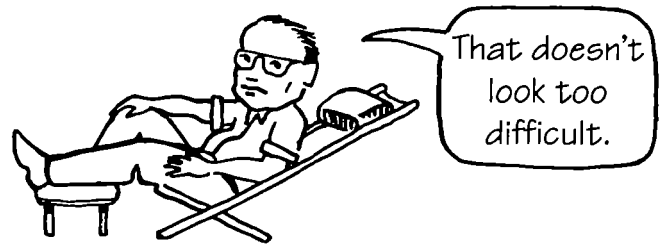
Section III

Project Management

ISSUES

There were three main components in managing the project:

- coordination;
- administration; and,
- personnel management.



These were combined with programme, finance and asset management.

Ensuring that each of these elements was managed efficiently was an essential part of achieving the project's goals.

The dynamics of introducing a technical aid programme into a fundamentally different society — with its own structures, beliefs, behaviours and perceptions — affected the style of management. The two interacting cultures — Northern Ghana and Canada — each had its own basis for measuring productivity, behaviour and perceptions. Both societies had differing expectations and aspirations, methods of assessing successes, and tolerance for change.

Coordination

Coordination was required within the project — with GWSC management, with cooperating agencies and with several external agencies.

The history of the project played a part in coordination. Prior to late 1987 WUP worked with three units — the Rural Water Supply Unit of GWSC and its own Water Education for Health, and Monitoring and Evaluation units. The organizational structure required coordination to work toward a common goal. When the Upper Region Maintenance and Stabilization Project ended and its remaining functions were transferred to a CIDA advisor working at GWSC's head office,

however, the managers and workers of RWSU continued to expect service and assistance from the project coordinator. In fact, they continue to come with urgent requests for service.

In an attempt to serve the related needs of GWSC and the RWSU, a fourth unit, Commercial Optimization, was added in 1987 but ceased to be a part of the WUP structure in 1989.

In 1990, as WUP entered a transition phase, another unit — Community Animation — was added. Its function is to help communities develop organization and decision-making capacities for the operation and management of pumps, including activities to generate income.

This history of adding and deleting units to serve local and immediate needs has increased and has complicated the work of coordination.

WUP's success in developing effective mass education methods meant that many people and agencies were interested in WUP's activities. This has had both negative and positive impacts on project coordination.

Administration

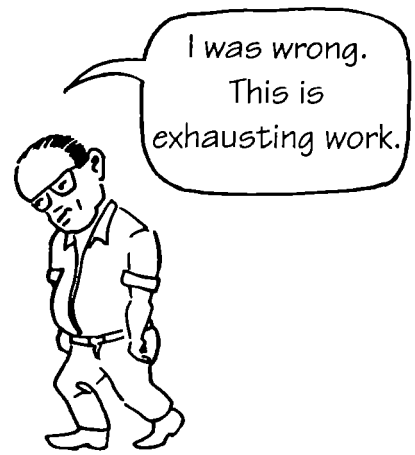
The management of resources occupied up to 60 percent of the project manager's time. This involved a variety of tasks including verifying and paying expense claims; preparing monthly and quarterly reports and annual plans; attending meetings and workshops; coordinating with partner and national agencies; ordering and procuring supplies; managing supplies and equipment; and, banking and accounting.

Changes in resources — physical, financial or human — meant adjustments in procedures. These changes were often unexpected or unplanned. They were sometimes made by people or agencies outside the project and project management therefore had to be flexible.

Coordination involved dealing with many diverse issues. In one morning, for instance, the coordinator might deal with a GWSC manager requesting a report, an advisor wanting to discuss programme ideas, a visiting consultant requiring information, an agency in Accra, a driver requesting money for spare parts, the workshop manager saying repairs to a vehicle cannot be made because there are no welding rods, an employee whose water tank has sprung a leak, or a student asking for a CIDA scholarship to go to Canada to study.

In a Canadian situation, most of these issues would be handled by support systems or other agencies; in this situation, most were handled by the coordinator. With hindsight, many of these tasks would have been assigned to a full-time administrative officer.

Logistical support in an environment where services and maintenance are not well-developed was difficult — at times it seemed that if anything could go wrong it would. Problems related to vehicles, procurement and movement of supplies, the slowness of communications to and from head office, production of material for programmes, and maintenance of basic housing standards were particularly frustrating for the project coordinator.



The flow of money to finance the various aspects of the programme, getting the required resources in the right place at the right time and maintaining vehicles — combined with communication demands, record-keeping and fiscal accounting — were all tasks that had to be managed.

Personnel Management

Personnel management, particularly with regard to the welfare of the Canadian advisors, was the most difficult aspect of project management. The turnover of advisors meant that the team was constantly changing. New advisors brought new skills and new ideas that had to be integrated into a team operation that included both Ghanaian and Canadian personnel, and into the framework of an ongoing programme. They, and their families, also had differing demands and needs.

The extreme environmental conditions had a substantial impact on expatriate families. Advisors responded differently to the climate, poor communication, housing and social conditions, and the Ghanaian cultural situation. Many found the fact that work and family life were not separated stressful.

Concerns about their health and the quality of health services, long periods without communication with home, and personal and job needs all had to be dealt with. Such concerns often affected interpersonal relationships at work and at home. The personal nature of these issues and individual reactions made personnel management very strenuous.

The Cross-cultural Environment

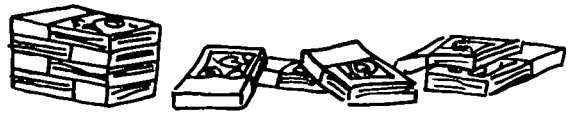
Programme management occured in an environment very different from that in which the advisors were educated and trained. The dynamics of managing across cultures and the implications were present constantly.

Although Ghana is officially English-speaking, English was not understood or spoken by the majority of the villagers the project worked with. Programmes had to be delivered in six languages. The counterparts spoke or understood most of the languages of the regions. These language differences created many difficulties in the administration of policies and procedures, and frequently in giving and understanding instructions.

Environmental conditions frequently caused illnesses among the advisors, affecting work and attitude.

Administrative requirements within the system sometimes created differences or tension among project staff. For instance, the Government of Ghana has policies governing the use of vehicles after work hours, on weekends and on holidays. However, the project vehicles could be used by the advisors at those times on payment of a monthly fee. This policy was not well understood by other government organizations and local staff often raised this issue, asking why they could not have the same benefits.

Financial Management



The requirements of financial administration created considerable work and much anxiety. The dynamic nature of the programme combined with continually rising costs meant that budgeting was very difficult. The project used a consolidated accounting practice. This permitted easy movement of funds from one area to another; it also meant that units never knew what monies were available to them.

Foreign exchange considerations forced the project to keep funds readily available, and an account was maintained in Burkina Faso. Funding was also managed by the executing agency in Canada. CIDA approved and paid for major purchases, moving the funds to the project through the Canadian High Commission in Ghana. These many funding sources meant that the project coordinator had little knowledge of total funds available. Moreover, working in two currencies meant accounting in two currencies.

The pattern of fiscal management on site was not much different than for other projects. However, inconsistent communication, the uneven fiscal demands of the project, unpredictable expenses owing to equipment failure or damage, and the fact that the coordinator did the book-keeping, accounting and banking complicated fiscal management. Delays in transferring money consistently created cash flow problems, causing difficulties during periods of high cash requirements.

Asset Management

Management of equipment and supplies in an area where services are not well developped, where technical skills are often lacking, and where supplies are difficult to get was often frustrating. The purchase of spare parts and supplies abroad was subject to freight carriers' work patterns, problems clearing cusoms and transportation.

Maintaining the vehicle fleet was difficult because the service system was underdeveloped. As well, many of the staff and drivers were indifferent toward preventive maintenance. In a project where transport was essential, maintaining the vehicles was a priority.

The Lessons Learned

In some ways, the management structure of WUP has been the least responsive to the changing situation. Some of the administrative load might have been shared with a Ghanaian administrator. This would have been a step towards local management and a Ghanaian familiar with the situation might have found such tasks as vehicle maintenance less cumbersome.

Several other, more immediate, lessons can be learned from this project:

- administrative systems and procedures should be developed at the very beginning. Building them on the run is time-consuming, costly and results in taking short cuts;
- vehicles are the lifeline. It should not be assumed that local maintenance and service is adequate. It may in fact be necessary to develop a sophisticated system (regardless of cost) to ensure preventive maintenance and repairs are done adequately;
- computer programmes should be standard commercial programmes rather than customized programmes. The person in charge of computers must be able to manage, maintain and operate the programmes. Because of the conditions under which the project functions, this person must be computer-literate;
- each new staff member should have a structured, on-site, on-the-job orientation to the project;
- every employee should complete end-of-contract handover notes to help incoming members;

- it is critical to have an overlap between departing and incoming staff; and,
- although this was primarily an education project, the team should have included a technical person who could solve vehicle problems, housing and related matters.

For the project manager it is important to protect personal and job time vigorously. Daily attention to the frontline issues robs the manager of time to plan, monitor, report and maintain liaison with other agencies.

COUNTERPART DEVELOPMENT

The sustainability of the Water Utilization Project is, in part, linked to the professional development of its Ghanaian counterparts. Their ability to maintain and further develop programme activities as Canadian advisory support is phased out will be a factor in determining whether WUP's achievements can be sustained.

WUP's experience with hand pump maintenance provides an example of what can be achieved with appropriate institutional support. Canadian advisory support to the Rural Water Supply Unit began in 1983. By June 1988, the last advisor had been phased out and the RWSU placed under the supervision of GWSC and manned by Ghanaian staff, although CIDA continues to provide financial assistance to purchase spare parts.

Two years after the phasing out of Canadian advisory support, the RWSU was able to keep approximately 90 percent of the hand pumps functioning at any one time. This standard compared favourably with what was achieved during the 1983-88 period. Through on-the-job training and regular supervision of job performance, Ghanaian counterparts in the RWSU acquired the skills and commitment to maintain the standards set with Canadian support.

In the case of WEFH, the 1986 Review and Redesign Report noted that the goal of counterpart development "is to develop a group of Ghanaian staff capable of planning, organizing and managing the WEFH strategy by 1988."

But training counterparts was often given low priority within WEFH's operations, especially during periods of intensive programming, when counterparts were learning new skills "on the run".

However, training did take place. During WEFH's four years of operation, there were three different approaches to counterpart training:

- on-the-job training;
- inhouse staff training; and,
- short courses originated by other agencies.

The nine-person Ghanaian counterpart staff of WEFH and the Monitoring and Evaluation Unit — four of them women — have all received on-the-job training and participated in adult education and management training.

In the early days, advisors provided much of the leadership and worked with the counterparts to develop their skills and confidence. Since the inception of the education programme, counterparts have taken an increasing share in the day-to-day planning and running of the programme.

While several of the WEFH counterparts were experienced trainers, they were less familiar with interactive training methods. To broaden their skills, they participated in training workshops on interactive training methods. During the 1987 and 1988 campaigns, counterparts acted as participants-cum-trainers at the fieldworker training courses. More recently, they took responsibility for organizing and leading these training events.

Counterparts also received on-the-job training in the technical aspects of monitoring and evaluation and the M&E Unit counterparts were taught basic computer skills. Trainees in the Radio and Material Production Unit acquired skills in research and interviewing, recording, writing, editing, dubbing, mixing and packaging through a series of short workshops.

But counterparts argued for more structured training that would be formally recognized and contribute to their career development prospects. The counterparts and fieldworkers involved in WEFH's mass training generally did not have access or the means to attend university or professional development courses.

WUP ran an inservice course in January 1989, aimed at improving the adult education skills of participants. Most of those involved had had basic professional training. However, they had not had the opportunity to learn about the theory of adult education and the technologies of extension work.

All WUP counterparts and fieldworkers involved in the mass education programme could apply. Those who showed the greatest potential as trainers were accepted. Fifty participants registered for the course — 25 from the Upper East and 25 from the Upper West — representing 11 departments and agencies. The course was a morale booster and appeared to have a positive impact on the professional abilities of the participants.

In an attempt to systematize the training and respond to the specific needs of individuals, WEFH set up a training team and conducted a skills inventory survey. Information from the survey was provided to the organizers of the leadership course so that they could deal more directly with the counterparts' training needs.

As the second phase of WUP came to an end, the management of the project and who should do it became a major topic of discussion. At a CIDA-sponsored workshop in October 1989 to review WUP and look at future developments, a recommendation was made to actively move counterparts into a decision-making role. Advisors endeavoured to take more of a "back-seat" position, letting counterparts take the lead in liaison with other agencies, planning schedules and allocating resources. This change in roles was supported by inservice management training, including a two-day course on work planning.

Efforts have been made to support the professional development of the project's Ghanaian staff. Canadian advisors with academic credentials and broad practical experience were successful in imparting their skills and knowledge. Yet the rising expectations of the counterparts have not been fully met. Increasingly, as their skills and confidence develop, they have asked that this training contribute toward their career prospects within WUP and their own parent agencies. In the context of Ghana, this means certified training.

The plan to link WUP's inservice course with certification by the Institute of Adult Education did not materialize, partly because there was not enough lead time to discuss and negotiate the arrangement with the institute. Certification, however, still remains an issue for the counterparts — and will be an issue in any future development of WUP.

SECTION IV

Reflections

LESSONS LEARNED

The focus of the Water Utilization Project has been social change, and the experience of this project reinforces one of the most significant lessons of the past Water Decade: social change does not automatically occur as a result of a technical input like the installation of hand pumps. Development efforts aimed at improving the quality of life cannot be divorced from appropriate education and a well thought-out communications strategy. It is now well-recognized that education should be part of the total strategy for social change and should complement, if not precede, the technological changes. WUP's experience shows that the goal of "improving the health and productive capacity" would to a large extent have remained unmet if the Water Education for Health programme had not been added to the project.

This, of course, is not a new lesson. Yet the experience does serve to emphasize the importance of education and communication in the development of water resources for the urban and rural poor. It also highlights the importance of including an educational communications strategy in the early stages of project planning — and recognizing as well that education takes time and resources. This should be considered in the conception and planning of future water and sanitation projects.

The educational strategy employed in WUP was most effective when basic adult and community education principles were adhered to. The "tried and tested" principles, once applied, have proved sound. The Review and Redesign Mission outlined these operational principles.

Some Operational Principles

- a narrow focus with a limited number of topics and messages;
- aimed at building awareness and at related achievable behaviour change;
- using interactive, learner-centred educational methods;
- based on an approach that involves community participation;
- employing an experimental and phased approach, starting with small pilot projects and expanding to a mass programme;
- linking mass coverage with a high quality programme; and,
- using formative evaluation to improve programme design.

The WUP experience demonstrates that an inhouse Monitoring and Evaluation Unit can play an important role in shaping and maximizing the outcome of an educational strategy. The M&E Unit's work on message design and on testing the effectiveness of each link in the communication chain led to changes in the educational strategy that, in turn, increased the impact of the education. Without the benefits that come from monitoring and evaluation, the water and health education activities would not have been as effective.

Recognizing the importance of interagency collaboration was a key factor in the success of the mass campaigns. While the various planning missions noted the need for such cooperation, it was neglected in the earlier educational efforts. The project's strategy on interagency collaboration worked because:

- they took time to develop both formal and informal links and to make other agencies and individuals feel part of the overall strategy; and,
- they developed clear roles and responsibilities, and trained people to do these tasks.

What needs to be recognized and built into project planning is that it takes time to develop and establish such a working partnership.

Counterpart development and training is important for project sustainability. While this was recognized by the Review and Redesign Mission, it was not given enough attention. Much of the counterpart training was done on an ad hoc basis and, in the final analysis, was not done adequately. Counterpart development needs to be a planned and scheduled project activity.

FUTURE DIRECTIONS

Has the Water Utilization Project been a success? An evaluation in June, 1990 pointed to some notable achievements:

- a high proportion of pumps were delivering safe water; compared to other, similar projects, the percentage was remarkably high.
- the project had built a network of 5,000 Community Water Organizers at more than 2,500 pump sites.
- the knowledge of the linkage between safe water and water-borne disease had increased and there was some evidence of health improvement.
- a start had been made on effective inter-Agency cooperation in water and health promotion activities.

It was noted that none of this would have been possible, if the funding Agency had not made a long-term committment to the people of the Upper Regions. The skilled Canadian and Ghanaian team and the Canadian contractor, Wardrop Engineering, had been given the time to build a solid village-based educational structure and to experiment over a period of years, to arrive at a winning educational and communication strategy.

At the same time, it had to be recognized that the project was not entirely sustainable in its current form. The handpumps could only be maintained by a centralized team of skilled mechanics, with adequate transport and backup systems. All handpump parts had to be imported.

And the annual WEFH campaigns were essentially designed by a team of Canadian and Ghanaian advisors hired and supported by the project. While Regional Advisory Committees had been formed, little attempt was made to involve representatives of line departments in WUP decision-making.

In considering a possible extension to the project, CIDA decided to address some of these issues in the last two years of the existing project. The findings of a participatory "think tank" of project participants had pointed the way. It recommended that much greater attention be paid to training and developing Ghanaian staff, and that leadership positions be handed over to Ghanaians. Also, the inter-Agency network should be strengthened and given more say in the project decisions.

Great progress had been made by the international community in developing a handpump which can be managed and maintained by villagers themselves. This raised an intriguing possibility:

Why not replace the present handpumps, which would soon need frequent repairs, with these new models? The village-level organization could be strengthened, based upon the two Community Water Organizers. Villages could take ownership of the new pump and collect sufficient funds to buy spare parts and to pay the salary of a village-based pump caretaker and repair-person. Perhaps, additional funds could be generated for other activities, such as subsidizing the cost of family latrines. In this way, their dependence upon outside support would be lessened.

Also, as some pockets of the the population had not been covered by the first project, additional water sources could be provided. Why not try hand-dug wells, if the water table permitted, with villagers providing some of the labour. The initial cost would be much less. And this would be in line with current thinking that villagers should have the type of water system they want and can afford.

It was recognized that health promotion and education efforts would need to be continued, if behavior changes in health-related habits were to become ingrained. Who could carry on these efforts?

This raised the question of an appropriate home for WUP-III. Should it remain with GWSC? Was there a line ministry which could take on the entire responsibility? What about emerging regional and district government structures? Could NGOs and the private sector play a stronger role in water and health?

These questions will be addressed in the larger context of cooperation between Ghana and Canada. A new project has begun to rehabilitate urban and peri-urban water systems in the Upper and Northern Regions. Another rural development project in the Northern Region (Norrip) is starting from scratch to drill 350 boreholes equipped with handpumps. Lessons learned in WUP have already been integrated in project design and the experience of this project will recycled into any extention to WUP.

Furthermore, the Government of Canada is helping Ghana to solve its major debt problems, and to develop a poverty alleviation strategy which may go some way toward improving the productive base of the Upper Regions' economy.

We hope you have found this detailed case study useful. If you are involved in community development, you will know that case studies can provide useful ideas and some direction in your own projects. But it is essential that these findings be **adapted not adopted**. Each project evolves within its own cultural, social and economic environment. And that environment changes continually; during the life of this project, new factors influenced people's life in the Upper Regions of Ghana. Thanks to the efforts of the Government of Ghana, the economic situation improved. More consumer goods became available; roads were upgraded, giving people easier access to their market towns. Radio was introduced, bringing new ideas and, inevitably, heightened expectations of improvements in daily life. We hope the project evolved with these changes, and will continue to do so.

The writers, Ghanaian and Canadian, who have lived the reality of the Water Utilization Project for so many years, wish you every success in this exciting process called "development".

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