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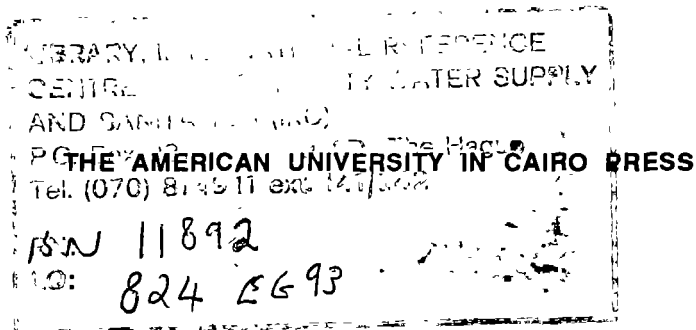
# CAIRO PAPERS IN SOCIAL SCIENCE

Volume 16, Monograph 2, Summer 1993

## THE EMPOWERMENT OF WOMEN: WATER AND SANITATION INITIATIVES IN RURAL EGYPT

By

SAMIHA EL KATSHA  
SUSAN WATTS



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The research team consisted of the following staff of the Social Research Center, American University in Cairo: Samiha el Katsha, principal investigator, a social anthropologist; Awatif Younis and Esmat Kheir, sociologists; Hanan Sabea, anthropologist; Fikri Abdel el Wahab, operations manager. Dr. Kamilia Mohamed Salem from El Azhar University, Department of Public Health, was also part of the team. Two consultants assisted the team throughout the project; Dr. Mofida Kamal, health education and training specialist, from the High Institute of Public Health, Alexandria; and Mrs. Marie Assaad, specialist in development and group dynamics. Dr. Mohamed Fadel was the consulting sanitary engineer for the project. The monograph was written by Susan Watts, a geographer at the Social Research Center, using material presented in the project reports.

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May 1993



# CHAPTER ONE

## INTRODUCTION: WATER AND SANITATION IN THE 1990s

### **The Research Project**

In Egypt, a country which has long been recognized as the gift of the Nile, the provision of clean potable water and adequate drainage and sanitation facilities are important elements of all health programs. This research project reported in this monograph explored ways of improving water and sanitation conditions in two villages in the Nile delta. The main objective of the research project was to test various innovative participatory approaches to improving health and sanitation at the village level. The researchers explored various ways of involving local people in the planning and implementation of improvements in water, sanitation and drainage, and tested various models of environmental health education. The project sought to empower local people, especially women, by encouraging their participation in the decision-making process, and their leadership in health education and community activism. The project also identified the government bodies responsible for the promotion of issues related to health and sanitation so that proposed interventions could be channeled through existing administrative structures and villagers could be familiarized with the steps necessary to achieve the needed changes.

The project was designed so it could be replicated in other settings. Thus the research findings, and recommended strategies to improve facilities and develop a health education program, were presented in such a way that they could be shared with other concerned local and national bodies.

The first chapter presents an overview of water and sanitation interventions in general in the context of the United Nations Health and Sanitation Decade. It then turns to the special nature of the problem in Egypt and the role of rural women in health and sanitation. It concludes with an examination of our research orientation and methodology. The second chapter describes the two study villages in Menoufia Governorate in the Nile Delta. The third describes in some detail the processes involved in water and sanitation interventions; the interaction between the research team, villagers, local formal and informal leaders, Village Councils and local administration. The fourth chapter examines the concurrent hygiene education program established in the two study villages. The last chapter draws some general lessons from this experience.

The research team in this action research project worked in partnership with the villagers, facilitating the provision of appropriate interventions. This approach is thus somewhat different from conventional social research, in

which researchers observe and remain detached. It is particularly appropriate for applied research, in that it identifies the knowledge, perceptions and needs of local people, and harnesses these to the task of identifying and implementing projects, and carrying out effective hygiene education. The processes and results of activities are thoroughly documented, and supporting data collected carefully and assessed rigorously, fully within the social science tradition.

The action research approach, with its focus on facilitating community participation for change, mirrors the changing awareness of planners at the local, national and international level. Over the past decade they have radically revised their perceptions of how effective interventions in water and sanitation should be carried out, and recognized the importance of social and cultural factors in water and sanitation development. Hence, social scientists should now be partners with planners and engineers, as well as local people, in the important task of ensuring that water and sanitation interventions provide the maximum benefits to local people

### **Benefits of Improved Water and Sanitation**

Safe water and sanitation are vital to the health of people everywhere. In developing countries, about eighty per cent of all disease/illness is related in one way or another to water. Unprotected water supplies and inadequate sanitation are related to many diseases--for example, diarrheal diseases (the major cause of child death in poor countries), schistosomiasis, guinea worm, hookworm, and eye diseases such as trachoma (Feachem 1984). Improving the quality, accessibility and availability of rural water supplies also enhances rural wellbeing. One immediate, widely appreciated benefit may be that women and children do not have to spend many hours a day collecting water, and are no longer exposed to polluted water sources.

### **Lessons of the UN Water Decade**

The United Nations International Drinking Water Supply and Sanitation Decade, 1981-1990, highlighted the importance of water and sanitation and set the goal of "water and sanitation for all". The international recognition given to the fact that in 1980 almost two thirds of the population of developing countries were without ample and safe water supplies, and over three-quarters without any sanitation facilities, put water and sanitation on the political agenda. The concern for training, community participation, and small-scale appropriate technology, articulated at the beginning of the decade also recognized that the provision of water and sanitation was a human, rather than purely technical problem (Bourne 1984).

By the middle of the Decade, planners and researchers recognized that many water and sanitation schemes had failed due to the lack of effective participation by women, the main users of water. They asked how women's knowledge, roles, decision-making and leadership capacities could be incorporated into water and sanitation programs, and what were the implications of women's responsibility for household water and sanitation for project development in the local setting (Roark 1984; Elmendorf and Isely 1981).

The involvement of all members of the community, women and men, in all stages of water and sanitation programs was also recognized as the key to sustainability. Planners and researchers started to seek ways to involve all community members, especially women, at every stage of the project (van Wijk-Sijbesma 1985). For a project will continue to be viable only so long as the intended beneficiaries recognize its value, help to design the services, and utilize and maintain them.

During the Water Decade it also became clear that having access to potable water did not automatically improve health status, and that there was a greater need to address sanitation problems (Bourne 1984). These had been neglected during the Decade in spite of the fact that many of the technical problems posed by the disposal of human wastes in poor, densely settled communities have now been solved (Cairncross 1989). To achieve a reduction in the transmission of water and excreta related infection, programs need to be carefully designed in order to integrate water quality improvements, sanitation, and hygiene education (Feachem 1984).

Sanitation was also defined more broadly to include a number of interrelated environmental elements; sillage and solid waste disposal and measures to improve surface and subsurface drainage by lowering the ground water table, as well as human excreta disposal. This broad definition is especially relevant in the Nile valley and delta, where surface water is abundant and ground water levels are high - for here there may be no drainage system to carry away the water supplied by the piped water supply, and both surface and subsurface water can be polluted by ineffective latrines and casual disposal of waste water and garbage.

Thus, by the late 1980s, a shift in emphasis was taking place away from water, per se, towards a more unified approach to water, sanitation and waste management techniques. This trend, coupled with a greater concern for people, especially women who are the actual and potential users of the facilities, has greatly broadened the concerns of planners and researchers seeking for ways to provide safe water and sanitation for people in developing countries

The "New Delhi Statement", issued in 1990 at the end of the Water Decade, pointed out that one third of the population in the developing world still lacked safe water and sanitation, identified as the "basic requirements for health and human dignity" It presented guiding principles for the provision of

safe drinking water and environmental sanitation including: improvement in the household environment through community involvement, partnership and building on indigenous knowledge, proper drainage and disposal of solid wastes; strong institutions at the local, regional and national level to support sustainability; and human development in the form of training and education (UNDP 1990). These were the guiding insights for the action research study of water and sanitation initiatives in two villages in the Nile delta, begun in 1986.

### **The Rural Egyptian Setting**

The population of Egypt has doubled in the last thirty years, and much of this growth has been in the rural areas. Villagers have built houses for their expanding families, often with money they earned in the oil rich Gulf states between the mid-1970s and the mid-1980s. Thus, villages have expanded in size, and in housing density. Most villages now have electricity and many have schools, health centers, and piped water supplies. Increased living standards and changing consumption patterns have resulted in the production of solid waste which can no longer be burned, or fed to poultry. Drainage, sillage or solid waste disposal systems have rarely been established to cope with these changing circumstances. In their absence, environmental conditions have deteriorated.

**Water supply.** Over the last forty years water supplies have improved in rural Egypt (see Weir et al. 1952). The majority of the larger rural settlements in Egypt are now supplied with piped water. As a result of recent extensions in piped water supply, the per capita consumption of domestic water in rural Egypt has risen dramatically, although there are still problems with quality and the irregularity of supply (Nicholson 1992; White and White 1986). Individual household connections provide the greatest convenience for women, and the greatest health benefits, providing that supplies are adequate and of a sufficiently high quality. However, in a settlement with a piped water supply the proportion of householders with such connections may be quite small. Houses may not have individual connections because of the high cost of connections to distant pipelines; because of the unsatisfactory nature of the service, which deters householders from obtaining connections; or because of the absence of a drainage system for the waste water. A 1992 field survey of all of Beni Suef governorate, in Middle Egypt, indicated that only 18% of all residential buildings in served settlements actually had connections; a smaller proportion of households would be served, given that some buildings housed more than one household (Chemomics 1992, p 37). The proportions of served residential buildings or households are probably higher in the delta, but they may vary considerably from place to place. In a 1991 census of two other

villages in Menoufia, the governorate in which our research project was conducted, in one village almost 80% of the households had individual connections; in the other the figure was half that.

In settlements provided with piped water, many households have to depend on shared public standpipes. These are not as convenient as individual household connections as women have to carry water back to the house, they may have to wait for their turn, and the standpipes are more difficult to maintain than private connections. The census of Egypt defines access to safe drinking water from a piped public system as access to either a household connection or a public standpipe. These figures are somewhat misleading, for we do not know how far these standpipes are from the houses they serve, or how many people they are expected to serve. According to the 1986 census, in rural Upper Egypt (i. e. the Nile valley south of Cairo), 45% of all households were supplied by safe drinking water. The figure for the rural Nile delta was 65%; and for the governorate of Menoufia, in which this study was conducted, was 56% (CAPMAS/UNICEF 1989, p 31-3).

Local handpumps may be used to supplement piped sources, or as major sources in settlements or neighborhoods which are not provided with a piped distribution network. However, these handpumps are often shallow, as they are hand dug and only reach the year-round subsurface water level; thus they are often polluted. Water may also be obtained from the irrigation canals and drains which flow through many Egyptian villages. While these are rarely used as regular sources of drinking water in villages in the Nile delta, they may be used occasionally by residents in remote farm hamlets, or by farmers working in the fields. Women often use the village canals for washing domestic utensils and clothes.

**Drainage and sewerage systems.** The provision of sillage disposal, drainage and sewerage systems in Egypt has not kept up with the expansion of piped water supplies, and environmental conditions in many villages are poor (White and White 1986; Nicholson 1992). The rising groundwater table, and the increasing pollution of ground water, is due to a number of related factors: the increase in water consumption for domestic use and irrigation, without proper disposal or drainage systems; seepage from sewage vaults and from leaking pipes. In the absence of a drainage system, polluted standing water is often found in low-lying open spaces in the villages (see Gemmell 1989). Irrigation canals often become polluted with waste water and garbage. Thus it is not surprising that many Egyptian villagers now consider that the disposal of waste domestic water, sillage, and of sewage from latrines, is a more important problem than water supply.

**Solid waste disposal.** Solid waste disposal is now an acute problem in many Egyptian villages, because of changes in consumption patterns, the

increasing use of plastic bags and packaged goods. The problem is exacerbated by a rapidly increasing population, and the increase in the size and density of rural settlements. In the absence of an effective solid waste disposal system, garbage is often thrown into the canals and drains which flow through the villages. When these canals are dredged, usually in association with the annual winter canal cleaning, tins and plastic are lifted out with the mud, which thus cannot be removed to fertilize the fields, as was the earlier practice. The mud and garbage thus remains in unsightly heaps along the canal banks.

**Health.** Infant and child death rates in Egypt have fallen dramatically in the last twenty years, in part due to child survival interventions such as high levels of immunization coverage and the increased use of oral rehydration fluids, and in part due to broader social and economic changes such as maternal education and increased household income. Overall infant mortality rates in Egypt have fallen from 127 in 1947 to 70 in 1982, a decline of 45% (CAPMAS/UNICEF 1988, p 39). More recently, a study in 12 villages in Menoufia governorate (the governorate in which the study villages are situated) found that the death rate of children under five fell by 75% between 1979-80 and 1990-91 (Langsten 1992, p 41). However, this study found that diarrhea is still the major cause of death among children under five years of age; there are twice as many deaths from diarrhea as from respiratory infections, the second most important cause of death (Langsten 1992).

The persistence of diarrhea, with its many water-related pathways of infection, as a major cause of child death is eloquent testimony of the continued environmental problems of rural Egypt. Trachoma, endemic among children in rural Egypt, is also closely associated with poor environmental conditions, chiefly the presence of flies and low levels of family hygiene; a recent field study in the Nile delta found nearly all children showing signs of active infection (Millar and Lane 1988).

Schistosomiasis is widely regarded as the one of most important rural health problem in rural Egypt, causing debilitation at the time of infection and serious long term damage including liver failure, kidney failure and bladder cancer. Transmission occurs as a result of contamination of canals by urine (in the case of *Schistosoma haematobium*) and feces (in the case of *S. mansoni*), and exposure to infection during water contact activities such as washing dishes and clothes, swimming and irrigation. Between 15 and 30% of the rural population are thought to be infected with either or both forms of schistosomiasis (El Khoby et al. 1991).

**Documentation of environmental conditions and processes.** There have been a number of recent reports of environmental conditions and environmental health in Egyptian villages, looking at the national setting and making national-level recommendations for interventions (Metametrics 1981;

Warner & Donaldson 1982). Two recent consultancy reports stressed the need to integrate water and sanitation interventions, and pointed out that this was complicated by the division of administrative responsibility at all levels (K-Konsult/NOPWASD 1991; USAID/ORDEV 1988).

Few in-depth field studies have attempted to identify the local village settings within which the implementation of water and drainage systems must be considered (see for example Gemmell et al. 1991). Local level studies have dealt briefly with women's water and sanitation practices in relation to child health (Lane & Meleis 1991; Oldham 1990; Tekce 1989; Hoodfar 1986). An in-depth study of water and sanitation facilities and women's related knowledge and behavior in two villages in Menoufia governorate forms the basis of the present study and was published as an earlier volume of *Cairo Papers in Social Science* (el Katsha et al. 1989, el Katsha and White 1989).

**Involving women and community participation.** In a country such as Egypt, where the formal participation of rural women in community life is limited, it is especially important to foster the participation of women in environmental health initiatives. Their needs, capabilities and knowledge should be recognized, so that they can be a vital part of the process of bringing about changes which they recognize will lead to an improvement in the wellbeing and health of their children, their families and the community as a whole.

Applied research should reflect issues relevant to current national policy. Self help, sustainability, self-financing and self-support in environmental sanitation interventions, and the involvement of women, are current policy concerns for the national government, private voluntary organizations and bilateral and multilateral agencies. Local community level initiatives and self-help are essential not least because the local administration in Egypt lacks resources for maintaining and upgrading water facilities. Current revenues from users, as of 1990, probably covered less than 10-15% of the operating and maintenance costs of piped water systems, and central government disbursements regularly fail to make up this deficit (Mayfield 1990, p 95). There are no environmental health education programs designed for the rural population.

## **Research Orientation and Methodology**

**Background.** The action/research project was undertaken in two Egyptian delta villages between March 1986 and March 1990. The orientation of this project was based on the findings of an earlier study conducted between 1984 and 1986 in the same two villages. The major findings of the earlier study indicated that women's behavior relating to domestic water use was guided by careful and rational decisions, influenced by the socialization process, and

adapted to the prevailing environmental conditions. Respondents made choices based on their own perception and judgements, and they had a limited understanding of the health hazards related to the use of polluted water. One of the recommendations of this study was to inform women of the relationship between the use of polluted water and poor hygiene standards and disease transmission (el Katsha et al. 1985).

**Action research.** Action/research projects seek to empower people to change their circumstances and, where necessary, their behavior. The research team is a participant in, and a catalyst for, this process. In contrast, conventional research attempts to be "objective" and detached from the subject of study; in this setting, the subjects must remain, as far as possible, unaffected by the activities of the researchers (Graham and Jones 1992). In action research, the research team is actively involved in helping local people to identify problems, appropriate interventions and/or improvements, in facilitating action, and in monitoring the results. They work "with" the villagers, not "for" them. Community participation is important in all stages of the intervention beginning with the diagnosis, and involves developing a local perspective and incorporating local people in the research process (Nichter 1984).

Our Egyptian action/research project gradually evolved during the course of collaboration between the research team, formal and informal leaders, villagers, and, in our case, with local level administrators, clinic staff and teachers. Thus, the work plan had to be flexible, guided by the participatory nature of the research. For example, the project began by working with women, because of their concern for water, sanitation and environmental health. However, during the course of the project it became increasingly obvious that men should also be involved in activities.

**A holistic, partnership approach.** Health and sanitation at the village level has to be tackled within a holistic framework. New or improved water and sanitation facilities cannot alone result in improved health and wellbeing. People have to learn how to use and maintain these facilities, as well as cherishing existing healthful practices and learning new ones (Dhillon and Tolsma 1992). Both health education and changes in environmental conditions are needed to encourage and sustain healthful behavior. Thus, adoption of hygienic behavior by women both within and outside their homes --which is a prime objective of the educational programs introduced in this project--was expected to proceed in conjunction with activities designed to improve village sanitary conditions.

This action/research project also takes a holistic view of health, looking at hygiene behavior which may affect the transmission of many diseases, rather than at interventions directed at a specific disease. Recent studies of the



mortality transition and long-term indicators of health status in poor countries have indicated that, except in a few extreme cases, levels of child mortality and morbidity have not deteriorated in the recent years of economic crisis. This may be because, while specific disease-based interventions may have an immediate impact on morbidity and child mortality, broadly based changes in health and hygiene behavior, such as those related to environmental health, can be maintained even in the unfavorable economic climate of the 1980s (Murray & Chen 1993)

The partnership approach involves all those who have an interest in, and a responsibility for, local sanitary and health conditions. The villagers, for whom environmental conditions are a daily challenge to health, are encouraged to share their local knowledge, express their needs, and contribute what they can to any interventions. Local government staff, doctors and clinic personnel, and teachers share a responsibility for improving rural health, by virtue of their professional roles and knowledge. Finally, the research team acts as a catalyst, and facilitates the activities of the other parties involved; it also trains villagers and local staff in activities such as health education and evaluation, and formally monitors all activities.

A focus on community involvement ensures sustainability, as the community has an active interest in the various programs. It also has an add-on effect. If the first project undertaken by the group is fairly straightforward, and the local people recognize its benefits, the potential for success is greater than if the project is complex. The success of one project, which has widely appreciated benefits, empowers individuals and groups to continue the activity, and to identify and tackle other problems.

**Establishing rapport and collaborating with villagers.** The research team, who were all Egyptians with a long background in field work, recognized that *patience and continuous support for the villagers was essential*, given that they were trying to understand practices and attitudes that had prevailed among villagers, especially women, for years. The researchers were aware that only through mutual respect and trust between them and the villagers could community development begin to take root. The research team was not free to impose its own ideas on the villagers, and had to be flexible enough to give priority to villagers' suggestions based on their felt needs.

The presence of women as team members was crucial, especially since the project's main target was women. Women trainers trained local women as interviewers and hygiene educators. However, in this society, formal leaders were male, and access to women could only be obtained through the mediation of male household heads. Male team members were thus invaluable working with the men of the community, with the male formal and informal village leaders, and with local administrators.

The research team at all times adhered to the village style of life with respect to attire, manners, reciprocal relations, cultural norms and the use of the local language, colloquial Arabic. At times, the team members listened to, and advised villagers who sought their help on issues not directly related to project objectives, i.e. on family planning, income generation, and some personal disputes.

Team members experimented with various approaches to their role as facilitators. They identified techniques and methods which could serve as entry points to the communities, and opened channels of communication between villagers, administrators, and decision-makers. As a first step to establishing rapport with villagers, the research team sought the support and endorsement of local authorities on the governorate level. At the village level, it was necessary to contact the male village leadership first to familiarize them with the objectives of the project and the ways in which it would involve women.

Following a formal introduction to village level authorities and local notables, weekly visits to the villages familiarized the research team with the social structure and dynamics of the community, and opened up paths of communication to the villagers, especially the women. The villagers gradually became accustomed to the presence of the research team, accepted them, and recognized the nature of mutual concerns. Only when friendly relations had been established did the members of the research team begin to convey to individuals and groups the objectives of the study and how these related to their everyday life. This was done by using easily understood language and avoiding technical terms as much as possible.

Community members were first involved in diagnosis, for they know better than outsiders what their problems are. This diagnosis itself is an educational process, generating increased awareness (see PROWESS/UNDP 1990). The participation of women, and of men, was sought from groups within different neighborhoods or on an individual basis. Women were made aware of all the steps followed by the research team and by male leadership. Part of the learning process was to involve all interested village women in the discussions, regardless of age or status, and make them aware of the various activities undertaken by village leaders, administrators and researchers.

Simple office quarters were rented within the village, where the research team met with villagers to socialize and hold meetings and training sessions. This helped the team to be accepted as part of the community. Cooperation with local and district level decision-makers and policy makers was essential for the maintenance of local facilities and for the operation of the health education program. Local clinic staff and school teachers were also involved in the health education programs for school children and for local women.

**Research techniques--qualitative and quantitative.** Because of its participatory nature, most of the research had a qualitative, rather than

quantitative orientation. While distinctions are often made between the "hard" data collected during quantitative surveys, and the "soft" data collected in qualitative studies, these approaches need not be mutually exclusive. Quantitative interview surveys provide base data which can be compared to that collected elsewhere, used for monitoring and to provide preliminary guidelines for future qualitative research

Qualitative studies are needed to explore nuances which would not be revealed in quantitative studies. They are process oriented, exploring the dynamics and rationale of human behavior, and provide the insider's perspective which is essential to this research (Steckler and Eng 1991). Quick structured surveys such as KAP, to identify perceptions and beliefs about such topics as water preferences and hygiene behavior, are not likely to reveal sufficiently detailed information for an action/research project. Careful observations and discussions are needed to encourage women to identify health problems and solutions. Working with local people means being responsive to local ideas and categories, rather than accepting those already identified in a structured questionnaire (PROWESS/UNDP 1990; Elmendorf & Isely 1981).

Research methodology in this study focused on techniques such as participant observation, unstructured interviews, and focus group discussions. For example, focus group discussions were conducted with various groups of hygiene promoters and among villagers to identify their perceptions of the major sanitary problems in the villages. Action research involved group meetings with women in different village neighborhoods, and village level committee meetings. Participatory techniques were also used in the preliminary and in-service training and follow-up of hygiene promoters, and in testing training materials.

**Evaluation.** The major objective of the study could not have been achieved without thorough monitoring and evaluation. The research team monitored all stages of the research on an ongoing basis, and carried out a detailed final evaluation. They designed simple interview surveys to test the knowledge of teachers and recipients of health education before and after training or health education sessions. Evaluations of the impact of health education also compared the reported and actual behavior of control groups, which had not been exposed to health education, and experimental groups, which had. Focus group discussions, formal and open-ended interviews were also used in evaluations.

The study does not attempt to document specific improvements in health which might have resulted from its activities, such as disease prevalence, morbidity and mortality. Such changes are complex to monitor and would require resources and a time-frame beyond the scope of the current study (Cairncross 1989; Briscoe et al. 1986).

## Focusing on Women

**Women's roles.** As mentioned previously, over the past decade there has been an increasing recognition of the importance of involving women in water and sanitation projects, and in all interventions designed to bring about social and economic change and improve health in developing societies. Indeed most research and implementation agencies now specify that women should be given special consideration in all development projects (van Wijk-Sijbesma 1985; McCormack 1985; Raikes 1989; Browner 1989). In participatory research focusing on women, the roles of women should be identified in broad terms, so that these can be explored in the research setting and utilized during the research project. Although Western commentators make an analytical distinction between women's domestic and economic roles, it is salutary to remember that women's economic activities in the household and the informal sector were, until recently, systematically discounted by being subsumed under the heading of domestic activities (see Rogers 1980).

Universally women have the prime role in social reproduction, the maintenance of the household unit. They are responsible for the care of children and other family members; they are usually the first people to make a judgment or a decision about a family member's illness or its treatment. Their concern for the socialization of children includes informal education and the transmission of values, attitudes and knowledge. Women, with the help of their older unmarried children, especially the girls, undertake the domestic work of the household, such as cooking, washing clothes and utensils and other activities related to water use.

Most women engage in economic production. This may be a direct contribution to the household contributed in kind from activities such as farming and collecting wild plants and firewood, or cash transactions from sales of produce or trading. When planning participatory research, both domestic and economic activities (especially those in the informal sector) need to be recognized and used as ways of reaching women. Researchers also need to recognize that most poor women work long hours and may have little energy left for participation in new, unfamiliar activities with an uncertain return.

Within the domestic sphere, women play a key role in decisions about the use of technology, its acceptance or rejection--based on their knowledge of water and sanitation issues as they affect their families. They are users of improved facilities--if facilities are not used, they will not have the desired impact on health and environmental conditions. Women are also the main users of waste materials generated in the household economy; in Nile delta villages such concerns include feeding household waste to chickens and goats; making dung cakes for fuel; and cleaning out the stable (*zariba*). Finally, because of their socialization role within the family, women can be both

targets of environmental health education and educators of their family members and neighbors (see Elmendorf & Isely 1981; van Wijk-Sijbesma 1985).

Women's roles in social reproduction and economic production do not necessarily give them leadership and decision-making roles in the household and the community. Thus, for example, in many rural communities it is necessary for researchers and health workers to work through the male authority structure to gain access to women and approval for their cooperation in health and environmental programs.

**Encouraging women's participation.** Involvement in community projects and work as peer health educators pre-supposes a public role for women which may not be supported by local values and the process of socialization of women. In the Middle East in particular, and especially in the rural areas, the segregation of the sexes and the strict definition of roles according to gender prescribe for women a limited sphere of activities, and an outlook that does not foster community participation. A great deal of effort is required on the part of the research team to convince the women that their public role is complementary to their domestic role, and that they can take action in ways which do not upset community mores or their own standing in the community.

The research team can encourage this by recognizing various women's participatory activities, such as rotating credit groups (*gam'riya*), reciprocal activities associated with life cycle events such as births, weddings and funerals, and shared domestic activities such as baking bread. Such activities are exercised through networks of kin and neighbors, networks which could be used by community development activities. As such they represent a less obvious source of women's political power in the household and the community. If such activities are encouraged and diversified, they can result in real empowerment and self-realization, which will extend to other activities and concerns.

Women are an active part of the community, forming half of the adult population, and their skills and insights should not be neglected. A balance is needed here, for women should not be marginalized by being treated in isolation from the concerns of the whole community. The breadth of this project--incorporating education for behavioral change--and its flexibility--beginning by focusing on women but later incorporating all the people using the facilities in the planning, implementation and maintenance--fostered a holistic viewpoint which ensured a equitable participation by all actual and potential beneficiaries.

## CHAPTER TWO

### THE STUDY VILLAGES - THE RESEARCH SETTING

#### The Village Setting

**Introduction.** The two study villages are situated in Menoufia governorate, in the Nile delta, about 70 km north of Cairo. Babil has a population of approximately 5,000, and Kafr Shanawan 4,000. The villages have piped water supplies, and the majority of houses are connected to the electricity supply. Both villages have access to an Agricultural Cooperative, Community Development Association, veterinary service center, and a consumers cooperative; these are found in the village of Babil, and in Shanawan, the village adjacent to Kafr Shanawan (literally the "hamlet of Shanawan"). Both villages have primary schools and health units. The health units provide maternal and child health care, including immunization, family planning and the treatment of diarrheal diseases (el Katsha et al. 1989, Ch 2).

**Environmental constraints.** Environmental constraints in the two villages were identified in an earlier survey by the research team in 1984/5. Both villages are very densely settled and threaded by narrow, unpaved lanes and dead-end alleys which do not facilitate the introduction of a drainage system, or access for waste collection carts. Open irrigation and drainage canals flow through the center of both villages; these are used for domestic activities, and for the disposal of waste domestic water and solid waste. Some wealthier families have built houses on more spacious plots on the edge of the villages and along the approach roads. A few families, seeking to escape from the congestion, have built houses in the fields (el Katsha et al. 1989, Ch. 2).

Villagers have access to three water sources; piped water through house connections or public standpipes, handpumps, and canals. Both villages have an abundant supply of piped water but it is not equally accessible to all households; few households in Babil have individual connections, whereas 80% have them in Kafr Shanawan. Public standpipes, often situated close to the canals so that waste water can drain away, are available in both villages. Some households, especially in Babil and those in Shanawan situated at the edge of the village away from pipe network, must rely on shallow handpumps which often yield polluted water. Canal water is used for domestic tasks, but rarely for cooking or drinking, except by families living in the fields, for they are not connected to the piped system and may not have a handpump.

At the beginning of the research project neither village had a sewerage, solid waste or sullage disposal system. Most houses had their own pit

latrines, but these were poorly maintained; they are emptied infrequently and unhygienically. Sullage, waste domestic water, was thrown on the streets or carried to the canals (el Katsha et al. 1989, Chapter 5). Because of the difficulty of disposing of waste water, it was often reused; under such conditions it is likely to be highly polluted and constitutes a health danger for children playing in the streets and women at the canal (Gemmell et al. 1991). In both villages the ground water level is less than one meter below the surface; this problem has been exacerbated in recent years because of increasing domestic water use in the absence of a drainage system and the increasing use of water for irrigation (el Katsha et al. 1989, Ch 4).

The two main types of housing found in the villages reflect contrasting environmental conditions; most older houses are built of mud brick and the newer ones of fired red brick and concrete. Sixty two per cent of houses in Babil, and 24% in Kafr Shanawan are of mud brick. These are of one or two stories, and built round a *hosh*, courtyard, where the domestic activities take place; the animal shed, *zariba*, often opens onto the *hosh*. Overall, mud brick houses had less adequate water and sanitation facilities than red brick houses, with 21% of the sample having piped water connections, compared to 71% of red brick houses, as shown in Table 1. The problem of disposing of sullage often deterred owners of mud brick houses from installing water connections. These connections are usually single taps in the courtyard, adjacent to the main door; water is emptied manually from a bucket or basin, which increases the problem of damp, a serious problem in a house with mud brick walls and a mud floor.

Newer houses, built of fired red brick and concrete, often consist of a series of separate apartments, with individual entrances off a stairway, and perhaps with modern style kitchen and bathroom facilities (el Katsha et al. 1989, Ch 2). The flat roofs of both kinds of houses are often used for keeping chickens and pigeons, and for storing grain, and the dung cakes which are used for fuel.

The earlier study included a brief health survey. Informants most frequently reported gastrointestinal complaints, followed by eye complaints, respiratory diseases, and fevers. The predominance of gastrointestinal complaints (40% in Babil and 35% in Kafr Shanawan), and eye complaints 32% and 31% respectively, suggest the importance of faecal-oral disease transmission routes, related to the quantity and quality of water available and the poor overall environmental conditions in the village (el Katsha et al. 1989 pp. 6-7).

**TABLE 1**  
**FACILITIES IN MUD BRICK AND RED**  
**BRICK HOUSES**

Characteristics	Mud Brick n = 137	Red Brick n = 175
Household water connection	21%	71%
Latrine	86%	95%
Mud floor	85%	55%
Separate kitchen	13%	60%
Animal shed	88%	27%
Electricity	98%	99%

Source: el Katsha et al. 1989, p. 18.

**Women's water and sanitation practices.** In Egypt, as elsewhere, women play key roles in water use and management. Patterns of water use in both villages, whether the sources used are household taps, public standpipes, handpumps or canals, reflect the socialization process, and women's careful assessment of the relative advantages of various sources. For example, village women gave many reasons why they used the canal for washing clothes and household utensils even if they had a water connection in or near their house. They perceived that flowing canal water was "clean"; they preferred it to the highly mineralized tap water because it got clothes and aluminum utensils sparkling clean, and the flowing water gave everything a good rinse. Even when women had household water connections, washing in the house was no more convenient than washing at the canal. Women are accustomed to squatting while doing many domestic tasks, and they washed in basins on the floor, rather than standing at a sink. This practice also used less water--which had to be carried out of the house. Our general findings echo those of other studies, in so far as they suggest that: "women in their choices of water sources, make reasonable decisions based on their own criteria of access, time, effort, water quality, quantity and reliability" (van Wijk-Sijbesma, 1985, quoted in El Katsha et al. 1989, p 70). Clearly, in the study villages, as elsewhere, any attempt to change water use behavior must start from an understanding the women's own rationale for their behavior.

The earlier research also identified a number of unhealthful hygiene practices by women. The setting for women's daily activities, especially in the older mud-brick houses in the most congested area of the village, does not encourage hygienic practices. Animal sheds are often located within the courtyard, and poultry roam throughout the house. Cooking usually takes place on the floor in close proximity to animals.



Most rural women are not socialized to wash their hands before and after certain tasks; they do not habitually wash their hands before handling or preparing food, or before feeding infants. Neither do women regularly wash their hands with soap or change their clothes after making dung cakes by hand. Women gave a low priority to cleaning the latrine. In most cases, they did not store water hygienically. Outside the house, in the absence of any solid waste or sullage collection system, canals and streets are used for solid waste and sullage disposal (el Katsha et al. 1989, Ch. 5, 6). Environmental conditions do not make it easy for women to behave in healthful ways.

Women in the study villages work long hours at various domestic and economic tasks; these activities may leave them little time for participatory activities even in areas, such as water and sanitation, in which they have special knowledge and expertise. The burden of daily activities is especially heavy for a young woman, who may be pregnant, or be expected to help her mother-in-law. One woman expressed her feeling about her daily activities thus: "By nightfall I feel as if somebody is banging my head, as a result of carrying water back and forth during the day. I have no energy to do anything but sleep. Do you expect me to worry about bad conditions in the village?" (el Katsha et al. 1989, p 25).

#### **Local perceptions of major water and sanitation problems.**

In order to assess perceived local needs, at the beginning of the research project various groups of villagers were asked how they would characterize the main sanitary problems in the village. Group meetings with villagers, observations, and interviews with individuals from different social groups in the community revealed a consensus in their perceptions of environmental sanitary conditions. In both villages the disposal of sullage and solid waste in streets and canals ranked as the most serious problem, followed by improper septic tank evacuation. In Babil, the polluted stretch of the canal that runs through the residential area, and the lack of an appropriate sewerage system were also cited. In Kafr Shanawan, the high ground water table, and the associated spread of highly polluted muddy patches and stagnant water in low-lying areas were seen as serious problems. Villagers believed that there was little they could do to solve these problems, and thus did not act to solve them. Even the better educated residents, such as the teachers, shared other villagers' perceptions of environmental problems, and thought that the government was responsible for solving village sanitary problems. The role of the villagers, as one of the residents stated, "is limited either to submitting petitions and complaints and/or contributing money upon the request of the local council".

## Local Administration and Management

**The structure of local administration.** The action/research project worked closely with the local administration which oversees the provision and maintenance of local amenities, including those related to health and the environment. Beginning in 1960, a new system of local administration was introduced into Egypt; it has been regulated, most recently in 1988, by legislation directed towards a gradual decentralization of the highly centralized national administration. The lowest level of local administration in Egypt is the village area, which may consist of a main village, *qaria um*, and perhaps one or more satellite villages, *qaria tabca* (in colloquial Arabic *kafr*), and hamlets, *ezab*. The village units are grouped together to form a district, *markaz* (plural *marakaz*); the *marakaz* are grouped together to form provinces, or governorates, *muhafza* (pl. *muhafzat*).

All village areas have a Village Council which consists of an elected Popular Village Council (PVC) and an Executive Village Council (EVC). The EVC members are salaried civil servants, who need not be residents of the village areas in which they work. According to legislation, the Executive Council is responsible for the maintenance of local services such as water and sanitation, as well as overseeing agriculture, health, and the supply of subsidized commodities; it has a budget to pay staff and a small discretionary fund to pay for special needs related to the upkeep of the village.

The elected Popular Council, which consists of village residents, acts as a channel for requests for services from villagers. Villagers seeking for the development of facilities, or for maintenance and repair, must direct their requests through the Popular Council to the Executive Council.

Many decisions at the village level need to be referred to the *markaz* and the governorate; large projects must be referred to the relevant ministry in Cairo. Decision-making and authority are highly centralized. There is usually more direct interaction and communication between the officials of the respective departments at the *markaz* level and the Executive/Popular Village Councils than between the governorate and the lower levels of the hierarchy. Most officials at the governorate level viewed their role as that of policy makers for the entire governorate, while the staff at the *markaz* and village level have a more purely management role. At all levels, managers and policy-makers generally adhere to bureaucratic procedures that appear tedious and unnecessary to outside observers.

Babil is a mother village, with its own central Village Council. In contrast, Kafr Shanawan is a satellite village with two elected representatives on the Popular Village Council based in the mother village. As it is adjacent to the mother village Kafr Shanawan uses the services in that village - the agricultural cooperative, veterinary service and Community Development Association - and enjoys ready access to the Village Council.

### **Management systems responsible for environmental issues.**

The roles and areas of responsibility of different local bodies responsible for environmental issues needed to be identified so that any proposed interventions could be channelled through the existing administrative hierarchy. Interviews early in the project revealed that responsibility for these activities is divided among different directorates and departments at the governorate, *markaz*, and village level. Figures 1, 2 and 3 show the management structure in three separate sectors; piped water and hand pumps; irrigation canals and the small privately owned *mesqa*-s, canals which serve individual farmers; and health services, education and training in health promotion. Any activity requiring approval above the village level must deal with a multiplicity of organizations, in which lines of authority are not always clear cut. For example, the Housing and Public Utilities Department is responsible for building and maintaining piped water supplies, but not for installing and reading water meters. The Public Works Department at the *markaz* level supervises the clearing and disinfecting of main canals, while the village level agricultural cooperative supervises the cleaning of the small, individually-owned *mesqa*-s

Administrative staff regarded the main constraints for local administration as lack of material and financial resources, and of qualified and competent staff. For example, the director of the *markaz* level Health Department complained that the sanitarians, who often live far from the villages they are supposed to serve, only went to the villages in emergencies. He also said that, as each school health visitor was responsible for several schools, she could not properly supervise all of them effectively.

The Ministry of Social Affairs assigns to different village service sectors the public service trainees, female graduates undertaking a year of obligatory social service in their home villages after graduation. In the two study villages, these trainees were involved in a number of the projects supported by the action/research program. The Ministry of Social Affairs is also responsible for overseeing the activities of all local social and developmental organizations, which must be formally registered with government authorities.

FIGURE 1: MANAGEMENT RESPONSIBILITY FOR SUPPLY FROM PIPED WATER SOURCES AND HANDPUMPS

GOVERNORATE LEVEL

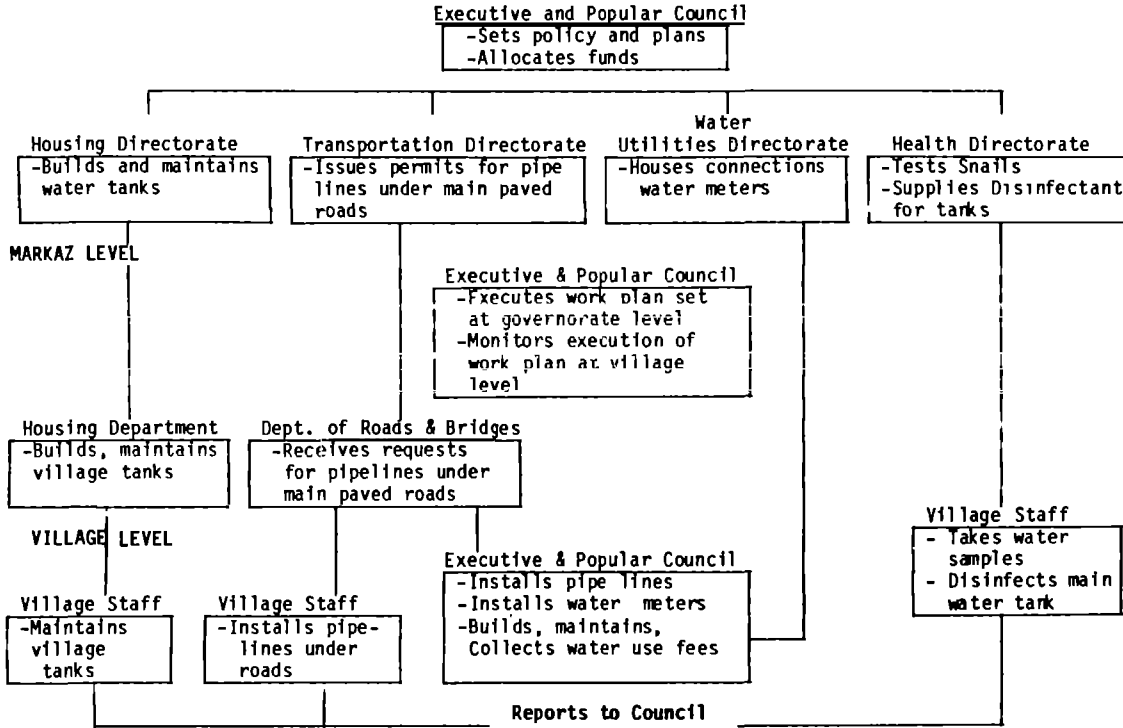
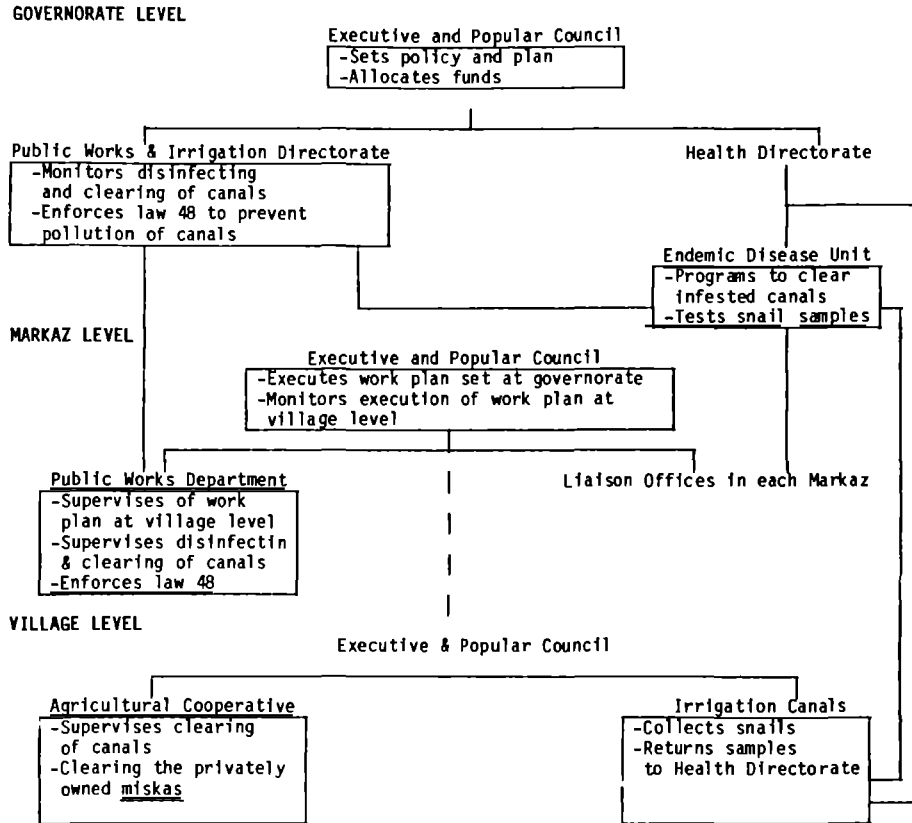
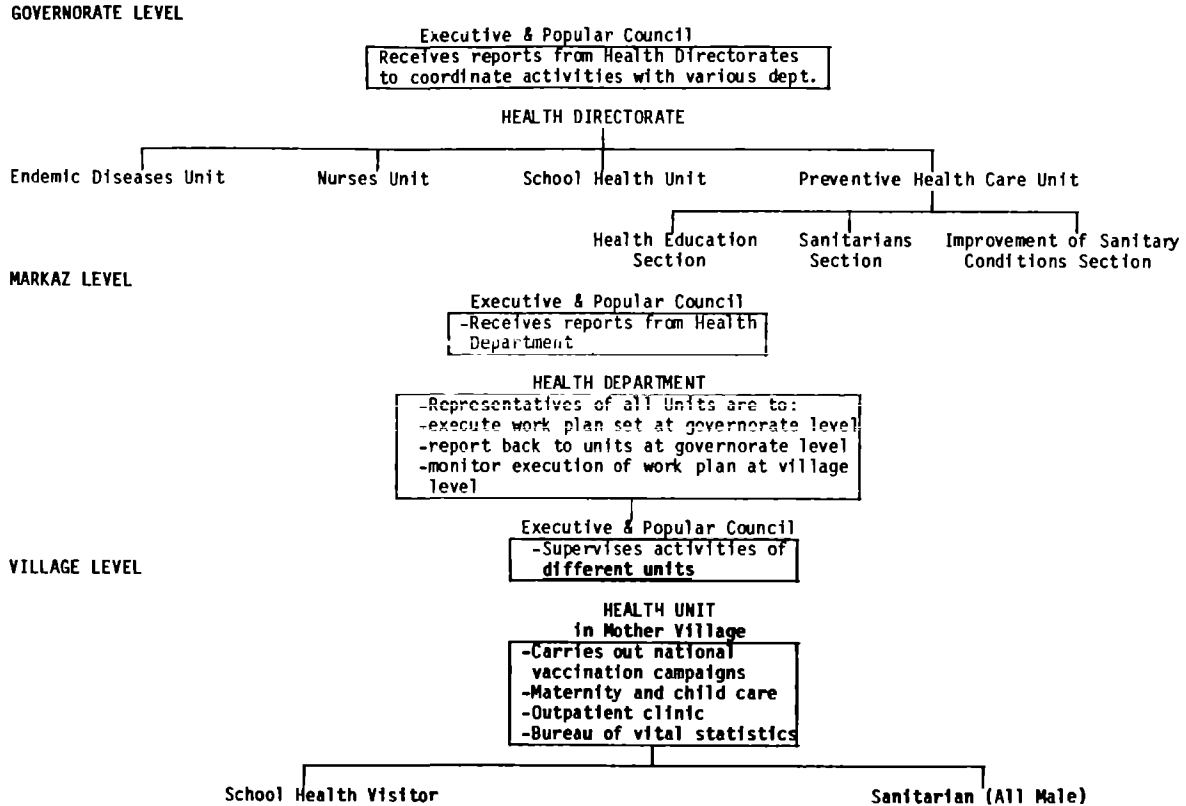


FIGURE 2: MANAGEMENT RESPONSIBILITY FOR IRRIGATION CANALS



**FIGURE 3: MANAGEMENT RESPONSIBILITY FOR HEALTH SERVICES AND TRAINING  
IN THE AREA OF HEALTH PROMOTION**



## **Empowerment of Villagers**

At the beginning of the project the research team explored local people's perceptions about how to bring about change in environmental conditions. Most of the villagers expressed feelings of helplessness and fatalism. This indicated the need for empowerment, and also highlighted the problems which might be encountered in attempts to bring about change.

Similar views about bringing about change were expressed by all women and by village leaders. As one woman said:

*Yes, we are aware. But what can we do as women? We can only complain to our husbands would in turn complain to the village council, and nobody seems to listen to our complaints or do anything about it*

Another woman claimed that:

*We keep writing complaints to the village council and even to the officials in the government We receive the usual answers There are no funds, such projects are not included in the budget*

A member of the Popular Village Council, supposedly elected to represent the interests of the villagers, claimed that:

*The village council does not ask women their opinions and does not even consider their requests The men do not pay much attention to what women say because we know what is the best women must abide by our decision*

The villagers as a whole appear to lack a sense of common interest. As a community leader said:

*What rules among the people is personal interest. Nobody cares about communal needs They only meet to further personal goals and to acquire monetary or material incentives They are used to having the government solve all their problems without consulting them*

Most group activities in the village are segregated by sex. Although women cooperate informally in many activities, they have not developed formal groups to support their common interests. Activities sponsored through the Village Council, such as the Community Development Association, supported women's activities such as crafts and nutrition, but not

water and sanitation. The necessity for official support for organizational activities has contributed to this passivity, and to the belief that any position action "is the responsibility of the government".

It was clear that the village organization, especially in Babil, was characterized by lack of communication between villagers and decision-makers. Hence, nothing had been done to improve the poor sanitary conditions in the village. In neither village did the Executive Village Council initially consider these conditions as a severe problem that might have a direct bearing on the villagers' health.

The main barrier to effective action, as seen by members of the Executive Village Council, was lack of material resources. However, the councils were unaware of some possible solutions to their dilemma. They failed to recognize the need for, and availability of, competent technical assistance to identify the most feasible and cost-effective solutions to environmental problems. More importantly, they failed to recognize the importance of communicating with and winning the support of the villagers, who could help to identify special needs, and participate in the process of solving problems by raising funds and contributing their labor.

Preliminary discussions with villagers about the kind of environmental problems they experienced showed that they possessed knowledge and awareness which they could share with the local administration and with the research team. For local empowerment to work effectively, local people also needed to learn how to work together, through networks of kin and neighbors and formal local organizations. From early on in the project, it also became clear that, for their part, both villagers and researchers needed to develop strategies for working with local staff in order to bring about desired change. This positive view of the possibility of dialogue, and its benefits, challenges the opinion expressed in the much of the literature that the relationship between government officials and villagers in Egypt is adversarial and characterized by mutual misunderstanding (see Palmer et al., 1988; Adams 1986).



## CHAPTER THREE

### INTERVENTIONS

#### **Introduction: Identifying Interventions**

This action-research project was directed towards mobilizing villagers, especially women, to take the initiative to improve local sanitation conditions--to ensure a reliable flow of clean and accessible water, adequate sanitation and a clean environment. Such activities are also an essential part of any program to improve hygiene practices. For women's knowledge, beliefs and practices about water and sanitation have developed in the physical setting of a particular village, and one cannot expect these to change for the better if physical conditions do not improve.

In accord with the action/research approach, villagers, working with the research team, were encouraged to identify environmental health problems, and feasible solutions. Once the villager's had expressed their awareness of environmental problems of sewage, sullage and solid waste disposal, the research team began to discuss more specific issues with them. As a result, the villagers identified a number of specific needs and related interventions. The simplest intervention, in Babil, was the repair and maintenance of broken public standpipes; a later follow-up activity in this village involved installing handpumps. The second intervention, also in Babil, involved a number of strategies to solve the problem of a polluted canal, including attempts to introduce a sullage and solid waste disposal system. In Kafr Shanawan attempts to lower the ground water table eventually focused on the commissioning of a feasibility study for a piped drainage/sewerage system; this project was ongoing when the formal research program came to an end. After these various interventions had been pursued for a year, the research team decided to establish village committees to find out if they could help to complete and sustain these interventions.

Throughout the activities, the research team met weekly with women and men in the villages, and with local administration authorities. As the researchers acted purely as facilitators, the direction of the activities was guided by the village women and men and by the response of the local officials. The researchers kept detailed field notes of the meetings about each set of interventions; these were later edited and tables were compiled showing the time frame for each activity, and the processes involved in the negotiations, as shown in Figures 4 and 5. These meetings were recorded, in all their tedious and time consuming detail, in order to explore the processes involved in making decisions and implementing them. This crucial aspect is easily overlooked as reports often focus almost exclusively on the results of the

activities, rather than looking at how these results were achieved. We can learn from the process as, in the context of this research project, the journey is more important than the destination.

### **Repairing Public Standpipes**

**Action.** In Halayla, one of the poorest neighborhoods in Babil, village women who did not have household connections indicated that the repair of a broken standpipe was a priority for them. In late February 1987, seven women attended a meeting with the research team at a house next to the defective standpipe and overlooking a badly polluted canal. The women said that they understood that the Village Council would not fix the standpipe, as the work was not included in their work plan and there was no money for the activity in the budget. Encouraged by the research team, the women resolved that, as the standpipe was vital for their daily activities, they would raise money themselves to repair it and increase the number of taps.

Over the next few weeks the women found out how much the repair would cost and collected money from local householders. The husband of an active informal local leader, the local traditional midwife, or *daya*, consulted a plumber about the cost of fixing the standpipe; he estimated the cost at L. E. 100 (100 Egyptian pounds). The local popular council representative contributed money to the project, and encouraged other neighbors to participate in the effort.

When the research team met with the Executive Council, the village official responsible for the piped water network said he was willing to repair the standpipe taps, as this was, in fact, within his domain of responsibility. The women willingly agreed to his request that they clean the area around the standpipe and dig the drain to the canal. They soon completed this task. Once the standpipe was in use, it became clear that the drainage channel did not prevent the immediate surroundings of the standpipe from getting muddy. Thus the women held another meeting, at which they agreed that one woman's husband would be paid LE 7 to tile the area around the standpipe. A detailed, chronological account of all the steps followed in the successful installation of this tap is presented in Figure 4, including the activities which persuaded all neighborhood women of the need for the standpipe.

**FIGURE 4  
PROCEDURES INVOLVED IN REPAIRING A STANDPIPE**

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up	Comments
23/2/87	Seven women attended a meeting held at a house over-looking polluted canal (PC) & SP		<ul style="list-style-type: none"> <li>- One of the women raised the problem of closing down the standpipe because of a break in it</li> <li>- Women explained that the VC will not fix the SP as it is not included in its work plan.</li> <li>- As the SP is basic to women as a major source of water, efforts will be concentrated to raise money to repair the SP and increase the number of taps</li> <li>- A nearby resident (a university student) objects to the repair of the SP due to the noise women make while fetching water RT stressed to women that they are the ones to take action and participate collectively in solving their problem.</li> </ul>	(Research Team) RT arranged for meeting the coming week to further discuss the issue.	

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up	Comments
23/2/87	Eight women attended RT & consultants at one household overlooking PC		<ul style="list-style-type: none"> <li>- Women reported that the student approved the repair of the SP</li> <li>- Husband of midwife will consult a plumber as to the expenses of fixing SP</li> <li>- Consultant suggested that each household contribute LE 1 including RT who are now village residents.</li> </ul>	<ul style="list-style-type: none"> <li>- Information about SP expenses will be reported to RT</li> <li>- A woman will be in charge of raising money from households. Results will be shared with RT.</li> </ul>	
11/3/87	A group of women met at PC		<ul style="list-style-type: none"> <li>- Women informed RT about role of RPVC.</li> <li>- RPVC explained that total cost will reach LE 100 to (a) install 4 taps, (b) build a fence around SP, (c) renovate tap standing, (d) rebuild SP floor with tile</li> <li>- LE 40 has been raised so far</li> <li>- Women reported to RT that they went to RPVC to notify him about activities. He contributed money in his capacity as a village member &amp;</li> </ul>	<ul style="list-style-type: none"> <li>- More money is required to meet expenses and this necessitates approaching households which did not contribute</li> <li>- RT will arrange for a meeting with women to further activities</li> </ul>	<p>One of the women notified RT that a dispute broke out between the host of these gatherings, and those who were against reparing S.P. The midwife defended the project &amp; the women explained that all this</p>

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up	Comments
11/3/87			told other neighbors to participate in the efforts as well		is to the benefit of the village & its people
16/3/87	<ul style="list-style-type: none"> <li>- Meeting with the family who oppose fixing SP</li> <li>- Meeting with the woman responsible for fund raising.</li> <li>- Meeting with a group of women</li> </ul>	<ul style="list-style-type: none"> <li>- Head of VC explained that he approves the repair of SP &amp; that he told one of RPVC to provide all needed equipment (taps &amp; pipes).</li> <li>- RPVC explained that he did not receive anything &amp; that he has been after head of VC but in vain</li> <li>- RT shared with RPVC renovation needed at SP as articulated by village women</li> <li>- RPVC explained that village have raised LE 53 which is not enough</li> </ul>	<ul style="list-style-type: none"> <li>- Discussing with family opposing fixing SP its importance to village women Villagers should cooperate to solve their problems</li> <li>- The woman raising money for SP explained that she faced lots of problems collecting more money as some people are antagonistic.</li> <li>- Women are notified about activities so far. Residents of other neighborhoods explained that after fixing this SP efforts should be concentrated to repair the one located in their neighborhood</li> <li>One of the women is willing to be in charge of collecting money and supervising the SP in terms of up-keep. A supplement of LE 13 has been collected</li> </ul>	<ul style="list-style-type: none"> <li>- RPVC will consult about renovation costs of SP</li> <li>- Arranging for coming week meetings with women</li> </ul>	<ul style="list-style-type: none"> <li>- One man told the woman in charge of collecting money "Why don't you mind your own business This SP belongs to the gov &amp; they should fix it I will not pay a penny for it "</li> <li>His wife later approached the woman &amp; gave her LE 1 without telling her husband</li> </ul>

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up	Comments
23/3/87	<ul style="list-style-type: none"> <li>- RT met with women from Halayla neighborhood who have benefitted the most from the SP</li> <li>- men, women &amp; youth gathered at SP while it is being cleaned up</li> </ul>	<ul style="list-style-type: none"> <li>- RT went to see head of VC but he was not there</li> <li>- RT met with head of piped water network &amp; presented the issue. The latter explained that he is willing to do the job on condition that the SP be cleaned</li> <li>- RT met with RPVC at Tala to discuss what can be done</li> <li>- RPVC &amp; head of piped water network gathered at SP</li> </ul>	<ul style="list-style-type: none"> <li>- Women cleaned up the SP area &amp; dug the drain to the canal from SP</li> <li>- RPVC promised to supply bricks &amp; sand to level the ground &amp; build a fence</li> <li>- RT discussed with women the importance of their effort to maintain the SP.</li> </ul>	<ul style="list-style-type: none"> <li>- RPVC will supply material to complete later renovation- Women promised to be responsible for maintenance &amp; up-keep of SP</li> </ul>	<ul style="list-style-type: none"> <li>- Women came to realize the importance of the SP in their lives &amp; their ability to act collectively to solve pressing need "The SP belongs to us all We can't do without it We suffered a lot during the last period when it was broken "</li> </ul>
26/3/87	<ul style="list-style-type: none"> <li>- Meeting with 4 women who helped cleaning up the SP &amp; who are residents of Halayla area</li> </ul>		<ul style="list-style-type: none"> <li>Women explained that they have participated in raising the necessary funds &amp; cleaning the SP because they are the ones who make most use of it Hence, they will make all efforts to keep it clean</li> </ul>		

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up	Comments
8/4/87	Meeting with a group of women at SP		<ul style="list-style-type: none"> <li>- The women explained that the SP is functioning well. The problem now is the ground of the SP that needs to be tiled, since the muddy gond when mixed with water becomes very dirty</li> <li>- One woman's husband offer his labor to reconstruct the ground</li> </ul>	Arrangements will be made with RPVC and the laborer to fix the floor of SP.	
13/4/87		RPVC met with RT The ground of SP was reconstructed with tile with the help of one woman's husband who was paid LE 7			

At first, some local women were skeptical of the benefits of the standpipe. One woman, a university graduate whose house was next to the standpipe, said she did not want the standpipe repaired, because of the noise the women made while collecting water. She later withdrew her objection when concerned women explained that women who, unlike her, did not have a household connection suffered when they had to collect water from a more distant standpipe. Other women later complained that they did not want to contribute to the cost of repairing the standpipe. The chairman of the Executive Village Council explained to them that he approved of the repair of the standpipe and had asked that all needed equipment, taps and pipes be supplied. The women in the neighborhood gradually became more aware of the importance of the standpipe. One man had told the woman in charge of collecting the money: *"Why don't you mind your own business. This standpipe belongs to the government and they should fix it. I will not pay a penny for it."* However, his wife later contributed LE 1 without telling her husband, because she realized that the standpipe was important for her family.

Women in an adjacent neighborhood, who wanted to follow the example of the local women in Halayla and repair their local standpipe, faced similar local opposition. Some of the neighborhood women said: *"Let the university fix our standpipe."* Others said: *"We want water connections in our homes, so why should we care about the standpipe."* In spite of this opposition, women in this neighborhood held a meeting and decided to collect money for the repair of the standpipe. At a meeting the following week, the women were discouraged because they had not been able to collect any money, and were offended by remarks made by those who refused to cooperate. No further action was planned. The research team told the women that whenever there was a will among the neighbors to act collectively to fix their standpipe, they would be willing to help them articulate their ideas and implement any activities.

Four months later, the Village Council began to renew the piped network for the whole village and cut off all piped water supplies for two weeks, forcing everyone to rely on handpumps. However, some people living next to the repaired standpipe took the opportunity of the water cut-off to submit a petition to the Village Council to close down the standpipe. The concerned women who had been responsible for getting the standpipe repaired decided to take action. As one woman explained: *"We could not stand still until they closed down the standpipe. It is basic to use and we worked hard to repair it last time. We cannot give up easily."* The women went to the Popular Council and asked for their help to keep the standpipe operating, to link it to the new pipe network and build a fence and a cement standing to put the water containers on while drawing water. Two weeks later the standpipe was working again.



When the water was turned off, the women living around the second standpipe, which was still not functioning, realized the importance of the standpipe and held a meeting to discuss the matter. The main actor in repairing this standpipe was a respected elder at the mosque. He was successful in collecting the money, as he suggested that the payment could be likened to *zakat*, the Islamic obligation to give alms, and that the standpipe could be considered a *sabil*, fulfilling a sacred duty to provide water. He used the money to buy the taps and pay the worker to install them and to connect the standpipe to the new pipe network. He bypassed the Village Council, as he claimed that working through them would waste a lot of time and achieve no results.

**Results.** Within six weeks of the first meeting between the research team and the villagers the first standpipe was working again. A few weeks later, the work on the surrounds was completed. The village women agreed to be responsible for the maintenance of the repaired standpipe. When the pipe network was renewed, women acted independently of the research team to make sure that the standpipe was linked to the new network and further improved. The women were very proud of their ability to bring this standpipe back into working order. They had learned how to work with the Popular and Executive Council members to achieve these ends. A good group of interested and energetic young women took the initiative and guided the activity. This standpipe became a model of collective action in the community.

In activities leading to the repair of the second standpipe, the formal role of the research team was limited to the first meetings with concerned women. However, the women were encouraged by the success of women who acted together to repair the first standpipe.

## **Handpump Installation**

**Background.** Some areas in the two study villages were situated too far from the piped network to have adequate access to this protected water supply. Thus, as part of phase II of the research project, lasting from September 1988 to August 1989, a new kind of handpump, delivering potable water, was introduced in one study village. These handpumps use polyvinyl chloride (PVC), which is light and durable, for all moving parts and for the cylinder. The particular type of handpump selected was one of several being produced and tested at the University of Malaya, under the auspices of IDRC, which was sponsoring the action/research project. A member of the research team, a sociologist, was sent to Malaysia to be trained in handpump installation and maintenance.

The handpumps were to be installed, and the efficacy of VLOM, village level operation and maintenance, tested in the village. This concept involves

manufacturing the handpumps in the country of operation in order to ensure the availability of spare parts; training a villager to maintain and repair the handpumps, which need to be robust and reliable, and cost effective, compared to other water supply options (see Arlosoroff et al. 1987, Chapter 1).

The research team anticipated that these handpumps would be useful, safe and low cost water sources in areas of villages which were distant from piped water lines and therefore not accessible to a protected piped supply in the form of household connections or public standpipes. In these areas, householders already depended on privately owned handpumps, which were locally made and installed, and maintained by their owners. They were located either in the *hosh*, courtyard, of the mud brick houses, or along the canal banks. As these were shallow suction pumps, they only tapped the upper strata of ground water, which might be polluted.

The village of Babil was identified as a suitable village for the experimental project as 12 of the 35 private handpumps in the village were situated in areas of the village where there was no piped water network. The water from some of these handpumps had been found to have an unacceptably high level of fecal contamination (el Katsha et al. 1989, 33-7). These privately owned handpumps were not regulated by the authorities with regard to water quality or location.

Although negotiations with the villagers began in September 1988, the pumps did not arrive until July 1989. The first pump was installed in August 1989, towards the end of the project period. However, the project illuminated the general issue of community participation, and the specific issue of the feasibility of this kind of handpump in the Egyptian village settings.

**Preparations for installation.** The research team first discussed with villagers the identification of possible sites for handpumps, and the ways in which they might contribute towards their installation. At the same time, the team members made a survey of the pumps already used in the villages, including such issues as the cost of the pumps and where they were obtained: the cost of installation: the depth of pumps, and repair and maintenance. A consultant from the University of Malaya suggested that, because of the high ground water table, the UNIMADE Mark III suction handpump would be most appropriate. This pump is relatively easy to operate and maintain, and draws water from a 30 meter tube well, compared to the local handpumps some of which were only 10-15 meters deep.

Several meetings were held with villagers, representatives of the Popular Council, and with the head of the Village Council, to discuss the advantages of the PVC pumps over the local type, the estimated costs of construction and drilling the wells, and the criteria to be used in determining the location for the handpumps. At that time, it was also deemed necessary to use local

contractors to drill the wells and install the handpumps in order to ensure the sustainability of the project after the research team had withdrawn.

For this experimental handpump project the units were supplied by the research center at the University of Malaya, but PVC piping for the well tubing had to be obtained locally. A UNICEF engineer, who was working on installing handpumps in Upper Egypt, advised that the team contact the National Plastic Company (NPC) to find out if they were willing to manufacture the PVC pipes to the specifications required for the tube well. The NPC was willing to do this on an experimental basis, and donated the first set of PVC pipes and screen as a gift to the project and villagers. They sent a representative to the site to follow-up on the drilling procedures.

A committee, consisting of village leaders, the chairman of the Village Council, delegates from the Village Popular Council, and the research team identified the sites for the handpumps. The criteria for the location of the handpump included: the pump should serve a large population and should be installed in a neutral area, not close to the house of any prominent villagers; and the place chosen should be acceptable both to the villagers and to the Village Council. However, the committee decided that the first handpump should be installed in the center of the village, since it was for experimental and demonstration purposes, and the cost would be covered by the research project. Written permission from the Village Council was necessary before drilling could begin, as the site was on government land.

No contractor specializing in drilling deep wells could be identified in the village, but a contractor from the same *markaz* was approached on the recommendation of the villagers. After several meetings with the contractor, and discussions at the governorate level, it transpired that the contractor was not registered with the governorate and therefore his services could not be used. Members of the village committee thus widened their search for an appropriate contractor. No contractors contacted had any experience of working with plastic tube wells, as they had not been used previously in this area. However, the first contractor had asked for some modifications, and the NPC had willingly readjusted the sockets of the pipes as recommended.

**The role of women.** The research team approached women in several village neighborhoods to share in the process of handpump installation. During home visits, team members and public service trainees (female graduates carrying out a year of obligatory public service activities in their home villages after graduation), explained the advantages of the PVC pump, its cost, and procedures of installation. Women expressed a willingness to be trained in the installation, use and maintenance of the new pumps. The women members of the village handpump committee invited other women and members of the research team to meetings in their homes.

**Results.** Just before the completion of Phase II of the research project, the first pumps were installed. By that time it was already clear that the cost of a PVC handpump and installation was six times that of a traditional handpump. The main cost of the PVC pumps was the need to use specialized well drilling equipment. This is not used by the conventional, shallow pumps; however, such drilling equipment must be used if the pump is to be deep enough to provide safe water. In addition, working with PVC piping is an unfamiliar technique in the area. Identifying specialized well drilling teams, who were both local and approved by the authorities, consumed a large amount of time.

A manual for the operation, maintenance, and repair of the pumps was prepared in Arabic for the villagers in charge of maintaining and repairing these pumps. Within the time frame of the action/research project it was not possible to monitor and evaluate the handpump activity. However, members of the research team are continuing to evaluate reliability, durability, maintenance requirements and technical performance of these PVC pumps at the village level, and comparing them with piped water supplies.

The PVC handpumps did provide safe water. However, given the conditions in the study village, where piped water was available, the cost of installation was too high. The availability of piped water, which might be extended to all areas of the densely settled village, meant that women did not consider the installation of handpumps was a priority and they were thus not motivated to support the effort. The PVC handpumps might be more appropriate in small, remote satellite villages and hamlets with populations of up to about 500 people which were distant from piped supplies. Additionally, the handpumps might be appropriate in the small, dispersed settlements found in the newly reclaimed areas.

## **Activities Related to the Polluted Canal**

**Preliminary discussions.** In Babil, local people complained about the polluted canal which ran through the center of the village; it was stagnant, smelled, and was full of garbage which attracted flies. At a preliminary meeting, attended by some of the women who were trying to repair the Halayla standpipe on the banks of the polluted canal, the research team agreed that they would cooperate with the local women to do something about this problem.

The research team arranged for a first meeting with ten women by the canal. However, the *daya*, who was also active in efforts to repair the standpipe, was too busy to carry out her promise to contact these women. The research team relied on other informal leaders to arrange for the next meeting. When the meeting did gather at the canal, it was joined by five men and the village representative on the Popular Council. The group agreed with

the councilor that the canal had lost its original function as an irrigation canal since it now passed through an entirely residential area and no longer received a regular flow of water. There was some discussion as to whether the bridge and the pipe connecting the polluted canal with the main canal should be fixed to enable the water to flow again, or whether the canal should be filled in.

The women expressed their concern that, if the canal was to be filled in, a sullage and solid waste disposal system should be developed; if this was not done the sullage and garbage would simply be thrown into another nearby canal and the problem would occur again. One old woman, reflecting an older view of the canal, said: "*This canal is the soul of our village, it keeps our homes clean.*" In contrast, a younger woman commented on the poor condition of the canal: "*It brings disease to our children*" Thus right from the beginning, the activity involved three activities: (a) direct action to improve the canal; (b) a sullage collection service; and (c) a solid waste collection system.

**Direct action to improve the canal.** At weekly meetings to discuss what to do about the canal, various possible solutions were discussed. There was a suggestion to install a pipe and then cover it, so that it could not be polluted by villagers. Subsequent discussions focused on whether to fill in the canal entirely or remove the obstructions which prevented the water from flowing freely. For the first time, village youths attended a meeting. They were ready to help to fill in the canal, on the understanding that they could have a soccer field on the filled area. Nothing came of this initiative.

An important weekly meeting occurred on April 22, 1987, when a group of ten men and women joined the research team, consultants, the physician in charge of the village health unit and the secretary of the Village Council, to discuss appropriate solutions to the village environmental health problems. The research team was working to raise local awareness of the problems. At this meeting the physician, for the first time, became aware of the health hazard posed by the canal. Unfortunately, the head of the Village Council did not attend this meeting. Villagers explained that: "*He is not interested in village affairs because he is not a village resident.*"

The focus of activity then reverted to the question of filling in the canal. The research team agreed to accompany the Popular Council representative to the Irrigation Department at the *markaz* level to discuss this issue, as nothing could be done without the agreement of this department. The head of the Executive Village Council was also invited to come along. At the meeting, the Irrigation Department official agreed that the canal was no longer used for irrigation and that a technical fault in the connection between the main canal and the polluted canal prevented the water flowing through. The Irrigation Department agreed to raise the issue of filling in the canal with the Irrigation

Directorate at the governorate level and the *markaz* irrigation engineer and the head of the Village Council agreed to attend a meeting at the polluted canal.

In order to fill in the canal approval had to be obtained from farmers who once drew water from the canal for field irrigation. The village agricultural cooperative had a list of all local people with rights to draw water from that stretch of the canal, and the local cooperative representative on the Executive Village Council agreed to collect the signatures. Unfortunately, the farmers concerned feared that if they signed the document the Irrigation Department would use it against them to reduce their share of the irrigation water from the whole irrigation system.

The local government staff were slow to cooperate in these varied activities; the chairman of the Executive Village Council had not attended meetings as promised, and had failed to meet with the research team on a number of occasions. Thus, the research team decided to seek for support for these activities at the governorate level. On October 26, 1987, they met with the Deputy Governor, the Secretary of the Governorate and representatives from all departments concerned at governorate, *markaz* and village levels. As a result of this meeting, the Secretary gave instructions that the various departments, including village level authorities, the head of *markaz* Tala, the Directorate of Water Utilities at both governorate and *markaz* level should cooperate to solve the problem of the polluted canal. The following day, the head of *markaz* Tala visited the village and met the Village Council chairman, the head of the village agricultural cooperative and eight local men at the polluted canal. The *markaz* head then set up a committee to investigate the problem, and propose solutions. The committee was scheduled to present its findings in time for the consideration of the village-level disbursement of USAID funds for local development.

At a meeting later in November 1987, a prominent villager said that if the canal bridge was reconstructed, the remaining farmers would sign to approve the filling of the canal. The group decided that money from the Village Council sanitation fund could be used to reconstruct the canal bridge. However, as the various parties involved could not reach a consensus on how best to do this, the funds which had been earmarked for it were reallocated. After this, attention turned to a strategy for clearing the canal, rather than filling it in.

In July 1988, after more than eight months of meetings involving governorate, *markaz* and village level authorities, the defective pipe leading from the main canal to the polluted canal was fixed. In October, the agricultural cooperative cleaned the canal and the water started to flow regularly. All the villagers, both women and men, were happy to see the canal cleared and water flowing again.

Once the canal had been cleared, and the garbage collection system began to operate, it became clear that it was still necessary to clean the canal

periodically. Thus, the research team and formal and informal village leaders discussed the possibility of developing low-cost equipment to remove garbage, such as logs and plastic containers, from the canal. The smith who had manufactured the garbage collection cart made some large forks and heavy plastic nets with long handles. Two families, living at either end of the canal *experimented with the forks and nets*. However, these were not effective as they were only designed to remove small floating items, and there was too much garbage in the canal. A year after the canal was first cleaned, the project team and informal leaders went to the *markaz* Agricultural Department to request that the canal be cleaned again from leftover refuse; within a week the canal was cleaned at the expense of that department.

**Sullage and solid waste disposal.** From the beginning, many villagers supported a sullage and solid waste collection system in order to prevent the pollution of the canals running through the village. A sullage disposal system would also contribute to lowering the overall groundwater level in the village. The Village Council had the authority, indeed was legally required, to collect fees up to 2% of the rental value of each house, for sullage and garbage collection. However, here, as elsewhere, collection of fees and the provision of the services was irregular; the local Village Council had been collecting fees for this purpose for the past two years without actually doing anything about the problem. Some local residents claimed that the disposal of *sullage and solid waste was therefore the responsibility of the Village Council*, and that it was not appropriate for the villagers to take action--thus undermining community efforts.

In mid-April 1987, the research team and a group of women and men visited three neighboring villages to look at sullage collection systems which were being implemented by the village council or by private enterprise. This helped the group to identify possible ways of implementing a sullage collection system. Between May 11 and June 1, 1987, the research team held a series of meetings with villagers, the representative of the Popular Council, and the man who was responsible for septic tank evacuation in the village, who owned a truck. The group devised an experimental privately run sullage disposal system, which was to operate in the most densely populated part of the village. However, no concrete action about this proposed sullage collection system had been taken by the end of the project period.

Although most villagers in the neighborhood supported, in practice, the idea of a solid waste disposal system, some villagers still expressed reservations. They were concerned that the system would not operate regularly and that some people would refuse to pay the monthly fee as long as they had access to a free dumping area, the polluted canal. As a general strategy, the villagers agreed that what was needed was a mule-drawn cart to collect garbage from the householders on a daily basis. A mule-drawn cart would be cheaper

than a tractor. It would also be able to get closer to each house than a tractor as it would be able to move through the narrow alleys in the most congested area of the village. As an incentive, the research team agreed to provide the cart. This was manufactured by a local smith and was ready within six weeks. The head of *markaz* Tala agreed to supply the village with a mule to drive the cart; ten months and many complex negotiations later, the mule was made available for the project. Three months later, the head of the Village Council assigned a village worker to drive the cart, and food and shelter was provided for the mule. The solid waste disposal system was then ready to operate--one year after the main outlines of the system had been agreed on by the villagers, the research team and the local authorities as shown in Figure 5.

In November 1988, one month after the water began flowing through the canal, the garbage collection system was finally initiated. For three months the system worked well in the area of the village closest to the canal, which was kept relatively clean. However, problems soon developed. As the garbage collector worked on his own, he had to attend to the mule himself and could not help children and women put their garbage in the cart. A request, via the Executive Council, to have an extra worker on the cart was refused because of a shortage of laborers at the *markaz* level. The laborer gradually became less regular in his rounds and did not stop in all the village streets as agreed, the villagers thought that the worker was not effective because he came from the village and was ashamed of his work. This worker was replaced by a non-resident village council worker, who was no more efficient, and the system gradually broke down. The women went back to their habit of throwing garbage in the canal.

**Results.** Activities concerned with the polluted canal, and the related intervention for sillage and solid waste collection began in mid-February 1987. Although the canal was cleaned and flowed freely, it was unlikely that it could be kept clean in the absence of sillage and solid waste disposal systems. Villagers and local administrators agreed, in principal, to a plan for sillage collection but no action was taken. By November, the solid waste system was agreed on, and a year later the system started operating; it worked effectively for three months. The Villager Council complained that the system was too costly: the mule was eating too much. Thus, the mule and cart were sold.



**FIGURE 5**  
**TIME ALLOCATION FOR AN ACTIVITY:**  
**IMPLEMENTING A SOLID WASTE DISPOSAL SYSTEM IN BABIL**

Proposed Intervention	Responsible Bodies	Starting Dates of Negotiations	Was Accepted	Duration	Not Accomplished - Main Reasons
Manufacturing locally a cart for solid waste collection	Projet team, informal & formal village leadership	Dec 3, 1987	Jan 21, 1988	1 1/2 months	
Purchases of a mule to pull cart	Head of <i>Markaz</i> Exec.V.C	Nov. 19, 1987	Aug 1988	10 1/2 months	
Solid waste collection started to function after cart + mule + food & shelter made available & appointing one laborer	Village Council	Nov. 19, 1987	Nov. 1988	12 months	
The need for an extra laborer for garbage collection	Head of <i>markaz</i> , Head of V C	Jan. 1989	---	---	Proposal refused due to shortage of laborers on the <i>markaz</i> level

## Lowering the Water Table in Kafr Shanawan

**Preliminary discussions.** In the village of Kafr Shanawan, the problem of the high water table was tackled at the village level, as this was a problem affecting the whole village. The high water table resulted in the ponding of highly polluted water at low lying points in the village, muddy streets, and damp houses, especially those made of mud brick. At the first meeting the research team discussed with the village traditional mayor (the *omdah*) and two mosque *imams* the importance of involving the villagers in efforts to improve sanitary conditions. During the following Friday prayer sermon the *imam* discussed this issue with the large group of men present.

In late July 1987, village sanitary problems were discussed at a meeting attended by fifty men after the Friday prayers. The villagers identified the sanitary problem as related to the low elevation of the village, excessive use of water, especially from flush toilets, in the absence of a drainage system. Villagers expressed their willingness to collect money to establish a drainage system in the village, and also discussed the more immediate possibility of introducing a sullage disposal system. Thus, right from the beginning of the activity, there were two facets to the problem of the high water level. The long term solution involved plans for the development of a piped drainage/sewerage system. The short range partial solution was to work for the establishment of a sullage disposal system which would limit the amount of waste water being thrown into the streets and canals--thus keeping the streets and house surrounds relatively dry and preventing polluted water from entering the canals. A subsidiary activity here involved the improvement of the existing solid waste disposal system.

**The long term approach.** At the first general village meeting, in July 1987, villagers asked the research team to contact an engineering consultant who could give them advice about a drainage system for the village. The consultant met a month later with the *omdah* and about sixty villagers in the village guest house adjacent to the mosque. After walking around the village, the engineer suggested that a piped network could be established to reduce the ground water level. The expense of this proposed network would be far greater than any other intervention suggested so far, about LE 100,000. The villagers agreed to form a village committee to further discuss this proposal and to raise the necessary funds. The amount needed did not deter the villagers, who pursued the proposal diligently.

In view of the complexity of the proposed system, it became clear that authorities at the *markaz* and governorate should be contacted. The research team met the Deputy Governor and the Secretary of the governorate, and representatives from ORDEV (Organization for Rural Development of Egyptian Villages) and the Public Works and Irrigation Directorate at the

governorate level, the head of *markaz* Shebin el Kom, and the Chairman of the Village Council. However, immediate action was not possible, as no further drainage or sewerage systems could be introduced in Menoufia before the two pilot rural sewerage systems in the governorate had been evaluated. Thus, the most realistic interim activity was to conduct a feasibility study for a drainage/sewerage system which could be implemented at a later date. The results of this meeting were shared with villagers after Friday prayers, and they enthusiastically endorsed the plan for a feasibility study.

The research team obtained the services of two environmental engineers who met with villagers, the *omdah*, members of the Popular and Executive Village Council, and *markaz* and governorate level officials; the group walked around the village making an assessment of requirements. A two phase system was suggested; the first phase being the establishment of a piped network to reduce the high ground water table, and the second phase adding a sewerage treatment plant and enlarging the network by supplying individual household connections. The research team worked with the technical team to collect the necessary data for the study, which was submitted to the engineering consultant in February, 1988. Thereafter, the research team held a series of meetings with the engineers, and the representative of ORDEV in order to obtain the approval of the Irrigation Directorate, and to get approval of fund allocation through the Village Council in Shanawan.

The allocation of funds for the whole program was a problem, as the Village Council refused to allocate all the available money to a project for Kafr Shanawan, a satellite village. At the end of November 1988, a delegation from the village committee met the governor to obtain his support for integrating this project into the overall governorate plan for the improvement of village infrastructure. The governor referred the question to the Markaz Executive Council, and they met with the research team, the chairman of the Village Council, the local PC representative to discuss their request.

The research team regularly kept the Village Popular Council informed in writing about all the procedures and steps taken, and supplied them with all the relevant documents. The Popular Council decided that they had no objection in principal to the implementation of the project in Kafr Shanawan. However, there were no funds available for the feasibility study from the annual budget which came from the governorate and was designated for the ORDEV projects for the whole village area. Consequently, the Executive Council refrained from submitting the feasibility study to ORDEV at the governorate level by the due date. Thus, they missed the chance of integrating the project within the overall plan for infrastructural improvements in the village area, and financing it through this budget.

In February 1989, when the Kafr Shanawan proposal was put to the vote in the Popular Village Council, the two representatives from Kafr Shanawan could not muster enough votes to get the proposal passed. However, the

Popular Council agreed to support a plan to provide a piped system and treatment plant for the whole of the main village, as well as the adjacent village of Kafr Shanawan. As the combined population of these two settlements was c 33,000 people, a full sewerage system was considered feasible.

The revised feasibility study to include Shanawan would cost LE 12,000. The villagers from both Kafr Shanawan and Shanawan decided to raise the money for this, and the engineering consultant began preparing the plan for the two villages. As a token of their continuing concern for the project, the Kafr Shanawan village committee which had been set up to raise funds for the project met with members of the village Community Development Association, and decided to open a bank account in the name of the CDA to be used to finance activities to lower the water table. The CDA was selected because it is registered under the Ministry of Social Affairs, and thus can open an account in the bank to serve community needs.

**Sullage and solid waste disposal.** To initiate discussion about sullage collection in Kafr Shanawan, the research team shared with the Popular Village Council representative and a group of five village men the experiences in two neighboring villages where sullage collection systems had been initiated. The villagers promised to contact a local man who owned a tractor to ask him if he would take charge of the sullage collection system for a monthly fee, to be paid by all the villagers. Between early May and the end of July 1987, several meetings were held with the head of the Village Council, the Popular Council, and some villagers.

At that time, no villager was willing to take on the responsibility for the sullage collection system. However, the Village Council later placed a tank in the middle of the village, which was still being regularly emptied at the time the action/research project ended.

The research team also encouraged the villagers to continue the faltering solid waste disposal system, which relied on barrels placed at various strategic locations throughout the village. The village council garbage collector emptied these barrels regularly and filled in low lying areas in the village. However, this system could not be sustained, and it collapsed before the end of the research project.

**Results.** At the time the project ended, the feasibility study for the sewerage system for Kafr Shanawan and Shanawan had been almost completed. Villagers and local administration staff were seeking for funding to begin this large project. Meanwhile, the sullage disposal system was being maintained by the Village Council. These activities contributed to improving environmental conditions in the village. Members of the research team

continued, on an informal basis, to monitor the progress of these various projects after the end of the project period.

## **Village Committees**

**Introduction.** Special purpose village committees to support the local level activities were introduced in phase II of the research project, beginning in September 1988. The research team wished to test the usefulness of such village committees as an additional strategy to support the water and sanitation interventions; to enhance the sustainability of these interventions, and to develop effective local level leadership and decision-making capabilities.

Most committee members were selected by community members to represent their needs; a few were volunteers. This group, with a common interest in solving a pressing problem or meeting a common need in their home area, were expected to deal with these problems on behalf of the villagers. Some of the committees consisted of both men and women, others consisted only of women.

The major task of the village committees was to identify and monitor water and sanitation activities. Committee members were expected to make contact with policy-makers and officials when needed, and also keep in touch with the villagers and mobilize them to share in activities by contributing time, labor, money or ideas. In sum, the village committee members were expected to assume a leading role in instigating and supporting community participation, and stimulating the villagers to work with them to identify common needs, and to plan and take action to meet these needs.

The research team tested the viability and effectiveness of different types of village committees, those based on a residential cluster or neighborhood, and those based on the whole village. They also tested the feasibility of using public service trainees (female graduates carrying out a year of public service activities in their home villages), to support the activities of the committee. This group had already been trained to work with the villagers as health promoters (see Chapter IV). They were expected to follow-up the activities of the village committees, and to keep records of their activities as part of the monitoring and evaluation process.

**The formation of village committees.** The research team discussed the idea of establishing village committees with different groups of villagers, and the public service trainees raised the idea with villagers during their home visits. They explained to villagers how a small group, representing their own needs and selected from among them, could play a positive role in solving their village sanitary problems. In the two villages, the major problems had already been identified by the research team working with informal and formal village leadership; a series of formally established

committees was now needed to build on the initiatives which had already been taken.

In Kafr Shanawan, a single village-level committee was formed, to deal with the preparation of the feasibility study related to the high ground water table; it had 16 female and 22 male members. In Babil, the range of local sanitary problems, as well as the fragmented social organization of the village, resulted in the formation of three village committees, each concerned with a particular problem in one village neighborhood. One committee, consisting of 6 women, was concerned with fixing a standpipe, and another, consisting of six women and four men, monitored a standpipe and the cleanliness of the adjacent canal. The third committee, consisting of four women and five men, was formed to support the solid waste collection system.

Membership in the committees was open to all, regardless of education, status or sex. The main criteria for selection was a willingness to contribute time and effort to finding a feasible answer to village problems and to following up activities agreed on by the committee. Committee meetings were scheduled once a month at a location agreed on by members. Not all members of the three smaller Babil committees attended regularly, but there were usually enough members present to take the required decisions. In Kafr Shanawan, meetings of the single, large committee were usually attended by the same ten women and fifteen men of a total initial membership of 16 women and 22 men.

**The achievements of the village committees.** The village committees were only in operation for six months before the end of the research projects, so their concrete achievements were limited. However, the village committee members in Babil concerned about the polluted canal were able to break the year-long deadlock in discussions between the local authorities and villagers. They were able to get a program of action accepted which involved clearing the canal and activating the garbage collection system, and they helped to motivate women and men living near the canal not to throw garbage into it.

The Kafr Shanawan committee concerned with the feasibility study for lowering the water table was formed after contacts had been established with the *markaz* and governorate administration. Specific activities of the village committee included presenting the case to the governor, in November 1988, and in June 1989 meeting with the members of the village Community Development Association and persuading them to open a bank account in the name of the CDA to collect money from villagers for the project. These activities were ongoing at the time the action/research project came to an end.

## Lessons Learned

**The participation of women.** Involving women in improving the sanitary conditions of their village was the main project strategy, as women are the main users of all water facilities, and are responsible for the disposal of used water and garbage. Planners should not underestimate the competence of villagers, especially women, on issues that relate to them directly. They know best what might be feasible and acceptable, and what is not likely to work. The majority of the women were able to follow the discussions with the research team, and the formal meetings. The women made most of the suggestions concerning the proposed garbage collection system in Babil which were later implemented.

Women's cooperation was sought continuously from groups within different neighborhoods or on an individual basis. Both approaches proved effective and complementary. The focus group discussions gave the research team the chance to listen to women's views and suggestions as to how to cope with the sanitary problems in their own neighborhood.

The success of repairing and maintaining a local standpipe, showed that *women realized the power of collective action. Such action is only possible when women agree on a special need.* The women succeeded in involving their husbands, and their representatives on the Village Popular Council. Having put so much effort into raising money, clearing the site, and rallying support, and having seen the results, the women saw to it that the standpipe continued to function and met their need for clean water.

The lack of cooperation from women in the neighborhoods in which handpumps were being installed was due to the fact that the activity was planned in response to research needs, not in response to the needs of the women. The women did not consider that new handpumps were necessary when they lived in a village with a piped water supply which, they felt, should be expanded into their neighborhood.

The more complex problem of the polluted canal was a difficult one for local people to work together to solve; interacting with local and regional administration officials was tedious and time-consuming and there were a number of possible alternative interventions which needed to be discussed. The women were primarily concerned that, if the canal was filled in, there should be a sillage and solid waste collection system. Thus they were more active in this area, than in the other discussions about the future of the canal. Similarly, because the problem of the high ground water level involved considerable interaction with *markaz* and governorate level officials, this responsibility was handled by the men in the village, although women provided continual support and encouragement.

**Fostering community participation.** The strategy for encouraging community participation needed to be flexible and responsive to villagers' needs. The research team encouraged villagers to share in activities in any form they felt appropriate. For example, after discussing the making of a cart for garbage collection, the village leaders and the research team approached a local smith who enthusiastically helped design and manufacture the cart at a low price. Villagers' participation in the sense of contributing money or labor was lacking at first in this village setting. Gradually it increased because of the support of village leaders and outside catalysts.

Villagers tended to be individualistic, and were not concerned with group action. The feeling that the "government" should be responsible for all village sanitary improvements prevailed, and was an obstacle to effective community participation. The research team sought to identify and sustain informal village leaders who would foster group action, but time was needed for villagers to internalize the concept of such group activities. The element of trust, group solidarity and leadership was especially lacking in Babil due to political and historical factors. Here, a single family was dominant in the village, and also provided the *omdah*, or mayor; but as the family was unpopular with the villagers its members could not provide the necessary leadership. During four years of action/research the research could not identify or encourage informal village leaders of the caliber needed to sustain the interventions.

Part of the problem faced in getting community activities started was that, although the villagers recognized a common set of sanitary and environmental problems, they could not see that these might be solved. They also underestimated the seriousness of these problems because they did not link them with their own health or that of their children. The research team addressed this problem by discussing the health implications of water and sanitation conditions in a concurrent health education program, as described in the following chapter.

**Village committees.** The concept of a "committee" working on a volunteer basis in the village setting was new in both study villages. A few members mentioned that if they were paid they might take the meetings more seriously; however, elected members of the Village Popular Council are expected to work without pay. The village committees were still in their formative stages, having been in operation only six months by the time the project ended. Even during that time members, who had volunteered or had been specially selected because of their leadership qualities and concern about sanitation issues, were often reluctant to follow up issues on their own and take the initiative in solving them. The committees which was concerned with the high water table in Kafr Shanawan took their responsibilities seriously, met regularly and followed-up effectively. Men took the leading role in this



committee, as most of the activities entailed working with decision-makers at the governorate level, women did, however, voice their opinions during committee meetings. Where a village committee focuses on an activity which only involves village level authorities, there appears to be no reason why all or most committee members should not be women. All members of the committee to repair the standpipe were women, and they dealt effectively with other local neighborhood residents and members of the Village Council

A number of important factors have a direct bearing on the success of village committees, and should be considered when forming such committees. Villages are complex settings, containing various hierarchical socioeconomic structures which should be analyzed and understood before interventions are started. Conditions in the two study villages were not identical, for in Babil it appeared to be more difficult for committee members to get their ideas across to decision-makers on the one hand, and to villagers on the other. Internal village dynamics also should be explored, since different residential areas exhibit varying patterns of cohesion, organization and leadership potential, and overall potential for group participation.

Given the need for formal administrative approval and supervision of committees such as these in Egypt, it is necessary to consider who would be responsible for these committees on the village level after the withdrawal of the research team. Most villages have a Community Development Association, supported by the Ministry of Social Affairs. Where this is strong, as it is in Babil, it may be an appropriate umbrella organization for village committees.

**Administrative and management constraints.** Any attempt to improve village water supply and sanitary conditions has to abide by the rules of the administrative structure; the legally established responsibilities and procedures have to be followed at all times. After initial discussions with villagers, informal leaders and local Popular Council representatives, all problems and proposed interventions were discussed with the Village Executive Council and the Village Popular Council. In both villages, at first the members of the Popular Council did not interact with the villagers, or make much attempt to respond to or understand their needs. Similarly, the Executive Council adhered to routine bureaucratic procedures, and did not take the initiative in solving the problems.

Here, as elsewhere in Egypt, administrators at the village level, and even at the *markaz* level, were unable to take decisions unless approval by higher authorities was guaranteed. For example, activities with regard to the polluted canal started to take a more concrete shape only after the research team approached higher authorities and the governor formally requested that the village authorities concern themselves with the problem.

The time taken, and the ultimate success, of efforts to improve village sanitary conditions depended on the complexity of the administrative organization involved. The case of the polluted canal and the problem of the high water table required a longer time to work through, and the administrative negotiations were much more complex than for the routine repair and maintenance of standpipes. In the latter case, no collaboration with an administrative organization beyond the village level was required, and repairs were carried out quickly. This showed the results which could be achieved when opportunities are provided for villagers to act with village-level authorities on matters which affect both parties directly. However, even in this case a favorable outcome depended on much careful work by the research team to open up the channels of communication between the local administration, the Executive Village Council and the elected Popular Council, and the villagers they were supposed to serve.

Many activities relating to the polluted canal and the high ground water table involved lengthy meetings at the *markaz* and governorate levels in order to obtain approval and cooperation for activities. The various ministries and directorates found it difficult to cooperate when considering intersectoral village level needs, for each ministry operates primarily within a separate hierarchical system. This process was especially complex in the case of the feasibility study. The study could not be carried out until the proposed drainage/sewerage system had been integrated into the overall governorate scheme for improving village infrastructure. This entailed frequent contact with *markaz* and governorate authorities responsible for irrigation, water supply, and public health; agreement at the village level about priorities for overall expenditure on sanitation improvements; and adherence to deadlines for presentation of proposals.

The problems of gaining approval for the feasibility study were exacerbated by the fact that Kafr Shanawan was a satellite village, and it had to work out its priorities and needs within the context of those of the whole village unit, especially the adjacent main village of Shanawan. Kafr Shanawan had only two representatives on the Popular Council; proposals could not be forwarded to the Executive Council unless these were first agreed on by the other members of the Popular Council. This suggests that the needs of satellite villages and hamlets may sometimes be neglected at the expense of those of the main village.

**The communication process.** A complex government machinery, requiring a bureaucratic process of decision-making may soon discourage the most enthusiastic and persistent villagers. They viewed administrative procedures as tedious and often did not understand them. Both parties, villagers and administrators, needed to recognize the two-way communication process by which they could collectively work towards improving village sanitary

conditions. Here, the research team encouraged and guided activities, helping to open and maintain channels of discourse and dialogue between villagers and members of the Village Council and other administrators.

# CHAPTER FOUR

## WATER AND SANITATION EDUCATION PROGRAMS

### Introduction

**Health education strategies.** The health education programs were complementary to improvements in water and sanitation carried out in the other two study villages. Health education, if it is to be effective, must seek to change or modify behavior, as well as knowledge and attitudes (Loevinsohn 1990). Therefore it should incorporate a cultural perspective on human behavior. Researchers and planners should seek to understand how and why people behave as they do. They need to work with local people, to learn about their health-related concepts, and to identify appropriate healthful patterns of behavior which can be targeted by health education.

The health education project carried out in the two villages tested different approaches and techniques in health education, so that the research team could recommend the most effective strategies for the Egyptian setting. The project had two components. One reached village women, using a number of different groups of hygiene educators, and focusing on simple home hygiene messages. The second component was a summer club for primary school children, using local teachers and incorporating activities centered around health education.

**The health education process.** The health education process followed in this study involves seven principal activities:

- i) Diagnosis: identification of health problems, health-related behavior and its rationale in the local community;
- ii) Formulation of aims, and scope of the project;
- iii) Identification of the target audience;
- iv) Design and pretesting of messages and methods of communication;
- v) Selection, training and monitoring of health promoters;
- vi) Intervention: health education to facilitate more healthful behavior;
- vii) Evaluation to ensure feedback and sustainability.

A participatory model of health education seeks to involve local people in all stages of the process. This ensures that messages are relevant and that they recommend behavior which is feasible and favored by the local community (Simpson-Hebert 1984). A successful health education program also involves collaboration between the representatives of all relevant governmental agencies at the village, *markaz* and governorate level who act as planners, trainers, educators and monitors. The design of the project, showing the integration of

the various stages, and the different strategies employed in testing a participatory, partnership model is shown in Figure 6.

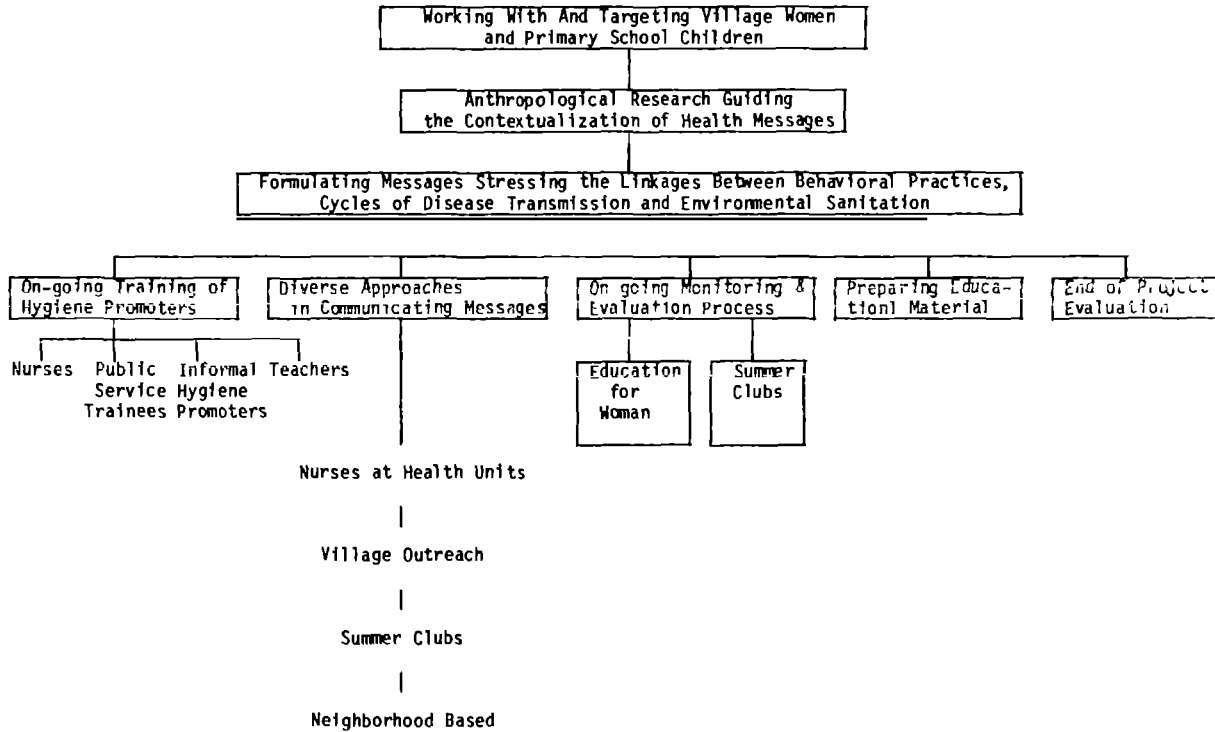
Health education should be an interactive process between educators and audience, and, in our case, the research team (de Haes 1991). The action/research method, whether involving water and sanitation interventions or health education, is flexible enough to respond to new needs, such as those revealed during on-going monitoring and other interactions between researchers, health promoters and local people.

**Pre-intervention activities.** Earlier in-depth anthropological research in the study area had identified women's practices of women related to water use and sanitation, and had sought to understand the rationale women had for following such practices (see Chapter II). This diagnosis provided information about behavior which inhibits or facilitates disease transmission, and which can be used in designing health education messages. Thus, the aims, content and scope of the health education, the second activity in this health education model, could be clearly identified.

A pre-intervention study of health knowledge, attitudes and practices among formal and informal village leaders and service workers was carried out to assess their health knowledge and to identify their possible roles in the health education process. The study found that most of them would need specific training to serve as hygiene educators. Although 92% of the 82 people interviewed did recognize a relationship between the transmission of diseases and flies or contact with or use of contaminated water, few of them could explain these linkages with any precision. There was little distinction between service workers, formal and informal leaders in their conceptualization of the meaning of environmental sanitation. For most respondents this meant an environment free from pollution and flies, and from solid waste and sillage disposal in the streets, as well as personal and general hygiene.

The action/research strategy stressed the participation of local people, and the use of village level facilities and staff to ensure sustainability. At the outset, the research team recognized that women educators could best reach other women, and communicate with them meaningfully in their own homes. The official job descriptions of the various service workers employed in health-related capacities by the Village Council indicated which categories of workers might be potential health educators. Unfortunately, in the two study villages many of these workers and the informal leaders identified by the team were males. The majority of the service workers were not village residents. Thus, they would only be able to deliver hygiene messages during working hours, and would be unlikely to have the detailed knowledge of local conditions which would come from residence in the village.

FIGURE 6: DESIGN OF THE HEALTH EDUCATION PROJECT  
TO TEST A MODEL FOR  
INTEGRATED HEALTH EDUCATION



The job descriptions of sanitarians indicated that, although they were responsible for village level health education, they would not be able to act as health promoters. All sanitarians were, by convention, male. They were expected to perform regulatory tasks in the streets of the village, rather than in private houses; they were responsible for fining people for throwing garbage in the streets and for inspecting food vendors. Although sanitarians were responsible for implementing vaccination campaigns, this task took place in public settings rather than in private domestic settings (see administrative structure, Figure 3). While women nurses at the rural health units were not permitted to leave the health unit during working hours, their job description did not hinder them from reaching out to women who came to the health unit. Public service trainees, young women graduates carrying out a year of public service in their own communities, were attached to the rural health clinics, but under the authority of the Ministry of Social Affairs. As there was no ruling that they could not leave the health units, they were identified as possible hygiene educators.

The school health visitors were not deemed appropriate as health educators in the school setting because, although they supervised the school health programs, they had no direct classroom involvement in health activities. However, the primary school teachers were considered suitable for conveying hygiene education messages to children in the school setting. A large proportion, male and female, lived in the two study villages and were respected local leaders. Because of the use of different groups of hygiene educators, the research team needed to collaborate with staff from many different ministries at both the village and *markaz* level.

## **Hygiene Education with Village Women**

**Introduction - testing hygiene education strategies.** The health education program involving village women was designed to compare the effectiveness of three different groups of women hygiene promoters who had been identified as suitable educators - nurses, women peer group educators, and public service trainees. Each of these groups used the same basic messages but adapted them according to the setting in which they were delivered and the needs of the target audience.

The education program aimed to bring about simple changes in women's habits which would result in a cleaner and more healthful environment. It was hoped that these changes would, in turn, lead to changes in child mortality and morbidity, but the identification and measurement of such changes was beyond the scope of this project.

**The target audience.** Younger women between 20 and 40 were the most important target for the health education messages, as they looked after

young children. They usually carried out a large proportion of the domestic tasks; they were also the most likely to use the canals for washing clothes and domestic utensils. The vast majority of the women reached were illiterate, which meant that education had to be based on face-to-face interaction and simple, well designed visual material.

**Identifying and developing health education messages.** Specific health education messages focused on water storage, infant feeding, hand washing, food preparation, latrine cleanliness, and the preparation of dung cakes for fuel. Overall, the program emphasized the linkages between behavior, cycles of disease transmission, and environmental sanitation; how and why diseases are transmitted in relation to the daily practices of the women (see Appendix II for the English translation of training material and health messages originally prepared in Arabic).

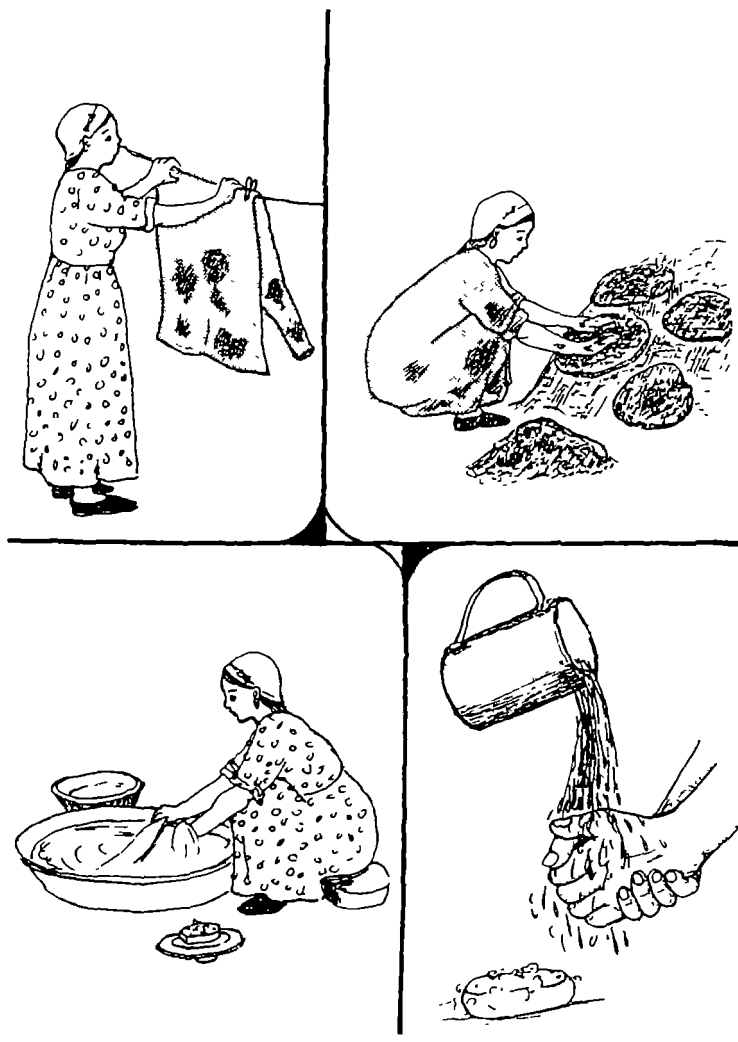
The messages were short and related to women's everyday activities. The basic messages could be modified to respond to local conditions. For example, in Babil garbage disposal was stressed when the garbage collection system was instituted. During the summer, the main season for childhood diarrhea and the time when people complained about flies, messages about food handling and covering, disease transmission, and environmental hygiene were emphasized.

During training and outreach the health promoters needed simple and relevant reference and support material. They were provided with magnetic boards and posters which they could take from house to house or, in the case of the nurses, use at the health unit. Films were shown in the *madayifa*, the village meeting house next to the mosque in Babil. One of the final activities of the health education project was the production and publication of 500 copies of a booklet in Arabic, with many colored illustrations: "Guide for Trainers: Health and the Environment". The booklet was designed in collaboration with the educators, including the teachers in the summer clubs, and evaluated by them. As shown in Figure 7, it was designed in such a way as to relate directly to the villagers daily experience.

**The health promoters.** Thirty four health promoters were involved in this project. They were expected to attend training meetings, carry out health education activities on a fairly regular basis, and participate in evaluations. Although they were volunteers, they were given small monetary incentives for good performance; these were not mentioned during recruitment and training so the women did not work in anticipation of material rewards. Three groups of health promoters were selected for training; 8 nurses, 12 village informal leaders, and 14 public service trainees



FIGURE 7  
PAGE OF THE TRAINING GUIDE



**Preparing dung cakes:**

- Carefully wash your hands with soap after preparing dung cakes
- Immediately after finishing making dung cakes, change your *Galabiya* and put it in the sun to dry
- Wash the *galabiya* at least once a week
- Avoid preparing dung cakes if you have a cut on your hand

Village women selected for their leadership qualities were trained as peer group educators; the majority were illiterate. At first the women visited neighborhood women in their own homes, but later they gave hygiene messages whenever they observed women following unhygienic behavior--in the markets, in the streets, and in the fields. Nine women in this group were residents of Kafr Shanawan who worked on the sewing machine assembly line in a workshop in the adjacent village of Shanawan. The researchers hoped that they might be able to reach the seventy other young women working there, as well as talking to women in their own neighborhoods.

The public service trainees reached women in their own homes. Each woman worked in the same small densely-populated neighborhood throughout her year of service. In order to become more familiar with conditions in this neighborhood, and to identify particular environmental problems which might respond to health education messages, each PST completed a detailed census of the neighborhood in which she was working. Later, each educator selected five households, observing hygiene behavior in the households and conveying appropriate hygiene messages.

The nurses delivered the health messages at the health unit where they worked. They communicated with women who were waiting to see the doctor, or waiting to have their child immunized. Although many contacts were made during small group discussions, nurses often held discussions with larger groups, when they were encouraged to use visual aids.

**Training.** As prospective hygiene promoters did not constitute a homogeneous group, the various groups were trained separately. All training was done in small groups, of no more than ten people, in the settings in which the health messages were to be delivered. Both training and delivery of health messages was very informal, relying on group discussions and visual aids, and never on lectures. The training was divided into two main parts. The first part consisted of training in group dynamics, how to relate to people and to communicate a message effectively. The second part conveyed information about hygienic habits and their relationship to disease transmission cycles, and disease prevention. The education program included the use of local terms, such as *microbe* (plural, *microbat*). This term is used locally in much the same way as the term germ is used in popular dialogue in English (see Early 1988).

Initial training was provided by consultants but gradually members of the research team took over the task. Some public service trainees who trained in the first year volunteered to remain in the program and train the new PSTs. The head nurse at the health unit conducted some of the training sessions for the nurses.

Training of hygiene promoters continued throughout the project. This followed a learning-by-doing strategy which emphasized problem solving and

personal involvement in the project which would have been impossible in a formal training setting. Members of the research team met regularly with hygiene educators, discussing with them the current hygiene problems which might be addressed, and how they might be introduced to the women. The following examples of on-going training, support and monitoring are drawn from a report of meeting between a researcher and peer group educators in June, 1988. The researcher started the discussion by asking the women what were the most pressing issues they needed to address in their current health education activities. Fatma commented:

*Flies - we are doing our best to combat them but in vain We spray insecticides all day, close the windows and keep our house clean However, once we open the window they enter the house*

The researcher then explained that as long as people threw waste and garbage in the streets there would be flies, regardless of how clean women kept the inside of their houses. A free ranging discussion followed about flies spreading diarrhea and transmitting eye disease, which was reported to be a common ailment among children brought to the health unit

Amina was concerned about her role as a health educator. She said:

*It is sometimes very difficult to deal with people They make fun of us and do not listen They started joking about me and up till now they call me "that woman who wants to teach us how to be clean"*

To which Fatma responded:

*We should not deal with women in such a way that gives them the impression that we are better and want to teach them All that we say has to be put mildly, impersonally, and in an indirect way*

**The practice of health education.** The flavor of the educational opportunities, one can hardly think of them as formal sessions, held by peer educators is caught in the records of their oral reports to the researchers. In January 1988, Amina talked to four relatives of her husband who live in the fields alongside a canal. She told them not to drink canal water, to which they replied: "Our parents and grandparents have used canal water and nothing happened to them." Amina then discussed with them the pollution of the canal, and its relation to diseases, and her listeners accepted this, adding the proviso that tea must be made with canal water. Amina's answer was: "This will not be harmful, since the water is boiled and this kills the *microbat*." It is a well known practice throughout the delta to make tea (and to cook beans,

*fuul*) with canal water; the piped system, which draws on subsurface water, has a high manganese and iron content which affects the taste of the tea.

Zeinab reported on her attempts to persuade a woman who was making dung cakes for fuel to change her dress when she finished. Zeinab's sister commented that she should not expect local people to change their behavior: "They keep on wearing the same *galibiya*. When they see it is dirty they turn it inside out and put it on again."

Home visits, and discussions while women were washing at the canal provided plenty of opportunity to discuss a wide range of hygiene practices, but alternative meeting places were also considered. The research team and the health educators identified communal mud brick ovens as places where women get together. The women take the dough from their own houses to the *furn*, shape the flat loaves and pull them in and out of the oven on long paddles, at the same time feeding the fire with corn stalks and dung cakes. It did not take the hygiene promoters long to realize that the women at the ovens were far too preoccupied to pay any attention to their messages about covering the new-baked bread and not handling the dung cakes.

In some cases, a number of women and girls who were not serving as health promoters spread health messages in the community. In Babil, for example, one beneficiary of hygiene education took on the responsibility of conveying to other women information she had learned about using a thick curtain to separate the *zariba*, animal shed, from the rest of the house. In Kafr Shanawan, one of the older hygiene promoters recruited a younger woman to help her in educating other women in an area far from her own residence.

**Evaluations.** Ongoing and final evaluations used both quantitative and qualitative survey methods. On-going evaluations of health promoters were based on formal interviews, oral reports given at meetings, and on observations of educational activities. Focus group discussions and interviews assessed the knowledge gained by members of the different groups of health promoters, their assessment of personal benefits gained, and problems encountered. The evaluation of the impact of the health education on beneficiaries focused on both knowledge and behavior, in order to find out what the villagers had learned and if this knowledge resulted in changes in behavior. Regular monthly evaluations by public service trainees covered 25% of the women reached by the educators. The final evaluation was evenly divided between a control group of women who were not exposed to health education messages, and an experimental group exposed to the messages; they were also evenly matched according to housing characteristics. 89% of the women were illiterate and 90% were between 20 and 40 years old. Formal interviews recorded the women's knowledge and reported behavior. Women evaluators from another village, who did not know what health messages had been used, were given a guide list of behaviors to observe. These were related

to the health education messages conveyed to the women by all health promoters in a variety of settings.

**Results - comparative performance of health promoters.**

**Nurses:** Nurses at the health units were the most successful group of health educators in terms of conveying information and persuading women to change their behavior. Eighty per cent of the women receiving information from nurses at the health units reported that they changed behavior, compared to 58% of all women receiving health education. Twenty-eight of 31 women evaluated reported benefiting from the nurses' education about diarrhea and eye diseases.

Mothers waiting at the health unit to see the doctor or have their children vaccinated presented opportunities for informal health education. For example, if a woman brought a child with diarrhea, the nurse could begin a discussion about the causes of diarrhea, asking the women what they knew about the disease, and suggesting simple preventive strategies such as covering food and water, washing vegetables and hands. Messages were effective because women listened to the nurses with respect, yet felt close enough to talk to them about their intimate concerns.

**Public service trainees:** The public service trainees were effective in approaching illiterate village women. Of 31 women evaluated, 23 said they had adopted most of the measures suggested by the public service trainees on their home visits - such as covering water and food; cleaning the food preparation area; and making a door to separate the cattle shed from the cooking area. Women had good reasons for not following some of their advice. They complained of having no time to clean the house after being out all day, of overcrowding (13 people in two rooms), and using canal water as they had no time to wait for water at the public standpipe. These comments illustrate the hidden cost of behavioral change promoted by health education. Women know that their practices are not healthy, but they may have limited freedom to make healthful choices.

**Peer educators:** Peer educators related well to the women they visited in their own homes, and the women remembered the messages. In general, the older women were more successful as peer educators, as younger women listened to them and respected their experience. Even though the young women recruited from the sewing workshop in Shanawan worked regularly outside their own homes, only five of the nine women initially recruited from the workshop completed the training and began to move around their neighborhoods. One unmarried young woman was too shy to talk to people around her about the practices and behavior they ought to change; she was the youngest sibling in the family and was not accustomed to having any say in

household matters. Two young women with small children were forbidden to participate by their parents-in-law. The mother-in-law of one of them said that it was better for her to stay at home and look after her own children than "to waste her time talking about trivia with other women". The conventional evaluation process did not capture all of the activities of peer group educators, or the long term impact on village women of their training and participation in the program.

Compared to other educators, the utilization of peer educators was not cost effective. Training and evaluation was time consuming. Because the women were illiterate, most training was done on the job, and the trainers had to devise a simple method for the women to make oral reports of their activities. Women were evaluated individually in the household setting. The drop-out rate for the peer educators was also higher than the for the other groups, partly because the women were uncertain about their role, which was not related to any of their existing domestic or economic tasks, and younger women were subject to the authority of their parents or in-laws.

Illiterate village women had relatively had few opportunities to meet other women outside their own homes or those of close relatives. Nor did these women have a tradition of collective action which would have enabled them to meet together informally to share knowledge and discuss common problems.

**General benefits to health promoters.** Some of the material presented to the health promoters was new, and it took time for them to internalize it, and to practice it themselves, before they were able to communicate it effectively to other villagers. The research team noted a change in the hygiene behavior of the health promoters, and their increased awareness of their surroundings, as a result of their training and participation in the program. Such changes, on the part of leading village residents, are likely to have some long-term impact on environmental conditions in the village.

**Results - beneficiaries.** The interviews indicated that, overall, the group exposed to health education identified healthful behavior more often than the control group. The greatest difference between the two groups was in the area of hygienic water storage practices. There was a difference between knowledge and behavior in both groups, but knowledge was not always translated into practice. For example, as shown in table 2, in Babil, 100% of those in the experimental group and 86% of those in the control group said that water containers should be covered; however, 48% of the experimental households visited had covered stored water, compared to only 19% in the control group.

**TABLE 2**  
**REPORTED WATER STORAGE PRACTICES**

Response	Babil				Kafr Shanawan			
	experim.		control		experim.		control	
	Freq	%	Freq	%	Freq	%	Freq	%
Covering water storage container	42	100	36	86	37	100	36	97
Clean place	27	64	16	38	12	32	9	24
Wash container regularly	12	29	14	33	17	46	12	32
Clean hands before drawing water	13	31	-	-	5	15	5	13
Regularly change water	9	21	6	14	4	11	2	5
Clean cup for drawing water	14	33	1	2	4	11	1	3
Protect water from flies	6	14	1	2	5	13	0	0
Never return left-over water after drinking	1	2	0	0	0	0	0	0
Sample	42		42		37		37	

Interviews n = 158

Respondents gave multiple answers

Messages emphasized the importance of hand washing with soap, in relation to household chores and child care. Both observations and interview schedules pointed to differences in results between control and experimental groups. Mothers in the experimental group were observed to instruct their children to wash their hands after defecation (19% in Babil and 27% in Kafr Shanawan), while in the control groups this was not observed at all. As shown in Table 3.

**TABLE 3**  
**REPORTED HAND WASHING PRACTICES**

Response	Babil				Kafr Shanawan			
	experim.		control		experim.		control	
	Freq	%	Freq	%	Freq	%	Freq	%
<b>Before</b>								
eating	40	95	40	95	35	95	36	97
preparing food	37	88	34	81	32	86	31	84
feeding infants	11	26	3	7	7	19	7	19
<b>After</b>								
eating	34	81	39	93	34	92	31	84
house work	38	90	24	57	30	81	25	67
defecating	21	50	6	14	0	0	0	0
sleeping	1	2		0	0	0	0	0
<b>Sample</b>	<b>42</b>		<b>42</b>		<b>37</b>		<b>37</b>	

Interviews n = 158

Respondents gave multiple answers

26% of the experimental group and 7% of the control group in Babil said that hands should be washed before feeding infants; however, 33% of the experimental group but only 5% of the control group were observed to do so. As one woman said:

*Before I used to feed the baby whenever she cried, even if my hands were not clean. Now I can leave my daughter crying for a while until I wash my hands.*

Overall, the evaluation indicated that women exposed to health education practiced more healthful behavior than those who had not received it. The results of the observations are more important than interviews because we need to know what people do, not what they say they do. If health education changes knowledge, but not practices, it cannot be said to be successful (Loevinsohn 1990)

Young unmarried women who were responsible for domestic tasks, and did not have older siblings who would object to what they did were able to implement new practices. However, others could not do so because they were seen as too young, they had only partial responsibility for certain important household tasks or they faced pressure from their in-laws.



**Concluding comments.** The institutionalization of the health education programs aimed at women showed that nurses were the most effective group of health educators. The effectiveness of nurses, operating in the health units, is noteworthy as the nurse/clinic setting is replicated in most developing countries. The public clinic, providing basic primary health care such as immunization, diarrheal disease control, and family planning, is often the first contact of the mothers and their children with the formal health sector. Such a setting provides natural opportunities to initiate hygiene education, and also helps to overcome women's reluctance to use the primary health care facility for both preventive and curative care.

The public service trainees were also effective in communicating appropriate health messages in domestic settings. Although they were young, as graduates they were respected by local women and had more freedom to move about the village than did the peer educators. However, their time of service was limited to one year; the following year a new group had to be trained and supervised - often they were gaining in confidence just as their term of service was coming to an end. Four of the participants in the first year of the program, who continued to live in the village, volunteered to continue their involvement in the program. They did this on a voluntary basis, even though they did not have regular jobs. As one young woman said:

*We cannot sit idle as before. Now we are used to utilizing our time in a constructive way and it would be difficult to remain at home.*

These were the girls who, during the second year of the program, trained incoming PSTs and carried out evaluations of the summer club program and of the women recipients of health education.

The formal evaluations showed that, although some women were effective health educators, the use of illiterate peer educators encountered problems which limit the replicability of this part of the health education program. Overall, this group was the least cost effective, in terms of longer time needed for individual training and monitoring, and the high dropout rate. However, anecdotal evidence suggests that peer educators gained considerable and sustained personal benefits from participating in the program, and that they often continued providing information to their peers after the formal program came to an end.

This health education experience showed that a program directed towards women must also involve the men, whose approval and support is required for women to participate as hygiene educators. On several occasions, the village women suggested that a male member of the research team discuss the program with the men, so that they would allow their wives and daughters to participate. This strategy was successful.

## Summer Clubs

**Aims and objectives of the summer club program.** The school health education program, taking place during the long summer vacation, was an additional health education strategy which could be tested for its effectiveness in the village setting. It was yet another way to reach the village audience--primary school children--with environmental health messages, at a special venue, and with another group of local people--teachers--acting as health educators.

The main objective of the program was to provide children with basic knowledge about health and hygiene practices relevant to real-life situations, which would result in a change in their behavior. The program also encouraged children to develop self-reliance and the opportunity to assume greater responsibilities for their own health. The program had the wider aim of helping children to communicate health-related behavior to their family and peers, and to encourage their involvement in community-based efforts to improve sanitary and health conditions. The program also aimed to increase the knowledge and skills of the teachers. Thus, the program aims were congruent with those of the overall action/research project to develop and sustain community health and welfare.

**The setting.** Education is free and compulsory in Egypt until age 14, and 90% of eligible children are recorded as attending primary school; 98% of boys and 83% of girls (CAPMAS/UNICEF 1989, p 100, 106). However, health education plays a minor role in the school curriculum. Because of crowding and the practice of running double shifts even in many rural schools there are limited opportunities for extracurricular activities which might include health education.

Summer clubs, primarily recreational in orientation, are already operating in some Egyptian schools, and the local administration in the study area had sometimes provided funds for teachers and equipment. Thus the research team decided to support summer schools as an ideal opportunity for introducing administrators, teachers and students to current approaches to health education; teaching life skills and linking what is learned in school with out of school activities and behaviors (WHO/UNESCO/UNICEF 1992). The aims of the summer clubs are in line with recent governmental policy to encourage youths and children, and their teachers, to take an active role in improving local surroundings. This was one of the first experiments in the governorate where efforts at the village level were directed towards encouraging the participation of children in the promotion of environmental sanitary conditions.

From the beginning the research team worked closely with the administrative and teaching staff in the selected schools; full approval and cooperation was also needed at this stage from the Ministry of Education at the

*markaz* level. To encourage the replication of this experimental program, policy-makers from the Ministry of Education at the *markaz* and governorate level were later involved in training teachers, and in supervising and planning the program.

**Teachers as health educators.** Teachers are recognized as ideal health educators because they are authority figures to whom children will listen with respect. In the school setting, they are operating in a role that is comfortable and familiar for them, and for the children they are reaching out to. In pre-intervention interviews in the villages, 87% of primary school children said that they had gained most of their knowledge about health from their teachers, rather than from their family or their peers, or from the school health visitor, whose role is supervisory rather than educational. In Egypt, where many primary school teachers are local people with close ties to the community, the teachers are well known to children and their parents outside the school setting, and are respected as community leaders. Over half of the teachers who volunteered for the summer clubs lived in the villages in which they taught.

A pre-training interview schedule was administered to teachers responsible for teaching the health and hygiene modules in the curriculum. These interviews were designed to identify possible summer club teachers, as well as to obtain information on their role in the school and their health knowledge. Forty per cent of the 53 teachers interviewed claimed that disposal of solid waste and sullage in the streets was the main problem in the two villages, and 30% mentioned the lack of a sewerage system. However, one quarter of the teachers said that the solution lay with the government. The results of these interviews, and those with 230 children, in which they identified similar environmental problems, helped to identify the theme and content for the summer club programs.

The summer clubs provided an opportunity for teachers to realize their full potential and improve their teaching skills. Most of the teachers' knowledge of health was theoretical, and the regular school curriculum provided few opportunities for them to apply this knowledge to the daily life of their pupils. Thus, the challenge of the summer clubs was to train teachers and to provide them with information and materials which captured their own interest and was directly relevant to the health needs of the children. The more relaxed and informal atmosphere of the summer clubs, compared to the regular school setting, facilitated effective teacher-student interaction.

**Children as an audience for health education.** The primary school children attending the summer clubs over the three year period were all fifth and sixth graders, between the ages of ten and twelve. This is the final year of primary school in Egypt, and may be the last uninterrupted year of schooling for some children, even though the official school leaving age is 14.

Although some children work in the fields during the summer vacation, there are few educational or recreational opportunities available in the village; the boys play in the dusty streets and alleys or go swimming or fishing in the canals, while the girls help their mothers in the house.

Many studies have shown that both girls and boys in this age group play a key role in promoting good health behavior in their families and among their peer groups. They learn quickly, they are enthusiastic and anxious to apply their knowledge in their daily life. In the study villages, as elsewhere in rural Egypt, girls at this age are already helping their mothers in domestic tasks and looking after younger siblings. Thus, they can easily appreciate the relevance of messages about personal and home hygiene and put them into practice in their daily lives, and they are often able to communicate these messages to their mothers. As future citizens and parents, healthful behavior adopted by children will have life-long benefits (see WHO/UNESCO/UNICEF 1992). So far, this group has been bypassed in most efforts to improve health and rural welfare in Egypt.

**Designing the program and training the teachers.** The theme "Health and the Environment" was chosen for the first year summer clubs. The following topics were discussed: personal hygiene; home hygiene including nutrition and hygienic food handling; and environmental sanitation. During the second and third years more emphasis was given to the methods of disease transmission and to behavior which would prevent the spread of disease, especially schistosomiasis.

Two male and two female teachers were initially recruited from each school. The teachers were trained immediately before the summer club sessions in small informal groups, using face-to-face discussions rather than a lecture format. The training was divided into three components; basic health information that needed to be communicated to the children; methods of communicating information to the children; and simple crafts using local materials.

As with the training of women hygiene promoters, the initial training was carried out by a consultant, while later training was conducted by the research team. However, it should be emphasized that, especially during the first two years, the actual implementation of the summer club was in effect an on-the-job training for the teachers involved. This was feasible because the research team guided the activity and practiced with the teachers the different strategies for reaching the children.

From the beginning, training programs and evaluation involved inter-sectoral collaboration, as staff outside the Ministry of Education were used. The director of the nurses at the governorate level administered the health component of the teacher training. Public service trainees attended the teacher training sessions and were then trained to monitor the summer club program

and keep records. The researchers met biweekly with the teachers and the public service trainees to evaluate activities, modify the program or deal with any problems which emerged.

A brief teaching guide was prepared for the teachers' use, and a simple pamphlet for the children covered the main topics in the program. The illustrated booklet: "Guide for Trainers: Health and the Environment", which was prepared for all trainers in the health education program, was ready for use by teachers in the final summer club. In the final evaluation, the teachers reported that it was very helpful, and they wished it had been available earlier.

**Setting up the program.** Two primary schools, one in each study village, were selected as the locations for summer clubs during the first year, 1988. In Babil, the summer club was attended by approximately 100 girls and boys from the three primary schools in the village. Five teachers from these schools, and the headmaster of the school in which the summer club was held, were involved. In Kafr Shanawan, about eighty children from the two primary schools attended the summer club, supervised by four teachers and the headmaster.

The clubs operated three times a week over a six week period. Every day there was a three hour session, divided by a half-hour break. The children were divided into groups of between 25 and 30. In the morning the groups discussed a specific health topic, through the medium of group discussions, making posters and story-telling. In the afternoon, the groups followed activities reflecting their interests and those of the teachers. Groups included acting, home economics, art, crafts and music.

Groups of children were taken on walks around the village to observe practices which might be harmful to health, or which would be beneficial. Children and teachers cleaned the school and its surroundings, and worked towards improving the condition of the school latrines. These activities culminated in the children's participation in a cleanliness campaign in some village neighborhoods, when the children collected garbage and swept the streets.

The teachers in each school organized a final party for the children which also provided them with an opportunity to share the results of their activities with their parents and other children. The art group showed the waste baskets and posters they had made; and the acting group presented some short songs on health, and acted a short play emphasizing the importance of adopting hygienic practices.

**Results - the beneficiaries.** The first year summer clubs, held in 1988 in two schools, were attended by a 180 children and involved 11 teachers. By the end of the third year, the program had reached over 1,000 children in six villages. At the end of the first year, a detailed evaluation of the beneficiaries

of the summer clubs covered both children and their families. In general, this showed that all the interviewees, children and parents, were very supportive of the summer clubs. Parents, especially mothers, were very impressed by the new habits children had learned, which included regular hand washing, combing of hair, and wearing clean clothes. One mother said:

*My son was so attached to the summer club that I did not have to wake him each morning and spend an hour trying to get him out of bed. He woke early and washed himself to go to the school club.*

Another mother reported:

*My daughter became very meticulous about washing vegetables and specifying a separate glass for drinking water for everyone in the family. She even wanted to wash the eggplants with soap before cooking them. She always tells me that we have to wash lettuce leaves one by one under running water in order to kill the microbat.*

Many of the children acquired new information, especially about schistosomiasis infection, flies as disease transmitters, and other sources of pollution and their effects on health. Some of the children adopted hygienic practices such as regularly washing their hands before and after eating; washing vegetables and covering food; refraining from swimming in the canal; sweeping in front of the house; and throwing garbage into covered containers. Some children shared their new information with peers and siblings. One ten-year old boy said:

*Every time I see my younger brother walking barefoot, I insist that he wears shoes, otherwise I refuse to walk with him. Also, when I saw him playing in the street and then picking a tomato to eat, I took it from him and washed it. He is still too young to know that eating vegetables without washing them can lead to diseases.*

The sustainability of such behavior is important, but less easy to measure within the time frame of the research project. Members of the research team walking through the village in the late fall, three months after the end of the second summer club, met children who were still following the practices they had learned; they were helping to clean the surrounds of the public standpipe, collecting garbage and throwing it into the donkey cart which collected garbage in Babil village, and were cleaning in front of their homes.

Children who had attended the summer clubs also became involved in other activities. In Babil, after the program had been established for two years, a group of five girls approached the research team a number of times to ask

about the garbage collection cart that had been operating there. When this waste collection system halted for a while, they went to the village council representative to see what had happened. This group also undertook to clean around a public standpipe which was heavily used by local women. Since they were now in preparatory schools and had outgrown the age limit for participating in the summer clubs, they had collected a group of younger village children, especially school drop-outs, taught them to read and write and talked to them about health and disease. Children also pressed their parents to participate in the other activities of the action/research project. For example, one of the girls in Kafr Shanawan whose mother had just given birth to a new baby kept on reminding her to attend a village committee meeting to discuss the problem of the high ground water table.

**Results - teachers.** For the first year summer clubs, in two schools, eleven teachers were trained. At the end of the first year's summer club, interview schedules were administered to assess changes in the teachers' health information. Only three of the eleven teachers said that the training did not provide them with new information, while the remainder claimed that the training widened their horizons and suggested various ways of communicating community health concerns to children. All the interviewees knew that flies were major transmitters of disease, and all could explain how exposure to canal water can lead to schistosomiasis.

The teachers were also asked to evaluate the summer club experiment by commenting freely on a number of themes. Almost all the teachers affirmed that the summer clubs were successful in reaching the students and providing them with health information in an interesting way; for the first time children were offered the chance to practice and implement the theoretical concepts they learned at school. The application of health information was not confined to the immediate school environment. The teachers who lived in the villages observed children adopting many of the hygienic practices they had learned at the summer club and encouraging others to do likewise. Almost all the teachers agreed that they had gained new skills in communicating information to children which was relevant to their daily life, and using locally available materials.

**Extension of the program.** After the first year summer clubs, the program was continued in the two villages with a new theme: Health Education: the Pillar of Preventive Health Care. Twelve sessions were scheduled and new material introduced on how diseases are transmitted and how these are related to the children's behavior. A similar pattern of daily activities was designed, with practical groups meeting in the afternoon. During those sessions, some children prepared wire net food covers, and made covers for *qulla*-s, water containers.

In the two schools, about 160 children took part, under the supervision of ten teachers and two headmasters. However, attendance levels were lower than the year before because cotton, the main cash crop, was heavily infested with cotton worms and children were needed for the tedious job of picking them off the cotton plants, one by one, throughout the long, hot summer days. The evaluation conducted at the end of the summer club session showed that, as in the previous year, the children most readily adopted practices related to their personal hygiene, such as hand washing, and to their household chores, such as covering food and water containers.

Building on the activities of the first year's summer clubs, the research team also decided to encourage extra-curricular health activities in one of the participating schools. During the school year 1988/9, the team encouraged the Health Activity Group to disseminate health information first among its student members, and then among the other school children. The research team suggested topics for the monthly meetings and provided audio-visual materials. However, the group was not ready to assume these responsibilities, and the teacher who supervised the group activities needed more training. The final examination period, in April, and the fasting month of Ramadan slowed down all extra-curricular school activities.

During the third year, 1990, summer schools were conducted in six villages, reaching approximately 100 children in each village. The summer clubs were extended beyond the original two study villages in order to find out whether the program could be replicated and sustained once the research team had withdrawn its support, and what problems might be encountered in so doing.

**Constraints.** Evaluations showed that, over the three year period, many teachers and students had benefitted from the summer clubs. However, it took time for teachers to become accustomed to new teaching methods, which stressed the relationship between the material presented and everyday life rather than being simply theoretical or based on rote learning. Teachers also lacked the experience of working together and sharing their findings. They frequently blamed their lack of innovation on a shortage of materials for classroom use, although some teachers demonstrated that these difficulties could be overcome.

**Replicability and sustainability.** Collaboration with the Ministry of Education and other ministries at the village and *markaz* level, while facilitating the smooth running of the project, was also intended to ensure its sustainability. During the first two years, the scope of Ministry of Education involvement in the two *markaz* gradually expanded, as they helped to select the schools, design and conduct the training of teachers and monitor the summer club activities.



In the third year, 1990, the Education Department undertook to supervise the overall program for all six villages in the two *marakaz*, to encourage them to take over the future operation of the summer clubs. They made periodic visits to each of the six schools, which also encouraged the seriousness and commitment of the participating teachers. In consonance with their role in the action/research project, the research team acted as a catalyst in coordinating the activities of the Education Department and the school administration staff, and monitored the program. They also provided extra in-service training for the teachers and materials, such as visual aids for classroom use.

Since the beginning of the project, cooperation with the Ministry of Social Affairs had enabled public service trainees attached to the health units to help to monitor the program. If the program is to be institutionalized, extended beyond these six villages in Menoufia governorate, collaboration between the Ministry of Education, the Ministry of Health and the Ministry of Social Affairs at the *markaz* and governorate levels will be essential.

### **Lessons Learned**

**Many messages, many settings.** The study showed that, in the village setting, a diversified group of hygiene promoters, whether service workers, peer educators, public service trainees, or teachers, can reach different segments of the village community. The impact of health messages is multiplied because they come from so many varied sources. In addition, they are all related to the central environmental theme, and focus on everyday activities.

These conclusions are not unexpected. They reflect those found in current studies of participatory health education programs in other developing countries. After a review of over eighty journal articles on health education, Loevinsohn (1990) concluded that health education was more likely to be successful if: 1) there were only a small number of messages; 2) they are of proven benefit to the community; 3) they are repeated frequently; and 4) they are transmitted in many different formats.

**Local leadership and empowerment in the village setting.** As with the water and sanitation interventions, the health education project needs to be understood in the local context of village mores, power and leadership. Women, especially younger women, in many cases need the consent of their fathers, in-laws or husbands before becoming health promoters. Thus, even in a health education program directed at women, and involving activities within the domestic sphere, the support and collaboration of men, as informal leaders, husbands and fathers, should be sought.

Local conditions need to be considered in assessing leadership potential. The recruitment of village women as hygiene promoters was more difficult in one village because of the more atomistic structure of the village, whereas in

the other village, once a few promoters had been identified, they were able to use village networks to help the research team identify new recruits.

Health educators are most effective if they are acting in roles which are familiar to them and to their audience. Thus, in the village setting, nurses can communicate effectively with women attending a health clinic, and teachers at the summer clubs communicate successfully with primary school children. The women peer educators, in contrast, were not accustomed to conveying hygiene messages to women in their own homes.

The relative lack of success of women peer educators also appears to be related to the fact that villagers, especially women, are not yet used to the concept of serving their communities, and working voluntarily. It takes time for the idea of voluntary participation to become accepted and for a group of people such as hygiene promoters to become active and happy with their new role. However, those women who have embraced the concept of voluntary activity and have acted accordingly are becoming good spokespeople for environmental education in the village.

An education program can empower women, as they acquire knowledge and with it, some control over their own health and the health of their children. Participation in the program can empower the educators, whether they are illiterate village women, nurses, public service trainees or teachers, by giving them basic hygiene knowledge, confidence to present their ideas, the ability to work together and share their experiences, and added respect in the community.

**Resource needs.** The health education program demonstrated the importance of starting with what is available locally, even though the resources appear to be limited. The project used local staff, expertise and as far as possible, financial support. In the study villages, the staff at the health units and the public service trainees were under-utilized, as is common elsewhere in Egypt. They welcomed the opportunity to become trainers and health educators and they performed well. Nurses provided education at the health units during their working hours. Clinic doctors, head nurses and nurses were used as trainers for other nurses, public service trainees and teachers. These activities challenged the idea, commonly accepted by both administrators and local people, that nothing could be done within the framework of the village services because there were no funds available.

The summer club program could be replicated as summer programs are already sponsored by the Ministry of Education, which sometimes also makes funds available to pay teachers and provide materials. In this demonstration project, money for staff and supplies was provided from the research fund, and curriculum and teaching guides were prepared in order to demonstrate the feasibility of the summer club format as a vehicle for health education.

**Intersectoral cooperation.** Intersectoral cooperation was shown to be essential for the success of the various health education programs. The cooperation of staff in many different sectors at the village and *markaz* level was needed before local staff could train and participate in the program; the Ministry of Education for the summer club program; the Ministry of Health for the clinic-based program and for the training of teachers; the Social Affairs Department for the public service trainees. As with the work on interventions, the interaction of the research team with local and regional officials--discussing the project with them, listening to their views and involving them in training and evaluation--helped to maintain official support for the activity.

The procedures involved in working with local and regional administration were often tedious and time consuming. For example, it took a long time, and many follow up visits by researchers for all the public service trainees to obtain the required clearance from the Ministry of Social Affairs to train and work as hygiene promoters, even though they had already been directed to the rural health unit and had not been assigned any other specific tasks.

One unresolved problem was the question of sustaining informal groups of village level hygiene promoters after the research team left. In Egypt, the activities of local voluntary organizations are circumscribed by law, and have to be supervised by an umbrella organization. Perhaps these groups could be part of the program supervised by the local village Community Development Associations, supported at the village level by the local representative of the Ministry of Social Affairs.

The insights gained in this project could be incorporated into training for nurses, as nursing training is carried out locally in the seven nursing schools in Menoufia governorate. Training materials prepared during the project could be used for nurses training, as well as for in-service training for health unit staff. Working through the Ministry of Social Affairs and/or the Ministry of Health, materials and encouragement should be given to public service trainees attached to health units so that they can carry out community based health education on a governorate-wide basis.

Collaboration with the sectoral authorities also meant sharing experiences with them. For example, at a meeting with Ministry of Health Staff at the governorate level, health staff agreed that hygiene education constituted a vital component of primary health care. The head of one Health Department argued that health education should be tackled in a holistic fashion, contrary to current practices in the health sector. At the moment there are many different health education projects each emphasizing a single theme; for example, oral rehydration as a treatment for childhood diarrhea, nutrition, immunization and, now, hygiene education. Staff members recognized that separate programs, involving training, the preparation of visual aids, and separate educational sessions, was wasteful as all the themes were so closely related. Even if such

discussion did not have immediate results, it heightened staff awareness of the need for new strategies in integrated primary health care

**The partnership model.** The partnership model was also relevant for the health education program. The final phase, when cooperation with local administration staff increased, was in effect testing a partnership model. Here, the model included all the potential beneficiaries of health education (women, children and their families), those who were trained and implemented health education (nurses, public service trainees, peer group educators and primary school teachers), and local administration staff whose cooperation was needed to implement and sustain the programs

The topics addressed in the various health education programs were effective because they reflected community concerns to improve water and sanitation facilities in the two villages; for example, the need for garbage and sillage collection systems to keep the streets and canals clean and cut down on the number of flies. Some people were involved in both sets of activities; some of the women active in repairing standpipes and solving the problem of the polluted canal were also hygiene promoters. This showed that the education component was linked to the water and sanitation activities, and that a two-pronged approach to environmental problems was feasible at the community level.

# CHAPTER FIVE

## CONCLUSION

### **The Objectives Accomplished**

This action research project tested various approaches to implementing water and sanitation programs in rural areas, using a holistic, partnership model. In this model all players, mainly at the village level, who have an interest in the various projects were involved: administrators, informal and formal village leaders, villagers, and the research team. An attempt was made to deal with the whole structure, all the participating people and institutions, and with all program processes, including diagnosis, planning, implementation and maintenance.

The argument was that such an approach is a good guarantee of sustainability. In general terms, the various elements of the model showed considerable potential.

The main objectives accomplished included the testing of various innovative approaches as means of improving health and sanitation through local participation. Interventions, such as those focusing on standpipe repair and maintenance, which could be supported at the village level, were most successful. In the health education component, the research team concluded that nurses, community service trainees and teachers were effective health promoters. Women approached during the study became more aware of sanitation problems which affected them directly, and more receptive to hygiene messages.

### **Empowerment of Women**

This action/research project reinforces the findings of earlier studies that women should be involved at all stages of the identification, planning, and implementation of water and sanitation projects. Women became more aware of the possibilities of action in the area of local water supply, and the disposal of waste water and garbage. Women were also the major participants, as educators and audience, for hygiene education. The project found that health education by women nurses, and by primary school teachers during summer clubs, was effective. Messages delivered by women in a number of different social contexts, including the health unit and the household, helped to create a wider awareness of hygiene behavior in the village and were repeated in many informal settings.

The process of getting women involved and interested and acting as a group was gradual and time consuming. It depended on the gradual development of rapport between the women and the research team. Women were able to take the lead in articulating and acting on a communal need if they experienced this need personally and the activity did not involve complex administrative procedures. In the case of the standpipe repair, they stimulated other women to organize in a different neighborhood, following their example. However, the role of a facilitator, in our case members of the research team, was important especially in the initial stages of mobilization for group action.

In the Egyptian rural setting it is difficult to identify and foster leadership and participation by women, because of women's lack of social power, and their gender segregated activities which are predominantly in the domestic, rather than the wider public sphere. The involvement of women takes time and the successes here were due to the small scale and long time span of the project. The research project focused on only two villages, and over four years built on the communications and knowledge obtained during the previous two years of anthropological research.

### **Community Involvement**

Community involvement, by women and men, cannot be forced - it takes time. Initially, the predominant attitude of the rural people about water and sanitation, and other village problems, was: "Let the government solve the problem." However, work over a four year period did result in some actions, in some changes in attitudes and expectations on the part of the villagers. The villagers' network of social interaction formed the basis for activities by the community members and by local leadership, both formal and informal. Adult women and men were involved in various activities, such as repairing and maintaining standpipes, and waste water and solid waste disposal. Children were observed to have improved the levels of their personal hygiene, and kept their house and street environment clean through activities at the summer club. Only youth could not be reached. Although a group of adolescent boys had shown some interest in helping in Kafr Shanawan they did not follow through with this suggestion.

The involvement of women, men, and children in activities relating to water and sanitation, took place in a number of different spheres of activity, and were thus reinforcing. Health education messages came from a number of different sources, from health promoters and from the audience, which included children; at the same time, villagers - sometimes those who had been actively involved in health education, were working to improve the local village environment. Village informal and formal leadership worked with community members to support the program.

In the study setting, there was little tradition of voluntary action and collaboration to solve local level problems. Villagers and households were predominantly individualistic in their outlook. Thus, there were no available models to turn to when seeking to encourage local women to act as health promoters, or local women and men to form health associations. It took time for local women, and also to a lesser extent for men, to develop the necessary confidence, and persistence, needed to tackle local problems. Many times, an activity begun was given up in the face of the obstacles encountered.

It was clear from a study in only two villages, that local conditions in a village, or the neighborhood, can have a considerable impact on the development of participatory projects. Babil had been dominated before the 1952 revolution by one family who remained unpopular in the village and was riven by factional disputes, with competing family and kin groups seeking to replace the influence of the single, once-powerful family. Kafr Shanawan appeared to have few such rivalries, and proved to be a more fertile ground for community action. Thus, for maximum impact, it would appear to be essential to focus on those communities which are responsive to the concept of community participation, and where some individuals commit themselves to this idea from the beginning.

Some factors which discourage community participation may be related to recent social and economic change, but the evidence for this as it affects the two study villages is only anecdotal. The growth of individualism may be a factor here. In the past, weddings and funerals were major village and neighborhood social activities and no household would think of having a wedding soon after the death of a resident of a nearby household; such considerations are less relevant today, and life cycle festivals are primarily family and kin affairs rather than neighborhood activities. Economic pressures, to maintain living standards after boom years and, for the fortunate few, after remunerative work elsewhere in the Arab world, focus on the household and distract many women and men from a wider community participation and interest in community affairs. Increasingly, women sought for more channels through which to earn additional cash; and men often had more than one job. Changing patterns of leisure may also have contributed here; TV viewing, a major leisure pastime, is largely a passive activity, carried out indoors and at the expense of social interaction involving neighbors.

### **Local Administration**

All through this action/research project, activities needed to be cleared with local administration, and their approval sought. Common administrative problems were identified during attempts to develop health education programs and to improve water and sanitation provisions. The administrative system is, in practice, highly centralized, and top-down decision-making drains initiative

and incentive from local level administrators, who are seen simply as instruments of central policy.

Horizontal linkages are correspondingly weak; thus hindering communication between the separate authorities responsible for the whole range of water, sanitation, education and health issues. Thus, a holistic, problem-solving, partnership orientation towards solving water and sanitation issues is extremely problematical without changes in the organization of local administration.

This project revealed that small projects, involving only the village level authorities, were ideal targets for community action. These can therefore be the entry points for developing community participation. However, it soon becomes clear that, in water and sanitation, a small intervention is linked to others such as the need to improve drainage, the need for health education. Therefore, efforts restricted to this level may quickly reach a ceiling beyond which little can be done, if the existing system of local administration does not become more responsive to local needs.

The need to strengthen the existing institutions in the environmental sanitation and public health sectors is likely to be a long term process requiring policy change and the infusion of funds, appropriate materials and training. However, this project showed that, in spite of the problems of administrative constraints, some pathways for sustainable change could be identified and mapped out.

## **The Way Ahead**

In an initially unpropitious local setting, the action/research project effectively fostered the villagers' participation, voluntary activities, and the development of their decision-making skills. This indicates that the model can be replicated elsewhere, with modifications to suit local conditions.

The empowerment process encouraging the participation of all members of the community, especially women, was only just starting to take root when the project came to an end. The time taken to develop a participatory ethos, on the part of the women and men in the two villages, and the fact that they easily became discouraged when dealing with local and regional administrative staff, suggested that the balance of the original participatory model should be changed.

The research team, as facilitators, directed most of their attention towards the villagers and their needs, and neglected the potentialities, constraints, and processes of the government personnel and organization. Identifying the management structure, as in this project, is only the first stage in the development of a partnership model. A better understanding is needed of the process of decision-making at all levels and by all actors, and of the nature of the horizontal, vertical and intersectoral information networks.



The challenge presented by the action/research experience is to incorporate the lessons learned, principally those concerning the role of the local administration, and further develop the partnership model. Such a model should move away from the usual romanticism of standing on the side of the "weak", i.e. the villagers, towards a new perspective which focuses on the relationship between all the actors involved, a relationship which entails mutual understanding and partnership rather than rivalry.

As an outcome of this study, a follow-up two year research project is currently being funded by the International Development Research Center (IDRC). This project is focusing on Kafr Shanawan where the conditions for continued community and local administration involvement were deemed most satisfactory. The study, "Communication Processes: an avenue for sustaining improved health and sanitation practices", is being carried out by the same research team. It is focusing on the communication process itself, both within and between the various bureaucratic domains, which can affect the ability of the community members to initiate and sustain positive changes in health and sanitation practices. Decision makers and administrators in the governorate and *markaz* representing different directorates and departments were not involved from the beginning of the action/research process, and often lacked a clear understanding of their importance in the implementation process. Having deciphered some of the bureaucratic processes related to village projects, the research team is now focusing on the communication linkages. There needs to be a clear two-way networking system both within and between the various bureaucratic domains, which can affect the ability of the community members to initiate and sustain positive changes in health and sanitation practices.

The new model incorporates all actors with an interest in and responsibility for water and sanitation at the village level: villagers, formal and informal village leaders, facilitators, and administrators at the village, *markaz* and governorate level. The project will present a case study of the communication processes necessary to sustain improvement in health and sanitation practices. The immediate beneficiaries of the project will be the villagers in Kafr Shanawan, who are partners in the process. It is anticipated that, once having identified current obstacles and the means of overcoming them, village councils and community members, together with the administrators and decision-makers, will work together in sustaining and building upon the gains made during the life of the first action/research project.

**APPENDIX 1**  
**PROCEDURES INVOLVED IN PREPARING A FEASIBILITY STUDY**  
**TO LOWER THE WATER LEVEL IN KAFR SHANAWAN**

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up
31/7/87 special-	Meeting with 50 men after Friday prayer at the mosque		<ul style="list-style-type: none"> <li>- Village sanitary problems &amp; suggested solutions (e.g. sullage collection system, installation of tanks) was discussed with villagers.</li> <li>- Villagers ready to contribute money to establish a sewerage system in the village</li> <li>- Villagers summed up the main sanitary problem in the village as the high water table which is due to a) excessive use of water, b) the low elevation of the village</li> </ul>	RT will invite the st engineer to further discuss these suggestions
28/8/87	A WHO engineer consultant met with the Mayor & around 60 villagers in the village guest house		<p>After walking around the village, it was proposed to</p> <ul style="list-style-type: none"> <li>- establish a piped network to reduce the level of ground water table.</li> <li>- The network would serve as a basis for the sewerage system for the whole village in the future.</li> <li>- The network expenses are estimated to be LE 100,000.</li> <li>- Villagers will form sub-committees to further discuss the proposed system &amp;</li> </ul>	

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up
28/8/87			be in charge for raising the necessary funds from the villagers	
From Sept 6 to Sept 30, 1987, several meetings were held with the Head of V C & some villagers. The sub-committee has been established but it was not possible for the villagers alone to fund such a project. However, this financial inability did not undermine their enthusiasm for the project. Higher authorities will be approached to fund the project.				
21/10/87	Meeting at the agricultural cooperative with 3 men, RPVC, youth representative & mosque <i>imam</i>	Head of V C , Director of Agricultural Coop & Head of police station attended the meeting	Discussions concentrated on the proposed solutions to the village sanitary problems. Villagers were notified about coming governorate meeting which will involve representatives of the different departments concerned.	R T promised villagers to raise their problems with higher authorities & to share with them the results of that meeting
26/10/87		R T met at the governorate with the Vice Minister & General Secretary of Menoufia Gov & representatives from the Health, Social Affairs, Education & Development departments at governorate level, head of Tala city	It was decided that no further sewerage systems like the one proposed for K S could be experimented in Menoufia before the results of 2 similar experimental systems in the villages of Kom el Akhdar & Sahel el Gawaber, Menoufia, are known. The role of R.T could be directed to presenting a feasibility study for a sewerage system in K.S that could be considered in the future.	R T would form a technical team to present a feasibility study for a sewerage system in K S

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up
30/10/87	Meeting with more than 50 villagers at the mosque after Friday prayer		Results of the governorate meeting were shared with villagers who were enthusiastic to cooperate & provide any help needed.	
During the period from Nov 6, 1987 to Jan 3, 1988, several meetings were held with the village Mayor, Head of V C , Director of Development Department at governorate level, RPVC and some villagers to arrange for the technical team that would be responsible for presenting the sewerage system feasibility study				
8/1/88	R T & 2 environmental engineers attended a meeting with 4 village informal leaders, ORDEV representative, & engineering dept. head of PVC at governorate level	Head of V C , Director of ORDEV at governorate level, Dir. of Engineering Dept. at Gov. level attended the meeting	The team and the officials moved around the village It was suggested designing the sewerage system to make it feasible to have all houses connected to it. Basic data that is required to design the system will be prepared.	Collecting the needed information & arranging for another meeting
During the period from Jan. 24 to Feb 3, 1988, several meetings were held with villagers, Head of V C. & the Director of ORDEV at governorate level. The required data was presented to the engineer. As it was necessary to involve the Irrigation Dept. in the design, representatives were approached to attend the coming meeting.				
5/2/88	R T & the 2 environmental engineers met with 5 village leaders, Head of P VC at governorate level & the village Mayor	Head of V.C , Dir. of ORDEV at governorate level & representatives from the Eng & Irr Dept. at gov level attended the meeting	The design of the sewerage system was discussed. The system will be established over 2 phases a) Phase I the establishment of a piped network to reduce the high ground water table, b) Phase II.	R.T with technical team completed all data required for the design & these were submitted to the engineer in Feb 16, 1988

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up
5/2/88			Adding a treatment plant & connecting the whole village into the sewerage network. Further basic data & measurement are required.	
<p>From Feb 21 to March 15, 1988, R.T. met several times with the Director of ORDEV at gov level, Head of PVC, Head of V.C., Director of Irrigation Dept at governorate level and the engineer who is responsible for the design of the system. Two main issues were the focus of these meetings: a) Getting the Irrigation Dept. approval for the project as long as it does not violate rules stipulated in law 48, 1982; b) Fund allocation for the project as the members of PVC refused to allocate all the budget for Kafr Shanawan village alone. Director of ORDEV suggested that all proposed projects for the villages of Shanawan and Kafr Shanawan are to be submitted to the Dept. and it is up to its members to decide which projects will be covered by the governorate fund. Finally, the consulting engineer presented his preliminary sketch and he promised to finalize the whole design in a ten-day period.</p>				
30/5/88	Informal and formal leader met with the engineering consultant.	The Eec Village Council member was notified of the design.	As a first step engineer submitted a design to establish piped network & reduce the water table.	
June 88	members of the popular council - 3 representatives	Meeting with elected V.C. & popular V.C. of Shanawan to discuss issue of funding.	Discussed the possibility of introducing the feasibility study for partial funding from money allocated for village infrastructure. It was turned down by the majority, they will only approve it if the plan is to include the mother village of Shanawan as well.	

Date	Villagers' Participation	Role of Policy Makers	Issues Discussed	Follow up
20/7/88	The Mayor & KS village leaders met with the representatives of the National Democratic party.	Decided to present the issue to the governorate	It was decided that a group of the informal leaders with the representatives to the popular council will try to see the governor	The R.T tried to follow up this issue with village leaders.
Nov 88	A delegation from the village	Meeting with the governor	The delegation presented their request, in turn the governor referred the case to the <i>markaz</i> Executive Council	
Dec 88	A delegation from the village, formal & informal leaders & the R.T.	Presented the design to Head of <i>markaz</i> Exec C	In the meeting the delegates explained the issue. Head of MEC was not satisfied because they completed the feasibility study without consulting him	
Feb 89	Meeting at the V C		It was decided that the feasibility study must be integrated to include the main village of Shanawan Villagers expressed willingness to pay for the expenses	
Feb. 89	Village leaders met with engineering consultant.		Engineer decided to add in the design Shanawan for the actual cost LE 12,000. Villagers agreed to raise the amount & asked him to go ahead as requested.	The R.T. tried to follow up this issue with villagers & consultant
June 89	Village leaders met with members of the Community Development Association		The main issue was to open an account in the bank for contributions from villagers for the project	Issue still under study

## APPENDIX II

### TRAINING MATERIAL FOR HYGIENE PROMOTERS

Prepared by Dr. Mofida Kamal, health education consultant. Translated from Arabic.

#### GENERAL HYGIENE

##### **What is the environment?**

The environment can be divided into two spheres:

- i) external, outside the home;
- ii) internal, inside the home.

The external environment includes the land, air and water.

The internal environment is what prevails inside the home.

##### **How is the environment polluted?**

The **external** environment:

The air can be polluted from dust, cars, etc.

Canal water is polluted from garbage disposal, dead animals, washing animals, child and animal excreta.

The **internal** environment:

Water storage: What running from taps is clean. However, it can easily be polluted. How?

- 1) Dust and flies can pollute a container while it is being carried home.
- 2) Dirty hands that come into contact with the water can contaminate it.
- 3) Water that is stored uncovered is exposed to flies, dust, and poultry, all of which can pollute it.
- 4) Drawing water from the water storage container can pollute it, if the pot used is not clean.

##### **How to Store Water in a Hygienic Manner**

- 1) Water should be stored in a clean, covered container elevated above the ground.
- 2) The pot used for drawing water from the storage container should be clean and have a long handle.
- 3) Clean hands should be used when drawing water from the container.
- 4) Unused water should not be returned to the container.

##### **Food Preparation**

Preparing food in a hygienic manner is of great importance, to avoid the spread of germs and microbes.

- 1) Rinse utensils with clean water immediately before use.
- 2) The area for cooking should be free from dust and away from animals.
- 3) Left-over food should be covered and stored in an elevated, cool place.

- 4) It is essential to boil cows' milk before feeding it to infants.
- 5) Infant food should be prepared before each feed.
- 6) Vegetables should be washed with clean potable water, not canal water. They should be cleaned by pouring water over them, e. g. from a tap.

### **Hand Washing**

Hands should not be washed in a bowl or plate, but under running water from a tap, or by pouring a glass of water over the dirty hands. Washing hands in a bowl means that the dirt from the hands is transferred to the water in the bowl with all the microbes and bacteria. Using the same water then transfers the microbes to the hands again. That is why it is important to pour water over the hands.

It is important to use soap in hand washing. If there is no soap, the ash from the oven can be used.

Hands should be washed before preparing food, feeding infants; and after preparing dung cakes or using the latrine.

### **Preparation of dung cakes**

Dung cakes can cause diseases such as diarrhea and dysentery. A separate *galabiya* should be kept specially for this task. The *galabiya* should be washed with soap periodically. Immediately after completing the preparation of dung cakes, the *galabiya* should be taken off. After preparing dung cakes, careful washing of the hands with soap, especially under finger nails, is important.

### **House Cleanliness**

The house should be swept daily and kept free from flies. Chickens and ducks should be kept in a special room, or chicken house, i. e. not allowed to move freely around the house and transmit microbes.

The animal barn should be a separate room in the house, and its door should always be closed.

Garbage and trash should be disposed of frequently and/or burned.

The faces of infants should be covered with a light cloth or net to protect them from flies while sleeping.

### **Latrine cleanliness**

The latrine is a major source of microbes which help in disease transmission. That is why it is important to keep the latrine clean. It should be washed daily and gas poured on it. A cover with a long handle should be placed on the latrine opening at all times. There should also be a small container of water in the latrine for washing hands after defecating.

Children should be prevented from defecating in the street. They are to be trained to use the latrine. If they are too young, a hole near the house can be used, but it must be filled immediately after use. Vomit should be swept and covered in dust.



## **Disease Transmission**

The focus is on disease that can be transmitted via polluted water and food, such as hepatitis, dysentery, typhoid. All of these are more common during the summer, because of flies which transmit the microbes.

### **Infection**

Infection can be either through excreta or vomit. The microbes (which carry the disease) are transferred through excreta or vomit.

These microbes can be transmitted to a healthy person through:

- \* pollution of water by the source of these microbes;
- \* pollution of hands by these microbes;
- \* the sick person who defecates without washing his hands afterwards and then touches the food which others may eat;
- \* flies which carry the microbes from the excreta or vomit to food, hands or mouth of other people.

### **Symptoms**

Symptoms of these diseases can either appear immediately, like diarrhea which appears the day after the microbe reaches the person's body; or symptoms may appear after one week, such as dysentery; or after a month, as in the case of hepatitis.

### **Protection from diseases**

- \* Cover food to protect from flies;
- \* Wash hands before preparing food;
- \* Prevent defecation in the street;
- \* Wash hands after defecating.

## **HYGIENE MESSAGES**

The hygiene messages tackle the different themes that were selected as the focus of the Hygiene Education Program carried out by the different hygiene promoters.

### **Latrine Cleanliness**

Latrine opening should be covered so as to:

- \* avoid the spread of microbes to the entire house;
- \* avoid bad smell;
- \* avoid flies and insects.

Cleaning of latrine should be as follows:

- \* the latrine should be washed and cleaned at least once a day;
- \* pour water daily down the latrine, possibly used water from the washing of clothes;
- \* pour gasoline around the opening so as to:  
kill microbes;  
provide better smell;

prevent flies and insects.

A container of water for hand washing should be placed in the latrine, and filled and cleaned daily.

Wash hands with soap after using the latrine.

The door to the latrine should always be kept closed.

If there is no latrine in the house:

- \* hands should be washed with soap and water after defecating and urinating;
- \* excreta should be covered with dust;
- \* gasoline should be poured on it to avoid bad smell.

### **Storing of Water Used for Drinking and Cooking**

The water storage container should be covered in order to:

- \* avoid the pollution of water with dust while sweeping;
- \* avoid water pollution from pigeon remains etc;
- \* avoid water pollution from flies

A clean pot should be used for drawing water from container.

A long-handled pot should be used to draw water from the container, to ensure that the hands, if dirty, do not contact and pollute the water.

Clean hands before drawing water.

The water remaining in the pot should not be put back in the container, so as to avoid the transmission of microbes to the stored water.

### **Zariba**

The *zariba* should be cleaned periodically.

The door to the *zariba* should always be kept closed, in order to:

- \* prevent the animals from going into the house and spread their remains, which are one of the major microbe sources;
- \* prevent chickens and children from spreading animal remains into the rest of the house;
- \* prevent the spread of the bad smell into the entire house;
- \* prevent the spread of flies from the *zariba* into the rest of the house, as the flies transmit microbes.

### **Chicken Raising**

Chickens should be kept in a specific place, such as a hen-house, to prevent them from moving freely around the house, in order to:

- \* prevent chickens from carrying dirt through the house;
- \* prevent chickens from polluting food or stored water.

### **Preparing Dung Cakes**

Carefully wash your hands with soap after preparing dung cakes.

Immediately after finishing making dung cakes, change your *galabiyas* and put it in the sun to dry.

Wash the *galabiyas* at least once a week.

Avoid preparing dung cakes if you have a cut on your hand.

### **Food Preparation**

Wash your hands before preparing food.

Wash cooking utensils before cooking.

Wash vegetables one by one under running water.

Avoid cooking in a dirty part of the house, so that food will not be polluted by dust, chickens etc.

The stove should be placed away from children so as to avoid burn accidents.

The food should be covered to avoid contact with flies, which transmit microbes.

### **Home Cleanliness**

The house should be swept daily.

Dispose of garbage and waste water frequently.

To avoid microbe transmission, combat flies by using gasoline or chemicals.

Pour water on the ground around the house to prevent dust.

Ventilate the house properly.

Prevent children defecating in or around the house or yard.

## **ENVIRONMENTAL SANITATION**

### **Irrigation Canals**

Polluted canals can be a source of disease transmission, especially schistosomiasis.

Do not throw garbage, sullage, dead animals, or sewage into the canals.

Avoid using the canal for washing of utensils or clothes, since contact with canal water may result in schistosomiasis infection.

Children swimming in the canal have a high risk of schistosomiasis infection.

### **Hand Pumps**

Traditional handpumps are still widely used, therefore it is important to follow some basic standards when installing them.

\* Pipes should be installed at least 15-20 meters deep to avoid surface water contamination.

\* The site should be carefully selected, at least 30-40 meters from latrine pit, so as to insure protection from fecal contamination.

### **Streets and Alleys**

It is important to keep streets and alleys in the village free from solid waste, dung, and feces, since these attract flies and mosquitoes, which transmit disease. This problem can be avoided by initiating solid waste collection systems, or burning non-recyclable material.

Note: Magnetic boards on home hygiene and environmental hygiene were used as supporting material

## APPENDIX III

### GLOSSARY

Village	القرية
Sub Village or Satellite	تابع للقرية (كفر)
Hamlet, <i>Ezba</i>	عزبة
Mother Village	القرية الام
Village Executive Council	المجلس التنفيذي للقرية
Village Popular Council	المجلس الشعبي المحلي
Chairman of Village Council (رئيس الوحدة المحلية)	رئيس مجلس القرية
Agricultural Cooperative Society	الجمعية التعاونية الزراعية
Social Unit	الوحدة الاجتماعية
Community Development Association	جمعية تنمية المجتمع
Village Health Unit	الوحدة الصحية الريفية
Sanitarian	ملاحظ صحي
Village Mayor, <i>Omdah</i>	العمدة
Village Meeting Place, <i>Madiyafa</i>	المضيافة
Animal Shed, <i>Zeriba</i>	زريبة
District, <i>Markaz</i>	مركز
Public Service Trainee	مكلفات الخدمة العامة
Governorate, <i>Muhafsa</i>	المحافظة
Housing Directorate, <i>Muderyya</i>	مديرية الاسكان

Health Directorate	مديرية الشؤون <u>الصحية</u>
Public Works & Irrigation Resources	الاشغال العامة و الموارد المائية
Water Utilities Directorate	مرفق المياه
Transportation Directorate	هيئة النقل العام
Ministry of Local Administration	وزارة الحكم المحلي
Organization for the Rural Development of Egyptian Villages (ORDEV)	جهاز تنمية القرية المصرية

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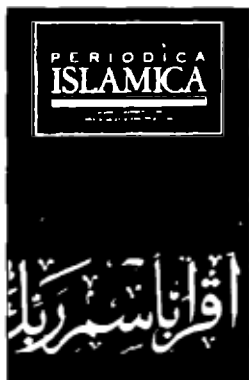
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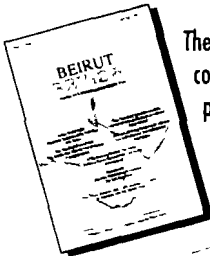
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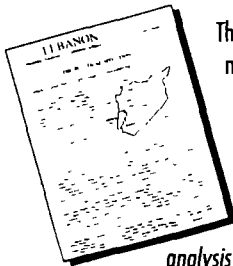
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٤- ارشاد الاهالي في احدى القرى الى اجراء دراسة جدوى لمشروع صرف صحي بالقرية، لانها كانت المشكلة الحيوية و الملحة بالنسبة لهم.

في ختام الدراسة ظهر واضحا انه لكى يكون هناك استمرارية لاي مشروع بالقرية لابد ان يكون هناك مشاركة على كل المستويات: الاهالي، المسئولين بالقرية، المسئولين بالمركز و كذا المسئولين بالمحافظة، وذلك عن طريق الاتصال فيما بينهم. من هنا نبيعت فكرة دراسة جديدة تهتم بتقوية شبكة الاتصالات بين الوزارات و الادارات المعنية بالمياه و صحة البيئة و يقوم فريق الدراسة بتنفيذها حاليا في نفس المحافظة.

## أولاً: التثقيف الصحي

وقد اعتمدت هذه الدراسة في مادة التثقيف الصحي على بعض الرسائل الصحية المستقاه من الدراسة الميدانية السابقة والتي كانت موحدة بين جميع الفئات التي قدمت التثقيف الصحي. وللوصول لهذا الهدف تم تجريب مناهج مختلفة في توصيل المعلومة للأخريين منها: تقديم التثقيف الصحي للمرأة في المنزل عن طريق القيادات المحلية و مكلفات الخدمة العامة، خارج المنزل في الوحدة الصحية من خلال التجمعات، وكذلك لتلاميذ المدارس الابتدائية من خلال النوادي الصيفية عن طريق المدرسين و المدرسات.

وقد ظهر من هذه الدراسة أهمية تثقيف المرأة حيث أنها المسئولة عن التنشئة الاجتماعية و غرس العادات و السلوكيات السليمة و كذلك تلاميذ المدارس من سن ٨ سنوات الى ١٢ سنة و ذلك لسرعة استيعابهم في هذه السن و سهولة اكتسابهم للعادات و السلوكيات السليمة و نقلها لاسرهم و اصداقائهم و جيرانهم. و قد اظهر التقييم لهذه الدراسة ان اكثر الفئات التي استفاد منها الاهالي هي فئة المرضات و اكثر المستفيدين هم تلاميذ المدارس.

## ثانياً: تحسين بعض الظروف البيئية

و لقد تم هذا الهدف عن طريق المشاركة الذاتية للاهالي و بمعاونة فريق الدراسة حيث:

- ١- عاونت الدراسة السيدات لاصلاح احدى وحدات مياه الشرب بالقرية وذلك بجهودهن الذاتية و رغبتهن في المشاركة
- ٢- عاونت الدراسة الاهالي في تصنيع عربة لجمع القمامة من القرية و ساهمت الوحدة المحلية بالحيوان الذي يجر العربة
- ٣- تم تزويد احدى القريتين بطلمية مصنعة و مختبرة في دولة ماليزيا و تدق على اعماق بعيدة لضمان صلاحية المياه و تم تنفيذ عدد منها لتجربتها

فاستخدمت اساليب عديدة منها صحيفة الاستبيان و الملاحظة بالمشاركة وكذلك المقابلات مع الاهالي باسلوب دراسة الحالة و الملاحظة الميدانية (جماعات المناقشات المركزة) ثم تكوين لجان للقرية من الاهالي للمساهمة في حل المشاكل باسلوب التدبيب، المتابعة و التقييم.

و حيث ان بعض الظروف البيئية بالقرية لها جوانب متعددة منها ما يخص الاهالي و المسؤولين على المستويات المختلفة ، و ايضا الامكانيات المختلفة، و ايضا الامكانيات المادية و الفنية و البشرية المختلفة - لذلك فهي تحتاج الى وقت طويل. و قد اهتمت الدراسة بان تسجل كل خطوة من الخطوات و ما استغرقت من وقت و ذلك عكس ما هو متبع في اغلب الدراسات و هو التركيز على ابراز النتائج النهائية.

و قد عملت الدراسة في علاقة مباشرة مع قطاعات الحكم المحلي والقيادات الشعبية و ذلك لحث الاهالي علي المشاركة الشعبية الفعالة والايجابية للنهوض بصحة البيئة و ذلك عن طريق اللقاءات المختلفة لإثارة اهتمام الاهالي بشؤون القرية و المحافظة عليها من التلوث عن طريق:

١- التركيز على المرأة و توعيتها بالمشاكل المتعلقة بصحة البيئة و كسب مشاركتها في حل هذه المشاكل.

٢- العمل على ايجاد التفاعل بين الاهالي و ممثلهم في المجالس الشعبية المحلية بمشاركتهم معا لحل مشاكل البيئة.

٣- محاولة تحقيق المشاركة الايجابية بين الاهالي و القيادات الرسمية من خلال عرض اهتمامات و احتياجات الاهالي و محاولة ايجاد الحلول الملائمة في اطار تكوين لجان في القرية من الاهالي لمحاولة ايجاد حلول لبعض المشاكل.

و في ضوء هذا الوضع البيئي كان للدراسة هدفين:

قام مركز البحوث الاجتماعية بالجامعة الأمريكية بالقاهرة بدراسة ميدانية عن "المرأة و استخدام المياه و صحة البيئة" في الفترة من مارس ١٩٨٦ الى مارس ١٩٩٠ في كل من قريتي بابل و كفر شنوان بمحافظة القليوبية بجمهورية مصر العربية و هي دراسة تطبيقية ، و كذلك هي الجزء الثاني لدراسة سابقة في نفس القريتين. و قد عمل فريق الدراسة مع الاهالي جنبا الى جنب لتسهيل حل مشاكل القريتين.

و لا شك ان موضوع المرأة و استخدام المياه و صحة البيئة من الموضوعات التي حظيت باهتمام الهيئات العلمية و البحثية الدولية. و تأتي اهمية هذه الدراسة من انها نظرت الى الموضوع نظرة كلية، و قد نظرت للمرأة بصفة خاصة على انها جزء من المجتمع فهي تتأثر بالظروف البيئية المحيطة بها و يمكنها ان تؤثر فيه، كما ان اتجاهات سلوكياتها في استخدام المياه تؤثر على صحة الاسرة باكملها ثم على الصحة العامة في المجتمع ، كذلك يؤثر اسلوب استخدامها للمياه على البيئة المحيطة بها. و لم تغفل الدراسة اهمية مشاركة المجتمع ككل في النهوض بالقرية و محاولة حل مشاكلها. و قد عمل فريق الدراسة مع الاهالي جنبا الى جنب مع الاهالي لتسهيل حل بعض هذه المشاكل. و لم يخف على احد الوضع البيئي الذي يسود قرانا المصرية خاصة من ناحية الكثافة السكانية و قلة الخدمات، مما اظهرت للاهالي بوضوح: مشاكل القمامة، مشاكل الصرف الصحي، مشاكل تلوث مياه الترغ، استخدام بعض السيدات لمياه الترغ في بعض الاغراض المنزلية.

و قد استخدمت الدراسة المنهجين السوسولوجي و الانثربولوجي معا،

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بحوث القاهرة  
في العلوم الاجتماعية  
مجلا ١٦ العدد ٢ صيف ١٩٩٣

تدعيم دور المرأة للنهوض  
بصحة البيئة في الريف المصري

تأليف

سميحة القبطية

سوزان واتس

قسم النشر بالجامعة الأمريكية بالقاهرة

لقد اثبتت بحوث القاهرة في العلوم الاجتماعية – التي تصدر أربع مرات في العام منذ سنة ١٩٧٧ – أنها منهل لا غنى عنه لكل من القارئ العادي والمتخصص في شؤون الشرق الأوسط. وتعرض هذه الكتيبات نتائج البحوث التي قدمها العلماء المحليون والزائرون من خارج مصر في مجال متنوع من الموضوعات السياسية والاقتصادية والاجتماعية المتصلة بالشرق الأوسط.

وترحب هيئة تحرير بحوث القاهرة بالمقالات المتعلقة بهذه المجالات للنظر في مدى صلاحيتها للنشر. وتسلم هذه البحوث من ثلاث نسخ مطبوعة على الآلة الكاتبة مع ترك مشافتين بين السطور. ويراعى أن يكون البحث في حدود ١٤٠ صفحة أو أقل ويرفق معه ملخص لموضوع البحث. ويجب أن تتوافق جميع المراجع مع الشكل المتفق عليه في «كتاب الاسلوب لجامعة شيكاغو» (The Chicago Manual of Style) (وفي هذه الحالة تذكر في الهوامش المصادر فقط وتكتب في صفحات منفصلة) أو الشكل المتفق عليه في «الجمعية الانثروبولوجية الأمريكية».

ويتوقف قبول هذه البحوث أو رفضها على رأى الحكام وأعضاء هيئة تحرير بحوث القاهرة. ويبلغ المؤلفون بقرار هيئة التحرير في خلال ثلاثة أشهر من تاريخ استلام البحث. وترحب هيئة التحرير بتنوع الموضوعات ووجهات النظر. وبالتالي فان الآراء المعروضة في بحوث القاهرة لا تعكس بالضرورة وجهة نظر أو آراء هيئة التحرير أو الجامعة الأمريكية بالقاهرة.

#### هيئة التحرير:

- |   |  |
|---|--|
| د. هدى لطفى<br>الجامعة الأمريكية بالقاهرة   | د. ايرل ل. سوليفان<br>الجامعة الأمريكية بالقاهرة                                   |
| د. دونالد كول<br>الجامعة الأمريكية بالقاهرة | د. نيكولاس هوبكنز<br>مدير التحرير ورئيس هيئة التحرير<br>الجامعة الأمريكية بالقاهرة |
| سهير مهنا<br>مركز البحوث الاجتماعية         | د. دان تشيرجى<br>الجامعة الأمريكية بالقاهرة  |
| د. مراد وهبه<br>الجامعة الأمريكية بالقاهرة  | د. سعد ناجى<br>مركز البحوث الاجتماعية  |
|   | د. هانز لوفجرن<br>الجامعة الأمريكية بالقاهرة                                       |

مساعدة هيئة التحرير ايمان حمدى

#### الإشتراك السنوى (٤ أعداد).

- للأفراد: ٢٥ دولاراً أمريكياً (٢٠ جنيهاً داخل مصر)  
للهيئات: ٣٥ دولاراً أمريكياً (٢٥ جنيهاً)  
للأعداد الفردية: ٧,٥٠ دولاراً أمريكياً (٧,٥٠ جنيهاً)  
(ملحوظة: السعر قابل للتغيير)

الأعداد السابقة: توجد في نهاية هذا الكتيب قائمة كاملة لبحوث القاهرة. ويراعى إصدار الشيكات المصرفية باسم الجامعة الأمريكية بالقاهرة، كما ترسل كافة طلبات الإشتراك وكذلك البحوث والاستفسارات إلى العنوان التالى:

قسم النشر بالجامعة الأمريكية بالقاهرة

بحوث القاهرة في العلوم الاجتماعية (Dept M)

ص ب ٢٥١١ – ١١٣ شارع قصر العيسى – القاهر – جمهورية مصر العربية

