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AN INTEGRATED RURAL HEALTH PROJECT IN SARADIDI, KENYA

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Abstract—In 1979 a community self help health development programme was initiated in Saradidi, Kenya, as the community's response to its problems. In line with the theoretical considerations made for the implementation of primary health care the community was involved in planning, organization, setting of priorities and objectives, implementation and evaluation of the programme. The Saradidi Health Development Project (SHDP) was initiated by people from the area with material assistance from within and outside Saradidi. Nearly 10 years since the beginning of the project, the SHDP still runs more or less on its own providing experiences for other projects and initiators.

Key words—primary health care, Kenya, rural health programmes

SARADIDI PROJECT BACKGROUND

The health and development activities by the Saradidi community arose out of a development education programme of the church of the province of Kenya (CPK) (Anglican Church), Diocese of Maseno South. This diocese had a programme that aimed to make simple drugs available to the people and provided preventive and promotive health services backed with health education. The church programme covered the whole of Nyanza Province but was based on church congregations. The Saradidi church congregation (CPK) were participating in this programme which sharpened their awareness to the magnitude of their health and development problems and the realization that they could do something about them. It was clear to them that to be effective, the activites needed to expand beyond the members of the CPK. They, therefore took the initiative to mobilize the whole of the surrounding community to be involved in health and development activities.

In 1979 the Saradidi congregation selected a committee of 13 people who were given the task of talking to other church congregations, denominations and various leaders while the rest of the congregation talked to individuals and families in their neighbourhood. They did this so effectively that within 3 months most people in the area were aware of what was being planned and their role in it. Three months later, the first in a series of community meetings, open to all members of the Saradidi community, was held at a central place which later became the project centre. During these meetings, the idea of working together in the area for health and development was discussed. The community leaders invited outside health and development professionals to assist them in the process of defining their problems and ways to solve them as a community.

The activities which followed included: prioritization of the problems, definition of goals and strategies and specific implementation activities. The implementation process started with the mobilization of resources both from within and outside the community; one of the needs expressed was for people to be trained in matters of health so that they in turn would teach and assist the others. Such community health workers were selected from the community and were called village helpers towards health (VHHs, 'Nyamrerwas' in the local language). Their training needs were identified based on the problems and needs of the community, a trainer was provided through the Department of Community Health, University of Nairobi and their training started.

CATCHMENT AREA AND POPULATION

Saradidi is a rural community located in Siaya District, Nyanza Province, Kenya. The people are relatively homogeneous with respect to ethnic group (Nilotic Luo) and religion (vast majority Christians). The project extended to two administrative units called Asembo East and Asembo West locations, situated along the shores of Lake Victoria. The total population of these locations was 42,755 in 1986. The two locations are further divided into sub-locations which include a number of villages. These villages are made up of several scattered homesteads, usually belonging to people of the same clan. Each clan has its own leaders, the clan heads. Leadership at the village level is often based on influence but at times it follows the traditional set-up. The village formed the basic organizational unit for health activities in Saradidi.

A baseline survey in 1979 showed that less than 10% of the Saradidi population has a regular income from salaried or self-employment. Most of the 90% of the inhabitants get their livelihood from subsistance agriculture. The pattern of agricultural production has persisted from the colonial era, which designed the whole western Kenya as a reservation area, allowing only subsistance farming for houshold consumption. Hence there is still very little cash cropping. The population has in the meantime continued to grow and put pressure on the land which has accerelated soil exhaustion. This soil is now

unable to produce enough food for people's consumption to last them from one harvest to another [1]. Apart from soil exhaustion, traditional farming methods have persisted and soil erosion is a great hazard. In addition rainfall is generally unreliable.

The results of the 1979 baseline survey, which provided a basis for project planning, monitoring and evaluation, highlighted some of the problems of Saradidi.

—Most of the households (65%) had temporary dwellings and 20% had no pit latrines. Most common sources of water were unprotected, less than 1% of the respondents had access to safe drinking water.

—More than 50% of the population walked for more than 1 hr to get to their water source.

—70% of deliveries occurred at home and without trained assistance, but 90% of the women attended antenatal clinics at least once. Less than 20% of women in child-bearing age knew of family planning methods and less than 1% of the eligible population was currently using family planning.

Only 27% of 1596 children under 5 years had immunization cards, and 11% were fully immunized. 9% of the children examined were severely and 45% moderately malnourished according to the Harvard weight for age standard. Illiteracy in Siaya District is high, 70% of adult females and 37% of adult male, could not read according to the 1980/81 integrated rural survey [2]. Mortality and fertility are high; the crude death was 15/1000 people in 1979 and the crude birth rate 50.4/100. In the 1979 census, Siaya District ranked as one of the highest childhood mortality district of Kenya with an under-5 years mortality rate of 259/1000 live births [3].

ORGANIZATION OF THE PROJECT

The project area covers two large administrative areas, Asembo East and Asembo West locations. It was felt that in order to function well, all people living in the project areas including the youth and children had to be encouraged and enabled to participate in the activities. The community was defined as "people living in the same geographical area and sharing the same problems and resources. They know one another and have a feeling of togetherness".

Active participation can only be achieved if the organizational unit is small enough. For this reason, the project committee, which was elected by the community at one of the meetings, with some facilitation from local administration, clan leaders and village elders, divided the area into smaller units of about 150–120 scattered households, each of which was loosely called a 'village'. These divisions took into consideration geographical, administrative and clan set-ups. Where the boundaries conflicted with the wishes of some community members adjustments were made. This organization results in 56 villages in the project area. Each of these villages elected leaders and community health workers for project activities. The village formed the unit of operation for most project activities and its residents were called its community and hence the residents of all the villages became the Saradidi community.

As the community organized themselves a leadership pattern emerged which included church leaders. village elders and other influential community leaders. Leadership was organized at three levels:

(a) At the village level the village health committee (VHC) was responsible for planning, organizing and implementing health/development activities in their village as well as supporting the village health helper (VHH).

(b) At the next level the joint leadership committees were task oriented and responded to the needs of all villages according to their tasks (four committees).

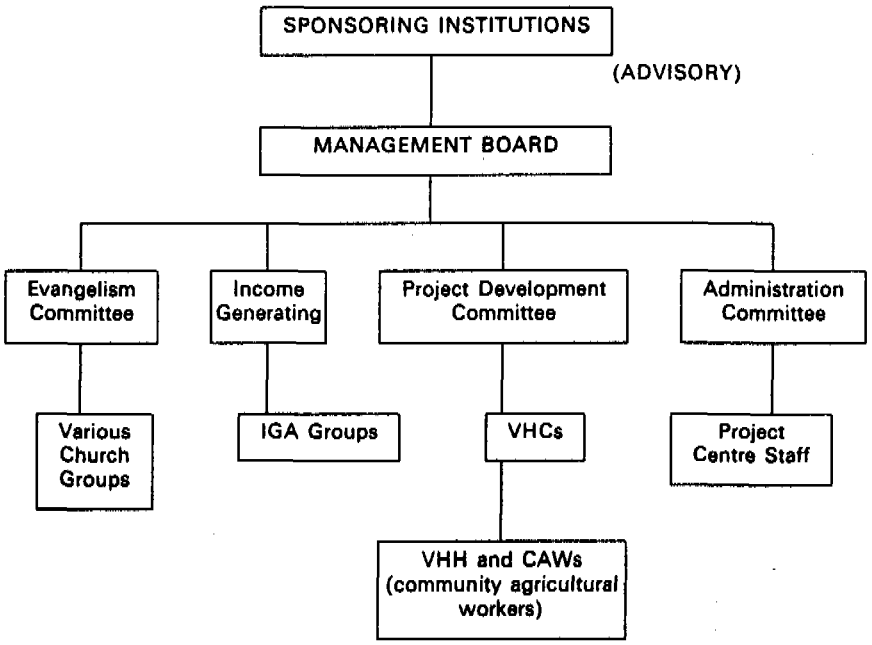
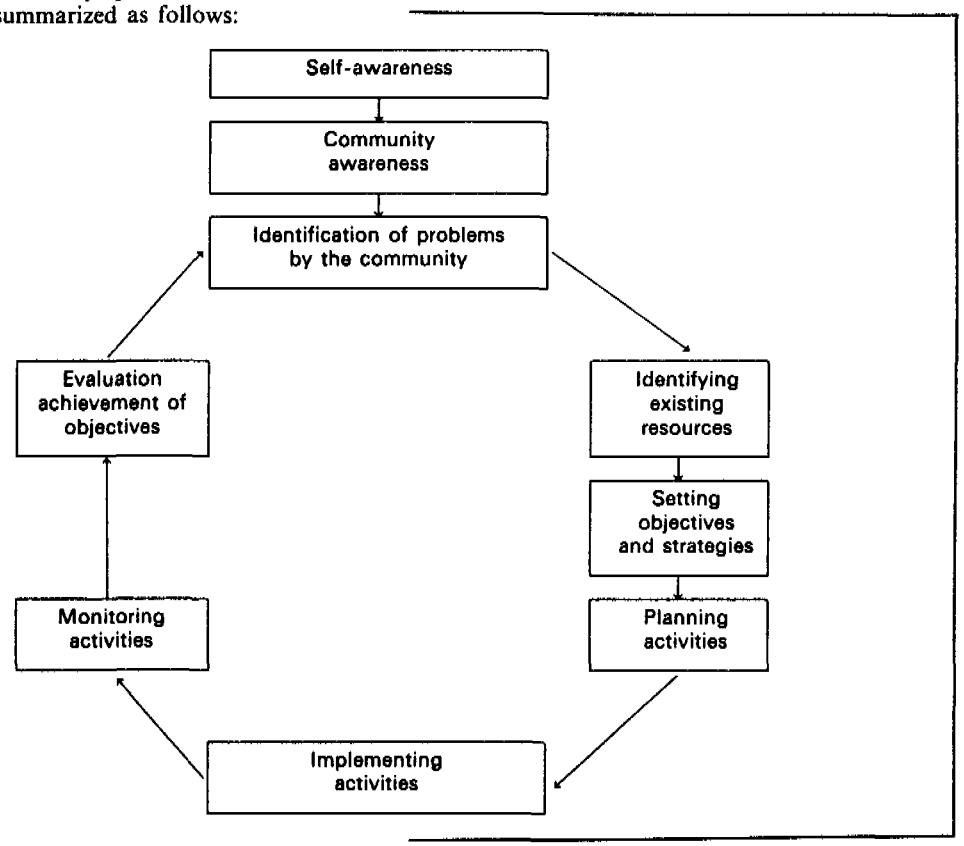


Fig. 1. SHDP organization chart.

(c) At the top an overall Board with representation from task committees (see Fig. 1).

It should be clear from the above description that the Saradidi project was so community based that it had literally no roots into an institutionalized support structure. It was therefore, important for the project to develop its own support structure. This support structure required a physical base for central administration, technical support and referral back-up to the community based health activities, storage of information, materials and supplies, a meeting place for involving all villages and to provide clinical primary health care, e.g. immunization, growth monitoring, prenatal care and clinical family planning. The Saradidi community recognized their needs for the centre and contributed their resources to establish the centre. Three farmers donated portions of their land to provide the 5 acres on which the centre now stands. Funds were raised by villagers to put up buildings. They have been able to house clinics, maternity services, offices, stores and a laboratory. They also have staff houses for five families and a hostel for visiting personnel and students.

Staffing of the project has been provided for by donor money. Some members of staff are now supported by funds generated from project, e.g. from fee for curative services and agricultural activities. It is hoped that all staff will eventually be supported from within the project when donor money dries up. The overall community process in the Saradidi project can be summarized as follows:



The community or its representatives would be involved at each step. The role of outsiders was to facilitate the process.

MONITORING AND EVALUATION COMPONENTS

Considerable attention was given to the monitoring and evaluation component. In part, this was done because the Saradidi project included a research component. For these purposes Saradidi was also divided into three operational areas (A, B and C) which corresponded to the duration and degree of community organization and participation. VHHs in areas A and B were given chloroquine phosphate to provide treatment for malaria. Area C was the control area.

The project included data collection using varying methods. Members of project staff, investigators and community leaders kept records of events and activities and from the VHHs reports they compiled and submitted monthly reports. Efforts were made to ensure that data collection by the community was not cumbersome to them.

The information required from each had to be relevant to their activities. For instance, the VHHs collected information on; children born and their birth weight, deaths indicating age and cause of death, pregnancy, environmental status, malaria treatment by age and month, and family planning users and drop-outs by method. They also kept a record of other important happenings in their areas. Raw data were collected from them, analysed by the project staff and the VHHs were given feedback on their reports. Identified areas of weakness were often discussed with individuals who needed particular help. Areas of further training were identified during these feedback sessions.

In addition to information gathered continuously the community assessed themselves periodically by selected village based indicators of progress. The community organized the formation of assessment teams from various villages, the development of the tool for data collection and analysis, and application of the results to their village based activities.

Finally, all households in the programme area were registered during an initial census. This was followed by 6-monthly visits to each household in so-called 'census-updates'. During these visits information on births, deaths and migration in each household since the last visit were obtained and recorded on update forms and VHHs registers. For deaths, age and cause were recorded as well. From this information vital rates were computed, using both direct and indirect methods of estimation.

Specific sample surveys and studies were carried out from time to time and the sample size for each was based on the indicators of assessment. Structured questionnaires, clinical examinations (e.g. weighing of children) and collection of various specimens (e.g. blood samples) were used in the surveys. Examples are periodic parasite prevalence surveys in schools and KAP surveys.

COMMUNITY BASED MALARIA CONTROL

Malaria is a priority problem in many parts of tropical Africa. In hyper- and holo-endemic areas of malaria transmission, its mortality and morbidity are concentrated among children under the age of 5 years, and pregnant mothers. Community based distribution of anti-malarials may be an effective measure to reduce malaria-associated mortality and morbidity. In Saradidi malaria is holo-endmic. Earlier studies in Siaya District suggested that malaria contributes to at least 38% of infant mortality. When the prevalence of *Anopheles* mosquitos was reduced by spraying insecticides, infant mortality rates fell from 157 to 98/1000 live births [4]. Malaria control in Saradidi was initiated as part of community participation in health development. It started with the community's decision that malaria was a leading health problem. Both community's and outside resources were mobilized to tackle this problem. The malaria control programme aimed at providing instant treatment in each village to persons with malaria. Early chemotherapy of clinical malaria, with chloroquine phosphate at the dosage of at least 10 mg/kg body weight, was effective in the study area to prevent mortality and was given the highest priority. Chemoprophylaxis in addition to chemotherapy was effective in reducing morbidity particularly among pregnant women with the greatest impact among primigravidae.

Chloroquine for chemoprophylaxis and chemnotherapy was made available at the community level through the VHHs to ensure that it was within easy reach for those who needed it, i.e. the sick and pregnant women for chemoprophylaxis.

The willingness of the people to get involved and participate and perceived advantages of the programme would also affect continuation of the programme At the start of the project it was postulated that the initial inputs in mobilizing the community, training VHHs and providing chloroquine for chemoprophylaxis would lead to a decline in malaria mortality and morbidity. Theoretically in the long run the decline in mortality and morbidity will in turn motivate the community and this could also lead to increased organized community action. The VHH would be expected to spend more of their time and effort in providing information, education and drugs to the community. The motivated community would also make available more resources (time, money and materials) which would make more chloroquine available and would support the efforts of VHHs. If this support is forthcoming, the VHHs would be more encouraged in their work and this could also enhance the community's confidence in demanding services from the VHHs, government and elsewhere.

COMMUNITY PARTICIPATION

Each village selected a village health and development committee (VHC). By the end of the first year, many of these were 'dead' or very weak. Their roles were taken over by other organized village groups such as women groups, church groups and clan groups who continued motivating and supporting the VHHs. Representatives of the VHC who formed the project development committee (PDC) continued to be active and supplemented the activities of the village groups at a higher level.

Leadership was dominated by men (PDC, VHCs) usually those with some influence because of either age, education, wealth etc. Lack of inclusion of women in leadership did not affect their participation as traditionally the Luo male takes the lead. This does not mean that the voice of the woman is not heard. The fact that 97% of the VHHs were females meant that women were at the heart of project activities and women provided effective support to the VHHs which the elected leadership at the village level failed to do.

Voluntary group participation is another resource which has sustained the programme to a large extent. Most of this comes from women and church groups who have initiated and undertaken many of the health promotive activities.

The other resource which is not tangible, but which has sustained the programme, is the feeling of ownership and participation in the various project activities. This has roused a desire in the community to see the programme succeed.

A survey was done in 1986 in which 40 of the 56 villages were visited to find out what the community felt about the programme after 6 years of operation. The results indicate that, none of the villages fulfilled what they set out to do at the beginning of the project. Some of the reason are listed below:

(a) The VHCs which were supposed to form the village leadership in health and development were often very weak or non-functional. There was lack of dialogue and communication between the VHCs and the central committees, or with the project full-time staff. This led to problems especially when it came to implementation of decisions made. In other cases, plans were not fully or clearly explained by project facilitators thus leaving the VHC members unsure of

their roles. Although the roles were assigned by the community the committees needed training on how to work as a committee to fulfil their roles.

(b) The VHC also faced management difficulties perhaps due to lack of training. This was later realized to have been a big omission in the project implementation strategy.

(c) Technical problems also came up especially in relation to village based activities such as siting and construction of village wells and selection of income generating activities. In their enthusiasm, communities under the leadership of VHCs, selected ambitious, ill fitting projects which could not be managed with the available skills and resources. Failures were many and members were discouraged.

(d) External factors such as drought leading to famine in 1984 and part of 1985–the VHC members had to spend more time and energy on survival for their families and hence less time on community activities.

During these meetings of the survey, many villages realized that they had fallen far behind and vowed to work harder. Plans of action for the future were drawn up and at a community workshop held in August 1986, the community reviewed yet again their performance and set new objectives and strategies.

VILLAGE HEALTH HELPERS

The community health workers, known as VHHs in Saradidi were selected by their villages. By April 1984 there were 126—mostly women. These volunteer health workers lived in the community and served a total population of about 43,000 in an area of 225 square km. Each VHH served a maximum of 100 housholds averaging 4.0 persons. Conditions set by the community were that the VHH be perceived to be a mature person in the village and willing to help people and to live in the village. Literacy or formal education were not selection requirements. VHHs were chosen and supported by the people who lived in their village. What has emerged is a group of people with varying ages and educational attainments.

Characteristics of the 126 VHHs were that 97% were women, 99% were married, 75% were between 25 and 39 years of age, and 80% had at least 5 years of formal education (only 7% had none). Four VHH have dropped out in subsequent years. Two moved away. One was removed by her village and another stopped for personal reasons.

In 1986 the effectiveness of the training of newly selected VHHs was evaluated by experienced VHHs. The VHHs were assessed on own health practices, health status of their own children, practical knowledge and village impact. The activities of the VHHs in Saradidi are listed in Table 1. The VHHs spent an average of 5–10 days each month on these activities, in addition to their other responsibilities which included preparing meals, cleaning their homes, carrying water and firewood from long distance, caring for their children and cultivating food for their families. Each VHH visited about 15 households per month, spending 1–2 hr on a visit. The number of days were obtained from a time-and-motion study on VHHs as they carried out various activities. The number of hours spent per month was calculated and then converted to days by dividing by 8 hr, equivalent to one normal working day.

Table 1. Activities of the village health helpers—Saradidi, Kenya

1. Home visiting during which they give education, information and advise. They also identify cases needing referral and follow-up.
2. Environmental health education to promote health.
3. Promotion of utilization of maternal and child health clinics (immunizations and antenatal) by informing mother of the dates and sites for clinics and what is done there.
4. Treatment of malaria for those in area A and B.
5. Anti-malarial chemoprophylaxis for pregnant women (in selected villages only).
6. Health education in village meeting, churches and in schools. These venues enable them to reach large numbers of people at the same time and are very useful.
7. Family planning education and services.
8. Some have received training to enable them deliver babies in their villages.
9. Weighing new-borns in the village.
10. Recording vital events (births and deaths).
11. Nutrition education.
12. Participation in meetings.
13. Encouraging development in village and participation in income generating activities.
14. Visiting and advising the sick.
15. Participation in project clinic and mobile where they help to weigh, record, counsel mothers etc.
16. Attending training sessions.
17. Preparation and submission of monthly reports.
18. First aid and other first-line treatment of the sick in the village.

Most of these VHHs, who are mothers of children under 5 years, had no other assistance at home (97%) except their own older children. Of 35 such VHHs, only one had a person to look after the child while she was away. It was therefore not surprising that the presence of a child under the age of 5 years in the household affected the number of hours a VHH spent on project activities. Those without such a child spent 3 hr or more per day as compared to those with such children who could not afford more than 2 hr.

Table 2 presents problems perceived by the VHHs as hindering their performance and comprises the 1984 and 1987 VHHs surveys. The problems are largely similar. Fewer mentioned lack of transport, teaching materials and first aid kits in 1987. While a higher proportion of VHHs mentioned lack of safe water, weak/non-functioning VHCs and lack of financial support were more frequently mentioned in 1987 as well.

At the peak of training activities in Saradidi (1984) training was the main motivating factor to continue working to the VHHs. In 1987 more factors were mentioned (see Table 3). The main expectations included personal development in the process. Training, village improvement and improved social status were mentioned by more than 60% of the VHHs. Over half of the VHHs also enjoyed the support of their husbands in their VHHs activities. Some of the ways in which the husbands support the VHHs include general encouragement (52%), checks on her progress (60%), assisting in community motivation (54%). Sometimes the husband accompanied the VHH on her village tour (21%) and lets her go whenever she is needed (56%).

The factors that appear to determine the success of VHHs are that they should be women, aged above 25

Table 2. Problems hindering village health helpers performance—1984 vs 1987

	1984 (%)	1987 (%)
1. Lack of transport	94	56
2. Difficulties getting around at night	83	79
3. Lack of first aid kit for emergencies	83	—
4. People slow in accepting new ideas, e.g. family planning	56	53
5. Does not have drugs for other diseases	50	53
6. Project centre too far	42	48
7. Too many diseases in village, e.g. measles	42	52
8. Lack of unity in village	28	35
9. Poor environmental hygiene	28	—
10. Interference of husbands	25	—
11. Weak/non-functioning VHCs	22	56
12. Lack of development in villages	22	—
13. Lack of safe water	20	84
14. Lack of teaching materials	19	—
15. Lack of financial support	19	63
16. Low agricultural production affecting nutrition	—	34
17. People don't want to pay for chloroquine	—	56
18. No uniform and other personal materials	—	39
19. Covering too many households	—	27
20. Own family suffers as result of VHHs activities	—	58
21. Group activities not taken seriously	—	58
22. People think VHHs are their slaves	—	11
23. No proper place to store drugs	—	19
Total number of VHHs	36	62

years, married, if possible without a child below 5 years of age or with a mechanism for assistance, if such a child is there; should look after less than 100 households, the fewer the better, and they should have the support of their spouses. Fifty housholds per CHWs was finally taken as the target.

MALARIA CONTROL AND VHH

In May 1982, a community based malaria control programme was initiated in 36 villages in Saradidi. Treatment of malaria was provided in each village at no charge by volunteer VHHs. Previous surveys done in the area had identified the major sources of medicine for malaria to be shops, Ministry of Health facilities (two dispensaries) and a missionary hospital. Since the pattern of utilization of treatment in the village would determine the effect on health, it was important to know if people were in fact obtaining treatment from the VHHs or were continuing to use alternative sources.

By June 1983, sources of chloroquine had changed. Ten of the first 36 villages were randomly chosen. In these 10 villages, 100 households were randomly selected and 222 people, 10 years of age or more, were interviewed. 113 (50.9%) had a history of malaria in the previous 2 weeks and 82 (72.6%) of 113 had taken medicine for malaria in the period. Of these 82, 51.2% obtained drugs from VHH, 28% purchased it from a shop, 12.2% from health facility, 4.9% from family members and 3.7% from a private practitioner or a shop outside Saradidi. Reasons given for not obtaining treatment from VHHs among the 40 people who went elsewhere for treatment included: the VHH was not at home when needed (35%); the VHH had no drugs (22.5%); VHH 'no good' (7.5%); and more 'convenient' to go elsewhere (5%).

Table 3. Reasons for continuing as village health helper—1984 vs 1987

Reasons	% Mentioning 1984	1987
Training	100	79
Desire to help people	36	97
Allowances	22	48
Likes the work	19	97
Impact on village	17	73
Personal development	14	81
Gained social status	—	65
Community appreciation	—	52
Husband's encouragement	—	52
Total number of VHHs	36	62

The results presented here correlate well with those from records kept by the VHHs of consumption of chloroquine phosphate [5] and with surveys of sources of malaria treatment done in Saradidi in 1982 and 1984 [6]. Volunteer community health workers such as the VHHs in Saradidi can be effective in supplying anti-malaria treatment. However, the VHHs were less successful in supplying chloroquine for chemoprophylaxis to pregnant woment. Only 30% of pregnant woment were utilizing this service.

In 1985 and 1986 the VHHs continued to provide chloroquine but they had to recover the cost from the users in order to:

(a) ensure continuous supply of chloroquine at the village level;

(b) ensure availability of chloroquine to those who genuinely needed it.

A survey in 1987 on sources of chloroquine used in the community still showed that VHHs were more important as source of antimalarial drugs (24%) than local shops (7%) and that most people now obtained their chloroquine from the mission or government clinics (29%) or Saradidi clinic (27%). They also felt that the sources with the best medicine for treating malaria were Saradidi clinic (33%) mission and/or government clinics (31%) and VHHs (23%). One three people (6%) mentioned local shops as a source of good medicine.

The main factors mentioned by the community as determining the quality of the source is effectiveness in treating fever (40%), distance (33%) and cost (5%). The project has now developed a self-financing scheme which will enable the VHHs to have their supply of drugs and other commodities indefinitely. The use of the system will meet the cost of services provided. The VHH was frequently consulted for the treatment of small children. Available data show that infants are more likely to have died without medical intervention than children aged 1–4 years. 79% of the infants and 90% of young children who died, had previously consulted a qualified medical personnel. Presumably this means that the community knows the limits of the ability of the VHH and would not take to them severely ill children. Perhaps the infant deaths occurred so fast that there was no time or means of reaching trained medical care in time.

MORTALITY

A variety of data sources were used to assess mortality levels, trends and causes. At the start of the

programme a complete household registration and census was done. After the census, each household was visited at 6–9-month intervals and information on births, deaths and migration recorded. The results of the analysis of mortality and fertility data have been described more extensively elsewhere [7] and can be summarized as follows:

(a) Infant mortality was about 113/100,000 live births in the period May 1981–August 1983, and child mortality (1–4 years) 25.5 in 1981 and 17.9/1000 children aged 1–4 years in 1982–83.

(b) Comparing mortality rates before and during the community based malaria control intervention showed a significant decline in child mortality in the intervention area (from 25.5–18.2/1000). This decline was mainly caused by lower measles mortality during the intervention. Measles accounted for 36% of 284 reported deaths in infants aged 1–12 months and for 41% of 230 deaths in children aged 1–7 years.

(c) There was no evidence that the malaria control programme had any effect on overall or malaria specific mortality rates. It was suggested that there was already a high level of choloquine use for illness presumed to be due to malaria before the programme was initiated.

COMMUNITY MONITORING AND EVALUATION

Several activities were undertaken, by and with the communities, to monitor and evaluate the project. Monitoring was attempted through regular reports from the committees and various community groups. This practice did not work so well since many of those who had to report found the exercise cumbersome. However, there was a good number who faithfully reported month after month, thus giving an idea of what was going on in the community and the information from them has been used in this case study.

In 1983 evaluation by the community was carried out with some outside facilitation. The community selected what indicators to look at, how to record the results and who was to do the evaluation. Analysis of the data collected was done with the community. The community had intended to do this evaluation more frequently but they did it only once as they appeared to need encouragement and guidance to continue doing it.

Another evaluation which was termed 'village self assessment' was done through meetings in every village in 1986. At each of these meetings, one of the project leaders was available, and as a result of these reviews objectives and strategies were revised by many villages.

The community carried out a joint assessment in August 1986. The main objective of the 5-day workshop for the community was to review the situation, in 1986, compare it to what was planned in 1980 and plan for the future. The workshop had both local and external facilitators, and was attended by 200 participants from different villages. The local participants were either VHHs or community agricultural workers or village health committee members.

The lists of priority problems of the Saradidi community in 1979–80 in 1986 have changed.

Current priority problems (1986)

1. Water.
2. Low agricultural production.
3. Ineffective village leadership.
4. Lack of viable income generating activities.
5. Low acceptance of family planning.
6. Measles attacking children before 9 months of age.
7. Illiteracy among adults.
8. Many school drop-outs due to school fees.
9. Lack of continuing education and technical training facilities.

The 1970–80 list of priority problems

1. Water.
2. Disease, e.g. malaria, measles, malnutrition, diarrhoea and vomiting.
3. Lack of health facilities.
4. Too many and too frequent births.
5. High mortality rates especially infants and children.
6. Lack of communication means.
7. Poor agricultural production.
8. Lack of knowledge.
9. Poverty.
10. Lack of secondary schools.

Lack of permanent clean water is still a problem. Some, but not enough, progress has been made. The problem still requires a lot of inputs. Low agricultural production is still a problem but this problem is being addressed by the community agricultural workers. Of the diseases, only measles appears on both lists and lack of health facilities does not appear on the 1986 list. Low acceptance of family planning is related to too many and frequent births. Lack of schools for continuing education is also persisting.

There is a shift in the nature of problems between the two lists. Most of the 1986 problems are related to management problems which were seen slowing down the impact of the programme.

The community said they have benefited from easy accessibility of health services at the village level through the VHHs. This was one objective which has been achieved. The presence of VHHs has also led to improvements in home and environmental cleanliness and knowledge in preventive and promotive health behaviour. The community also said they have benefited from improved knowledge in nutrition; immunization coverage had increased especially with the help of mobile services and home deliveries were handled by trained persons. These benefits, as seen by the community, agree with our own assessment of benefits from the project. Training is also seen as a major benefit. It is the one on which all the others hinge. It is viewed in the same light by the community and project staff. Benefits realized from the agricultural in-puts, technical training at the centre were also included on the list. Among the disadvantages or bad things of the project are withdrawal of the health scheme was listed to No. 1. This scheme existed up to 1985. Members paid a small annual fee which then entitled themselves and their family to treatment at the project centre without more payment. The scheme

was withdrawn for two reasons:

(a) Members were misusing the scheme by bringing people from beyond their immediate families for treatment using their membership cards.
(b) The fee charged was so low that it could not sustain the services and the community was not willing to raise it.

Lack of effective communication between villages and the project centre has come about largely because the VHCs who were to form the link did not work. This assessment by the community agrees with our assessment.

There are 13 officials of the project development committee and 8 project staff. It is impossible for them to visit the villages very frequently due to lack of transport and they have other responsibilities too. Efforts to visit each at least twice a year were made in 1985 and 1986.

Insufficient financial support for the VHHs has often come up in discussions. It is clear that such support will not be available from the villages soon enough and so the project centre is making efforts to help the VHHs get some financial returns for their efforts through income generating activities. Cost of chloroquine was determined by the community themselves. The fact that some will still feel that it is too high was to be expected as it is impossible to please everybody. However, the cost of chloroquine from the project is lower than that in the shops.

The other problems such as lack of water, poor roads, lack of transport for referrals will need greater participation from government ministries. Perhaps the lesson is that the community can identify their needs, but in many cases the government has an important role in fulfilling them effectively.

This self-assessment workshop was concluded by each village presenting their plan of activities based on their objectives for the next 5 years. Their plans specified their goals, the activities, training, the resources and their sources and the people responsible for doing them.

DISCUSSION

Malaria is a major health problem in the study area especially among infants. This project set out to find a mechanism for reducing mortality and morbidity due to malaria within the context of primary health care (PHC) and to document the process of involving the community in this task. It was found that the community was not only interested in participating in malaria control but capable of:

—discussing and analysing their situation;
—prioritizing their problems;
—finding out the causes and deciding on what action to take to solve the problems using their own resources;
—carrying out antimalarial activities, evaluating their impact and using the results to plan future actions.

It was found that the community was better at participating in well-defined activities that brought tangible results in not too distant a future. Helping the community to appreciate its progress through participatory evaluation proved a powerful education and motivation tool. Community members could gather data and submit reports as long as the data gathered were relevant to their needs.

The community was frustrated by technical constraints, i.e. activities like mosquito control, which they could not carry out successfully by themselves. This was reduced through continuous dialogue with external resource people.

Village health committees, formed at the level of each village covering about 100 households, failed to enhance community participation and were active only for short periods of time when they were carrying out a specific activity. They were unable to lead the villagers on an on-going indefinite basis.

Age, sex and social status determined membership to leadership and committees. Villages and groups, that were organized and functioning before the malaria project, were more viable as functional groups than those that were organized for the purpose of participating in the malaria project. Factors to be taken care of in village organizations include kinship, geographical and administrative groupings.

The VHH spent 5–10 days a month each, based on an 8 hr working day, on the activities of the project and they would be most effective if they were responsible for less than 50 households each. Predictably, smaller workload implies increased community mobilization and inputs of the VHH.

Participatory and action oriented training was effective in enabling the VHHs to develop knowledge, attitude and skills necessary for their work in their villages to promote good health. Training of VHHs did not have to be institution based. This allowed for the training schedule to be worked out around the daily activities of VHHs to ensure relevance and appropriateness. The approach did not place non-literate members of the community at a disadvantage.

The VHHs were effective in providing treatment for the sick. For example, more children had medical attention during illness than before the project, although seriously sick children were often not taken to the VHHs. In 2 years (1982–1984) VHHs became the major source of anti-malarial treatment in Saradidi (85%) when they were supplying chloroquine without charging for it. From 1985 chloroquine was provided on a cost recovery basis. The survey in 1986 indicated that although VHHs were no longer the most frequent source of chloroquine, they were still more popular than the local shops.

Non-health income generating activities failed to generate income sufficiently to finance health activities. Fee for service proved the only available mechanism of generating income for health activities.

The following conditions were identified as relevant in community participation:

—that the project was essentially initiated by the community (a local congregation) and not imposed from outside;
—that the project leadership was highly motivated and sincerely committed to community participation;
—the community made all the important deci-

sions at community meetings, took action and were involved in evaluating their progress;

—the community was relatively homogenous in terms of their political, ethnic, religious and economic background;

—there was maximum mobilization and use of local resources while external resources were available when needed;

—provision of a referral back up which was fully evolved as part of the community based project;

—religious commitment which bound the groups together and motivated the VHHs to work without monetary rewards.

Infant and childhood mortality rates in any community may reflect the status of health in a given community. In the Saradidi project, great efforts were made to obtain reliable data on mortality in childhood. The measurement of age and cause-specific mortality was found to be difficult, time-consuming and expensive. Its usefulness may also be limited by the lack of reliable baseline data collected in a similar way for comparative purposes. In the context of the long-term childhood mortality decline in Siaya District since the 1950s, as documented by census data, it is even more difficult to ascribe a decrease in mortality to programme efforts. Perhaps the most striking findings of the mortality analysis in Saradidi are the prominence of measles as a cause of death in children and the relatively small proportion of child deaths that were associated with malaria.

The Saradidi project has been rated as a success by many people but this can only be verified by the people living in Saradidi itself. The Saradidi community attribute many positive changes in their midst to the project but also realize that with a bit more effort, they would have achieved much more. The fact that they are also determined to see the programme continue reflects the value they attach to it.

The most valuable practical lessons learned in Saradidi are perhaps that much has been achieved without the direct involvement of the government. Services can be provided at affordable costs but with high level of availability and qualify maintained. The attitude of helplessness in the community can be changed through a process of building community awareness, not only of their problems and needs, but of their skills, resources and experiences to meet their needs. Dependence on professionals and outside resources is limited and true awakening starts and continues.

The Saradidi programme itself continues to operate. The VHHs remain active. The project development committee, which is a committee of VHCs, continues to co-ordinate health activities effectively. They also provide voluntary supervisory support to the VHHs. The VHHs continue to provide antimalarial drugs at cost to people with fever and they also provide information and education on other important health issues. The mobile clinics continue. The Ministry of Health provides vaccines and other necessary supplies and some personnel. The community pays for cost of fuel and any curative drugs that they may need for the clinics. We conclude that Saradidi project continues and hence appears to be sustainable.

It would be necessary to follow-up the project in the future through annual visits to hold discussions with the community leaders and to carry out periodic surveys based on a few selected indicators, in order to determine the elements of the project that are sustainable, their effectiveness and factors determining the two.

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