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Front Cover Photo: Aga Khan Community Health Programme, Dhaka, Bangladesh: An important activity in any PHC programme is training mothers how to use local ingredients to make cereal-based oral rehydration solution for home treatment of dehydration from diarrhoea, a major cause of infant and child death. In an urban slum of Dhaka, a trained mother gives home-made, rice-salt oral rehydration solution to her child with diarrhoea, confident that in a short time he will be well again. (Photo by Shehzad Noorani/AKCHP)

LESSONS LEARNED FROM PRIMARY HEALTH CARE PROGRAMMES FUNDED BY THE AGA KHAN FOUNDATION

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PREFACE

In 1983, the Aga Khan Foundation adopted a health strategy which aimed to improve the equity, effectiveness and efficiency of health care in the developing world. Recognising that the global strategy on primary health care is the most practical means of meeting the basic health needs of the millions of people in the developing world without access to health care, AKF and its co-donors made heavy investments—some $10 million to date—in support of PHC initiatives in Bangladesh, India, Kenya, and Pakistan. At the request of its Board, the Foundation set out to learn generic lessons about the organisation, management, effectiveness and sustainability of PHC programmes through an analysis of the programmes supported by the Foundation.

The Foundation's PHC programme analysis initiative began in 1984 by establishing, in consultation with health professionals at WHO, UNICEF, USAID, and various foundations, a preliminary list of standard indicators for monitoring and evaluating PHC programmes. After considerable consultation with PHC management teams, the initial list of over one hundred indicators was reduced to forty-one standard indicators on the availability, accessibility, acceptability, utilisation, impact, and cost of PHC services. As most PHC programmes had difficulty generating all standard indicators and as some of the indicators generated by programmes in different countries were of questionable comparability, the original, heavily quantitative study methodology was expanded to include a more qualitative and participatory approach. This revision produced results, as evidenced by the conclusions, lessons learned, and recommendations given in this report.

AKF's Analysis of PHC Programmes was implemented by health professionals of the Primary Health Care Operations Research (PRICOR) Project of the University Research Corporation, Center for Human Services, who worked in close collaboration with health professionals of the Aga Khan Foundation in Geneva, the Aga Khan University Faculty of Health Sciences in Karachi, and the Secretariat of His Highness the Aga Khan in France. However, the Analysis could not have been conducted without the substantial participation of each of the management teams of the eight AKF-funded PHC programmes in Bangladesh, India, Kenya, and Pakistan, for which the Foundation is most grateful. In addition to the generation and reporting of quantitative and qualitative data essential to the Analysis, PHC management teams reviewed the preliminary report and made substantial contributions to this report at a PHC Analysis Workshop, which was organised by the Foundation and conducted at the Aga Khan University in Karachi, Pakistan, in May 1991.

The cost of the study during 1984-88 was covered by AKF and the Canadian International Development Administration (CIDA); the cost from mid-1988 to mid-1991 was shared by AKF and the U.S. Agency for International Development (USAID) under a Matching Grant Agreement on Strengthening the Management and Evaluation of PHC Programmes in Selected Countries of Asia and Africa.

AKF also wishes to acknowledge with special thanks the substantial co-funding of the eight PHC programmes included in this analysis which was generously provided by Alberta Aid, CIDA, the Ford Foundation, the Norwegian Agency for Development (NORAD), the Overseas Development Administration (ODA) of the U.K., UNICEF, and USAID.

This report, which is based on thirty-six cumulative years of PHC implementation experience in four developing countries, has value within and outside the Aga Khan Health Network. It is particularly relevant to the strategic planning exercises which have been undertaken by the Foundation, the Aga Khan University Faculty of Health Science in Karachi, and the Aga Khan Health Services in India, Kenya, Pakistan, and Tanzania. It is also relevant to the Global Strategy on PHC.

In 1987-88, the World Health Organization conducted an evaluation of the Global Strategy on PHC which indicated that, while substantial progress was being made in most countries, a number of issues concerning PHC organisation and management, information for the managerial process, technical support, community participation, and financing required more attention. The scope of this Analysis covers many of these issues and sheds light on various other issues related to the effectiveness and sustainability of PHC programmes which are critical to the future of the Global Strategy on PHC.

Primary health care approaches have been dominated by two hotly debated and sometimes conflicting models—the "comprehensive" model elaborated at the Alma Ata Conference on Primary Health Care in 1978 and the "selective" model which argues that

the best use of scarce resources is to concentrate on covering high-risk population groups with a limited range of interventions. Advocates of the selective model generally promote growth monitoring, nutrition education, immunization, ORT for management of acute diarrhoea, and fertility control. Advocates of the comprehensive model recognise the importance of these interventions, but argue that, even in the presence of severe resource limitations, improved water supply, environmental sanitation, income generation, and education of women must be promoted to achieve lasting improvements in health status, productivity, and the quality of life.

Most PHC programmes included in this analysis have pursued a "middle path" between the selective and comprehensive models described above. And many programmes, particularly those which are most sensitive to the communities served and to constantly changing conditions, have revised and expanded the initial areas of programmatic emphasis. Some PHC programmes emphasise service provision, while others place greater emphasis on community empowerment, decision-making, and capacity-building with professional inputs being limited to consultation and support, rather than programme direction and service provision. While some programmes have focused on selectively prescribed, high-impact interventions, others support only the services which are decided by the community and which may not entirely coincide with the technologically determined priorities of health professionals.

As the experience being gained by the Aga Khan Health Network is mounting, this report should be viewed as a milestone—not an endpoint—in the Aga Khan Health Network's continuing effort to improve health care in the developing world.

This report has three principal audiences: the AKF Board, the Aga Khan Health Network's colleagues at various donor agencies and development institutions, and fellow managers and "students" of PHC within and outside the Aga Khan Health Network.

We hope that readers of this report will find it interesting and useful in their continuing efforts to plan, implement, guide, and support more effective and sustainable PHC programmes.

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All of the quantitative and qualitative data that appear in this report have been provided by the eight primary health care programmes that are also the subjects of the report. The authors are especially grateful to the programme managers for providing us with their proposals, progress reports, evaluation reports, and other material.

We are also grateful for the hospitality shown to us during our visits to programme sites, and for the patience of the managers and staff in responding to our questions and our insatiable requests for data.

From May 2-4, 1991, some 37 participants from the programmes, the Aga Khan Health Services, the Aga Khan University, and the Aga Khan Foundation critically reviewed and discussed draft sections of the report (called "background papers" at the time) in a PHC Analysis Workshop held at the Aga Khan University in Karachi, Pakistan. A list of these participants, who made important contributions to this report, is on the following page. The discussions were lively, enlightening, sometimes provocative, and very helpful. We have attempted to incorporate much of what was contributed at that workshop into this report.

We would like to give special thanks to Dr. Inayat Thaver, Dr. Vincent DeWitt, Ms. Kauser Khan, and Ms. Khatidja Hussein, all of the Department of Community Health Sciences, the Aga Khan University, who contributed to the preparation of five of the background papers presented at the Workshop.

We wish to emphasise that the views presented in this report are those of the authors and do not necessarily represent those of the Workshop participants, the primary health care programmes, the Aga Khan Health Services, the Aga Khan University, or the Aga Khan Foundation.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AKCHP	The Aga Khan Community Health Programme (Dhaka, Bangladesh)
AKES	Aga Khan Education Services
AKF	Aga Khan Foundation
AKHB	Aga Khan Housing Board
AKHN	Aga Khan Health Network
AKHS	Aga Khan Health Services
AKRSP	Aga Khan Rural Support Programme (Pakistan, India)
AKU	The Aga Khan University (Karachi, Pakistan)
ANM	Auxiliary Nurse Midwife
ARI	Acute Respiratory Infection
CBHC	Community-Based Health Care
CBORT	Cereal-Based Oral Rehydration Therapy
CBPHC	Community-Based Primary Health Care
CBR	Crude Birth Rate
CDR	Crude Death Rate
CHO	Community Health Organiser
CHN	Community Health Nurse
CHS	Community Health Sciences Department, AKU
CHV	Community Health Volunteer
CHW	Community Health Worker
CIDA	Canadian International Development Agency
CMR	Child Mortality Rate
CMV	Community Mother Volunteer
EPI	Expanded Programme of Immunization
FP	Family Planning
GM	Growth Monitoring
HMRP	Health Manpower Reorientation Project (Pakistan)
IMR	Infant Mortality Rate
LHV	Lady Health Visitor
MCH	Maternal and Child Health
MIS	Management Information System
MMR	Maternal Mortality Rate
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for International Development
NPPHC	Northern Pakistan Primary Health Care Programme (Gilgit and Chitral, Pakistan)
ODA	Overseas Development Administration
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
PHC MAP	Primary Health Care Management Advancement Programme of the AKHN
PRICOR	Primary Health Care Operations Research, a project of URC/CHS
SIDA	Swedish International Development Agency
SSS	Sugar-Salt Solution for Diarrhoea
STD	Sexually-Transmitted Diseases
TB	Tuberculosis
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
URC	University Research Corporation
URC/CHS	University Research Corporation/Center for Human Services
URMUL	Uttari Rajastan Milk Union, Ltd. (Rajastan, India)
USAID	United States Agency for International Development
VCHD	Vur Community-Based Health Demonstration Project (Sind, Pakistan)
VHAI	Voluntary Health Association of India
VHDC	Village Health and Development Committee
VHW	Village Health Worker
WHO	World Health Organization

GUIDE TO THE REPORT

This report summarises the history, methodology, and results of an analysis of primary health programmes financed by the Aga Khan Foundation in Kenya, Bangladesh, Pakistan, and India. Eight programmes initiated in the 1980s were analysed within a combined quantitative/qualitative framework, using data derived from programme reports, baseline and follow-up surveys, management information systems, and evaluations.

This report consists of six major sections accompanied by a summary and three appendices.

The **Summary** presents the major results of the analysis and a selection of recommendations derived from it.

Chapter 1, **Background**, describes the objectives, history, and methods of the Primary Health Care Analysis and discusses issues that arose in drawing common lessons from diverse projects.

Chapter 2, **The Primary Health Care Programmes**, provides both an overview of the eight programmes and lengthier descriptions of the history, populations, and objectives at individual sites.

Chapter 3 analyses **The Effectiveness of the Programmes** in terms both of results and processes. The chapter discusses **six technical interventions** (immunizations, maternal care and family planning, growth monitoring and nutrition education, diarrhoeal disease control, treatment of common diseases, and other development activities), and **three management processes** (community health workers, information systems, and community participation).

Chapter 4 analyses **The Impact of the Programmes**, in terms of both health and developmental outcomes. It then describes both programmatic and contextual factors that seem to have influenced these outcomes.

Chapter 5, **The Sustainability of the Programmes**, presents a tentative analytical framework for this complex and controversial subject and discusses programme activities to date in improving sustainability prospects.

Chapter 6, **Conclusions**, discusses results and issues that cut across individual chapters. It then provides a brief summing up of the experience to date. (A lengthier discussion along these lines is included in the Summary.)

Appendices A and B present programme data sheets and country sustainability statements drafted at the PHC Analysis Workshop held in Karachi in May 1991. Appendix C is the bibliography.

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ommunity health nurse and three trainers discuss a training workshop in
Kisumu. (Photo by Jean-Luc Ray/AKF)

THE PRIMARY HEALTH CARE PROGRAMMES OF THE AGA KHAN HEALTH NETWORK

The eight programmes that are the subject of this report are listed below, together with their location, the year initiated, and the year(s) of the baseline survey(s). Throughout this report the programmes are identified by their location (shown in bold).

PROGRAMME	LOCATION	YEAR INITIATED	BASELINE(S)
Kisumu Community-Based PHC Programme	**Kisumu** — Rural Kenya	1983	1984
Aga Khan Community Health Programme	**Dhaka** — Urban Bangladesh	1985	1985
AKU Urban Primary Health Care Programme	**Karachi** — Urban Pakistan	1985	1984-1988
Vur Community-Based Health Demonstration Project, Health Manpower Reorientation Programme	**Vur**, Thatta — Rural Pakistan	1986	1986
Northern Pakistan Primary Health Care Programme (NPPHC)	Gilgit and Chitral — Rural **Northern Pakistan**	1987	1986, 1987
URMUL Trust Primary Health Care Programme	**Bajju**, Rajastan — Rural India	1988	1988
Mombasa Primary Health Care Programme	**Mombasa** — Rural Kenya	1988	1989
Junagadh Primary Health Care Programme	**Junagadh**, Gujarat — Rural India	1989	1987, 1989

SUMMARY

The Aga Khan Foundation began its support for community-based primary health care in 1983 with the initiation of a pioneer effort in Kisumu in western Kenya. Seven other programmes were started later: in Bangladesh (Dhaka, 1985), Pakistan (Karachi, 1985; Vur, 1986; and the Northern Areas and Chitral, 1987), India (Bajju, 1988; and Junagadh, 1989), and again in Kenya (Mombasa, 1988).

These eight programmes now serve a total of almost 410,000 persons but concentrate on the 80,000 women 15 through 49 years of age and 71,000 children under 5 years living in the target areas. The number of persons served by each programme varies from under 6,000 in Bajju to over 142,000 in Northern Pakistan. Programmes in Karachi and Dhaka are located in urban areas, but the remainder are rural, including one in a desert (Bajju) and another in remote mountainous regions (Northern Pakistan). Programmes serve Christians, Hindus, and three Muslim sects, of whom the smallest group is Ismaili. Despite cultural and geographic diversity, these programmes participate in an information-sharing network and have a common devotion to quality. Diversity complicates—but also contributes significantly to—the current analysis.

All programmes sought to improve the health of women of reproductive age and children under five. Emphasising regular household visits by CHWs, complemented by fixed and mobile facilities, programmes promoted core MCH services, including immunization, ORT, growth monitoring, pre-natal care, and health education on nutrition, sanitation, and family planning, supplemented by simple curative care, basic drug distribution, and attention to locally endemic diseases.

THE PRIMARY HEALTH CARE ANALYSIS

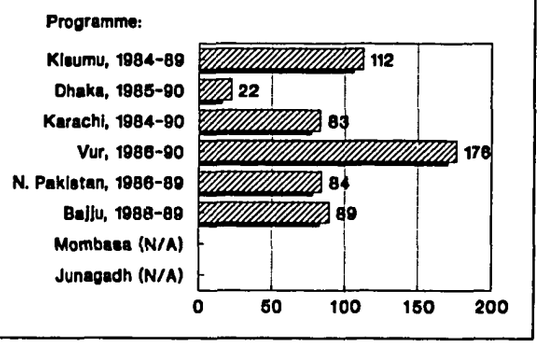
To learn as much as possible from the collective experience, the Aga Khan Foundation asked the Center for Human Services to analyse programme inputs, processes, effects, and impacts within a common statistical and qualitative framework. Information was derived from a core list of forty-one standard indicators and from programme evaluations, reports, and special studies. The authors of this report visited each programme site and presented preliminary results and issues for discussion at a Primary Health Care Analysis Workshop held in Karachi in May 1991. Programme staff reviewed all quantitative data and commented on the draft report at that time.

The analysis presented in this report concentrates on two themes—effectiveness and sustainability (including costs)—and nine sub-topics:

- immunizations
- maternal care and family planning
- growth monitoring and nutrition education
- diarrhoeal disease control, oral rehydration therapy, water, hygiene, and sanitation
- treatment of common diseases
- community health workers
- information systems
- community participation
- community-based development activities

This chapter summarises this analysis and guides the reader through individual sections. Subsequent chapters narrate the history and methodology of the PHC Analysis (Chapter 1), describe the eight individual programmes (Chapter 2), explain lessons learned and recommendations regarding the above topics (Chapter 3), and discuss factors affecting both impact (Chapter 4) and sustainability (Chapter 5). Appendices present quantitative indicators for which data are most commonly available and report country sustainability statements drafted at the PHC Analysis Workshop.

Figure 1. Reductio:. of Deaths Among Children Under Age 1 Year per Thousand Live Births



PROGRAMME IMPACT

What did these eight programmes accomplish, how effective were they, and what lessons can be derived from their experiences? As shown in Figure 1, infant mortality has declined significantly in almost every programme area where it has been measured, often by as much as 50 percent in just a few years. Recent statistics on the nutrition of children under 5 are also encouraging. Mortality and morbidity due to diarrhoea, measles, polio and other immunizable diseases seem to have declined as well.

Neo-natal mortality has now taken on more importance as programmes have started to affect overall infant mortality. There is no indication so far that the programmes have had any measurable impact on fertility or socio-economic status.

The most effective health intervention appears to have been immunizations for children under age 5 and tetanus toxoid for pregnant women, followed by improvements in maternal care. Programme activities have also significantly affected mothers' knowledge and use of ORT for the treatment of diarrhoea. Growth monitoring and nutrition education, on the other hand, have been problematic interventions, but some improvements have been noticed recently as a result of changes in strategy. Child spacing has not received adequate attention so far, though this too is changing.

✦ CONCLUSION: Infant mortality has declined significantly in almost every programme area where it has been measured, often by as much as 50 percent in just a few years.

EFFECTIVENESS

Almost all of the programmes have improved access to basic health services. Many of the target populations had limited or no access before the programmes began. Now, practically everyone lives within 5 kilometres of a programme health centre or health worker. Visits by CHWs and other health workers are high in most areas. In Dhaka, 65 percent of targeted households had been visited within the last month, and in Karachi, 85 percent. In Kisumu, 40 percent of the households had been visited within the last quarter; in Bajju, 93 percent. Figures are not available for the other programmes, but recent assessments have concluded that most households have been visited, except those in Mombasa, which is in a community mobilisation stage.

✦ CONCLUSION: Management is one of the most crucial determinants of successful primary health care. Good planning, coordination, staffing, supervision, monitoring, and evaluation all contribute. Numerous factors outside programme control are also important, as summarised in Figure 2.

Taken together, these eight programmes have demonstrated that high-tech medical services are not necessary for primary health care to be effective. The principal interventions of all programmes were education and motivation. Medical interventions were limited and usually simple (immunizations, tablets, ORS sachets). Referral services, however, are needed and the technology in these facilities is naturally much higher.

Figure 2. Management and Exogenous Factors that Account for Successful PHC Programmes

Management Factors
- A 3-tier organisational and management structure
- Patient-oriented service delivery
- Match between community demands and professional assessments of priority needs
- Decentralised management/decision-making
- Use of indicators to guide staff work priorities
- Target-setting, but at local level
- Micro-planning of service delivery at local level
- Management information system
- Supportive supervision
- Continuing education/training for staff
- Coordination and collaboration with Government
- Community participation

Exogenous Factors
- Culture
- Local health conditions and practices
- Physical environment
- Politics
- Public policies
- Economics
- Competing and complimentary interventions
- Donor support

IMMUNIZATIONS

Child immunization coverage has increased remarkably in almost all programmes. Now, about two-

thirds of all children under age 2 are fully immunized in the programme areas. Coverage is 73 percent in Kisumu, 43 percent in Dhaka, 65 percent in Junagadh, 50 percent in Vur, and 80 percent in Mombasa for children under age 2. In Karachi and Bajju it is 70 and 71 percent respectively for children under 5.

Every programme improved the accessibility of immunization and increased demand by motivating and reminding individual parents about immunization schedules. Major efforts were made to reduce coverage gaps and backlogs, and mobile clinics were sometimes established as a temporary measure until the government could organise its own services. Measles and tetanus were found to be widespread problems that could be attacked with quick and visible results, helping to convince communities of the value of primary health care. CHWs and, later, school children, were trained to monitor children, sometimes using computerised registers, to ensure complete immunization. Even where coverage was already high, immunization was seen as a good way to introduce PHC and begin working with communities.

These programmes demonstrated the value of "bringing the service to the people," using mobile teams, campaigns, and regular immunization sessions at such locations as schools, meeting halls, and homes. They also demonstrated the utility of a management information system (MIS) and complete household registration that could be used as it was in Dhaka, Bajju, Junagadh, and Karachi, to identify specific mothers and children needing follow-up.

Involvement of government EPI and health agencies is especially important in NGO immunization activities, because specialised equipment, trained staff, and vaccines are essential. Early collaboration is needed, especially if the NGO plans to turn the service over to the government.

➤ RECOMMENDATION: PHC programmes should include immunization as one of their first and most visible components. It is an extremely effective intervention and an excellent vehicle for introducing PHC to communities.

MATERNAL CARE AND FAMILY PLANNING

Every programme included a maternal care component and most either provided or referred for child spacing services. Programmes trained community-based birth attendants and CHWs to promote pre-natal care and safe labour and delivery. Most also touched — but only lightly — on other threats to women's health, including post-natal risks, poor nutrition, inadequate birth spacing, and socio-economic deprivation.

Programmes made significant progress on pre-natal care, including tetanus toxoid (TT) immunization. Over a 3 to 5 year period, TT coverage of pregnant women increased by 82 percentage points in Vur, 37 points in Dhaka, 36 points in Northern Pakistan, 40 points in Bajju, and 31 points in Junagadh. There have also been significant improvements in deliveries by trained attendants: from 15 to 57 percent in Vur in four years; from 33 to 72 percent in Junagadh in three years; from 34 to 56 percent in Dhaka in two years; and from 2 to 30 percent in Bajju in two years. Many programmes, though, found that even women identified as traditional birth attendants may deliver only a few babies a year, necessitating further training of other local women.

The delivery of women's health services was sometimes disjointed, with pre-natal care provided by the CHW or TBA, deliveries by TBAs, and perhaps family planning by a government provider. This resulted in missed opportunities for preventive/promotive services and inconsistent care for individual women.

More profound changes in women's health status are impeded by early, closely-spaced, and late pregnancies and by socio-economic discrimination in some countries. Most programmes have not addressed these broader women's health concerns.

➤ RECOMMENDATION: While maternal care has improved significantly in all PHC programmes, more needs to be done to enrol women earlier in pre-natal care, improve their nutrition during pregnancy, increase safe deliveries by trained attendants, and promote child spacing.

GROWTH MONITORING AND NUTRITION EDUCATION

Most programmes attempted to reduce severe malnutrition among children through growth monitoring and nutrition education. Demand for growth monitoring was stimulated by conducting community health education sessions and home visits. Some increased accessibility by bringing mobile clinics to convenient locations and (sometimes) training CHWs to weigh children and counsel parents. All programmes provided extensive nutrition education to mothers, but none provided supplementary feeding.

The impressions that emerge from available data and recent changes in strategy are that several programmes have been able to increase the proportion of children weighed and the frequency of weighing. Those concentrating on high-risk cases have increased the frequency of weighing of those children. The percent of children weighed in 1990 was quite high in several programmes: 78 percent in Kisumu, 70 percent in Karachi, 67 percent in Vur, and 54 percent and 52 percent in Bajju and Dhaka.

But growth monitoring is a difficult intervention to promote. It is an abstract concept, the techniques are complex, CHWs often have a difficult time weighing children and recording weights accurately, and follow through interventions (improved weaning and feeding practices, food selection and preparation, food supplements) are hard to provide. Some programmes have helped people understand by simplifying the technique and focusing counselling on locally feasible improvements in diet and food selection and preparation.

✦ CONCLUSION: Several programmes have increased the proportion of children weighed and the frequency of weighing, but quality assurance in weighing, recording and counselling remains a problem. Strategies that enhance coverage and quality include: selective monitoring and intensive counselling for high-risk children; focusing on growth faltering rather than nutrition status; using students to monitor the growth of siblings; and bringing growth monitoring to the community rather than requiring mothers to go to distant clinics.

To be done well, though, growth monitoring takes significant CHW time and regular and effective supervision. Costs are likely to be high, and quality difficult to maintain in remote and widely dispersed populations. The fundamental question is whether monitoring is the best approach to growth promotion in areas where poverty, food shortages, PHC infrastructure, and distance are significant constraints. Not enough is known about the "return on investment" in these situations.

➤ RECOMMENDATION: Most community-based PHC programmes should include growth monitoring, because it can have a significant impact on child growth and nutritional status. The most promising approach seems to be selective screening of high-risk children under age 3, coupled with intensive monitoring and counselling of faltering children and practical nutrition counselling of mothers on improved food selection, preparation and feeding practices.

DIARRHOEAL DISEASE CONTROL

Diarrhoea was a common problem in all programme areas. Oral rehydration therapy (ORT) was promoted as a way to prevent children with the disease from becoming dehydrated and dying. Most women in programme areas now know about diarrhoea, its causes, and how to use ORT to treat it. Some 96 percent of women in Dhaka and 86 percent in Bajju know how to mix and administer ORT, for example.

Community health workers and their supervisors have done an excellent job in explaining and promoting the use of ORT. The percentage of mothers who used ORT in their child's last diarrhoea episode averaged about 70 percent (76 percent in Kisumu, 91 percent in Dhaka, 63 percent in Northern Pakistan, 90 percent in Karachi, about 71 percent in Vur, and 48 percent in Bajju).

All of the programmes attempted to prevent diarrhoea by educating mothers about the importance of boiling water, covering food, hygiene, etc. There is some survey and anecdotal evidence that improvements are occurring, although slowly.

About half the programmes promoted the development of potable water supplies. They have been most effective when they served as catalysts and facilitators, helping communities organise themselves to negotiate with water authority agencies, rather than providing water systems themselves.

✦ CONCLUSION: Water quantity and quality are a serious concern in many areas and profoundly affect health. PHC programmes should facilitate links between communities and water supply agencies but should not generally undertake water supply activities themselves.

Construction of sanitary latrines has been a priority for only a few programmes; most have emphasised education rather than construction. Sanitation remains an area where much more needs to be done.

➤ RECOMMENDATION: Programmes have done an excellent job educating mothers about ORT and should continue to do so. Greater attention, however, needs to be paid to hygiene, sanitation, and boiling of drinking water to prevent diarrhoea. Where water supply is a priority community need, programmes can be most useful by acting as facilitators to bring communities and water authorities together to work out agreements.

TREATMENT OF COMMON DISEASES

All of the programmes offered a number of other health services, from simple first aid to specialised interventions designed to address local diseases. The most effective of these interventions were also the simplest and least expensive: Vitamin A to prevent night blindness (Dhaka and Bajju) and iodinated oil for goitre (Northern Pakistan).

Such local problems as malaria, anaemia, AIDS, tuberculosis, drug addiction, and a variety of skin and parasitic diseases were addressed by various programmes, but were much more difficult to resolve. These are more complicated problems, often require significant investments of time and money, and the available interventions are less effective. To address them properly would have required significant changes in programme staffing, organisation and funding.

➤ RECOMMENDATION: programmes should continue to place most of their emphasis on the core maternal and child health services but consider adding a limited number of inexpensive, simple and highly effective interventions where a need exists. Programmes should generally be wary of taking on more complex and costly health services.

COMMUNITY HEALTH WORKERS

Community health workers have contributed significantly to programme effectiveness and are the key element in many community-based activities. CHWs have educated residents in the benefits and procedures of preventive/promotive care; identified and motivated persons who have missed immunization and growth monitoring sessions; referred high-risk children, pregnant women, and others in need of special care; and helped representatives of the formal health sector to understand community health needs and opportunities.

CHWs are more effective as links between residents and other health and development personnel than as independent actors. Those in AKHN programmes have benefited from high quality and frequent supervision and from unusually motivated community organisations; when these have been lacking (both in AKHN programmes and elsewhere), CHWs have experienced poor morale and high dropout rates. CHWs are part of systems of community-based primary health care, and failure in one element may lead to rapid failure of the system as a whole.

✦ CONCLUSION: CHWs are not necessarily the *sine qua non* of PHC. Local community agents are essential, but many kinds of people can make a contribution to PHC - teachers, students, TBAs, mothers, neighbours...

Paradoxically, the importance of CHWs has often been their greatest weakness, resulting in high expectations and consequent disillusionment. Communities expect them to be mini-doctors and to draw on seemingly abundant Aga Khan resources, while programme personnel sometimes expect them to work unrealistic hours and transform long-held health beliefs and practices. Even when it is clearly stated that the CHW position is unpaid, many applicants hope (or expect) that it will eventually lead to a paid position.

Direct staff payment of community workers has inconsistent effects on both technical performance and activity levels, making it necessary to determine solutions locally. Paid workers (and their communities) tend to see CHWs as programme rather than community agents and may look for outside direction rather than represent community initiatives themselves. Paid CHWs also tend to develop an unsustainable employee/employer relationship with programme staff, demanding higher pay and other employment benefits. Volunteers, on the other hand, suffer from conflicting time obligations and often from low morale, especially if the community does not support their work. It is particularly difficult to put paid and unpaid CHWs together in the same programme area. The payment question appears likely to be resolved on a programme-by-programme basis for the foreseeable future.

CHWs perform educational and promotive roles most effectively if selection and training are delayed until the full community (not simply the leaders) have been oriented and convinced about their potential effectiveness. A commitment to some form of compensation may also be needed at this time. The problem is that the orientation process may take months or years, during which time the programme may have relatively little that is concrete to offer. Few programmes have succeeded in building community support through obvious and immediately effective actions, which may require less orientation, rather than through promises of future benefits.

➤ RECOMMENDATION: PHC programmes should look for new ways to build public and professional support for community health workers and assist CHWs to strengthen ties between local residents and outside providers of health and development services.

➤ RECOMMENDATION: Programmes should not rely on unsalaried part-time workers to be the sole source of PHC services.

MANAGEMENT INFORMATION SYSTEMS

Most of the programmes developed information systems based on: (1) family records, (2) CHW registers, and (3) computerised MIS that combined this information and clinic activity reports, periodic surveys, external evaluations, special studies, staff reports, and more recently, cost data.

There is no doubt that information systems have had a major role in improving programme performance. Programmes that have not had adequate information have had more difficulty in planning, monitoring, supervision, case-finding, and evaluation.

✦ CONCLUSION: Information is crucial to good management. The projects have clearly demonstrated the value of needs assessments, updated household registration, MIS for identification of high-risk cases, monitoring programme performance, rapid surveys for evaluation of programme achievements. They have also demonstrated that the information systems do not have to be elaborate, extensive, or even computerised to be useful.

The programmes learned that the MIS (speaking broadly) is most useful when indicators are selected to meet the specific needs of different users, whether they be communities, CHWs, donors, supervisors, or managers. They have also found that it is not only possible but desirable to involve communities in both the development and operation of the MIS. It has been especially useful to involve them in needs assessments, and to use that information to help communities identify PHC priorities and develop plans.

Complete and periodically updated household registration is a very valuable tool. It provides the capacity for continual surveillance of health status and has been used very effectively in several programmes to identify and monitor high-risk mothers and children in need of special attention.

Computerised systems have been shown to be valuable management tools, but staff have also found it important not to go too far, lest CHWs become "computer-dependent" and lose their initiative and sense of responsibility for their caseloads. A combination of a computerised system for management purposes and a simple manual system for service purposes seems to be a reasonable solution.

Programmes have also found that not every item of information has to be collected routinely. Karachi staff found that health workers were spending up to 40 percent of their time on record keeping and reporting. Staff of several programmes, including Karachi and Dhaka, have reduced the number of indicators, and the frequency of data collection, tabulation, and reporting without losing essential information.

Routine data collection can easily be supplemented with rapid surveys, quality assessments, and other special studies to collect data that is needed only periodically.

Most programmes have recently attempted to collect and analyse cost data, finding that (1) it is relatively easy to produce estimates of total costs, total revenues (by source), and target population per capita cost; (2) it is difficult to estimate unit costs (e.g., cost per child weighed); (3) cost data need to be collected and analysed for a full 12-month period to allow for seasonal and spending variations; and (4) most current accounting systems cannot be used to analyse programme costs because they are structured to generate expenditure (not cost) data.

✦ CONCLUSION: A high-quality, computerised MIS should be a part of each PHC programme. But it should be tailored to fit the needs of individual users, should be restricted to the collection and processing of the minimal data necessary for planning and monitoring, and should be supplemented with rapid data collection techniques, as needed.

COMMUNITY PARTICIPATION

Community participation is essential for effective primary health care. The three-tier system cannot work well without CHWs who come from the communities. Programmes cannot be sustained without community support. Immunization will not be effective without community mobilisation.

Some staff saw community self-determination, empowerment, and self-reliance as the starting point for primary health care and based strategies on community control and "ownership". They then mobilised communities before providing services. Other pro-

grammes provided health services more directly and, while still emphasising community involvement, saw it more as a facilitating factor rather than as an end in its own right. The first approach takes considerable skill, plus time and personnel, but is widely believed to be more sustainable. The second contributes less to community self-management but perhaps more to the service delivery aspects of primary health care.

Staff emphasis on activities for which there is no community demand is unlikely to bear fruit, even if the activities are technically effective. Similarly, staff disregard for community-perceived priorities is likely to have a negative effect on public acceptance of the overall programme. Effectiveness appears to be greatest where community demands and professional priorities coincide.

✦ CONCLUSION: Community mobilisation is critical, but there are many ways to do it. Community organisation, ownership, empowerment are not always necessary for effective PHC (e.g., immunization) but probably are essential if the community is expected to sustain the services.

Community-based programmes are likely to be more effective and to start providing services earlier if there are viable community organisations to work through. At least in some settings, women may be more effective health activists than men, sometimes making women's organisations the preferred vehicle. The readiness of local residents to participate in health activities—or even to consider themselves a community—varies from setting to setting, making uniform approaches or targets inappropriate.

Most PHC interventions are not communal by nature and do not require community organisation. Most involve individual and family decisions and commitment. Community organisation can be most effective when it is directed toward mobilising broad support for PHC so that community members act as advocates, agents and sponsors of PHC.

➤ RECOMMENDATION: Programme staff should continue to emphasise community education and participation and give communities increasing responsibility for activity planning, management and financing. Donors should accept the time commitments needed to get this started but, nevertheless, encourage measurable progress. Emphasis on community "empowerment" should nevertheless be tempered by recognition of the need for continuing outside technical, logistical, and moral support after donor funding ends.

Programmes should foster mutually respectful and supportive relationships between communities and external groups rather than untenable independence.

OTHER DEVELOPMENT ACTIVITIES

Four of the PHC programmes have introduced selected development activities, one other has made several *ad hoc* attempts to start such activities, and the other three have not attempted any. There is some ambivalence among the programmes about the appropriateness of a health organisation expanding into non-health areas.

Several of the programmes have been relatively successful in helping communities develop effective organisations, but these have usually had health as their mission.

The most successful income-generating activity to date has been the wool weaver's organisation in Phalodi (near Bajju), which built on existing skills and an available market. The NGO's contribution, which was critical, was to provide technical assistance in organisation, management, design, and marketing.

The most successful educational activity has been the Shiksha Karmi programme (Bajju), which also built on an existing educational model and applied it in needy and responsive communities. The NGO's contribution, also critical, was to provide technical assistance to the communities to set up the programme, recruit and train the teachers, and monitor progress. In both cases, there was an existing demand (need) and supply that just needed to be brought together by skilled and experienced mediators. It would seem that development activities that meet these conditions are more likely to be successful than those that do not.

With the exception of the activities mentioned above, most programmes have had very limited success, so far, in helping communities develop educational and income-generating activity programmes. It would seem that in all cases there was either insufficient demand, insufficient supply, and/or inadequate expertise to bring the two together.

➤ RECOMMENDATION: Limited PHC services are best. Programmes have limited resources (not only monetary, but technical and time). They must guard carefully against being overly ambitious, as that spreads resources so thin that the interventions have no chance of being effective. It is better to do a few things well and to add to that as time and resources permit.

Experience to date suggests that these development areas are much more difficult to introduce than expected, that most PHC staff do not have adequate training and expertise in these fields, that they require a great deal of staff effort to undertake, and that the successful results have been few in number and small in scale.

➤ RECOMMENDATION: Most PHC programmes should probably not introduce other community-based development activities unless there is a strong reason to do so and the programme has the requisite expertise, time, and resources to devote to the activities. In most cases, the PHC staff should probably act as brokers or intermediaries, helping communities gain access to resources provided by other agencies.

SUSTAINABILITY

Sustainability of donor-initiated activities requires a gradual transition from dependence on external financing and management to greater reliance on local institutions, community groups and resources. Diversity of financial and managerial sources, both during and after donor support, appears to be a key to success. The goals of a sustainability process usually do not change over time, but *means* may well shift even during a programme's lifetime as local capacity develops and community circumstances change.

Finance, the usually cited concern for sustainability, may be less critical in the long run than routine management, technical support, and worker morale. Not all threats are within programme control; political upheaval, economic down turns, and environmental degradation, to mention only a few, are unpredictable and uncontrollable.

Programme staff have only partially clarified what they want to see in place, say, five years after donor funding is phased out, and only a few have assessed the financial and managerial resources that will be required.

Communities' ability and willingness to manage activities is critical for many programmes and is the first objective of most sustainability strategies in AKHN programmes. Community independence from outside help is not an appropriate objective, however, because of the interlinked nature of PHC systems. Even trained and motivated community residents need access to referral services, technical updates, and supplies.

Governments may be suitable partners for some programmes but sometimes have proven unreliable because of staff turnover and weak commitment. Prospects may be improved by early coordination and gradual transfer of responsibilities, but expectations need to be kept realistic.

To date, cost recovery mechanisms and community financing have covered only a small fraction of the current levels of expenditures of PHC programmes, and virtually no non-health income-generating activities have helped to offset PHC costs.

✦ CONCLUSION: The demand for quick health status improvements and the demand for sustainability may push projects in conflicting directions. Time is needed to generate health system, community, and government support, and to ensure commitment for long-term maintenance. Early and demonstrable health status improvements are, nevertheless, a prerequisite for this support. The appropriate balance between conflicting pressures is everywhere a critical issue.

Primary health care programmes should give the highest priority to actions that will enhance sustainability, including clarification of objectives, identification and development of responsible community, government, and private agencies, and assessment and reduction of resource requirements. Programmes should be encouraged to spend the time needed to develop activities in a sustainable manner, using local resources and building on community and intersectoral commitments.

➤ RECOMMENDATION: Sustainability strategies for community-based programmes should emphasise capacity-building, but should also plan for long-term technical support, referral systems, and other elements of integration with the broader health care system. Strategies that consider only one system level or are based on only one source of support are likely to fail. Cost recovery strategies, in particular, should link curative with preventive care and middle class populations with the poor.

CONCLUSION

The logic for primary health care has long been clear, but the reality of its implementation more problematic. The majority of morbidity and mortality

among children under 5 in developing countries is due to environmental and behavioural factors. Most diagnoses are not complex: simple treatments often suffice, and prevention through community action and health education are seemingly easy. Doctors, moreover, are not needed for most routine health concerns and even where available are often inappropriate for the community organisation and self-help tasks needed to prevent recurrence of common problems. The logic for primary health care is that health problems are best managed holistically, that remedial activities need to be community as well as facility based, and that prevention is less costly and more effective than curative care. The World Health Organization endorsed primary health care in 1978, and most international development agencies have given it full verbal support ever since.

The reality of implementation has rarely been as appealing as the logic, however, and some have begun to question whether PHC is, in fact, worth the effort required to establish and sustain it. The reality is that many "beneficiaries" are not interested in what they see as second class health care, that health workers are often ineffective or thought to be so, that the supposed simplicity and low cost of PHC interventions is illusory, and that many activities and processes cease once donor attention and funding terminates. The fundamental causes of ill-health are socio-economic and political, moreover, and some conclude from this that shorter term measures like primary health care have no benefits. Effectiveness and sustainability problems appear to be particularly acute in large government managed programmes and in NGO-initiated activities after replication or takeover by government.

➤ RECOMMENDATION: The programmes discussed in this report have demonstrated how primary health care can work, and they have shown how selected interventions such as immunization can be expanded rapidly to have a significant impact on health status. What needs to be done next is to raise the effectiveness of other interventions to that level. Maternal care, growth monitoring, and diarrhoeal disease control need to join immunization as highly effective interventions.

Some have responded to these undeniable problems by limiting efforts to a few highly effective interventions, even when communities have not seen them as priorities. Others have emphasised fully user-financed services and "privatisation" so that public resources are not used for what are seen as consumption goods. The first approach effectively rejects the notion of autonomous community decision making and comprehensive health and economic development but does produce quick health benefits; the problem is that these benefits may not be sustainable. The second approach may do little for basic needs or for long-term health development. Few have been happy with the choice, but most have gone along while apparently waiting for a possibly new direction for the next decade.

➤ RECOMMENDATION: Lessons learned from one or more of these programmes have not necessarily been applied in all. That should be done. It is one way to bring about a rapid improvement in PHC programme effectiveness.

The programmes discussed in this report have effectively rejected both the selective primary health care approach and the idea that only self-financed curative care should be developed. In seeking an alternative, several programmes have reverted to original PHC tenets, including broad-based community participation, self-help and use of local resources, intersectoral coordination, comprehensive health education, and inclusion of water supply and sanitation as basic PHC components. Others, while often more selective, have strengthened training and supervision and renewed emphasis on information systems. No programme has included all eight PHC components as identified at Alma Ata, but most have gone beyond narrow technological selection criteria to include activities especially desired by communities. The result has not been a new approach to primary health care, but rather a more concerted effort to reach neglected populations and to make certain ideas work better.

➤ RECOMMENDATION: Programmes conclusively demonstrated the potential benefits of intensive community and service delivery efforts in small areas, but not the relative costs and benefits of alternative approaches. Both donors and host-country governments should continue to invest in a variety of primary health care approaches, monitoring costs and effects as closely as possible, but not look excessively for short-term (and perhaps passing) results. Programmes should start modestly and expand only after initial activities have demonstrated their effectiveness.

BACKGROUND

1.1 HOW THIS ANALYSIS CAME TO BE

The Aga Khan Foundation Board of Directors has indicated an interest in learning "generic lessons" from AKF's investments in primary health care programmes. Such lessons will assist the Board in its analysis of the current AKF health strategy and in its deliberations about changes that might be warranted to improve the effectiveness, efficiency, and equity of PHC programmes supported by the Foundation.

In addition, PHC programme managers have expressed an interest in learning practical lessons from other programmes so that they might improve their own planning and operations.

Forty-one standardised indicators for monitoring and evaluating PHC programmes were introduced by AKF about 8 years ago to establish comparable data sets among programmes so that comparisons could be made on key variables of interest to PHC. These indicators cover (1) the availability, accessibility, and acceptability of primary health care; (2) the provision and uptake of the various types of PHC services; (3) the health status of the target populations; and (4) the costs of PHC services.

Feasibility Analysis

A feasibility study was conducted in 1987 to determine whether a comparative analysis should and could be undertaken. Programme teams and two AKF consultants assessed the information systems and data produced by the four longest-operating Aga Khan Health Network supported PHC programmes: Kisumu, Dhaka, Vur, and Karachi. The consultants' report, which was summarised at the Lisbon workshop on MIS and Microcomputers in PHC (December 1987), indicated that twenty-three of the original forty-one indicators were of "adequate quality to be useful in a comparative analysis."

However, the report also identified several significant constraints, which were summarised in the consultants' report in June 1988:

- The PHC experience of the programmes is limited in scope and time. Some programmes have been operating for several years, but others have only just gotten underway.
- Some information needed for a comparative analysis could not be generated reliably; the accuracy of existing data varies greatly, and quality control is weak.
- There are considerable internal (services offered, organisation) and external (populations, settings) differences among the programmes.
- Indicators are not collected, processed, or used by the programmes for monitoring and evaluation in a standard manner.*

Alternative Approaches

In June 1988, a protocol was developed for the comparative analysis that recommended a shift of emphasis from the original idea of comparison across programmes to comparison within programmes. The protocol also recommended limiting the analysis to data that could be taken from programme records rather than commissioning surveys or other means of additional data collection. It also suggested limiting the subject matter to health promotion for mothers and children because data were weak on such other areas of interest as programme costs, community attitudes, and health behaviour. This protocol was not accepted, although the constraints it identified were acknowledged to be important and would have to be taken into consideration.

Over the next several months (July 1988 to February 1989) a number of meetings were held between Aga Khan Health Network staff and consultants to explore alternative ways to conduct the comparative analysis, acknowledging the constraints summarised above. In February 1989 a new approach was developed that was designed to produce as many "generic lessons learned" as possible, provide the programmes with as much time as possible to gain experience, take as much advantage as possible of other data that would be collected about the programmes, and focus on qualitative as much as quantitative findings. This approach included a comprehensive list of variables that could be examined in the comparative analyses (see Appendix A).

*Holgar Hansen. *"Comparative Analysis of PHC Programmes, Consultancy Report."* June 1988.

Kisumu PHC Project staff collect survey data to assess project effectiveness and impact on the health status of local residents. (Photo by Jean-Luc Ray/AKF)

The proposal was reviewed by Aga Khan network staff in Geneva in April 1989, and a decision was made to proceed to development of a full protocol. The protocol was completed in June 1989, and reviewed by AK network officials and a cross-section of PHC programme staff at the PHC Managers' Workshop in Bombay in July 1989.

There was resistance to this protocol among staff from the PHC programmes and to the process for generating lessons learned because staff saw it as an external evaluation that could pit one programme against the other. That led to a change in strategy that was proposed and accepted later in 1989.

Participation in the analysis was made more flexible and voluntary; the emphasis was placed upon pooling useful lessons rather than evaluation; qualitative assessment was added to quantitative assessment; a smaller set of indicators was promoted; and the name of the exercise was changed from "comparative analysis" to "PHC analysis" to emphasise that the programmes were not being compared with one another to determine which was "best."

The participating programmes were to be a primary target audience; they were to be involved in contributing to and reviewing all materials developed; the analysis was to be limited to the most significant variables and issues; and there was to be a final dissemination workshop in which preliminary drafts would be reviewed and revised as appropriate. Thus, when this study got underway, its main objective was still to provide the AKF Board, AKHN officials, PHC programme managers, and donors with lessons learned from AKHN investments in eight PHC programmes. This information would be used largely for strategic and operational planning within AKHN.

1.2 OBJECTIVES

The specific objectives remained basically the same:

- Conduct comparisons within and among programmes on (quantitative) indices (and qualitative descriptions) of the most significant and relevant variables and issues, including the availability, accessibility, acceptability, and utilisation of various PHC services; changes in health status of the target population; the unit costs of services; and, if feasible, cost effectiveness of the programme.

- Draw conclusions, as appropriate, and make recommendations on more effective and cost-effective PHC strategies, mix of services, mix of personnel, technologies, and operational and managerial methods.

- Recommend the most useful data items, definitions, classifications, analytic procedures, and indicators for monitoring and evaluating programme effectiveness, efficiency, equity, and sustainability.

- If the above objectives are achieved, prepare a formal report on the comparative analysis, generic lessons learned, anecdotal and other "special" lessons learned, and guidelines and recommendations to PHC programme planners, implementers, and monitors.

1.3 METHODOLOGY

The methodology was designed around a number of basic principles, based on the revisions that had been made to the process and the need to take into account differences in programme experience and available data. Thus, the AKF PHC analysis was to:

- Focus on variables and issues of interest to PHC managers as well as the AKF Board.

- Involve PHC managers in the design and conduct of the study and the interpretation of the findings.

- Give the programmes as much time as is feasible to gain experience and fill data gaps before concluding the data collection.
- Collect and analyse available secondary data from the programmes before developing additional data collection procedures.
- Identify truly comparable issues and variables that have adequate data and undertake quantitative analysis of those issues and variables.
- Contrast these and other important issues and variables and identify the reasons for differences between and similarities among programmes.
- Compare the results from the AKF analysis with those from other PHC analyses to identify similarities and differences.
- Identify and document important lessons learned about the processes of designing, implementing, and adapting PHC as well as the outcomes of those programmes.
- Share this information with the eight PHC managers in a discussion designed to transfer knowledge and enrich the findings.

The strategy was to identify the range of information needed for the analysis, collect as much as possible from secondary sources over the first 12 to 18 months, and collect the remaining required information as late as possible through site visits. This strategy could give the PHC programmes as much time as possible to implement their programmes, thus maximising the experience they gained and the lessons that could be learned from that experience. At the same time, the analysis would reduce redundancy in data collection by analysing secondary data first. This would also reduce costs, lessen the imposition on programme staff time, and still enable the investigators to begin the analysis right away.

The analysis was guided by a framework that identified key quantitative and qualitative issues and variables of interest, broken down into a hierarchy of programmatic components (see Figures 1-1 and 1-2). Data from secondary and primary sources were

Figure 1-1. PHC Analysis Framework of Key Variables

Descriptive Data

Programme Area
- Population size
- Population composition
- Geographic area
- Occupations
- Socio-economic conditions
- Language(s)
- Population/staff ratios

Programme Planning Data

Programme Goals and Objectives
- Target group and objectives
- Health goals and objectives
- Development goals and objectives

Project Strategy
- Mode of service delivery
- Community participation
- Curative-preventive mix

Implementation Plan
- Timeline/schedule
- Milestones

Programme Organisation
- Board
- Management
- Technical staff
- Community health workers
- Traditional birth attendants
- Community members
- Consultants
- Linkages
- Donors

Programme Input Data

Finances
- Sources of funds
- Programme budget by line items
- Programme costs by line items

Staffing
- Management
- Technical workers
- Community workers

Programme Operations Data

PHC Services
- Immunization
- Growth monitoring
- Health education
- Maternal care
- Oral rehydration therapy
- Treatment of common diseases
- Prevention of night blindness
- Water supply
- Hygiene and sanitation
- Family planning/child spacing
- Acute respiratory infection

PHC Support Services
- Training
- Supervision
- Personnel management
- Logistics management
- Financial management
- Information systems
- Research/evaluation
- Community participation

PHC Outcomes

- Effects on access and utilisation
- Effects on health awareness
- Effects on health behaviour and coverage
- Impact on health status
- Impact on Socio-economic status

collected from each programme on as many components as possible. The data were collected along two dimensions: planned and actual performance. This permitted comparisons to be made within as well as between and among programmes. The analysis examined (1) similarities, (2) differences, (3) explanations (causes), and (4) implications. Preliminary background reports were prepared on each of 11 principal topics, and these were reviewed and discussed with PHC programme managers and AKHN officials at a 3-day workshop in Karachi. Revisions were made and this report was prepared to reflect participant input and new material collected during the workshop from programme staff.

Figure 1-2. Priority Issues for the PHC Analysis

Effectiveness

How effective have the programmes been in reaching their objectives? What impact have they had on health and socio-economic development? What factors account for success and what have programmes done to overcome obstacles? Which PHC services have been the most effective, which the least, and why?

Sustainability of PHC Programmes

How sustainable are these PHC programmes? What health benefits, health services, and institutional elements need to be sustained? What factors affect sustainability? What are the most likely sources of funds for PHC sustainability? How much support can be expected from communities?

Strategy

What has been the effect of different service delivery strategies on programme success? Which strategies seem to work best: mass campaigns vs. regularly scheduled services; offering a broad range of services vs. a limited range; providing curative services and preventive vs. preventive services only; linkages with hospitals vs. community-based only; collaboration with government and/or NGOs vs. autonomous programmes; provision of non-PHC services (education, food production, treatment for drug abuse) vs. PHC only; emphasis on community development vs. PHC service provision; integration of PHC into health systems; referral systems; use of risk factors to target most needy populations; centralised vs. decentralised management of PHC (budgeting, planning, decision making)?

Community Health Workers

What is the most appropriate role for CHWs? What has been learned about the effect of such variables as the following on CHW performance: intensive vs. regular supervision; pre-service and in-service training; different approaches to supervision; volunteer vs. community-paid vs. programme-paid CHWs; different types of supervision of CHWs; literacy and educational level; caste, age, marital status, gender?

Community Participation

What is the level of community participation in PHC? What strategies are effective in increasing community participation? What strategies are effective in developing community organisations to support PHC? Is community participation always required?

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THE PRIMARY HEALTH CARE PROGRAMMES

The eight primary health care programmes analysed here are located in Pakistan (3 programmes), India (2), Kenya (2) and Bangladesh (1). All but the Dhaka and Karachi programmes are located in rural areas. The Dhaka programme is concentrated in one large area, while the Karachi programme is made up of seven urban "modules" that are scattered around the city.

The rural programmes are quite varied. Some programme sites in Northern Pakistan are in remote mountain valleys and are subject to such severe winters that they are virtually cut off from the outside world for several months each year. At the other extreme is Bajju, which is situated in the Thar desert of Rajastan. Terrain and climate vary significantly, as does the available land for cultivation. In general, however, the target populations live in relatively harsh environments, with one or two exceptions.

Some programmes, such as Vur, Mombasa and Kisumu, are close to major urban areas, while others, such as Junagadh and Bajju, are more distant. Transportation and, therefore, access to medical care, also vary, but are most difficult in Northern Pakistan, Bajju, and Junagadh.

Similarly, health facilities are generally very limited in these areas, although those living in urban locations are more likely to have access to more public and private health providers and facilities than those in the rural areas.

OVERVIEW OF THE TARGET POPULATIONS

As Table 2-1 shows, the eight programmes serve a total of almost 410,000 persons, but concentrate largely on women 15 through 49 years of age (about 80,000) and children under 5 years (about 71,000). Populations served vary from 6,000 in Bajju to

Figure 2-1. Population of PHC Programmes

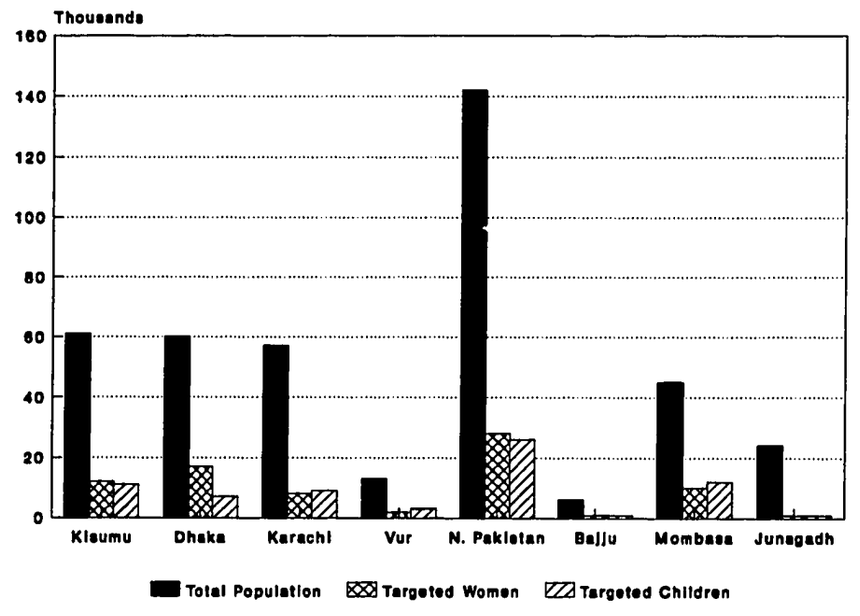


Table 2-1. Programme Populations, 1990*

Programme Areas	Total Population	House Holds	HH Size	Target Population Women 15-49	Children <5
Kisumu (1988)	**60,996**	**13,845**	**4.4**	**12,389**	**11,188**
N. Nyakach	16,546	3,730	4.4	3,309	2,978
C. Nyakach	25,460	5,614	4.5	5,092	4,583
Kajulu	18,990	4,501	4.2	3,988	3,627
Dhaka	**60,334**	**9,926[b]**	**6.1**	**16,846**	**7,467**
Mohallas	47,664[b]	7,814[b]	6.1		
Slums	12,670[b]	2,112[b]	6.0		
Karachi	**57,044**	**8,634[d]**	**6.5**	**7,901**	**9,128**
Orangi	9,639	1,487[d]	6.1	1,205	1,511
Chanesar Goth	10,483	1,645[d]	6.3	1,505	1,801
Grax	8,131	1,304[d]	6.0	1,067	1,332
Essa Nagri	10,387	1,716[d]	5.8	1,521	1,993
Azam Basti	8,064	1,297[d]	6.0	1,207	1,361
Baba Island	6,650	831[a]	8.0	1,396	833
Karimabad	3,690[e]	554[b]	5.1	NA	295[e]
Vur (1988)	**12,570**	**2,250**	**5.6**	**2,080**	**3,394**
Northern Pakistan (1988)[f]	**142,000**	**19,450[b]**	**7.3**	**27,690**	**26,270**
Punial	30,000	3,330[b]	9.0	5,850	5,550
Chitral (Lotkoh)	29,000	3,820[b]	7.6	5,655	5,365
Nagar	58,000	8,920[b]	6.5	14,910	10,730
Yasin	25,000			4,875	4,625
Baiju	**6,036**	**920[a]**	**6.3[a]**	**1,057**	**826**
Mombasa (1988)	**45,497**	**6,500**	**7.0**	**10,146**	**11,593**
Mwavumbo	21,839	3,120	7.0	4,870	5,612
Kasemeni	15,742	2,249	7.0	3,510	4,030
Mtaa	7,916	1,115	7.1	1,765	2,026
Junagadh	**24,061**				
Jonpur	8,261	1,252[b]	6.6[c]	1,937	997
Chitravad	15,900				
Total	**408,638**	**62,977**		**80,046**	**70,962**
Average (N=9)	**51,080**	**7,872**	**6.2**	**10,005**	**8,870**

a. 1988

b. Estimated

c. 1987

d. 1989

e. 1985

f. Source: LeSar, J., et al. "Evaluation of the Northern Pakistan Primary Health Care Programme Phase I (1987-1991), Aga Khan Health Service, Pakistan", September 1990. In addition to the core programme area, there are an additional 180,000 served by other AKHS,P programmes. Total area population for 1990 is estimated at 550,000.

**Data for individual programmes in some cases were derived from different sources, thus ratios may not be precise. In particular, households and household size may be derived from different sources.*

142,000 in Northern Pakistan, but the average is around 51,000 per programme.

Figure 2-1 shows the wide variation in the target populations of the eight programmes. They tend to fall into two groups. North Pakistan, Kisumu, Dhaka, Karachi, and Mombasa serve relatively large populations; Vur, Junagadh, and Bajju serve relatively small numbers. Figure 2-2 shows that Pakistan and Kenya account for the largest proportions of the target populations.

The average size of the target groups is around 10,000 women and 8,800 children, but many programmes consist of a number of sub-programmes, and there the size is much smaller. There is wide variation in the proportion of the total population that falls into the two target groups. Figure 2-3 shows that women of childbearing age comprise an average of 20 percent of the total population, but this ranges from 14 percent in Karachi to 28 percent in Dhaka. Children make up 18 percent of the total population, ranging from 12 percent in Dhaka and Junagadh to 27 percent in Vur. Why there are such large variations in the proportions is not clear. It does not seem to be correlated with household size. There is some pattern by country. Pakistan and Kenya have similar proportions in their target groups overall, but Bangladesh and India have large proportions of women in their target groups and small proportions of children.

Average household size varies from four to nine, as Table 2-1 indicates. Again, there is no obvious pattern: the two Kenya programmes, for example, have markedly different household sizes. The Pakistan programmes range from 5.6 to 7.3. The urban programmes (Dhaka and Karachi) have household sizes around the average. That is, there are rural programmes with larger and smaller households.

Cultural and ethnic backgrounds also vary. Most of those served are Muslims, but some programmes serve sizeable numbers of Hindus (Junagadh) and Christians (Mombasa, Kisumu, and one sub-programme in Karachi). Most programmes serve South Asians, but Kisumu and Mombasa serve Africans. With few exceptions (Karimabad in Karachi and the Mohalla areas in Dhaka), the target groups are poor, uneducated, and engaged in subsistence farming, fishing, or casual labour. Men are the primary breadwinners in most households, but in Kisumu, 44 percent of the households are headed by females; and there are more female than male farmers in both Kisumu and Mombasa. Illiteracy is particularly high among women, sometimes over 90 percent. But again, this varies by programme area. Literacy is 60 to 80 percent in many of the urban sub-programmes in Karachi. In Chitral, Northern Pakistan, only 1 percent of the women had ever attended school.

In and out migration are significant in Dhaka and Karachi, whereas the populations are much more stable in rural areas. However, seasonal migration, particularly of men looking for work, is significant in Kisumu.

All in all, the differences in the programme areas and target groups far surpass their similarities, except that all programmes focus on women of childbearing age and children under age 5.

2.1 PROGRAMME GOALS AND OBJECTIVES

The eight PHC programmes expressed their goals in a variety of ways, and many had long lists of objectives that articulated what they expected to accomplish in such specific areas as immunization, growth monitoring, community organisation, even education. Despite this diversity, they all had the same general goal: to improve the health of women and children. That was almost always expressed as a reduction in infant, child, and maternal mortality and morbidity.

There were some small differences in the age groups that were targeted. Junagadh selected children under age 6, the rest chose children under age 5. However, several programmes directed some

Table 2-2. Proportion of Population Who are Women Age 15-44 (or 15-49) and Children Under 5 Years of Age

By Programme	Women	Children
Kisumu	.20	.18
Dhaka	.28	.12
Karachi	.14	.16
Vur	.17	.27
Northern Pakistan	.20	.19
Bajju	.18	.14
Mombasa	.22	.26
Junagadh (Jonpur)	.23	.12
Average	*.20*	*.17*
By Country	**Women**	**Children**
Bangladesh	.28	.12
India*	.21	.13
Kenya	.21	.21
Pakistan	.18	.18
*Average**	*.20*	*.18*

**Does not include Chitravad area of Junagadh programme.*

Figure 2-2. Target Population by Country

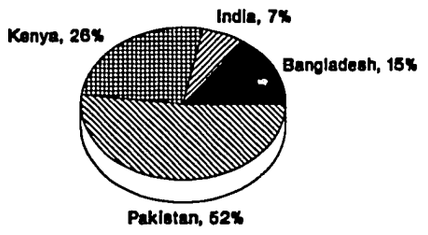


Figure 2-3. Women and Children as Proportion of Population

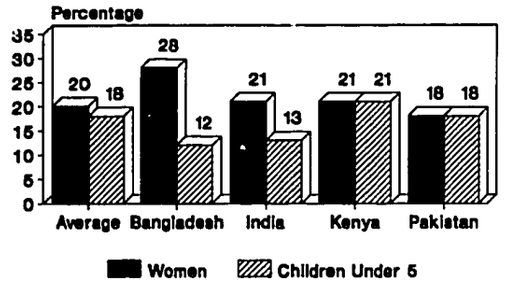
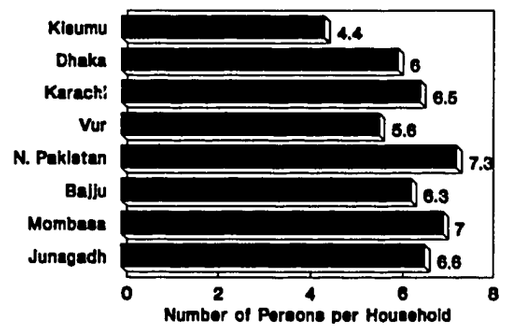


Figure 2-4. Household Size



services (immunization and growth monitoring in particular) to children under age 2 or 3. Five of the programmes aimed to serve women 15 to 49, the others women aged 15 to 45. In all cases, the major concern was with pregnant women and mothers with very young children.

Only the Bajju programme specifically looked at primary health care as a means to a larger goal, broadly defined as "socio-economic development." Bajju's mission was "to lead the poor toward self-reliance by making available to them a package of development services that they themselves decide on, design, implement, and eventually finance." Bajju's managers, nevertheless, saw PHC as an important means to that end, and specifically stated that one of the programme's objectives was to reduce infant, childhood, and maternal mortality and morbidity.

The other programmes were not unconcerned with socio-economic development. That was, and is, the whole point of PHC, after all. But most of them emphasised health service interventions.

Programmes in Kisumu, Mombasa, and Junagadh, and to a lesser degree Karachi, included literacy and income-generating interventions. In contrast to Bajju, where these were ends in themselves, in the other PHC programmes they were means toward the end of improving health status. This somewhat subtle distinction is the focus of an on-going, introspective debate within the programmes as to what their goals should be. This issue is touched on briefly in Chapter 3 (Section 3.5 Treatment of Common Diseases and Section 3.6 Other Development Activities), as well as later in this report.

One implicit objective of most programmes was community organisation. In some cases (Kisumu, Mombasa, Bajju), community organisation was seen as the starting point. The philosophy has been based on concepts of self-determination, empowerment, self-reliance, and sustainability. These programmes based their strategies for improving health on community control and "ownership" of PHC. As a result, they concentrated first on mobilising communities rather than on providing them with services.

Most of the other programmes concentrated on providing health services, but with a good deal of community involvement. The philosophy in these cases has been based on concepts of equity, need, access, and quality of care. Recently, most of the other programmes (Karachi, Dhaka, Junagadh, Vur) have begun to test ways to involve communities more in management and decision making. Staff in Northern Pakistan have always couched their objectives in terms of a "partnership" with communities to establish a permanent and sustainable PHC system.

Finally, quite a few of the programmes have also had "structural" objectives to develop prototypes or models that could be adapted to other situations. The Karachi programme has been unique in this respect. It is the only programme that did not explicitly state improving the health of women and children as its goal. Instead, its goal is "to train

young people for leadership in extending health care...and to develop prototypes of PHC". Clearly, the ultimate goal is to improve health status, but the overall mandate of the Aga Khan University (AKU) is much broader than for the other programmes. As an educational, training, and research institution, it must fulfil its responsibility to the nation, region, and the world community. Thus, for AKU, the PHC programme sites are seen as means to another end, that of developing people and systems that will eventually improve health throughout the country and region.

Several of the other programmes have been asked to devote considerable effort to the development and testing of computerised PHC information systems. In some cases, this has been a specific objective (Junagadh, Kisumu, Bajju, Vur), and in others, it has been implicit (Karachi, Dhaka, Mombasa). The impetus for this has come largely from AKF, which has a strong commitment to strengthening PHC programme planning, operations, monitoring, and evaluation, in part through improved MIS, management tools, and management skills development.

2.2 SERVICES OFFERED

Most programmes either offered basic services directly or made referrals to government or NGO facilities that did. Services commonly emphasised were growth monitoring, immunizations, pre-natal care, oral rehydration therapy, and treatment of common diseases and dermatological conditions. (See Table 2-3.) With few exceptions (especially Kisumu and Dhaka), most programmes facilitated government family planning work but did not actively motivate couples or distribute contraceptives. Health education through home visits and group sessions featured prominently in many areas, especially in the job descriptions for community health workers (see Section 3.7). Programmes in Kenya, Junagadh, and Northern Pakistan helped community residents construct latrines and gain access to outside funds for improved water supply. As noted, programme staff in Bajju, Kisumu, Mombasa, and Junagadh assisted communities in developing a variety of non-health interventions, in some cases managing these activities directly, and in other cases collaborating with non-programme agencies.

Table 2-3. Programme Services

	Kisumu	Dhaka	Karachi	Vur	N. Pakistan	Bajju	Mombasa	Junagadh
Child Immunization	X	X	X	X	X	X	X	X
Maternal Care	X	X	X	X	X	X	X	X
Family Planning	X	X	X		X	X	X	X
Growth Monitoring	X	X	X	X	X		X	X
Nutrition Education	X	X	X	X	X	X	X	X
Oral Rehydration Therapy	X	X	X	X	X	X	X	X
Water Supply	O				O		O	O
Sanitation	X				O			O
*Treatment of Diseases**								
Goitre					X	X		
Night Blindness		X			X	X		
Skin Diseases					X			
Parasitic Disease	X						X	
Tuberculosis							X	
Acute Respiratory Infection						X		
AIDS Education	X		X		X			
Anaemia	X	X			X			
Malaria	X	X	X	X	X	X	X	X
School Health	X	X						
Other Development Activities								
Literacy Education			X			X		X
Income Generation	X		X			X	X	X

X = Direct service provision or referral to government.
O = Indicates liaison with other agencies.
**Essentially all programmes treated common diseases; those marked indicate areas of emphasis.*

2.3 THE PHC PROGRAMMES

The following are brief descriptions of each of the programmes to give an idea of each site, the programme's objectives, service strategies, organisation, services offered, and unique characteristics.

The Kisumu Community-Based Primary Health Care Programme, Kisumu, Kenya

The Kisumu Community-Based Primary Health Care Programme is the first and oldest of the programmes discussed in this report. Its origins can be traced back to a conference in Karachi on the role of hospitals in primary health care, held in 1981.

In 1982, the Aga Khan Health Service, Kenya (AKHS,K) and the Aga Khan Foundation (AKF) sponsored a planning seminar on primary health care in Kisumu. From this meeting came the recommendation that the Kisumu PHC Programme be launched in collaboration with the Ministry of Health and the Municipality of Kisumu. AKHS,K then spent a year planning and building links with various government units, NGO representatives, and the numerous villages and sub-locations within the programme area.

Programme activities began in earnest in 1984. From 1984 to 1986 efforts were largely devoted to community mobilisation and training of health workers. During this time, programme staff fostered strong and probably enduring ties between the communities and agencies working in the area.

In Kisumu, trained traditional birth attendants examine newborn twin babies and discuss the importance of breastfeeding, ORT and immunizations. (Photo by Jean-Luc Ray/AKF)

Programme Sites

The programme is located in western Kenya on Lake Victoria and operates in three administrative locations of the Kisumu district: North Nyakach, Central Nyakach, and Kajulu. The first two are rural areas with poor soil quality, inadequate water supply, and very unpredictable rainfall with periods of drought or floods. In contrast, Kajulu, a peri-urban area within the administrative boundaries of the Municipality of Kisumu, is more fertile, located in the foothills of Nandi Hills.

There is reasonably good transportation, except during the seasonal floods in Nyakach. However, over 80 percent of the population have to travel more than 2 kilometres to the nearest health facility. North and Central Nyakach are about 40 kilometres from Kisumu town. They are served by a Ministry of Health rural health centre in Pap-Onditi and a new dispensary at Katito. Kajulu is served by a single dispensary operated by the municipal government. The Aga Khan Hospital, Kisumu is a small hospital with a capacity of 57 beds. A PHC unit located within the hospital supports the Kisumu programme.

In 1990, population for the programme area was estimated at 63,500. An average size of 4.4 persons per household was calculated in 1988. Central Nyakach has 42 percent of the population, North Nyakach about 27 percent, and Kajulu 31 percent. The programme concentrates on the 11,188 children under age 5 and the 12,389 women aged 15 to 49 (1988 figures), who make up the most vulnerable segments of the population.

The 1984 baseline survey showed that all of the people who participated in the survey were of the Luo tribe. A large portion of the households (44 percent) were headed by females. The majority of the residents are engaged in farming, but there are differences by location and sex. Generally, a larger proportion of females than males are farmers, and there are more farmers in Nyakach than Kajulu (Nyakach: 48 percent of males, 73 percent of females; Kajulu: 34 percent males, 52 percent females). The main source of income for household heads was farming (largely subsistence) (46 percent), self-employment (29 percent), and salaried employment (16 percent).

In both locations, the majority of female heads of households had no education (Kajulu, 58 percent; Nyakach, 66 percent). Rates for males were lower (Kajulu, 42 percent; Nyakach, 34 percent).

Programme Objectives

In general, the Phase I goal was to improve the health and nutrition status of the people in the three

areas, particularly children under 5 and women of childbearing age. The goal for a second and shorter 5 year phase, which begins in 1992, is to complete the establishment of a sustainable PHC programme. A community-based approach, fostering community participation at every stage, has been adopted for implementation. The second phase will focus on strengthening the capacity of the community to sustain the programme.

The major activities will increase the communities' awareness of their health problems and motivate them to undertake responsibility for these at the individual, family, and community levels. Staff developed specific operational, or enabling, objectives each year. These were generally the same from year to year, and numerical targets were often established.

The objectives were:

- **Community mobilisation.** To continue community dialogue, sensitization, and mobilisation in programme areas.
- **Training.** To train different categories of people involved in community-based PHC programmes (CHWs, TBAs, Village Health and Development Committees, community leaders, shopkeepers, others) through information on programme activities.
- **Information.** To collect, document, and disseminate all necessary information on programme activities.
- **Income-generating activities.** To develop and provide a support and marketing system for groups involved in these activities.
- **Water and sanitation.** To identify, encourage, support, and supervise water improvement, environmental sanitation, and appropriate technology activities in the programme areas.
- **Information, education, and communication at the community level.** To make home visits to promote health, weigh children, identify high-risk families, complete registers, etc.
- **MCH/FP services.** To carry out maternal and child health, family planning, growth monitoring, and immunization services.
- **Meetings.** To carry out regular staff, quarterly progress review, and other meetings.
- **Community-based drug supply.** To initiate community-based drug and contraceptive distribution systems.
- **Participatory school health.** To promote school health activities.
- **Interagency collaboration.** To enhance agency cooperation, coordination, and collaboration.
- **Community financing.** To facilitate the establishment of appropriate mechanisms for community management of their own funds and resources for PHC.

Services Offered, Delivery Strategy, and Organisation

The programme is administered out of the Aga Khan Hospital in Kisumu. The programme is an autonomous entity, with its own wing in the hospital, its own staff, vehicles, and resources. Although there is hospital-based staff, the programme primarily operates from clinics and communities. However, the hospital is becoming increasingly involved in the programme and presently is responsible for areas such as management, logistics support, health education, and health promotive services.

There are at least four health units in the area that collaborate with the programme: three operated by the Ministry of Health and one by the municipality. The programme itself has four mobile units.

A host of committees at all levels work together to direct and manage the Kisumu PHC programme. The committees are the Kisumu District PHC Coordinating Committee, the Programme Review and Monitoring Committee, the Programme Committee, the locational PHC Committees, the sub-locational Health and Development Committees, village health committees, village groups, and the CHW Central Committee.

Core programme activities include:

- Immunization of children and pregnant women
- Development of potable water supplies
- Promotion of environmental sanitation an hygiene (including latrine construction)
- Oral rehydration therapy
- Prevention and treatment of scabies, malaria, acute respiratory infections, parasites, schistosomiasis, anaemia, and other common conditions
- Community mobilisation
- Pre-natal, safe childbirth, and post-natal care
- Family planning

- Growth monitoring and nutrition education
- Training of CHW, trainers, facilitators, and income-generating activity groups, as well as traditional birth attendants and community leaders
- Mobile clinics
- Information systems
- School health and health education
- Development of community drug supply systems
- Promotion of income-generating activities.

Unique Characteristics

The Kisumu programme is particularly noted for its emphasis on community responsibility for PHC, including both decision-making and technical support roles. After initially unsatisfactory experiences with limited community involvement (collaboration with chiefs and other leaders more than with the public), programme staff began efforts to reach as many community residents as possible, conducting group orientation sessions, mobilising school children for educational and supportive functions, and assisting residents with income generation and other developmental activities. Efforts to train community residents as CHW trainers are now being discussed as a way to reduce dependency on outside technical support.

The Kisumu programme is the oldest of those funded by the Aga Khan Foundation and has influenced its successors both in community development and more generally. The design of the Mombasa programme, in particular, follows Kisumu.

The Aga Khan Community Health Programme, Dhaka, Bangladesh

Programme Sites

The Dhaka Programme covers five areas in the capital city: Paltan, Shantinagar, Fakirapool, Shahjahanpur, and the newest area, Arambagh. About 20 percent of the area is slums, and the remainder middle class (*mohalla*). The terrain is flat and the climate is tropical with heavy rainfall in June and July. The rest of the year is dry and hot, except for a cool season from November to March. Dhaka is prone to such regular natural disasters as floods, hurricanes, and drought. A severe flood in 1988 inundated the programme area and caused severe damage, particularly in the slums. A typhoon in 1991 caused over 200,000 deaths. That was followed by a flood that caused an additional 50,000 casualties.

In one of Dhaka's slum areas, AKCHP-trained community health workers measure the mid-upper arm circumference of a child to help detect undernutrition early. (Photo by Jean-Luc Ray/AKF)

Travel in and around the programme area is relatively easy via buses and rickshaws. Thus, the target population has access to a variety of public and private health services in the city. There are no public health facilities in the programme area, but there are private medical practitioners, pharmacies and, of course, the programme's health centre.

The Dhaka programme serves a total population of about 60,300. There are 14,500 registered households in the programme area. The average *mohalla* household has 6.1 people, and there are an average of 6.0 people per household. According to the final survey (1990), 21 percent of the population are classified as slum dwellers and 79 percent as *mohallas*. In and out migration, especially in slum areas, is heavy, about 20 percent per year. The target groups for health services consist of 7,467 children under 5 years of age and 16,846 women aged 15 to 49 years.

Most of the target group is Muslim. Ethnically, they are mostly Bengali and speak Bangla. Among the women, 87 percent are not engaged in gainful employment other than household work. The most common occupation of those remaining, who work outside the home, is "daily wage earners." Among the husbands, only 2.4 percent are not gainfully employed. Business, salaried non-executive, and salaried executive are the most common occupations. About 17 percent are listed as daily wage earners.

About 23 percent of the women have no formal education; 14 percent have elementary to inter-

mediate education (Class 1 to V) and 20 percent Class VI to X. About 14 percent have passed the SSC and 11 have passed the HSC. Of the respondents in the final survey, 10 percent of the women were graduates and about 4 percent postgraduates, as against 23 and 16 percent, respectively, of the husbands. These figures are quite different between *mohalla* and slum dwellers. About 12 percent of the women in the *mohallas* are illiterate compared to 62 percent of those in the slums.

Programme Objectives

The overall goal of the programme is to improve the health and nutritional status of the target population—children under 5 years of age and women of 15 to 49 years of age—living in the programme area of urban Dhaka.

The specific objectives are to:

- Increase the availability, accessibility, and acceptability of targeted PHC services, emphasising disease prevention and health promotion.
- Reduce infant, child, and maternal mortality and morbidity rates.
- Increase community awareness of priority health problems and establish community participation in disease prevention and health promotion activities.
- Reduce malnutrition among children.
- Measure the acceptability and practicality of available types of oral rehydration therapy for diarrhoea, including home-prepared, cereal-based ORT.

Services Offered, Delivery Strategy, and Organisation

The Dhaka programme's main targeted PHC services and interventions are:

- Immunizations
- Growth monitoring and nutrition promotion
- Health and nutrition education
- Vitamin A supplementation
- Oral rehydration therapy, including promotion and education of mothers in the home preparation of cereal-based ORS
- Pre-natal and post-natal care, including high-risk pregnancy screening and management
- Training of traditional birth attendants (TBAs) in hygienic delivery care
- Training of women as community health organisers (CHOs), community health workers (CHWs), community health volunteers (CHVs), and community mother volunteers (CMVs).

Services are provided through static and mobile clinics supplemented by information, education, and outreach services provided by 20 CHWs and over 260 CMVs, TBAs, and school teachers. The health services are supervised by seven Community Health Organisers and two Medical Officers. Core administrative and technical support comes from a Programme Director, Information and Evaluation Officer, Financial and Administrative Officer, Training Officer, and support staff.

The programme is guided by a Management Board appointed by the grantee, the Silver Jubilee Commemorative Society. The community-based PHC programme involves community health workers (paid), community health volunteers (unpaid), community mother volunteers, and traditional birth attendants.

Unique Characteristics

The Dhaka programme was initially designed to provide services to a needy community and was set up as a professional health services organisation. In 1990, it learned that it would have to become self-sustaining in a short time. As a result, the organisation has undertaken a major revamping, looking at ways to reduce costs, turn responsibility for selected activities over to the communities, and find other ways to improve sustainability.

AKCHP operates in an area where there are no alternative public services. The government has no urban PHC services, and in fact, it does not even have a policy. There is an urban EPI programme, and family planning services are available, but there are no alternatives to AKCHP in other PHC areas. There are also no existing "community" organisations on which to build. Another unique characteristic of the target area is that the majority (80 percent) of the population are middle class. The programme has steadily moved away from offering services to that group, and has concentrated more on the urban poor.

AKU Urban Primary Health Care Programme, Karachi, Pakistan

The Aga Khan University (AKU) supports seven PHC sub-projects in as many *katchi abadis* (squatter settlements) scattered around urban Karachi. One

In Karachi, a community health preceptor, responsible for AKU's PHC programme in the katchi abadi of Grax, interviews a young child before discussing the area's major health problems with medical and nursing students. (Photo by Jean-Luc Ray/AKF)

of these, Karimabad, serves a largely middle-class population, and another, Baba Island, serves a fishing village. Karachi is at the edge of a desert on the Sind Plain. The terrain is flat and the climate tropical, with seasonal monsoons.

The Layari River flows through Karachi and forms an excellent natural harbour. The city is the country's leading commercial and industrial centre, and many of the programme area population earn their living as unskilled and semi-skilled workers.

Transportation in the city is relatively good, which gives most of the population access to public and private medical services.

There are private practitioners in all of the programme sites, and AKU has set up health centres in all of the programme areas except Baba Island.

Programme Sites

The Karachi programme serves some 57,000 population in all seven sites, all but one of which, Baba Island, has an AKU Health Centre. The total target population consists of 7,900 women and 9,126 children under age 5.

Orangi was the first urban PHC programme area, located 18 kilometres northwest of AKU. Orangi is one of the largest *katchi abadis* of Asia, with a population of 1,000,000. The baseline survey (1984) showed that the community is predominantly Urdu speaking (87 percent) and consists of immigrants from within and outside Pakistan. Of the total population, 63 percent came from India and East Pakistan, 17 percent from Punjab, and the rest from Sind, the North West Frontier, and Baluchistan. The median family income per month is Rs. 1,270. Three-quarters of those over age 10 are literate.

There are about 1,400 families registered with the PHC centre. The total population is 9,639. Of these, 1,511 are children under 5 and 1,205 are women between 15 and 49 years. The area is densely populated; there are about 6.1 persons per household.

Karimabad is a lower middle-class community some 11 kilometres from the University. The baseline survey (also 1984) showed that the community is 40 percent Ismaili, and the major languages spoken are Gujrati/Kutchi (49 percent) and Urdu (36 percent). Some 61 percent of the population are migrants from India and elsewhere, and 28 percent are from Sind. The median family income per month was Rs. 2,267, which is approximately double that of all the other *katchi abadis* except Azam Basti (Rs. 2,036). The literacy rate is also much higher (92.6 percent).

There were 5.1 persons per household in Karimabad in 1984. No current figures are available on the size of the total population or the target groups, but in 1985, there was a total population of 3,690, with 295 children under age 5.

Chanesar Goth is one of the oldest squatter settlements in Karachi. Its history dates back well over 200 years. This programme site is situated 9 kilometres south of AKU. The majority of the inhabitants are Muslim, but there are a sizeable number of Christians and Hindus. The 1985 baseline survey showed that the community is predominantly Sindhi speaking (47 percent) with 15 percent speaking Urdu and 16 percent speaking Punjabi. Of the total population, 57 percent are natives of Karachi. The median family income per month was Rs.1,388 in 1985. Currently, there are about 1,650 families registered with the PHC centre. The total population is 10,483, and of these, 1,801 are children under 5 and 1,505 are women between 15 and 49 years. There are about 6.3 persons per household. Only about two-thirds of the adults are literate.

Grax is a peri-urban community situated 22 kilometres west of the University. The inhabitants of this community, which was established over a century ago, were labourers working on the nearby salt pans. Over the years, many became fishermen.

After the creation of Pakistan in 1947, people from other provinces came and settled in what was then a village. The 1985 baseline survey revealed that the majority of the population are natives of Karachi (50 percent). Others are Punjabi (20 percent), Baluchi (11 percent), and Sindhi (9 percent). The median income of the family was Rs. 1,416 in 1985, and literacy was 74 percent. There are 1,250 families currently registered with the centre. The total population is 8,131. Of these, there are 1,332 children under age 5 and 1,067 women between 15 and 49. There are about 6.0 persons per household.

Essa Nagri is located 4 kilometres north of the University. The population, according to the 1986 baseline, is predominantly a second-generation Punjabi Christian community (80 percent) that came to Karachi from rural Punjab in search of better employment. There are nine different Christian denominations in the area, of which the Roman Catholic and United Presbyterian Mission have the largest numbers of followers. Beside the Christian community, 16 percent are Muslim natives of Karachi. Literacy is the lowest of the first six urban sites at 54 percent. The PHC centre has about 1,620 families currently registered. The total population is 10,387. Of these, there are 1,993 children under 5 and 1,521 women between 15 and 49. There are 5.8 persons per household.

Azam Basti is located about 10 kilometres south of the University, about a 20-minute distance. According to the 1987 baseline survey, the community is predominantly Muslim Punjabi (46 percent) and Pathan (16 percent). Most of them are first- or second-generation migrants from the provinces of Punjab and the North West Frontier who came to Karachi in search of improved living conditions. The socio-economic status of the community is relatively much better than most other field sites. Median family income was the second highest of the sites, at Rs. 2,036 in 1987, and literacy was 67 percent. There are about 1,300 families registered with the PHC centre. The total population is 8,064. Of these, there are 1,361 children under age 5 and 1,207 women between 15 and 49. There are about 6 persons per household.

Baba Island, the latest programme site, is a small island off Karachi harbour that is the home of a large fishing community. The total area of the island is 28 acres. According to a 1988 survey, there are 831 households having a population of 6,671, or about 8 per household. Baba Island is located 4 kilometres southwest of Keamari, the port of Karachi. It takes about 45 to 50 minutes to reach Keamari from AKU, plus about 10 minutes boating time from Keamari to Baba. Most of the people are Sindhi or Kutchi-speaking and are fishermen by occupation, having migrated from Aachi Qabar Kharadhar some 300 years ago. There is one public health facility, a dispensary managed by the Karachi Municipal Corporation. In addition, there are two private dispensaries functioning in the evening. AKU has not established a health centre at this site. There are 1,396 married women and 833 children under 5 on the island.

Programme Objectives

No specific health goals or objectives were set for the PHC programme. AKU had broad institutional objectives in mind when it set up the sites:

- To demonstrate the feasibility of developing model PHC programmes in urban slum areas
- To provide sites for field-based training of students

Table 2-4. AKU Urban PHC Programme Populations in Karachi

	Total Population	House-holds[a]	HH Size	Target Populations: Women 15 to 49	Target Populations: Children Under 5
Karachi (AKU)	57,044	8,834	6.5	7,901	9,126
1 Orangi	9,639	1,487	6.1	1,205	1,511
2 Karimabad	3,690[c]	554[d]	5.1	NA	295[c]
3 Chanesar Goth	10,483	1,645	6.3	1,505	1,801
4 Grax	8,131	1,304	6.0	1,067	1,332
5 Essa Nagri	10,387	1,716	5.8	1,521	1,993
6 Azam Basti	8,064	1,297	6.0	1,207	1,361
7 Baba Island	6,650	831[b]	8.0	1,396	833

a. 1989 figures; b. 1988; c. 1985; d. Estimate

- To serve as locations for AKU health services research and health manpower development activities.

This does not imply that AKU did not mean that the modules, as they are called, would not have an impact on health. The idea has been to develop replicable prototypes that would:

- Increase the accessibility, acceptability, and availability of selective PHC interventions
- Reduce maternal mortality and morbidity
- Reduce morbidity and mortality in children under age 5
- Promote community participation in disease prevention, health promotion, and programme management
- Promote community participation in community development through intersectoral collaboration.

In 1989, AKU opened two additional modules that have very different populations and objectives. Baba Island is a "community-managed" module that represents AKU's entry into the type of PHC programme that puts greater emphasis on community organisation to ensure that PHC services are sustainable in the long run. Karimabad is a lower middle class area with well established curative services. This population represents a "population in transition" where the diseases of industrialised societies (e.g., heart disease and cancer) are already prominent. AKU is interested in learning how to help this community deal with those problems through a programme that emphasises health promotion and disease prevention.

This report relies largely on data from the five initial modules, but also refers to experiences from Baba Island and Karimabad.

Services Offered, Delivery Strategy, and Organisation

The PHC services provided in the five modules are:

- immunization
- growth monitoring
- pre-natal care
- management of diarrhoea (including ORT)
- health education
- family planning
- basic curative care
- to a degree, school health and water & sanitation

A three-tier system of personnel implements the programme. The grassroots workers are the CHWs, who are women from the communities, recruited and trained locally to serve as "front-line workers." They visit each household in their assigned area on a monthly basis; provide immediate assessment, counselling, and education; make referrals as appropriate; and schedule visits to clinics for immunization, growth monitoring, and other services. The CHWs are supported by paramedical staff (lady health visitors) who provide regular supervision, training, and advice. They also provide direct curative and preventive services to the target groups during regular clinics and special visits. The lady health visitors, in turn, are supervised by a physician/nurse team located at a local health centre in each module, where specialised preventive and curative services are provided.

Unique Characteristics

The Karachi programme is unique in its purposes: teaching/training, prototype development, research, and staff development. These characteristics have obvious programmatic advantages and disadvantages. Among the obvious advantages are the "invisible" fourth tier of support provided by AKU staff: medical and nursing students, faculty, specialists, etc. AKU staff pediatricians, gynaecologists, internists, and other specialists commonly contribute time to the various health centres. This support provides the modules with a greater level of quality service (both technical and managerial) than would ordinarily be available in a "typical" PHC programme.

Just as important are the research and development activities that have been conducted in the modules. These include managerial inquiries into development of better information systems, cost analyses, and much more. There are also epidemiological studies, risk-factor development, testing of health protocols, and, again, much more. A major advantage of the link to a major university is the first-hand experience it affords to young physicians and nurses, many of whom will become PHC advocates and practitioners in the future.

The disadvantages reflect the trade-offs that arise when a site is used primarily for teaching and research rather than service. However, fortunately, the programme is a community health programme that has taken its charge seriously. The recent moves to try something new in Baba Island and Karimabad are testimonials to that philosophy.

Vur Community-Based Health Care Demonstration Project, Health Manpower Reorientation Programme, Thatta District, Pakistan

Programme Sites

The programme is located in southern Pakistan, around a village named Vur, 130 kilometres east of Karachi. The area selected is in the Thatta district of Sind province.

Agriculture is the major source of income for the people, despite the fact that the land is waterlogged. The area is sparsely settled, however. Population density is only 76 per square kilometre, about half of the rest of Sind. Nearly three-quarters of the population live in 114 settlements of less than 100 people.

A blacktop road connects the village of Vur with the city of Karachi, where AKHS,P headquarters is located. Despite this, communication is a major constraint. The vast majority of the people in the demonstration area can be reached only via dusty, improvised roads, either by jeep or on foot. Programme personnel have to travel 20 kilometres to reach a public call box in Thatta if there is a need to communicate with Karachi. Postal services are inefficient and cannot be relied on.

In Thatta District, Pakistan, the Vur PHC Demonstration Project emphasises nutrition education of mothers and the preparation of nutritious diets from foods available locally. (Photo by Jean-Luc Ray/AKF)

AKHS,P has constructed a maternal and child health centre in this area. A government-sponsored basic health unit also exists in the area. Another AKHS,P health centre is located in Ghulamullah, about 3 kilometres from Vur.

The current population is 9,727. There are no figures for the number of women and children. However, a 1986 baseline survey of the Vur area revealed that there were 12,570 persons living within a 7-kilometre radius of the village. The average number of persons per household was 5.6 The number of married females below 50 years of age was 2,078, and there were 3,394 children under age 5.

In this area, the majority of the population are native Sindhis (76 percent) and most (96 percent) speak Sindhi. Baluchis, who migrated from Baluchistan, comprise 20 percent of the population. Islam is the dominant religion practiced in the area. Sunnis are in the majority (80 percent) followed by Shia Ismailis (16 percent).

Labourers (including farmers) and small landholders constitute the majority of those who are gainfully employed (76 percent). The main crop is paddy; vegetables and fruits are also grown. Small land owners make up 16 percent, shopkeepers 4 percent, and office workers 4 percent of the remaining occupations.

The mean monthly income of residents was Rs. 930 in 1986, about half the per capita income of the country. The majority (69 percent) have one earning member in the family.

Literacy is higher in this area than in the rest of Sind. Among males, 34 percent are literate; 15 percent of females can read. Of those who are literate, only 13 have matriculated.

Programme Objectives

The Vur programme is part of a larger programme called the Health Manpower Reorientation Programme (HMRP). The primary purpose of the Vur programme is "to serve as a community field-teaching base for the reorientation to community-based health care of AKHS,P trainees and inservice staff." In addition to this primary role, the programme expects to improve the health status of women and children in the demonstration area.

Services Offered, Delivery Strategy, and Organisation

The Vur programme provides the following PHC interventions, all of which are designed to have an impact on infant, child, and maternal mortality:

- Promotion of **oral rehydration therapy** and education of mothers in its proper preparation and use
- Intensive promotion and expansion of **immunization** for measles, tuberculosis, diphtheria, pertussis, whooping cough, and polio, and of tetanus immunizations for all pregnant women (or women of child-bearing age, 15 to 49 years)
- Teaching mothers the use of **growth monitoring** charts and promoting the regular weighing of children under 6 years of age
- **Health education** on pre-natal, peri-natal and post-natal care, aimed at reducing the proportion of low birthweight infants and the high mortality resulting from tetanus among neonates
- **Nutrition education**, including better weaning practices and its effects on maternal and child health

The Director of Primary Health Care oversees the programme. A Programme Officer and Nursing Coordinator provide technical back-up services. Community Health Preceptors and an Information Officer report to these superiors. The Vur programme has a Programme Manager who reports directly to the Director of PHC. Lady Health Visitors supervise locally hired CHWs, who provide direct services and refer women and children to the maternal and child health centre, as needed.

A Vur Health Centre Committee made up of local leaders was in place before the programme began. A new committee was formed for the demonstration programme and is made up of representatives of each village included in the programme.

Unique Characteristics

Like the AKU Urban programme, the Vur programme exists primarily to provide training and educational experience for health staff. HMRP provides training for Lady Health Visitors and midwifes, as well as general orientation courses for volunteers and government health officers.

The programme has also taken a special interest in the promotion of cereal-based ORT and in the development of a model management information system.

Northern Pakistan Primary Health Care Programme, Gilgit and Chitral Districts, Pakistan

Programme Sites

Currently, AKHS,P works in three areas of the Gilgit district—Punial, Yasin and Nagar—plus one area—Lotkoh—in the Chitral district. The total population of these areas is about 550,000 people. Each area, or field module, serves a population ranging from 45,000 to 105,000, and has 5 to 12 health centres.

The northern part of Pakistan is a rural and mountainous region with cold winters and short spring weather. Most of the inhabitants live in small, isolated settlements along the sides of winding rivers and streams. Lotkoh is in the Garam Chashma Valley of the Chitral district. Chitral is perhaps the only part of the country that remains cut off from the rest of the world for 5 to 6 months each year. During these months, the only means to enter and leave Chitral is by airplane or helicopter, and flights are often cancelled due to poor weather.

In a remote valley of upper Chitral District in North Pakistan, a village woman breastfeeds her child while waiting to see the Lady Health Visitor from NPPHC. (Photo by Jean-Luc Ray/AKF)

The first programme area in the Gilgit district is located in the Punial Valley. This district is located in the northern most part of Pakistan. Gilgit is to the east of Chitral and bordered by Afghanistan and China to the north, by the disputed territories of Jammu and Kashmir to the east, and by the Pakistani districts of Swat and Kohistan to the south. Although the district is accessible along the Karakoram Highway (which connects Pakistan with China), it remains relatively isolated, especially in the winter. It is about an 18-hour journey by road to Islamabad, and there is only one flight a day to Gilgit, which also often gets cancelled due to poor weather.

People in the programme area are of Aryan, Mongolian, Tibetan, Turko-Iranian, and Caucasian stock. In ancient times, Buddhism was the major religion, but now all inhabitants are classified as Muslims. The people are affiliated with three major Islamic sects: Sunni, Ismailis and other Shiites.

In 1964, a team of doctors was sent by the Aga Khan Health Service, Pakistan (AKHS,P) from Karachi to the Northern Areas and Chitral to assess health conditions and begin the process of establishing basic health services in the area.

A programme based out of health centres in the Northern Areas and Chitral was established by AKHS,P in the early 1970s. Each centre was staffed with two Lady Health Visitors (LHVs) who provided basic MCH services. These LHVs were generally recruited from outside the region. Today, more than 90 percent of the professional female staff are from the local area.

In 1987, AKHS,P initiated a PHC programme that works with existing village organisations and women's action groups. Members are selected and trained as CHWs and TBAs. They are supported and backed by health centre staff.

Programme Objectives

The focus of AKHS,P's work is to improve the health and nutrition status of women ages 15 to 45 years and children below age 5, develop female professional staff, and continue development of a large core of volunteers. Also, a main objective is to work in partnership with community, local government, and other Aga Khan agencies to establish a permanent primary health care delivery system at an affordable cost.

As the programme enters Phase II, AKHS,P plans to expand to new geographic areas and populations through the use of community-based workers. Thus, continued development of the field team remains a priority.

Services Offered, Delivery Strategy, and Organisation

The overall strategy of the first phase of the programme (1987-90) has been to establish a three-tier PHC approach to the provision of services and health education. A basic set of interventions are implemented by Tier 1 and two workers who are supervised and monitored at the Tier 3 level.

At the community level are male and female CHWs and trained TBAS who are selected by the community. These workers provide basic health and education services, often on a part-time volunteer basis. They work under the administrative direction of a village organisation and/or women's action groups and the technical direction of AKHS,P.

As mentioned, health centres are staffed by two Lady Health Visitors, who provide subsidised services and drugs to a target population within a 5-kilometre radius. The LHVs are appointed by AKHS,P. At the third level is a mobile health team who train and oversee community-based workers. They are also responsible for organising communities to support the PHC approach. Each team includes one doctor, one nurse or supervisory LHV, and one field coordinator for logistics and administrative support.

The three-tiered system is managed by the head office for the Northern Areas and Chitral, located in Gilgit.

Emphasis is placed on community participation, with the programmes jointly managed by the communities and by paid staff. Field staff initiate dialogue with existing village organisations and women's action groups. These groups usually have been involved in income-generating activities assisted by the Aga Khan Rural Support Programme (AKRSP). Once the communities understand the programme and have decided to participate, they are asked to select persons to be trained as CHWs and TBAs. AKHS,P staff constantly do follow-up visits to help improve CHWs and TBAs skills and knowledge.

Health centres are also run jointly by AKHS,P and the respective community. After AKHS,P accepts an application from a community for a health centre, the community must decide on the location, how the building will be constructed, and how it will manage the centre. AKHSP agrees to pay the operating costs while the community agrees upon a fee structure for certain services.

Unique Characteristics

The programme in Northern Pakistan is the most geographically dispersed of those discussed in this

report and is necessarily the most decentralised. Unlike other programmes, it has benefited from a long tradition of NGO-based community work and from the presence of active community organisations in most villages. Specific programme-community agreements have been reached to clarify mutual responsibilities and to put them in writing. These include community and user responsibility for certain recurrent costs.

Urmul Trust Primary Health Care Programme, Bajju, Rajastan, India

Programme Site

The Uttari Rajastan Milk Union Limited (URMUL) Rural Health Research and Development Trust (hereafter referred to as "the Trust") adopted 25 villages around Bajju in the Bikaner district of northwest Rajastan in India, bordering Pakistan.* The Bikaner district is spread over an area of 27,244 square kilometre and is part of the Thar desert. The climate and terrain make this one of the most inhospitable and forbidding places in the country, with temperatures reaching below freezing in winter and in excess of 48 C in summer. Rains are infrequent, and for the last 5 years, the area has suffered drought. Even when the rains do come, the precipitation does not exceed 27 centimetres per year.

Milk production, sheep rearing for wool, and subsistence farming are the primary economic activities in the area. Through the drought years, dairy activities have been the mainstay, particularly of the poor. Less than 30 percent of the area is cultivated; the rest is mainly fallow and waste land. In general, agriculture is restricted to low quality cereals and millet.

Located in the hot desert of Rajasthan, India, the URMUL PHC Project teaches villagers how to collect and store precious water, using this innovative design. (Photo by Pierre Claquin/AKF)

A large irrigation project, the Indira Gandhi Canal, has brought considerable changes to the lives of the people in the area. Some advantages include access to water, increased land productivity, increased income, and improved living conditions (more dramatically for those who were previously landless). Some negatives include increased incidence of violence and crime, the disintegration of the traditional social fabric, a switch to non-traditional cash crops, displacement of traditional grazing land, and increased work loads for women. In addition, many previously fertile areas near the canal have become waterlogged and saline, depriving tenants of their livelihood.

Because of the canal, people have begun to move out of villages to dhanis (irrigated fields) for cultivation. Thus, a large part of Bikaner's population is settled in scattered and remote villages, most of which are inaccessible by road. Only half the villages have electricity, and this service is often disrupted. Potable drinking water remains a problem in certain areas; several villages are without their own water source and depend on wells or reservoirs kilometres away. Medical facilities are scanty, as both personnel and materials are in short supply. Up to 25 percent of the auxiliary nurse-midwife posts in the district are vacant.

The total population in 1990 was estimated at 6,036 persons, of which 826 were children under 5 years of age and 1,057 were women aged 15 to 49 years of age. Data from 1988 estimated an average of 6.3 persons per household.

A 1988 baseline survey shows that the population is made up of six major caste groups, predominantly Rajput, followed by Meghwal, Bishnoi, Jat, Muslim, and Naik (in that order). Dialects of Marwari are spoken and the Devanagri script is used for writing.

Half of the households are landless, and one-third have fewer than 25 *bighas* (5 acres) of land. Nonetheless, over 90 percent of baseline survey respondents stated that their main occupation was agriculture. The rest are involved in labour, cattle rearing, service, and other occupations. Half of the households had no cows or goats, and only one-third had camels.

**In total, the Trust operates in 66 villages over three highly dispersed locations in the districts of Bikaner and Jodhpur. The oldest programme location is Lunkaransar started in 1986, where the Trust operates an integrated development programme in 33 villages. The youngest site is in Phalodi. Bajju is the third site, where the Trust has been providing a modified version of the Lunkaransar package since 1988. Although the Trust is involved in the locations named in addition to Bajju, this report only addresses the Bajju project area.*

Bikaner district has one of the lowest literacy rates in India, which the Trust feels is not a problem in itself but, rather, makes the individuals more vulnerable to exploitation. Further, with the advent of the canal and the increasingly scattered settlement pattern, the provision of classroom-based education is even more difficult.

Programme Objectives

The main objective is to lead village communities towards self-reliance by making available to them a package of development services that they themselves will decide, design, implement, and eventually finance.

In general, the Trust sees the role of providing a primary health care service as an entry point through which a range of development services can be made available. This vision is reflected in the shifting objectives and strategy of the Trust. Initially, objectives were established around the plan to provide basic health and education services, focusing on the reduction of maternal and infant mortality, increased access to care, detection of tuberculosis, elimination of night blindness and anaemia, and the training of village-level workers. Income-generating, education, and other development activities were to be started on a trial basis.

Gradually, the Trust has begun to shift its strategy. Although the delivery of basic health care and education and the reduction of maternal and infant mortality rates are still major objectives, increasing emphasis is being placed on the formation of women's groups, increasing accessibility to basic infrastructure and informal credit, and the development of research and training expertise within the Trust.

Services Offered, Delivery Strategy, and Organisation

To carry out its plan, the Trust uses a three-tier strategy. At the village level, the communities identify a local woman, often a *dai* or traditional birth attendant, to be their Village Health Worker (VHW), known locally as *Swasthya Sathis*. The Trust trains these women to provide pre-natal and post-natal care; conduct safe deliveries; provide education regarding immunizations, growth monitoring, nutrition, and family planning; and treat minor ailments. The VHW is provided with a "safe birthing kit" and a medicine chest. She is paid a small honorarium of Indian Rupees (INR) 100 per month plus an incentive payment of INR 1 for each person registered and INR 100 for each delivery.

The second tier consists of extension workers, professional staff of the Trust who visit villages regularly. In addition to supporting and supervising the VHWs, the extension workers provide a range of preventive, promotive, and curative care.

The programme physician and field managers make up the third tier. The physician provides back-up medical care, mainly at the programme hospital in Bajju. The managers provide supervision, training, and administrative support.

Health services include immunization, pre-natal and post-natal care, growth monitoring, family planning, tuberculosis identification and treatment, distribution of Vitamin A, iron and folic acid tablets to deal with anaemia, opium "de-addiction", curative services, and referral to secondary and tertiary care at the Medical College hospital at Bikaner.

In addition to health services, the programme has also begun activities in income generation (wool spinning, weaving, crop loans), education (non-formal education centres for children, the *Shiksha Karmi* formal schooling programme, adult literacy), agriculture (water supply, water harvesting, reforestation), and community organisation (women's groups, youth groups).

The Trust only provides start-up financial and advisory support for projects designed and conceived by the poor themselves. Implementation is carried out by establishing village-level groups or Sangathans which are to become self-administering and sustainable organisations that will continue to serve the poor. Sangathan members, identified by a survey, are selected from the poorest members of a community. Health and non-formal education services are provided by the Trust through the village Sangathan to ensure that the poor are represented and enjoy the benefits of available services. Agriculture and income-generating projects are specifically limited to Sangathan members.

The surveys used to identify members are designed, conducted, and analysed by the extension workers who are responsible for the formation of the groups.

Unique Characteristics

URMUL is noted for its effort to work with milk cooperatives and to address broad socio-economic and development issues, particularly as they relate to the socially disadvantaged. The programme is located in a desert and is isolated from government services. Political and economic processes are dominated by the relatively well off, and women and lower castes have few opportunities.

Bajju staff decided early on that health concerns could not be adequately addressed without attention to underlying socio-economic constraints. Other

programmes discussed in this report have added non-health components to what was essentially a health programme, but staff in Bajju now give first priority to broad socio-economic development and add health to more general activities.

Mombasa Primary Health Care Programme, Kenya

Programme Sites

The three programme areas, Mwavumbo, Kasemeni, and Mtaa, occupy the northeastern section of the Kwale district, which is located on the coast of Kenya.

Local residents live in communities concentrated around the major roads (where public transport is available) and also along the stretch of the Nairobi-Mombasa trunk road where piped water and other services are available. There is reasonably good transportation only in certain sections of the programme areas, and even these roads are almost impassable during the rains in March, April, and May.

The public health services, while improving, are still inadequate. There are four dispensaries in the programme area, providing basic primary care services. Preventive and promotive services are mostly facility based and outreach is very limited. Distances travelled in different sub-locations to reach a dispensary range from 4 kilometres to 15 kilometres. In addition to these dispensaries, the programme has started four mobile clinics, and the Aga Khan Health Service, Kenya (AKHS,K) operates a hospital in Mombasa.

In the Mombasa PHC Project area, a community health survey confirmed that clean water and improved environmental sanitation are major health needs. (Photo by Jean-Luc Ray/AKF)

The area population lives under very difficult conditions and has low socio-economic status. The total population is about 45,000. The target population (1989) consists of about 10,150 women aged 15 to 49 and 11,690 children under 5 years of age. There are 6,500 households with an average of 7 persons per household. The 1989 baseline survey showed that actual household size ranged from 3 to 17 persons.

The majority of the population is of the Duruma tribe, which is part of the coastal Mijikenda ethnic group. It is also predominantly Muslim (61 percent), but a substantial portion is Christian (32 percent).

The population is dependant on subsistence-scale agriculture as a livelihood. Sixty percent of adults in the programme area are farmers, livestock keepers, and fishermen, and 77 percent of all the farmers are women. In Mwavumbo and Mtaa, a greater proportion is involved in farming, as compared to the salaried and self-employed adults who are more commonly found in Kasemeni.

Nearly half of the people have had no education. The male literacy rate is 67 percent, compared with 38 percent for females.

Programme Objectives

The programme goal is to improve the health status of children under 5 and women of reproductive age by developing appropriate PHC programmes to be planned, implemented, supported, and sustained by the communities of the three locations.

The overall objectives are:

- To commence an on-going process of maintaining community leadership and initiative in a community based primary health care (CBPHC) system.
- To strengthen and expand upon established MCH services, including the training and evaluation of staff and volunteers involved in CBPHC, and the development of a MIS. Similarly, it involves co-operation with government and private organisations working in the programme area. Under the umbrella of primary health care, services include preventive and promotive activities at the community level, outreach activities, and a community-based drug supply. In addition, an objective is the establishment of a school health programme which engages schools in health activities.

- To establish community-managed development programmes and income-generating activities.

Services Offered, Delivery Strategy, and Organisation

Community mobilisation strategies similar to those employed in the Kisumu setting have been utilised by the Mombasa programme team. Health problems are addressed through:

- Employing low cost approaches to PHC organisation and management by channelling resources to priority health needs. A health information system is being implemented for effective management at both community and programme management levels.

- Adapting and using appropriate PHC technologies to manage or prevent maternal and childhood diseases. The package offered in collaboration with local health officers includes promotion of mother-child immunizations, child growth monitoring, oral rehydration therapy, breastfeeding, pre-natal care, birth spacing, and health education at home and school. A water improvement and sanitation component is included in conjunction with on-going water resource development in the Kwale district.

- Training community members, group leaders, traditional birth attendants, traditional healers, and school teachers as community health workers to help mobilise communities to take responsibility for organising and financing local health activities.

- Applying health communications to promote health practices at family and community levels.

The programme team includes an information and evaluation specialist, a public health officer, a public health nurse, two community health nurses, and administrative support staff. The team works closely with the existing Ministry of Health staff.

The two community nurses based in the programme areas provide training and technical and logistic support to the community health workers and the communities. Selection and training of community health workers was carried out in villages where a management structure had been formed or existed, e.g., a women's group.

Existing committees and self-help groups within the communities also play a key role in the development and maintenance of the programme.

Finally, the programme intends to continue exploring the role of hospitals in primary health care. Currently, the Aga Khan Hospital provides logistic support. Hospital involvement is expected to include training and supervision of community health services.

Unique Characteristics

The Mombasa programme is directly modelled on previous experience in the same country, namely, in Kisumu. The previous Kisumu project coordinator has now taken over in the younger programme. Staff at all levels will benefit from Kisumu's experience, while nevertheless adapting new activities to Mombasa's different physical and cultural environment.

Junagadh Primary Health Care Programme, Gujarat, India

Programme Sites

The programme is located in the Junagadh district, Gujarat, in the western part of India. The programme serves a total population of 24,000.

The programme area now includes two zones, centred around the villages of Jonpur and Chitravad. The first sub-area extends from the village of Jonpur and includes six additional villages. The total population in 1990 was estimated at 8,261. Programme activities began in this area in January 1989, after analysis of results of a 1987 baseline survey report.

Chitravad programme services did not begin until mid-1990. This area includes the village of Chitravad

In the Junagadh PHC Project in Gujarat, India, Child-to-Child activities provide an important opportunity to educate children about good nutrition and promote proper nutritional habits early in life. (Photo by Jean-Luc Ray/AKF)

and seven other villages, extending over a 40-kilometre distance. The population for the entire area is 15,900. Approximately 21 percent of the population is of the Ismaili sect.

In the Jonpur area, all seven villages have primary schools, but none have government health centres or sub-centres. The nearest government primary health centre is in Keshod and is difficult to reach by public transportation. The area now has the Aga Khan Medical Centre in Jonpur, which provides curative and referral services. These services remain under-utilised, mainly due to lack of awareness and education among the community members. Within the Chitravad area, five of the villages are within 20 kilometres of the medical centre and the other two villages are up to 40 kilometres away.

The 1987 survey of the Jonpur area found that 52 percent of the adult population (15 to 59 years) was engaged in economic activity. The male participation rate was 82.5 percent compared to 19.6 percent for females. Most families lived at subsistence level.

The literacy rate was 56 percent for males above 6 years of age and 34 percent for females. In the study villages, 19.4 percent of children aged 6 to 14 years were out of school.

The PHC essentially consists of two components: the community-based health care component and the multi-sectoral component. Particularly to implement the latter, the programme has sought collaboration with the government, NGOs, and other Aga Khan organisations.

Formal programme planning took place from January 1987 to June 1988. Programme staff met early and often with community elders and leaders, even before programme design, to sensitise them to planning activities and assess felt needs. Women and youth in each village were approached to discuss their potential roles in community development and to explore the advantages of organising action groups. One outcome of this was the formation of registered women's groups and youth groups and the construction of a road between the villages of Pasvalia and Jonpur by youth group volunteers.

Discussions with government officials and various NGOs indicated their support of the programme and desire to be involved. Periodic meetings assured their involvement in planning, enabling them to identify resources and initiate local activities.

Programme Objectives

The goal of the Junagadh PHC programme is to improve the health and nutritional status of children under the age of 6 years and women of age 15 through 44 years living in the programme area.

Objectives are to increase the accessibility of health services by establishing community-based primary health care and increasing community awareness of prevailing health problems. Communities are to be mobilised to engage actively in disease prevention and health promotion activities. Thus, emphasis continues to be placed on increased training and education of communities and community health workers. Further, a major objective is the development of a system that enables community leaders and health workers to sustain health and development activities over the long term.

Services Offered, Delivery Strategy, and Organisation

Aga Khan Health Services have worked in the Jonpur area since the early 1980s, when AKHS staff initiated dialogues with local residents regarding health needs and priorities. Communities opted for construction of a health sub-centre and offered land for the sub-centre and for a residence for its auxiliary nurse midwife.

Subsequent review of sub-centre operations and local needs led to a decision to expand, and in 1983, AKHS laid the foundation of the Aga Khan Medical Centre. Completed in 1987, the centre now provides health promotion and disease prevention services as well as outreach medical care to programme villages. It now serves as the base for the primary health care/community-based health care programme.

There are two medical centres in Jonpur and Chitravad that provide curative care. Satellite clinics are held each month in the outlying villages.

The operational strategy has been to establish a cost-effective, community-based comprehensive health care system through staff development and community involvement. Main staff development activities involve motivation, training, and managerial support to the Community Health Worker (CHW), the Traditional Birth Attendant, (TBA) and the Auxiliary Nurse Midwife (ANM). Further training of the managers—the Medical Officer, the Health Assistant and the Community Organiser—has also been undertaken. The involvement of the local community and the Village Health and Development Committee have helped to mobilise the resources to meet the most immediate health needs of children and women living in the programme area.

The desired outcome has been a sustainable three-tiered system for the delivery of comprehensive

PHC services that include health promotion, mother and child immunization, growth monitoring, safe deliveries, and the treatment of common ailments.

The three-tier approach has been adopted. Field personnel are the CHWs, community health volunteers, and TBAs. Salaried CHWs are trained for 3 months in basic principles of pre-natal care, immunizations, child care, and breastfeeding. Community health volunteers are trained in similar topics during two 1 week sessions. TBAs are trained for 1 month in safe delivery practice and basic elements of pre-natal and post-natal care.

The upper tiers consist of a supervisory level (ANMs and LHVs) and a programme policy and management level (Medical Officer, Field Manager, and Education and Information Officer). The executive staff of AKHS,I provides a fourth level of management from Bombay. Staff recruitment difficulties (particularly inability to hire an on-site programme director) have necessitated direct management from Bombay, including numerous visits by senior managers.

The initial phase of the Junagadh programme in the Jonpur area was marked by a lack of community ownership and participation, and the perception that AKHS,I had come to provide services. The community's perception of a passive role for itself was caused by numerous factors, including programme payment of CHWs and general lack of community dialogue and emphasis. This situation was remedied by increasing community and policy-level dialogue, beginning the multi-sectoral coordination activities, introducing satellite clinics supported by CHWs, and more structured and community-focused inservice training for local staff.

Originally, it was planned that community-based primary health care activities would extend to Chitravad in 1991. Planning incorporated lessons learned in Jonpur. After a baseline study of the health, demographic, and socio-economic profile of the area, activities were initiated at the request of the community and with their participation in June 1990. Activities began after the identification and training of CHVs, who were volunteers with no compensation. The other AK institutions initiated and implemented non-health activities through local participation in management. Existing local management structures are actively involved in health activities, leading to much smoother implementation.

Unique Characteristics

The Junagadh programme offers a unique comparison between a top-down community approach and one based on voluntary action. The Jonpur subarea features salaried community health workers inherited from the government and performing largely programme-determined functions. Chitravad features community-nominated volunteers undertaking mainly self-initiated activities. Initial indications are that the volunteers perform fewer functions but more spontaneously, while paid workers serve more as employees than as community representatives.

unity Based Health
Thatta District
akistan, examines

THE EFFECTIVENESS OF THE PROGRAMMES

WHAT DID THESE EIGHT PROGRAMMES ACCOMPLISH, HOW EFFECTIVE WERE THEY, AND WHAT LESSONS CAN BE DERIVED FROM THEIR EXPERIENCES?

Before turning to the analysis, it will be helpful to define what the programmes planned to achieve. Effectiveness is defined in this report as the degree to which programme goals and objectives are achieved. **Effective** means to achieve a goal or objective. **Efficient** means to do it without wasting resources. **Cost effective** means that one approach can achieve a goal or objective with fewer resources than another. **Cost benefit** compares the monetary return with the monetary cost of a programme.

A PHC programme can be thought of as a system with inputs (staff, money, medicines, etc.) that are processed to produce outputs (services and products). Those outputs are expected to have effects on people's knowledge, attitudes, and behaviour. Those effects are expected to lead to improvements in health and, sometimes, socioeconomic status. We call those impacts.

This chapter deals with the effectiveness of nine components of the PHC analysis in achieving planned outputs and effects. Chapter 4 then looks at the overall impact of the PHC programmes on health and socio-economic development, again attempting to derive broad lessons about factors that contribute to success.

PRINCIPAL COMPONENTS OF THE ANALYSIS

- Immunization
- Maternal Care and Family Planning
- Growth Monitoring and Nutrition Education
- Diarrhoeal Disease Control; Oral Rehydration Therapy; Water; Hygiene; and Sanitation
- Treatment of Common Diseases
- Other Development Activities
- Community Health Workers
- Information Systems
- Community Participation

3.1 IMMUNIZATION

An Overview of AKHN Experience

Needs

The need for immunization services was similar in most programme areas. With the exception of Mombasa, where around 80 percent coverage of children had been reached prior to the start of the programme, immunization status was generally low in all areas for which data were available. However, there was great variation, ranging from a low of 2 to 8 percent children fully immunized at the baseline in Bajju to 80 percent in Mombasa.

Of particular concern were tetanus immunization of pregnant women and measles immunization of children aged 1 and 2. Tetanus (discussed in section 3.2, Maternal Care and Family Planning) was very serious in five of the programmes. It was one of the leading killers in the Chitral area of Northern Pakistan and the Vur programme, and tetanus toxoid (TT) immunization rates were very low in those and other areas: Dhaka 28 percent, the Gilgit area of Northern Pakistan 19 percent, and Bajju 1.5 percent. Measles was another problem in several programme areas. It was the leading killer of children in Kisumu, and immunization rates were low almost everywhere: 22 percent in Dhaka, 9 to 15 percent in Junagadh, 4 to 10 percent in Bajju.

Knowledge

Although baseline data are scanty on this subject, it appears that mothers were often aware that some diseases could be prevented with immunization, but often they were not as aware that services were available or they did not know the particulars of when they or their children should be immunized.

Objectives

All of the programmes offered the full range of WHO/UNICEF-recommended immunizations: BCG, DPT 1-3, polio 1-3, and measles. They all had a general objective to immunize children against the

Table 3-1. Percentage of Children Under Age 2 Years Fully Immunized

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	11			37		60	73	+62
Dhaka		6			24	49	43	+37
Karachi*								
Vur					14	36	50	+36
Northern Pakistan							81[a]	
Bajju					2-4		55[b]	+53
Mombasa						80	80	
Junagadh				12		47[c]	65[c]	+53

See Appendix A. Data are based on Indicator 40 of Programme Data Sheets.

**Data not available.*

a. Health Centre target population only (= about 20 percent total target population). Data on fully immunized children not available, but immunization of children 12 to 23 months for BCG = 75.9%; DPT/OPV3 = 65.7%; and Measles = 67.0%.

b. BCG was in short supply, and immunization was therefore low. The percentage fully immunized except for BCG was 55 percent for children under 2 years.

c. 0-1 year

six immunizable diseases. Some programmes set coverage targets to achieve this by the end of the programme (or Phase I). Junagadh and Kisumu set coverage targets around 70 percent for children. Bajju planned to achieve 100 percent coverage. Dhaka had a relatively low target of 30 percent of children under 2 years initially, but raised it in 1987 to 80 percent. Despite the special concern with tetanus and measles, only Dhaka emphasised those two diseases in its objectives. The other programmes did not single out any disease to attack. Although they did not usually specify it as an objective, most programmes implicitly planned to increase awareness and knowledge about immunization among the target population.

> *"We don't see polio any more. There hasn't been a case in several years—since the programme began."*
>
> *Community Health Worker, AKCHP, Dhaka*

Service Strategies

Community-Based Health Care

Most programmes offered immunizations at health centres and satellite clinics, usually on a scheduled basis. Campaigns were common in several programmes (Karachi, Dhaka, Northern Pakistan), and a few involved schools. Kisumu and Mombasa called on school teachers and their pupils to help spread the word about immunization and to monitor the immunization schedules of the pupils' siblings. Most programmes made special efforts to offer immunization at times and locations (for example, homes, schools, meeting halls) that were convenient for their target groups. Most programmes relied on CHWs to educate and mobilise mothers to attend immunization sessions; and most relied on health professionals to administer immunizations. However, there were exceptions. Karachi and Dhaka have trained a few CHWs to be vaccinators, and other programmes may follow suit.

Management Information Systems

One of the most effective management tools has been the use of management information systems (MIS) to identify women and children in need of specific immunizations. In several programmes, such as Dhaka, Bajju, Junagadh, and Karachi, computerized printouts of individuals needing follow-up are provided regularly to CHWs, who use them to identify women that they need to visit and motivate to bring their children for immunization. An innovation introduced in the Vur programme was the modification of the Child Growth Monitoring Cards to provide information on dates when immunizations were administered and when the succeeding dose was due. CHWs and mothers use these cards to monitor the children's immunization schedule to ensure that they are fully immunized within the first 2 years.

Mobilisation of Government and Private Resources

Collaboration and coordination with government and other non-government agencies has been important in many programmes. Vur, Northern Pakistan, Junagadh, Kisumu, and Mombasa, for example,

Table 3-2. Percentage of Children Under Age 5 Years Fully Immunized

Programme (Age)	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu (under 5)	12			38		62	76	+64
Dhaka*								
Karachi (under 5)			4	8	63	71	70	+66
Vur*								
Northern Pakistan (2 to 4)				11[a]				
Bajju (under 5)					3-10	20	71[b]	+68
Mombasa (under 5)						63	76	+13
Junagadh (under 6)						44	59[c]	+15

See Appendix A. Data are based on Indicator 42 of Programme Data Sheets.

**Data not available*

a. Chitral

b. BCG was in short supply, and immunization was therefore low. The percentage fully immunized except for BCG was 71 percent for those aged 2 to 5 years.

c. 1 to 6 years

have very close relations with government expanded programmes of immunization (EPIs) and health agencies, and this has enabled them to deal with logistical and personnel problems that otherwise might have limited the amount of services provided. In Kisumu and Mombasa, the programmes have made conscious efforts to involve the government from the beginning so that the government could eventually take over the immunization (and other) services.

Community Involvement

Community involvement has been a feature of most programmes. In many cases, the involvement has been limited to mobilising communities and women's and other action groups to support the immunization programme, as well as mothers to attend immunization sessions. In several areas, notably Baba Island and Northern Pakistan, the communities built facilities and, in the case of Baba Island, secured a refrigerator as preconditions to government assistance.

Immunization Outcomes

Achievements have been impressive in many of the programmes for which data are available.

There has been a significant increase in **mothers' knowledge** about the need for and value of immunization. Most women have learned of at least one disease that can be prevented by immunization. A key indicator of immunization effectiveness is the percentage of women who know the correct age for measles immunization. In Kisumu, the percentage rose from 19 percent at baseline to 46 percent at mid-term. In Bajju, it went from almost zero to 77 percent in 2 years. Similar improvements were probably experienced in most programmes.

Large improvements in child immunization have been seen in Kisumu (+62 percentage points) and Dhaka (+37 points) for children under 2, and for children under age 1 in Junagadh (+53 percentage points). As Table 3-2 shows, coverage of children under age 5 has risen dramatically in Karachi (+66 points) and Bajju (+68 points, except for BCG, which was in short supply). Data for Northern Pakistan are difficult to aggregate, but it is clear that there was also a significant increase in coverage there, probably in the range of 50 to 60 points.

Table 3-3. Child Immunization Unit Costs, Karachi, 1990

	Field	Field+ Central	AKU+ Other Field
Cost per session held	$18.88	$18.88	$35.44
Cost per fully/ appropriately immunized child	$2.15	$3.04	$3.50
Cost per dose of vaccine administered	$0.78	$1.11	$1.27

$US 1 = Pakistan Rs 22.7

Source: The Aga Khan University, Department of Community Health Sciences

Significant improvements have been seen in Vur and Junagadh as well. Vur reported that 50 percent of children aged 1 to 2 had been fully immunized. Junagadh reached 59 percent coverage of children aged 1 to 6 years. Coverage for infants was high to begin with in Mombasa (80 percent) and remained steady, but there was an increase of 13 percentage points for children 1 to 6 years of age.

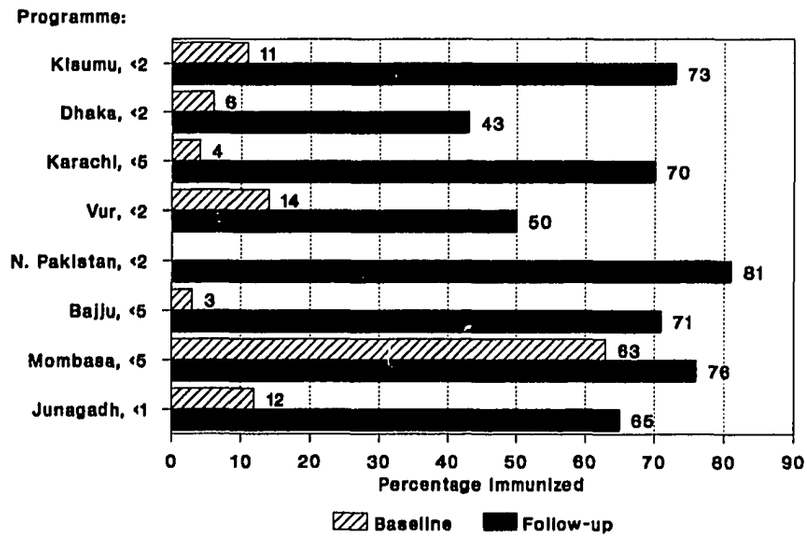
Costs of immunization appear to be relatively low for those progr nes that collaborated with the government and for urban programmes. The government usually provided transportation, vaccines, the cold chain, and immunization personnel. In urban areas, transportation and other costs were minimised because of the small areas covered. The only programme that has done a formal cost analysis of its services is the AKU-Urban programme in Karachi. The immunization costs for 1990 are shown in Table 3-3. The first figures are the costs of immunization sessions, where large numbers of children are immunized. The second is the cost of fully immunizing children with the six prescribed vaccines, pre-adjusted for age. The third is the cost of administering an individual dose of vaccine. "Field" costs include all staff, health centre, and other costs incurred in actually delivering the services. Central costs include those of the AKU-Urban management, researchers, and students at AKU. "Other Field" costs include those of the government and volunteer in-kind contributions.

Unit costs (cost per child immunized) are expected to increase in all programmes as the backlog of unimmunized children is eliminated. Costs in rural areas, in particular, are expected to increase as the marginal cost of finding and successfully immunizing the dwindling number of unimmunized children increases. In Bajju, for example, the immunization team now has to travel long distances to villages, where it often finds only one or two children who need to be immunized.

The MIS in programmes that have complete and updated household registration (e.g., Dhaka and Karachi) can produce accurate coverage estimates. Some programmes without such systems (Bajju, for example) have used rapid surveys to get reasonable estimates at relatively low cost.

Karachi and Dhaka also follow up each reported case of immunizable disease to determine whether the individual had been immunized. These "verbal autopsies" are very useful for identifying problems in the delivery system (e.g., in case finding, with the cold chain, follow-up). They are also very useful for assessing programme impact. Among the findings of such inquiries are that (1) most confirmed cases of unimmunizable diseases occurred among children who had not been immunized, (2) measles outbreaks have occurred among children as young as 2 months and as old as 15 years, and (3) cold chains have broken down occasionally, even in urban areas.

Figure 3-1. Change in Immunization Status for Children <1, <2, and <5 Years of Age



Conclusions and Lessons Learned

All of the PHC programmes identified a need for immunization services and took steps to meet that need. They all offered the full range of immunizations, employed similar strategies that relied heavily on local CHWs or school children as in Kisumu, to inform and motivate mothers to attend the immunization clinics, and demonstrated that coverage rates can be increased dramatically in relatively short periods of time. Although there are differences among the programmes and gaps in the data, some lessons can be drawn from the collective experience:

- Measles and tetanus appear to be problems in many communities and can be attacked effectively through an organised immunization project. By following the EPI schedule and giving special attention to measles and TT immunizations, results can often be achieved quickly and visibly. The effectiveness of immunization can help convince communities of the value of immunization in particular, and of PHC in general.

- As Mombasa's experience shows, a needs assessment is important for planning. The baseline survey showed that immunization coverage was already high and that a planned immunization campaign was unnecessary. This enabled the programme to avoid spending time and money on unnecessary activities and enabled it to put resources into more critical areas.

- The programmes demonstrated the value of "bringing the service to the people" through mobile teams, campaigns, and by holding regular immunization clinics at satellite stations (for example, schools, meeting halls, homes). Community-based services are especially important in the early stages of an immunization strategy.

- The addition of immunization data to Child Growth Monitoring Cards appears to be a simple, inexpensive, and effective device for improving the monitoring of immunization schedules.

- The MIS is a potent tool when used as in Dhaka, Bajju, Junagadh, and Karachi to identify mothers and children that CHWs should contact and motivate to receive immunization and other services. This approach has the added advantage of demonstrating to field workers how data can help them do their jobs better, and it also routinises and simplifies the monitoring of coverage rates.

- Training CHWs to administer immunizations appears to be a reasonable and cost-effective strategy. If it proves to be successful in Karachi and Dhaka, it should be tested in other programmes.

- Although community involvement in immunization activities is limited by the technical nature of the service, several programmes demonstrated that communities can be mobilised to increase the demand for immunization and other PHC services.

- Involvement of government EPI and health agencies is especially important in immunization because specialised equipment, trained staff, and vaccines are essential to the success of the programme and NGOs cannot always be expected to provide all of these themselves. The experience of AKHN PHC programmes seems to demonstrate that government agencies are "natural partners" in immunization programmes and that early collaboration is essential, especially if an objective is to turn the service over to the government eventually.

- New immunization services are likely to run into a significant "backlog" of unimmunized children between 2 and 5 years old. An important role of an NGO (as in Kisumu and Bajju) can be to help reduce this backlog through community mobilisation campaigns. Once this has been achieved, a regular maintenance strategy, such as is planned in Mombasa, may be able to take over. The "partnership" between the government and an NGO could be structured from the beginning to have the NGO concentrate on establishing the services, educating the population, and taking care of the backlog, giving priority to children under 2 years of age. The government could supplement its regular resources with this NGO assistance and then continue on its own with a maintenance strategy once adequate immunization coverage has been achieved.

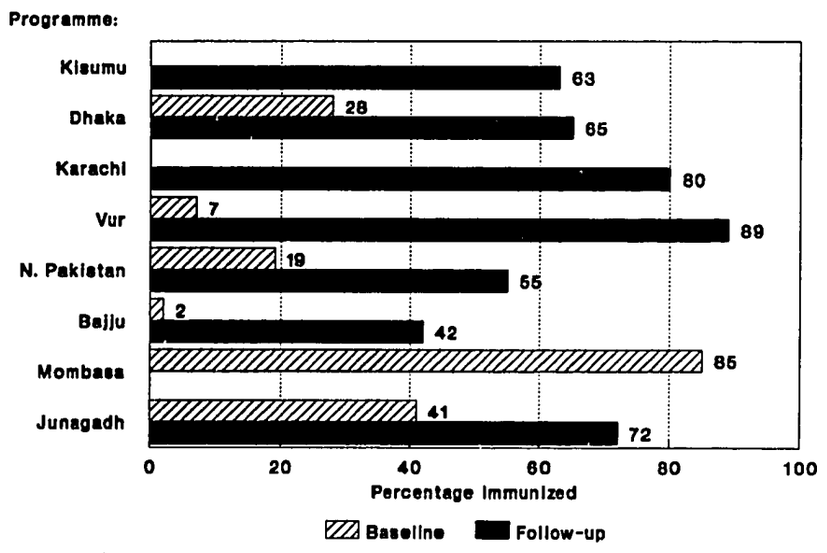
- All of the programmes demonstrated that constraints are likely to be encountered at some point (for example, lack of transport, vaccines, facilities; social and cultural impediments; interruptions due to harvests, etc.). The programmes also demonstrated that these constraints often can be overcome if they are anticipated and addressed. Northern Pakistan obtained the support needed from the government to overcome serious obstacles; Baba Island mobilised communities to meet significant pre-conditions; and Junagadh developed a strategy to utilise satellite clinics to reach more mothers during harvest and planting seasons.

- The "verbal autopsy" is a useful tool for identifying problems in the immunization service system and for assessing service impact.

Recommendations

- Community-based PHC programmes should include immunization as one of their first and most visible components, especially if coverage is low in the target area. Immunization should be an ongoing and permanent part of every PHC programme. Even if coverage is high, immunization is an effective way to introduce PHC services and to begin working with communities.
- Measles is an especially important PHC problem. Even when immunization levels are high, measles outbreaks can take place. Where it is a significant or potentially significant problem, measles should be given priority attention. Polio and tetanus are also high priority issues in some areas. In general, the emphasis of immunization activities should reflect local priorities. It is also important to remember that several immunizations can be given at one visit (e.g., measles, polio, DPT). The emphasis on one disease should not overshadow the importance of taking advantage of every opportunity to immunize children fully.
- PHC programmes initiated by NGOs should share responsibility and credit for immunization with the government and make plans at the outset for the government to take long-term responsibility for immunization once the backlog has been taken care of and coverage reaches around 60 percent.
- CHWs should be used in the immunization components for identification, education, motivation, and follow up. Those who have the aptitude should also be considered for training as vaccinators, especially in urban areas where the EPI "cold chain" and supervision are relatively easy to maintain.
- Complete household registration and regular, periodic reviews of MIS data should be incorporated into immunization activities whenever they are feasible and affordable.
- All confirmed cases of immunizable diseases should be investigated to identify and correct problems in the delivery system.
- A reliable cold chain needs to be developed for remote areas.
- Strategies should be devised to address the problem of measles cases that occur before the age of 9 months.

Figure 3-2. Change in TT Immunization Status in Women Age 15-44 (49) Years



The PHC Analysis has demonstrated that an expanded immunization activity is one of the most effective PHC interventions and an excellent way to introduce PHC to communities. AKCHP, Dhaka gives tetanus toxoid to women of child-bearing age and all six major immunizations to children before their second birthday. (Photo by Jean-Luc Ray/AKF)

3.2 MATERNAL CARE AND FAMILY PLANNING

An Overview of AKHN Experience

Maternal care, narrowly defined, includes services before, during, after, and between births. Elements include (1) pre-natal care (pregnancy detection, pre-natal exams, and identification and referral of high-risk cases; tetanus toxoid immunization; nutrition counselling), (2) safe labour and delivery by trained personnel, (3) post-natal care, and (4) family planning advice and/or services.

Women's health services, though, should be more broadly defined to address such longer term developmental problems as nutritional deficiency, access barriers due to cultural and socio-economic factors, and more general problems related to heavy work loads. Most PHC programmes effectively equate women's health with maternity-related care and with actions needed to reduce infant mortality through the mother. Several of the AKHN programmes address women's needs more broadly through income-generating activities, literacy training, and related efforts (see 3.6, Other Development Activities), but the health emphasis remains on the immediate pre-natal and peri-natal periods.

Needs

Maternal mortality and morbidity were reported to be high in all areas prior to programme initiation, though data are unavailable on two key indicators: maternal deaths and anaemia prevalence. Causes were reported to include:

- inaccessibility and non-use of PHC services
- women's heavy work loads, complicated by early, frequent, and late childbearing
- women's illiteracy and men's ignorance of maternal needs, health risks, and nutrition factors
- the low social status of women and associated socio-economic problems.

Baseline data from three programme areas indicate relatively high use of pre-natal care, while three areas showed very limited use. In Kisumu, Mombasa, and Dhaka, respectively, 89, 81, and 55 percent of recently delivered mothers had had at least one pre-natal contact with the health system. In Jonpur (Junagadh), Vur, and Gilgit (Northern Pakistan), on the other hand, baseline pre-natal care estimates were 39, 27, and 11 percent, respectively. Underuse of pre-natal care is also illustrated by low tetanus toxoid (TT) coverage rates: 7 percent in Vur, 19 percent in Northern Pakistan (Gilgit), and 2 percent in Bajju.

In all programme areas, the majority of deliveries took place at home and were attended by traditional birth attendants (TBAs), friends, or relatives. Attendants were not always trained in aseptic delivery methods or in the identification of high-risk cases. Baseline data from Bajju, for example, indicate that only 2 percent of recent deliveries were assisted by trained personnel, and estimates were also below 20 percent in Vur, Northern Pakistan, and Mombasa.

Baseline contraceptive prevalence estimates were 10 percent or lower in the two Kenyan programme areas. In Kisumu, the average number of children a woman would bear during her reproductive lifetime (the total fertility rate) was 8.5.

Objectives

Although recognising the socio-economic origins of many women's health problems, most programmes gave high priority to pre-natal care and safe labour

Table 3-4. Percentage of Pregnant Women Receiving Pre-natal Care at Least Once

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	89							
Dhaka		55			74	73		+18
Karachi[a]						56		
Vur			27			73	75	+48
Northern Pakistan[b]			48	11				
Bajju						85	59	-26
Mombasa			81			87		+6
Junagadh				39		82	66	+27

See Appendix A. Data are based on Indicator 19 of Programme Data Sheets.
a. Does not include Baba Island, Karimabad Colony or Orangii
b. 1986 - Gilgit area; 1987 - Chitral area

Table 3-5. Percentage of Women Delivering Who Were Immunized Against Tetanus

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu				54		63		+9
Dhaka		28		48	37	65	65	+37
Karachi						72	80	+8
Vur			7		90	90	89	+82
Northern Pakistan			19[a]				55	+36
Bajju					2	41	42	+40
Mombasa						85		
Junagadh				41		82	72	+31

See Appendix A. Data are based on Indicator 22 of Programme Data Sheets.
a. Gilgit

and delivery. With the exception of the programme in Dhaka, most initially gave lower priority to family planning, though significant efforts are now underway in Kisumu and Karachi.

The activities most commonly promoted were tetanus toxoid immunization and the training of birth attendants. Since pre-natal services in Kisumu, and family planning in Dhaka and Junagadh were provided by the government or NGOs, the programmes sought to strengthen these existing services and encourage increased use.

All programmes listed the reduction of infant mortality and morbidity as a main objective, and staff recognised that improved maternal health and maternal care services, particularly safe delivery and TT immunization, would have an important impact on these rates.

Service Strategies

Service strategies generally emphasised early detection and screening of pregnant women, followed by referral to fixed facilities for further monitoring and TT immunization. Most programmes supported home childbirth by training birth attendants regarding hygiene and the warning signs of complicated deliveries.

Traditional birth attendants have been trained and are an important part of the team that provides pre-natal care in many programme areas. Beside conducting deliveries, TBAs refer pregnant women for pre-natal care, TT immunization, other gynaecological problems, and immunization of children under 5. In most programme areas, they also motivate and refer women for contraception. Government and other NGO services often provided technical support, immunizations, and family planning. Staff in Kisumu began training volunteer family planning motivators in 1990, and have now trained 51. Family planning services were introduced in most Karachi programme areas in 1988 and now include oral pills, condoms, and injectables, as well as appropriate referrals for tubal ligation and IUDs. CHWs use flip charts and film shows to convey the message, and a number of more aggressive promotional methods are under consideration. Most programmes, though, took only an educational role in

Table 3-6. Percentage of Pregnant Women Delivered by a Trained Attendant

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	58			77		81		+23
Dhaka					34		56	+22
Karachi							27	
Vur			15		52	53	57	+42
Northern Pakistan			17[a]				25-50	+33
Bajju					2		30	+28
Mombasa						18		
Junagadh				33		57	72	+39

See Appendix A. Data are based on Indicator 21 of Programme Data Sheets.
a. Gilgit

Table 3-7. Percentage of Women Using Family Planning Services

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	7					13		+6
Dhaka					54		58	+4
Karachi						17	18	+1
Vur*								
Northern Pakistan*								
Bajju							28	
Mombasa						10		
Junagadh*								

See Appendix A. Data are based on Indicator 24 of Programme Data Sheets.
** Data not available.*

family planning, identifying women in need and either referring them to government facilities or cooperating with government field workers.

Maternal Care and Family Planning Services Outcomes

Indicators of maternal knowledge, attitudes, and practices show significant improvements in several sites, especially with regard to pre-natal care and TT immunization. Maternal mortality changes cannot yet be measured accurately, however, given the small population sizes. A portion of the infant mortality reductions reported from several programme sites (see Chapter 4, The Impact of the Programmes) are likely to be related, in part, to improved maternal nutrition and immunization.

Pre-natal Care

In Dhaka and Kisumu, where pre-natal care was available prior to programme initiation, measures of awareness and use remain high. Where accessibility and use had been low, on the other hand, as in Bajju, Junagadh, and Karachi, data indicate significant progress but also unmet need.

Pre-natal care is most effective when initiated in the first or second trimester of pregnancy, particularly when dealing with high-risk populations. However, few programmes have information on when pregnancies were detected. In Bajju, 1989 MIS data show detection by trimester as follows: first—30 percent; second—34 percent; and third—36 percent. In Vur, 1989 data show only 6 percent had their first contact with a health care person or trained TBA in the first trimester; 38 percent in the second; and 56 percent during the third trimester. In Northern Pakistan, first pre-natal visits usually occurred in the fourth or fifth month. A further indication of increased pre-natal care is the proportion of pregnant women receiving tetanus toxoid. Over a 3 to 5 year period, coverage increased by 82 percentage points in Vur, 37 points in Dhaka, and 31 in Junagadh. The North Pakistan programme reported a 24 point increase in just 12 months in 1989-90.

The programme in Karachi has developed a maternal health card and pregnant women's register. CHWs,

LHVs, and CHNs now use these to identify high-risk pregnancies and to monitor and care for all identified pregnant women in the target areas. Designers made the home-based maternal card as simple as possible so that CHWs could use it to monitor expectant mothers.

Poor maternal nutrition, particularly iron-deficiency anaemia, remains a serious problem in India and Kenya, and presumably, other programme sites as well. Recognising the local severity of anaemia, staff in Junagadh have recently tripled the government-recommended dosage of iron folate tablets.

Delivery and Post-natal Care

Despite improvements, several programmes still report a high proportion of deliveries by untrained attendants. For example, Bajju reports about 70 percent of deliveries by untrained attendants, Dhaka 35 percent, Kisumu 65 percent, and Northern Pakistan 84 percent. Each of these figures represents a decrease from baseline data. Attendance at post-partum visits is not reported or documented as a routine activity.

Family Planning

Contraceptive use has increased somewhat, but only three programmes have data for more than one year.

In Bajju, it is estimated that about 28 percent of women use some family planning method; in Dhaka, about 58 percent. Kisumu reports an increase in current users from 7 percent in 1984 to nearly 13 percent in 1989. The use of modern methods has also risen from 3 percent in 1984 to 11 percent in 1989.

Conclusions and Lessons Learned

- The primary health care programmes discussed in this report have made significant progress on pre-natal care, including tetanus toxoid immunization, and have increased the proportion of deliveries managed by trained birth attendants. Although data are unavailable, there appear to have been fewer improvements in maternal nutritional status, particularly with regard to iron-deficiency anaemia. Major educational efforts may be needed to increase the proportion of pregnancies identified in the first and second trimesters.

- More profound changes in women's health status are impeded by early and late (i.e., age 35+), closely spaced, and numerous pregnancies, and by socio-economic discrimination (at least in some countries). Poor child spacing severely depletes women's nutritional levels, exposes them to high childbearing risks, and contributes significantly to infant mortality. Discrimination limits women's access to income and education, and causes families to neglect women's nutritional needs during and after pregnancy. Both men and women suffer from heavy workloads and poor nutrition, but women are often more seriously affected because of their family obligations.

- Most programmes have not addressed these broader women's health concerns, though a few have supported income-generating activities and/or actively encouraged child spacing. Community workers report high interest in the first but little interest in the second.

- Increasing use of trained birth attendants has probably reduced the incidence of septic deliveries and increased the prompt referral of emergency cases. Permanent improvements in referral networks and changes in beliefs by other family members will be needed to sustain these gains. Transportation and communication difficulties impede evacuation in remote areas; the Bajju programme is considering the use of homing pigeons to expedite access to emergency care.

- Staff in several locations have found that even women identified as traditional birth attendants may deliver only a few babies a year, necessitating training of other local women. Bajju provides safe delivery kits to whomever delivers babies, while staff in several programmes are considering whether to train members of mothers' clubs or women's organisations. Innovation may be needed to link a large number of basically trained women with increasingly smaller numbers of more technically trained, but still volunteer, workers.

- The delivery of maternal services can often be disjointed, with pre-natal care provided by the CHW, deliveries by TBAs, and perhaps, family planning by a government provider, resulting in missed opportunities for key preventive/promotive services as well as inconsistent care for individual women. Similar problems were reported from several sites because first-time mothers often go to their mothers' homes for delivery.

- Integration of service delivery is perhaps more critical for maternal and child care (MCH) than for

Recommendations

any other primary health care element and should be an area in which the programmes are particularly innovative. Both vertical and horizontal integration are desirable: vertical among different levels of the service delivery system, and horizontal among multiple services offered to the same population by the same facilities but often at different times.

- Providers should confirm tetanus toxoid immunization for all women aged 15 to 44 whenever in contact with them, irrespective of pregnancy status.

- Referral links need to be greatly improved so that high-risk cases are more quickly referred and better managed. Links between CHWs and birth attendants must also be strengthened.

- When determined to be a community priority, family planning services should be offered during most contacts with women of childbearing age, including post-natal visits and well baby checkups. Family planning services should be fully integrated with other AKHS-supported activities.

- Steps to ensure transmittal of records and continuity of care should be considered. Greater coordination among the various providers and uniform recordkeeping or patient-retained records may assist in the communication of patient histories. Pakistan's experiences with patient-retained maternity cards should be examined by other programmes.

- Programmes, for their own internal management purposes, should monitor a number of maternal health indicators, including:

  - The proportion of pregnant women obtaining pre-natal care in the first and second trimesters
  - The percentage of pregnant women receiving pre-natal care at least once in every trimester
  - Percentage of mothers delivered by a trained birth attendant
  - Percentage of pregnant women immunized against tetanus
  - Percentage of mothers who receive post-natal care
  - Percentage of babies under 2,500 grams at birth
  - Average maternal weight gain during pregnancy
  - Percentage of women 15 to 44 who know at least one modern family planning method and where it can be obtained
  - Percentage of deliveries that are "normal."

- The quality of care offered by traditional birth attendants should be monitored but with tact and respect for their well established roles in the community. TBAs should, at a minimum, be able to:

  - Recognise pregnancy
  - Recognise risk factors and refer those requiring more sophisticated care
  - Monitor maternal weight
  - Use aseptic delivery techniques, especially for cutting the cord
  - Recognise and refer post-natal abnormalities

- A number of women's health interventions require greatly strengthened health education—of men as well as of women. People of both genders need to understand the importance of women's nutrition and regular access to preventive/promotive services, and be willing to support rapid referral when this becomes necessary. Household visits, community-based education, and school health programmes should all be vehicles for this education.

- Primary health care programmes should support women's roles as family health and economic providers and not simply improve the management of individual pregnancies. There is a middle ground between the narrow pre-natal care and childbirth services promoted by most programmes and the time-consuming and expensive developmental and literacy activities that only a few programmes can support. Key "middle" interventions include nutritional counselling and supplementation (especially iron folate) and child spacing. Improved water supply may also benefit women even more than men. Programmes aimed at women's health need to promote women's broader community roles and help them advance beyond childbearing roles.

3.3 GROWTH MONITORING AND NUTRITION EDUCATION

An Overview of AKHN Experience

Growth monitoring is the regular measurement of weight-for-age, recording the weight on a weight-for-age chart, and interpretation of a child's growth pattern in order to promote, monitor, and maintain proper growth. Faltering refers to a lack of weight gain between measurements. Malnutrition is usually defined in AKHN programmes as low weight-for-age and is classified by degree: first, second (moderate), and third (severe) degree malnutrition.

"Growth monitoring is not an intervention per se, like ORT and Immunization, to be applied in response to need. It is a continuous activity which incorporates all key interventions with the goal of improving the health of children."

—Dr. Inayat H. Thaver, CHS/AKU

Needs

Malnutrition among small children and mothers is a problem in all programme areas, but the severity of the problem varied by site. It was worst in Bajju, where an estimated 75 percent of children under age 5 were malnourished, including 21 percent suffering from severe (third degree) malnutrition. Although there are no baseline data on malnutrition from Northern Pakistan, there is anecdotal evidence that malnutrition was probably lowest there, about 12 to 15 percent of children under age 5. Most of the other programmes found 20 to 40 percent of the children malnourished. Severe malnutrition was relatively low in several programmes (e.g., Northern Pakistan, Kisumu), and moderate malnutrition was a greater concern.

There were also significant differences in children's nutritional status when data are analysed by age and sex. More girls than boys tended to be malnourished, and the problem was greater in the second year (13 to 24 months) of life in several areas, such as Kisumu and Dhaka. Malnutrition seemed to be most severe after 6 months of age in Karachi programmes. Ignorance, illiteracy, poor education, poverty, fears, and taboos were among the many causes of the problem.

In some areas, few children had ever been weighed. Junagadh's baseline survey revealed that 80 percent of children under 2 years of age had never been weighed. Many mothers did not know about growth monitoring, and some who did were afraid it would cause their children to lose weight. Many of those who had participated in growth monitoring did not understand the concepts and could not interpret the charts, and their children had only been weighed one or two times.

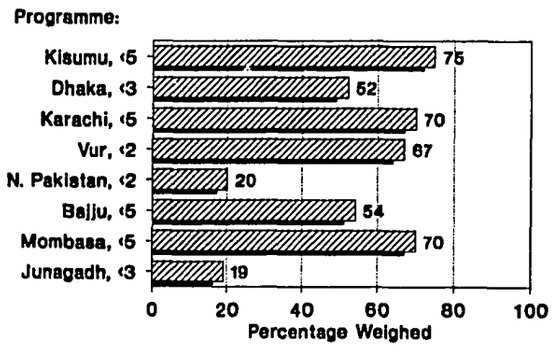
Objectives

Most of the PHC programmes planned to reduce severe malnutrition among children through a combined growth monitoring (GM) and nutrition education intervention. Most also included education on breastfeeding and weaning practices, and a few (e.g., Kisumu) tried to help people start home gardens and in other ways increase local production of nutritious foods. None offered supplemental feeding, but most established referral mechanisms for care on severely malnourished children.

Initially, the programmes had different views about the concept and role of GM. Some programmes viewed GM as a limited, even mechanical, intervention, consisting mostly of periodic weighing of children. Others saw GM not as an intervention per se but as a continuous activity that incorporates all of the PHC interventions and has as its prime objective growth promotion. That is, all PHC interventions (child spacing, environmental sanitation, etc.) contribute to growth promotion. Recently, this latter view has been accepted by all of the programmes. Another significant difference is that some programmes have seen growth monitoring as a way to identify and treat malnutrition, whereas others have seen it as a way to promote child health and development. In the former case, the emphasis has been on identifying and attending to children classified as second- and third-degree malnourished; in the latter the emphasis has been on identifying and attending any child whose weight has remained stable or declined, regardless of nutritional status.

Some, but not all, programmes set specific targets to be achieved by the end of Phase I; and some set output goals (proportion weighed) while others set more ambitious outcome goals (reduction in malnutrition). For example, in Dhaka, 60 percent of mothers were to become aware of the benefits and availability of GM, and 80 percent of children under age 5 were to be monitored regularly. Kisumu set a goal to reduce moderate and severe malnutrition among children under 5 years from 40 to 20 percent by the end of 1990.

Figure 3-3. Children Ages <2, <3, and <6 Years Weighed in Last Quarter of 1990



The programmes have not been uniform in selecting target populations. Most have chosen children under 5, but Junagadh's target population is children under 6, and Northern Pakistan's is children under 3. Recently, Kisumu and Dhaka revised their targets from children under 5 to under 3.

Service Strategies

Most programmes began with a traditional approach to providing the GM service. CHWs and their supervisors visited households to educate and motivate women, to register their children, and to take them to scheduled field clinics or health centres to be weighed. At these weighing sessions, the health workers would weigh the children, record the data on GM cards, counsel the mother on what she should do, and schedule a return appointment. Each child was expected to be weighed about four times each year.

In most cases, the field clinics were held in the communities at convenient sites (homes, schools, satellite clinics). In some cases—Bajju, for example—mobile teams visited villages to provide immunizations and weigh the children at the same time.

There have been several problems with this strategy. In some cases, the CHWs were unable to conduct the weighing correctly, record the data on the chart properly, interpret the data to the mother, and provide adequate counselling. This has been especially difficult for older and illiterate CHWs. Most programmes have attempted to counter these shortcomings through additional training and "mentorships," in which a more experienced supervisor or CHW accompanies those in need of help.

Some mothers have been reluctant to bring their children to GM sessions for reasons already mentioned (fears, taboos, ignorance) and because they are too busy with housework and farming. A related problem is that mothers stop bringing their children to clinics after the children have completed their immunization schedules, usually around 1 year of age.

Programmes have countered this by making special visits to the mothers' homes to motivate them and by bringing the GM service closer to their homes or, in some cases, into their homes. This is not always feasible, however, especially in remote areas. The population is so dispersed in Northern Pakistan, for example, that only the 20 percent of the population that lives within walking distance of the programme health centres are weighed.

Group sessions have often been too crowded and chaotic to enable programme staff to provide adequate counselling. In addition, the GM concepts have not been easy for mothers to understand, and many do not see the point of weighing their children.

The workload on CHWs and staff has also been significant, especially when the protocol requires regular (monthly or quarterly) weighing of all children. In some cases, the weighing task has become an end in itself. AKU reported that some Karachi CHWs, for example, viewed GM as a mechanical process, and neither they nor the mothers understood its utility. Supervisors have had difficulty assessing the quality of both weighing and counselling unless they could observe it regularly. This made it difficult to determine which children needed help.

Several programmes have considered dropping the GM component because it is so time-consuming and the benefits have not been observable. Malnutrition is so uncommon in Northern Pakistan that programme management considered dropping GM altogether. The reverse is the case in Bajju, where malnutrition is so widespread that it seems pointless to invest scarce resources in monitoring when more direct interventions might have greater effect.

The cost of GM is not high in terms of equipment and supplies, but in time. The only time and unit cost estimates for GM come from a 1990 AKU cost analysis, which showed that GM accounts for 40 percent of the CHW's time and the unit costs were greater than for immunization, ORT, and basic curative care, but less than for pre-natal care and family planning.

Recently, three programmes (Dhaka, Karachi, and Kisumu) have experimented with two new strategies that appear to be overcoming most of these problems, and which also seem to be having an effect on malnutrition.

Kisumu has enlisted schools and community and women's groups to reduce the dependency on CHWs for GM. Twenty-one schools assist in growth monitoring and nutrition education for students and their younger siblings. In two, malnourished children are linked to an older sibling who monitors and cares for the child with assistance from school and programme staff. Students encourage their mothers to have their younger siblings weighed and help interpret the GM cards. The Ministry of Health has initiated a competition among 15 schools in Kisumu to enhance immunization coverage as well. Community groups have also enlisted to make GM a community activity. At social gatherings, mothers discuss the causes of and potential solutions to malnutrition identified during weighing sessions.

Dhaka and Karachi have revised their strategies to (1) concentrate on children under age 3, (2) reduce the frequency of weighing of children in the normal weight-for-age range, (3) concentrate on monitoring changes in the growth curve rather than in nutritional status classification, (4) provide intensive monitoring of high-risk (faltering) children, and (5) provide more

Table 3-8. Growth Monitoring Unit Costs, Karachi, 1990

	Field	Field+ Central	AKU+ Other Field
Cost per child weighed	$3.24	$4.35	$4.36
Cost per normal child	4.74	6.35	6.37

$US 1 = Pakistan Rp 22.7
Source: The Aga Khan University, Department of Community Health Sciences.

counselling and demonstrations of what mothers can do to improve nutrition with the resources they have.

An important element in the Dhaka and Karachi strategies is the use of the MIS to (1) identify high-risk children, and (2) keep track of their progress. CHWs are provided with printouts listing children who need attention, and the CHWs, and occasionally the health staff, make "special visits" to their households, sometimes several times in a week or month. The MIS has the added advantage of providing management with monthly data on GM coverage and nutritional status. In Kisumu and Bajju, where continuous updating of household records is not as feasible, rapid surveys have been carried out to provide periodic (annual) estimates of nutritional status.

Several programmes have also revised the plotting of weight charts to make it easier for CHWs and mothers to understand. An increase in weight is good, no increase is a warning sign, and a decrease signals danger. However, some of the programmes do not use charts that are easy to plot, read, or interpret.

Salter scales are expensive for most programmes, and not all CHWs have them. Alternative GM measuring approaches have been tried, notably measurement of mid-upper arm circumference, which is less expensive but not as accurate or as sensitive a measure as weight-for-age.

Referral of severely malnourished children to special clinics is a routine practice in Karachi, Dhaka, and other sites where tertiary services are readily available. It is much more difficult to refer children from rural and remote areas.

Several programmes (Kisumu, Northern Pakistan, Dhaka, Karachi, Bajju) have identified local recipes that are highly nutritious and have included these in their health education messages.

Similarly, many programmes now put increased emphasis on breastfeeding with colostrum and proper weaning practices. Balanced diets, better food preparation, provision of Vitamin A, and other related nutritional activities have also been promoted by many programmes.

Recently, programme staff have recognised the importance of social practices within the home and have begun to concentrate on child management, social pathology, and other problems that affect child development and nutrition.

Growth Monitoring Outcomes and Nutrition Education

The impressions that emerge from the available data and the recent changes in strategy are that several programmes have been able to increase the proportion of children weighed and the frequency of weighing. Those concentrating on high-risk cases have increased the frequency of weighing of those children.

If the new high "risk" strategy proves effective, frequency of weighing may no longer be a meaningful indicator. In Karachi, for example, the percentage of children under age 2 weighed dropped from 83 to 68 percent in the quarter after the new targeted strategy was introduced. However, the proportion of children who are low weight-for-age has also dropped in that quarter.

It is difficult to summarise the impact of the GM component on nutritional status for several reasons. First, many of the programmes have not collected weight-for-age data regularly and there are inconsistencies among programmes. For example, some report data on children under age 3, others on children under age 5; some report on children "ever" weighed, others on those weighed each month, others on the number of times weighed in a given period. Second, there are seasonal variations in nutrition status, which are not always apparent in the limited data available from each programme.

Finally, although it appears that nutritional status may show more improvement under the new strategies than the old ones, it is still too early to tell if this will be sustained over the long term. The signs from Dhaka, Kisumu and Karachi, however, are encouraging.

The Kisumu data show that moderate and severe malnutrition, which had apparently risen in 1989, has declined recently. Karachi data also show that there have been consistent declines in malnutrition.

An interesting statistic from Dhaka shows that, over the last year, there have been steady and rapid declines in the proportion of malnourished children as the programme has concentrated on improving the nutritional status of those detected as faltering.

Table 3-9. Percentage of Children Weighed Last Quarter

Programme (age)	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu (under 5)					27	17	78	+51
Dhaka (under 3)					14		52	+38
Karachi (under 5)[a]					91	86	70	-21
Vur (under 2)							67	
Northern Pakistan (under 2)							15-20[b]	
Baiju (under 5)							54	
Mombasa (under 5)							71	
Junagadh (under 3)[c]						3	19	+16

See Appendix A. Data are based on Indicators 31-34 of Programme Data Sheets.
a. Figures for children under 2 = 93, 83, 68, -25
b. Of the 20 percent of children registered in GM
c. Weighed four times a year

Table 3-10. Percentage of Children Low Weight-for-Age (II and III Degree Malnutrition)

Programme (age)	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu (under 5)				20		32	22	+2
Dhaka (under 3)					46		46	
Karachi (under 5)					14	9	9	-5
Vur (under 2)					13	15	13	
Northern Pakistan (under 2)							12	
Baiju (under 5)					73-81			
Mombasa (under 5)						35	32	-3
Junagadh (under 3)						36	47	+11

See Appendix A. Data are based on Indicators 49-54 of Programme Data Sheets.

Table 3-11. Percentage Improvement in Nutritional Status, Dhaka, 1990

Quarter	All Children		High Risk Children	
	Normal	II & III	Improved	Same/Worse
October - December 1989	69	31	50	50
January - March 1990	78	22	72	28
April - September 1990	80	20	N/A	N/A

Conclusions and Lessons Learned

- Growth monitoring has long been viewed as one of the least effective components of PHC programmes. Over the last several years, many programmes have learned what not to do, and what does not work. These "negative" lessons are important. They have challenged staff to look for better ways to carry out growth monitoring. These lessons can now be supplemented with "positive" lessons about what seems to work.
- Malnutrition is a serious and widespread problem in most communities which the PHC programmes must effectively address. They cannot expect to have much impact, or credibility, if they do not.
- When GM emphasises only the weighing of children, it can become somewhat mechanical, and both mothers and staff question its utility. When the weighing technique is seen as only one part of growth monitoring, then it is more acceptable and can be an effective part of a broader growth promotion strategy.
- Strategy is the key to success in GM. Some strategies work well, others do not. Four strategic elements that seem to work well are:
  - Selective monitoring of high-risk children and intensive counselling.

- Focusing on growth faltering, rather than nutrition status, and continuous screening of all children in the target group.

- Using students to monitor the growth of their siblings and schools and other groups to provide back-up support.

- Bringing the GM service to the home or community, rather than requiring mothers to bring their children to a sometimes distant clinic that is convenient for the staff.

- The MIS can be an important and effective tool for helping CHWs to identify high-risk children and make sure that they are scheduled for follow-up visits and care. It can demonstrate to health workers the value of information and has the added advantage of producing information regularly that managers can use for monitoring and evaluation.

✦ Where an MIS cannot produce periodic data on nutritional status, rapid surveys can provide useful estimates at low cost.

✦ It is very difficult to change knowledge and behaviour about GM. It is an abstract concept, the techniques are complex, and follow-through interventions (improved weaning and feeding practices, food selection and preparation, food supplements) are hard to provide. The target populations are often illiterate, uneducated, and steeped in cultural obstacles to change. GM and nutritional improvement have to be presented in ways that people can understand, appreciate, and act upon.

✦ Cultural resistance can be overcome by CHWs and PHC staff who are credible and communicate clearly and often with the target group. Good rapport is essential to overcoming resistance and this can come with time, patience, understanding, demonstrable concern, and helpfulness.

✦ Changes can be (and have been) made to the GM intervention to make it more attractive. The technique can be simplified to make it easier to understand (e.g., "an increase in weight is good"). Counselling on what to do about malnutrition can focus on improvements that can be made in food selection and preparation, diet, and eating habits with existing resources. CHWs do not have to be depended on exclusively to promote GM. Others, including volunteers, mothers, and students, have been taught GM and can promote it. A mix of approaches can be tried to enhance coverage and quality of service.

✦ The cost of GM is an important consideration. GM takes a lot of CHW time, especially if it is to be done well. In programmes with remote or widely dispersed populations, cost is likely to be much higher and the activity more difficult to do well.

✦ Not enough is known currently about the "return on investment" in GM in general and in remote areas in particular, especially when prevalence of severe malnutrition is not high.

✦ The causes of malnutrition are not limited to lack of sufficient or appropriate food. There are other causes, including malaria, parasites, frequent illness, diarrhoea, feeding patterns, socio-cultural practices, genetic determinants, etc. Not enough is known in the programme sites about the causes of malnutrition or the correlation between severity of malnutrition and mortality.

✦ As none of the programmes provide supplemental feeding, improvements in nutritional status has depended as much on improved weaning, family eating patterns, and regional economics.

Recommendations

➢ Most community-based PHC programmes should include GM as one of their most important components because, if done well, it can have a significant impact on child growth and nutritional status.

➢ The fundamental question is whether growth monitoring is the best approach to growth promotion in areas where poverty, food shortages, PHC infrastructure, and distance are significant constraints. Programmes should examine the projected costs and benefits of GM in such situations before investing heavily in a GM intervention.

➢ GM should monitor and assess growth faltering rather than nutritional status at the individual level. The emphasis should be to promote the health of the child rather than to identify and treat the malnourished. Growth monitoring should be seen as the mechanism, with source of data, strategy, and means of growth promotion as the objective.

➢ Programmes should adopt a strategy of selective screening of high-risk children age 3 and under and couple this with intensive monitoring and counselling of children identified as faltering.

- A partial answer to the provision of GM in remote and sparsely populated areas may be to combine GM with regular immunization sessions.
- GM should be clearly linked with other PHC interventions, especially education on breastfeeding, weaning, food selection and preparation, Vitamin A, and referral to nutritional centres or other medical centres for clinical care of severely malnourished children. Social problems should also be taken into account and monitored. Linkages should be made clear in educational messages between nutritional status on the one hand and child spacing and delayed age of marriage on the other.
- Complete household registration and an up-to-date MIS should be incorporated into the GM component to help managers and health workers identify and track high-risk children. Care should be taken, however, not to make CHWs "computer dependent" and thereby stifle their initiative and sense of responsibility.
- Adequate technical back-up should be provided to CHWs and others who assist in screening and monitoring to ensure that quality services are provided to all children.
- GM should involve as many members of the community as possible, including teachers, students, TBAs, and women's groups. Special attention should be given to training mothers to do GM.
- Programmes should use a GM card that is large enough to plot 100-gram differences in weight and that can also identify all four nutritional levels.
- Accurate Pathweigh or Salter scales should be used for GM whenever possible, rather than mid-upper arm circumference. Where they are in short supply, they can be shared among CHWs, group sessions can be scheduled, and/or GM can be combined with immunization sessions.
- Rapid surveys should be used to complement the MIS if it cannot provide periodic estimates of faltering and nutritional status.
- Programmes should adopt effectiveness indicators that measure improvements in weight gain of children under GM supervision (e.g., the number of children moving from one nutritional category to another over a 3-month period).
- Operations research should be carried out to assist programmes in developing, testing, and documenting effective GM service delivery models that can be replicated by other PHC programmes.
- Operations research should be undertaken to develop and test simple and accurate ways to collect data on birth weight.
- Health research is needed on the determinants as well as the causes of malnutrition, the relation between malnutrition and mortality, and the cost effectiveness of GM in sparsely populated and remote areas, especially where severe malnutrition is low.

3.4 DIARRHOEAL DISEASE CONTROL; ORAL REHYDRATION THERAPY; WATER, HYGIENE, AND SANITATION

An Overview of AKHN Experience

Diarrhoea was a common problem in all programme areas. Oral rehydration therapy (ORT) was promoted as a way to prevent children with the disease from becoming dehydrated and dying. Thus, the programmes emphasised education of mothers to recognise diarrhoea, mix oral rehydration salts properly, and administer them correctly to their children. All of the programmes also attempted to educate mothers about the causes of diarrhoea and how to prevent it.

> *"Since we started using ORT here two years ago, there hasn't been a single death from diarrhoea. Not one."*
>
> *—Local Leader's Statement at Community Group Meeting, Kisumu*

Most observers believe that knowledge about diarrhoea, its causes, and how to use ORT to treat it are now well known by most women. This improvement in knowledge is believed to be at least partly due to the efforts of programme CHWs. In some areas (Dhaka and Bajju), knowledge was already at a high level when the programmes began.

Teaching mothers to mix and administer oral rehydration solution (ORS) properly has been seen as an important and successful outcome in most of the programmes. Although hard statistics are incomplete, the available data and qualitative assessments by evaluation teams show that CHWs and their back-up supervisors have done an excellent job in this area (see Table 3-12). Bajju, a remote desert, and Dhaka, a dense urban area, are contrasting settings where knowledge is at comparably high levels.

This conclusion is supported by data (Table 3-13) that show high use of ORT for diarrhoea episodes in all programmes for which there is recent data.

All of the programmes attempted to prevent diarrhoea by educating mothers about the importance of boiling drinking water, covering food, keeping animals penned away from the house, and observing hygienic habits. There is some anecdotal and survey evidence that improvements are occurring, although slowly. It may take years to change some ingrained habits.

About half of the programmes, notably Kisumu, Mombasa, and Northern Pakistan, and to a lesser degree Vur and Junagadh, promoted the development of potable water sources. Between 1987 and 1989, there has been a significant increase in access to clean water, especially in Kisumu, Dhaka, and Vur but (if the baseline data are correct) a decline in Bajju (see Table 3-14). Access has also probably increased in Northern Pakistan and Junagadh over the last several years.

One of the Karachi programmes successfully mobilised community members to improve their own water supply. In Northern Pakistan, water source development is a major responsibility of two sister agencies, the Aga Khan Rural Support Programme (AKRSP) and the Aga Khan Housing Board (AKHB).

Kisumu has made water a major priority and has devoted a significant amount of resources to this component, with impressive results. Mombasa has just begun, but water will also be a major thrust of that programme. Communities in Mombasa seem reluctant to participate at all in other programme activities until the basic need for water is met. The programme staff has decided to play a "facilitative" role only (bringing the communities and water authorities together) because anything else would not be replicable.

Bajju plans to give more emphasis to water development in the future. Vur and Junagadh have responded to several community requests for assistance in this area. Junagadh has worked with AKRSP to help some communities develop adequate

Table 3-12. Percentage of Mothers Who Know How to Mix and Administer Oral Rehydration Solution

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu				30		44		+14
Dhaka					82		96	+14
Karachi*								
Vur			14					
Northern Pakistan			28[a]			37-91[a]		+36
Bajju							86	
Mombasa*								
Junagadh				16				

See Appendix A. Data are based on Indicator 46 of Programme Data Sheets.
** Data not available*
a. 1986 - Gilgit; 1988-1989 - Health Centre population only (= 20 percent of total)

Table 3-13. Percentage of Mothers Who Used ORT in Last Episode of Diarrhoea

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	6-31			22-31	29	22-31	76	+70
Dhaka					90		91	+1
Karachi						93	90	-3
Vur					71			
Northern Pakistan							63	
Bajju							48	
Mombasa*								
Junagadh*								

See Appendix A. Data are based on Indicator 47 of Programme Data Sheets.
** Data not available*

water supplies. A village in the Junagadh programme has requested AKRSP to develop a second check dam. Officials are waiting for the beneficiaries to indicate their commitment to improving the water supply by forming a supervisory committee and contributing finances. Water was not a priority in either urban programme, nor in Northern Pakistan, but access increased in the Dhaka area in any case, probably because of government action.

Construction of sanitary latrines (usually pit latrines or water-sealed privies) has been a priority area for only a few programmes, especially Kisumu. It will also become a priority in Mombasa. AKRSP has helped poor families install "sanitation blocks" (latrines) in the Junagadh programme area; it also works on sanitation in the Northern Pakistan area. Three sub-locations of the Karachi programme have taken steps to mobilise the communities to improve sanitation with positive results. Most of the remaining programmes recognise the importance of sanitary facilities, but have emphasised education rather than construction. Sanitation remains an area where much more needs to be done by most programmes.

Conclusions and Lessons Learned

- The available evidence suggests that programmes had a significant effect on mothers' knowledge and use of ORT for the treatment of diarrhoea. This can probably be attributed to the efforts of the CHWs, backed up by effective training, supervision, and adequate supplies of ORS.
- ORT, by itself, is insufficient to prevent morbidity and mortality due to diarrhoea. Personal and environmental hygiene, sanitation, and adequate potable drinking water are the other necessary components. Although there have been some improvements in diarrhoeal disease control (apparently due to improvements in potable water, sanitation, and hygiene), much more remains to be done, since diarrhoea and other water-borne diseases continue to be major health problems.
- Development of safe water supply and improved sanitation facilities are important PHC interventions, especially for prevention of water-borne dis-

Table 3-14. Percentage of Households with Access to Clean Water Supplies

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	16			17		45	44	+28
Dhaka[a]		29			41		50	+21
Karachi						63		
Vur				33			61	+28
Northern Pakistan			5[b]					
Baiju					40		29	-11
Mombasa						6		
Junagadh		10		16				+6

See Appendix A. Data are based on Indicator 44 of Programme Data Sheets.
a. Drink boiled water.
b. Gilgit

Table 3-15. Percentage of Households That Have Access to Sanitary Latrines/Privies

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	80			88		90		+10
Dhaka[a]								
Karachi					61			
Vur				14		14		
Northern Pakistan[a]			7	4				-3
Baiju							1	
Junagadh[a]								
Mombasa						33	40	+7

See Appendix A. Data are based on Indicators 45 of Programme Data Sheet.
[a] Data not available
a. 1986 - Gilgit; 1987 - Chitral

eases. However, development (especially of water) is also expensive and not always viewed as a responsibility of PHC programmes, especially in urban areas where municipal authorities are often responsible for water and sewage systems. As a result, water and sanitation are not always included in PHC programme action plans, even though water-borne diseases and diarrhoea may be significant health problems.

- Several of the programmes have demonstrated that communities can be mobilised to develop water and sanitation systems. This has happened in both urban and rural areas. In many cases, the programmes have acted as "catalysts" to bring communities and water and sewage authorities together.

- Kisumu and Junagadh have learned that it is essential that communities develop a sense of "ownership" for their water supply, and that they be trained and organised to maintain the equipment.

- Most of the programmes that have become involved in water supply development have served as catalysts or facilitators of change, helping to organise communities to negotiate with water authority agencies rather than providing water systems themselves. This is a time-consuming and often obstacle-ridden strategy, but is probably the most realistic, replicable, and feasible approach for a community-based PHC programme to use.

- The Kisumu programme team has developed a relatively cheap way to reinforce pit latrines so that they do not collapse during the rainy season.

Recommendations

- Programmes should continue to educate mothers about ORT and to promote its proper use.

- Recent research findings suggest that patients should be encouraged to eat during their illness so that they receive crucial nutrients and enough calories. They should be fed starting as soon as they can be coaxed to cooperate. Since administration of ORT restores the appetite quickly, mothers should be counselled to feed their babies on demand. Studies have also shown that feeding reduces the duration of diarrhoea and protects children against weight loss.

- Cereal-Based ORT (CBORT) is more effective than saline-glucose solutions and should be adopted wherever local cereal-based formulae have been promoted.

- Greater attention should be paid to hygiene, sanitation, and boiling of drinking water to prevent diarrhoea.

- Programme staff should take an active role as facilitators or catalysts to help communities negotiate with water authorities to obtain adequate water and sewage systems.

3.5 TREATMENT OF COMMON DISEASES

An Overview of AKHN Experience

All of the programmes offered a number of other health services, from simple first aid to specialised interventions designed to address local diseases. The Karachi programme provides a broad range of services through local health centres situated in each sub-location and has been exploring the idea of expanding back-up services. Most of the other programmes also have health centres that provide simple diagnostic and curative care, and many have satellite and mobile clinics to extend some of these services out to the communities. Several programmes also have back-up hospitals for referral services. They range from very simple hospitals (Bajju, Junagadh) equipped with a small laboratory and, possibly, an x-ray machine, to the Aga Khan University Hospital in Karachi.

In addition to these basic services, most programmes have added special interventions. Northern Pakistan has a project to reduce the prevalence of goitre. Dhaka and Bajju run a Vitamin A activity to prevent night blindness among children. Bajju also has special services for tuberculosis (TB) and opium addiction. Kisumu, Mombasa, and Dhaka operate school health activities (and Karachi and Junagadh will soon). Kisumu and Mombasa also pay special attention to scabies, parasites, schistosomiasis, anaemia, malaria, acute respiratory infections (ARI), and other endemic diseases.

The back-up curative services at the health centres and hospitals are certainly important and appreciated. All of the programmes downplay these services to make sure that their major preventive and promotive PHC objectives remain dominant. Among other community-based curative services are the following:

Vitamin A

The Vitamin A service has been very effective in both the Dhaka and Bajju programmes. The intervention is simple, safe, easy to administer, inexpen-

sive, and highly effective. It also has positive effects on diarrhoea and nutritional status.

Anaemia

This is a much more difficult problem to treat. Iron and folic acid tablets are often given routinely to women as part of pre-natal care by most programmes and to children under age 5 in some programmes. Kisumu conducted a study of anaemia in its programme area, and found that most cases were associated with malaria. Anaemia in children can also be due to other causes, particularly hookworm infestation and sickle cell disease, as well as lack of folic acid and green vegetables. Asian women are especially prone to iron-deficiency anaemia. Karachi is planning to conduct a study of the types of anaemia among children, 60 percent of whom are reported to be anaemic. The eventual objective is to develop an anaemia management system for all Karachi field sites.

Malaria

Kisumu has made valiant attempts to address this disease in its programme through education and provision of chloroquine. The problem may be too big for a PHC programme to handle, however, because of the overwhelming environmental factors (breeding sites, weather, etc.), the lack of an effective regional malaria education programme, the cost, the organisational and staff requirements, the ease with which the disease is spread, the increasing resistance of mosquitoes to DDT and parasites to chloroquine, and the side effects of second-line drugs. The best a PHC programme may be able to do is to provide education on mosquito repellents, wearing clothing at night, home improvements, and the provision of anti-malarials, but these are all helpful.

Goitre

This is a serious problem in the Northern Pakistan area. The 1990 survey showed that goitre prevalence ranges from 12 to 43 percent among school children and 15 to 35 percent among expectant mothers. The evaluation team (1990) said that these data "need verification by urinary iodine studies, since clinical assessment is generally not very reliable." It would be useful to know how effective this activity has been and its costs.

School Health

Although there is some interest in student health, some programmes see students as agents as much as target groups. Dhaka, and especially Kisumu, have attempted to organise students and teachers to (1) carry out health assessments at home, (2) motivate mothers to have their children immunized and

The Provincial Minister of Health gives the first oral dose of iodinated oil in a joint Government-AKHS campaign to eradicate goitre in Chitral, North Pakistan. (Photo by Jean-Luc Ray/AKF)

weighed, (3) monitor immunization and weighing of infants, and (4) construct model water and sanitation programmes in their schools. These efforts have only begun recently, but they look promising. Mombasa plans to establish a school health programme that will engage schools in preventive health care and health promotion activities. Junagadh is considering a similar plan.

Community Drug Supply

Most communities want drugs and health centres. A modest supply of drugs is essential, but has to be balanced with the health prevention messages PHC tries to promote and the cost of the drugs. Deciding which drugs to provide, who will dispense them, and who will pay for them are key issues that many of the rural programmes have had to deal with. Bajju has provided medicine kits to village health workers, and found that there are a number of problems: 1) Many of these workers are illiterate and dispense medicines by memorising what the tablets are for, 2) the drugs are purchased from different companies each month, which makes it difficult for the village health workers to remember what each tablet is for, 3) the costs vary, as well, as does the packaging and dosage, 4) administering the programme costs more than it saves, and 5) the village health workers complain that people prefer to go to private practitioners and quacks for drugs.

Kisumu has established drug stocks in many communities. This requires the communities to finance both the initial and replacement stocks, which are

dispensed by CHWs who have completed a week of special training and been qualified. This system appears to be working fairly well. Northern Pakistan also sells drugs.

Mombasa plans to establish a CHW-managed, community-based drug supply for the treatment of minor ailments and provision of non-clinical family planning methods.

Acute Respiratory Infections (ARI)

Some activity has been initiated in Karachi, Northern Pakistan, and Kisumu, with some encouraging results. In 1989, about 40 percent of mothers in Kisumu could recognise ARI symptoms, and deaths due to ARI have declined. However, there is much remaining to be done in most of the programmes in which ARI is a leading cause of morbidity and mortality. Junagadh has secured assistance from AKRSP to develop biogas plants in villages. It plans to monitor changes in morbidity patterns, especially ARI, that should result from reductions of smoke from cooking.

Drug Addiction

Bajju has organised support groups to help drug addicts break their opium habits. Karachi has taken steps in a few areas to sensitize residents to the need to address heroin addiction in their neighbourhoods.

Tuberculosis

Bajju is planning a TB screening and treatment service to deal with this endemic problem in its target area.

There are also some important health problems that have not received as much attention from the programmes as may be needed:

Neo-natal Mortality and Maternal Nutrition

As infant mortality decreases, the proportion attributed to neo-natal mortality generally increases. The Northern Pakistan Evaluation Team paid special attention to this issue, and their conclusion is instructive for all programmes. An important recommendation was: "In light of recent data on the importance of neo-natal mortality to child survival, and to enhance the health of women, focus the programme more on women's health and nutritional issues and neo-natal health."

One objective of this strategy, which is also a key indicator of child survival potential, would be to raise birth weight to 2,500 grams by improving maternal nutrition and treating maternal anaemia.

AIDS and Sexually Transmitted Diseases (STD)

This has been a neglected area, probably because it is so politically and culturally sensitive. AIDS, in particular, is a major problem in Kenya and is likely to become a major problem in all programme areas. Kisumu and Mombasa have introduced AIDS education modules in their school health activities.

There are some additional health services that some programmes believe should be added to their PHC programmes. Among these are:

- Family health care (Karachi). Services for adolescents, fathers, the elderly, in addition to standard MCH for mothers and children.
- Maternity care (Dhaka). Small fixed health centres specialising in providing high quality prenatal, delivery, and post-natal care for a fee.
- Disability/rehabilitation care (Karachi). Treatment and rehabilitation for the physically and mentally handicapped, especially children.

Conclusions and Lessons Learned

- ✦ Most programmes offer a limited, but similar, range of PHC services, concentrated on maternal and child health. None offer a comprehensive package of services, as would be possible in an integrated health care system. Presently, patient referrals are made to back-up health centres and hospitals, most often operated by other providers.
- ✦ Most programmes have added other health services, usually in response to local need and demand. As a result, they are becoming somewhat more comprehensive than when they began.
- ✦ Some services could be added to almost all programmes without much difficulty because they are simple, safe, inexpensive, and effective. Examples are Vitamin A, orally administered iodinated oil for goitre, cereal-based ORT for diarrhoea, health education, and services for children and teachers through school health activities.
- ✦ Other services (e.g., AIDs screening, malaria, hospital care) that are more complex, less effective, and/or more expensive would require significant changes in programme organisation, staffing, and funding.
- ✦ All of the programmes are constrained by limitations in budgets, staff, and time. Although they are sympathetic to other health problems in their target areas, they have recognised that there are

practical limits to the range of services that they can offer, and most have added new services cautiously, usually in response to local demands and/or needs that cannot be met by other health care providers.

Recommendations

- Programmes should continue to place most of their emphasis on the core maternal and child health services.
- Most programmes should consider adding a limited number of inexpensive, highly effective and simple interventions that address health problems toward the same maternal and child target groups.
- Additional health services should be added only if they respond to a significant local health need that can be feasibly, inexpensively, and economically addressed by the programme.
- Before adding a service, the programme should draw up a list of criteria to help rate each suggestion on a common framework. Among the criteria that should be considered are need/demand, potential impact on health, cost, human and other resource requirements, complexity of the delivery procedures, revenue potential, potential contribution to overall PHC programme effectiveness and efficiency, availability of adequate and long-term donor support, fit within the PHC philosophy and objectives, and sustainability potential.

3.6 OTHER COMMUNITY-BASED DEVELOPMENT ACTIVITIES

In this section, development refers to organised activities designed to lead to the improvement of the social and economic status of individuals, groups, and/or communities. Health development activities carried out by the programmes are discussed in the preceding sections. This section is limited to other development activities, primarily economic and educational activities. The other development activities initiated by the PHC programmes fall into four broad categories: (1) community organisation, (2) education and literacy, (3) income generation, and (4) community development.

Community organisation activities are discussed in Section 3.9, Community Participation. **Educational** development activities are designed to increase the knowledge and skills of participants. **Literacy** activities are a subset of these and are usually concerned with developing minimal reading and writing skills to enable participants to "function" on their own at a first grade level of literacy. **Income-generating activities** are designed to increase the monetary income of the participants. These can be divided into agricultural and non-agricultural income-generating activities. **Community development** in this section refers to activities designed to improve the general infrastructure of the community for the benefit of all or a portion of that community. Examples are roads, schools, and wells.

An Overview of AKHN Experience

Community Organisation

Most programmes help communities mobilise themselves as a means to the end of improving health status. One programme, the Bajju programme, has begun to see PHC as a means to helping communities organise themselves to become self-reliant, not just in health but also in all developmental areas. The line between the two philosophies has become slightly blurred recently, as several programmes have seen community organisation for other development purposes as a natural and reasonable by-product of its health-related activities. Also, some of the educational and income-generating activities described later in this section are seen by some programmes as ends in themselves, although they are usually justified as necessary conditions to achieve improved health. Finally, some believe that they have a moral obligation to help community organisations apply their new found talents to other needs. Most limit this role to providing advice and introducing the community organisations to the proper NGOs or government agencies that could help them.

Education and Literacy

Several programmes attempted to provide literacy training for CHWs, TBAs, and women. Some also attempted to set up educational programmes for women and school-age children.

The Karachi module in Chanesar Goth set up a functional literacy class for CHWs, but the classes ended because of internal differences among CHWs as to course content.

In Junagadh, the staff arranged for the Nehru Youth Centre to train CHWs in setting up adult literacy classes. One class has begun in Jonpur. Villagers recently formed a local trust to collect donations for the construction of a high school.

The URMUL Trust operates in two sites in addition to Bajju: Lunkaransar and Phalodi. The Trust has the most ambitious activities in this area. Its educational

objectives are to (1) enable all children, especially girls and those belonging to the target group, to acquire basic literacy skills and (2) educate a number of local women sufficiently to carry out development functions, including the primary education of children.

The Trust's most successful activity is the *Shiksha Karmi* programme, a national Indian programme that fills a gap in primary school teachers with local teachers who are selected, trained, and supervised by URMUL staff. The Trust currently operates 14 primary schools. Eighteen centres were set up in Lunkaransar and another 13 in Bajju. Dropouts and poor performance of teachers led to the closing of all of the centres in Bajju. Those in Lunkaransar are still open, but have similar problems.

An educational programme for female development workers was planned to train 30 women through a 2 year residential course. That was abandoned in favour of a shorter (15- to 20-day) residence programme. There are only five trainees enrolled, but the programme seems to be having a positive effect on t. em.

Income Generation

Most AKHN programmes have made forays into income-generating activities. These include Karachi, Kisumu, Bajju, Mombasa, and Junagadh.

The Karachi programme reported that in the Essa Nagri site more than 150 women have learned cutting and sewing skills in the programme's Sewing Centre. The centre is completely financed by the community to train women in sewing skills, which should enable them to get work in Karachi's burgeoning garment industry. The Orangi module has attempted to organise income-generating activities for its CHWs, but without much success to date. The CHWs are reluctant to invest in a programme that has no immediate economic benefits, and they are having difficulty agreeing what should be pursued. There is a new plan to provide loans to the CHWs so they can begin their own income-generating schemes. There are two proposals in the Chanesar Goth location. One is to teach women how to apply *Mehandi*, the tattooing done on hands for special occasions. The other is to teach women to cut and design clothes.

Kisumu's objective was to help local residents raise funds for health. Staff trained groups of residents in organisation, local economic planning, financial management, resource management, and specific skills (e.g., pottery making, bee-keeping). Income-generating activities have included flour mill operation, vegetable farming, beekeeping, poultry raising, fish farming, and fruit orchard management. The results have been helpful to some individuals, but there have been serious constraints (poor soil, relatively high costs of production and marketing, competition from more productive farmers, limited markets, insufficient expertise) that have limited the effectiveness of the income-generating activities, and they have not yet produced sufficient economic benefits to support the cost of health services.

Mombasa also has a specific objective to help communities initiate small private enterprises to generate income that would be used to support PHC. Programme staff have just started on this activity. A workshop was held in January 1991 for 18 women from 12 of the 25 women's groups in the area. These groups are engaged in small retail stores, restaurants, and water sales schemes.

The URMUL Trust's objectives are to "gainfully and sustainably employ the poorest." In Lunkaransar, there is a "comprehensive set of short- and long-term programmes covering development of water resources, silvi-pastoral farms, forestry, and credit." In Phalodi, a successful weaver's organisation is operating. At Bajju, the programme is still being conceptualised.

URMUL's agricultural support activities include:

- *Silvi-pastoral farms.* These were set up to demonstrate the use of a combination of water harvesting structures and canal water to generate supplies of fodder and fuelwood of wasteland.
- *Seed loans.* These were provided to (about 200) poor farmers through village groups, which are responsible for loan recovery and recycling of the money.
- *Farm forestry.* This was initiated to combat deforestation and soil erosion by providing incentives to individual target group families to plant and maintain saplings.

Off-farm income-generating activities include:

- *Wool spinning and weaving.* In Lunkaransar, weavers were trained, and in Phalodi, traditional weavers were used, both to produce traditional woven products of the region for sale in urban markets.
- *Cotton spinning and weaving.* The yarn is used to weave plain cloth on manual frame looms. So far, the cloth is being made into garments for use by URMUL workers and associates.

To date, income-generating activities are still in the developmental stage and an overall strategy is being conceptualised. The most successful activity has

been the wool spinning in Phalodi, which has resulted in the development of a prospering, self-managed community organisation that is able to provide improved and stable incomes to the poor in the area.

The seed loan project also appears successful, and repayment rates are an encouraging 75 to 80 percent. The other activities have encountered a variety of obstacles that are still being addressed. Other income-generating activities are also being considered, based largely on local livestock development. These include sheep rearing, tanning and leather product manufacturing, wool processing, and mechanised spinning.

The Junagadh programme includes a major income-generating activities and multi-sectoral development component that was scheduled to be implemented in Phase II (January, 1992, to December, 1994). However, at community initiative, activities began in 1990. The multi-sectoral activities are mainly funded through other AK institutions (AKRSP and the Aga Khan Education Service, AKES). To date, AKRSP has sent 12 Jonpur farmers to see an irrigation cooperative and CHWs have been trained to form women's groups for income-generating activities. A sewing group has been set up in Jonpur and a paper-making group is being formed in Chitravad. An oilseed cooperative has also been developed. Village Health Development Committee members, in particular, have responded positively to these opportunities and have organised themselves into action groups and contributed funds. Unfortunately, they have been reluctant to become actively involved in managing PHC activities.

Community Development

A few other development programmes were undertaken in some of the PHC programme areas. In most cases, the PHC staff acted as brokers or intermediaries, helping communities gain access to resources provided by other agencies.

- In Junagadh, AKRSP has helped develop 12 biogas plants in two villages. Fifty additional plants are planned to be constructed in six villages in 1991. These plants are primarily for the benefit of the villagers, who use the gas for clean cooking. Although the chief benefit is convenience (the plants reduce the need to gather firewood or other fuel, and are cleaner and easier to use), the gas plants also have an indirect health benefit to the degree that they reduce cooking pollution, which could reduce the incidence of ARI.

- Northern Pakistan has encouraged communities to work with AKRSP and AKHB to develop water systems and water filters in selected areas.

Conclusions and Lessons Learned

- Four of the PHC programmes have introduced selected development activities, one has made several *ad hoc* attempts to start such activities, and the other three have not attempted any. There is some ambivalence among the programmes about the appropriateness of a health organisation expanding into other development areas.

- Several of the programmes have been relatively successful in helping communities develop effective organisations, but these have usually had health as their mission.

- The most successful income-generating activity to date has been the wool weaver's organisation in Phalodi, which built on existing skills and an available market. The NGO's contribution, which was critical, was to provide technical assistance in organisation, management, design, and marketing.

- The most successful educational activity so far has been the Shiksha Karmi programme, which also built on an existing educational model and applied it in needy and responsive communities. The NGO's contribution, also critical, was to provide technical assistance to the communities to set up the programme, recruit and train the teachers, and monitor progress. In both cases, there was an existing demand (need) and supply that just needed to be brought together by skilled and experienced mediators. It seems development activities that meet these conditions are more likely to be successful than those that do not.

- With the exception of the activities mentioned immediately above, most programmes have had very limited success, so far, in helping communities develop successful educational and income-generating activity programmes. It would seem that in all cases there was either insufficient demand, insufficient supply, and/or inadequate expertise to bring the two together.

- Experience to date suggests that these other developments activities are much more difficult to introduce than expected, that most PHC staff do not have adequate training and expertise in these fields, that they require a great deal of staff effort to undertake, and that the successful results have been few in number and small in scale.

Recommendations

- Most PHC programmes should probably not introduce other community-based development activities unless there is a strong reason to do so and the programme has the requisite expertise, time and resources to devote to the activities. In most cases, the PHC staff should probably act as brokers or intermediaries, helping communities gain access to resources provided by other agencies.
- Programmes that require creating either demand or supply should probably not be undertaken, as the chances of success are likely to be small in the short run (5 years).
- Other community-based development activities should fit into a holistic strategy that clearly demonstrates how these activities will not only complement but also enhance PHC.

3.7 COMMUNITY HEALTH WORKERS

An Overview of AKHN Experience

Community health workers are minimally trained salaried or volunteer workers, usually resident in the community where they work, who perform a variety of service delivery, motivational, and educational roles in primary health care programmes. Often working from their own homes, CHWs spend the majority of their time away from fixed facilities, making household visits, responding to simple treatment needs, conducting group educational sessions and meetings with local leaders, women, and others. CHWs are general-purpose workers. Unlike birth attendants, special purpose volunteers, school teachers with health interests, and others, they normally participate in a variety of preventive, curative, and promotional functions; for this discussion, they are thus distinguished from traditional birth attendants and other community members who perform specific activities. Some projects pay CHWs a minimal salary, but most see them as community representatives rather than staff and thus dependent on community compensation or moral support.

Needs

Primary health care programmes need community health workers because they are the best and often only available means to reach parents and children in their homes where the majority of common health problems originate. CHWs are needed because infant and maternal morbidity and mortality are unacceptably high in many places and likely to fall only if socio-economic and environmental conditions become more favourable for disease prevention and early treatment or referral. Most common health problems are ultimately due to family hygiene and nutrition, to the lack of income and education, to women's weak status in the home and community, and to early and closely spaced pregnancies. In the long run, these problems can only be resolved through preventive/promotive activities and through community efforts that most facility-based personnel are neither trained nor motivated to support. When treatable conditions do arise, moreover, CHWs are needed for early treatment and referral. Many communities lack easy access to basic drug supplies, a need to which at least some CHWs are able to respond.

Objectives

Every AKHN programme emphasised selection and training of CHWs as the first and most essential tier of community-based primary health care. Targets for households per worker have varied from 15 in Mombasa to 600 in Dhaka. Programmes have viewed CHWs as the principal but not sole community representatives for the initiation, design, and implementation of family and community health and socio-economic activities. CHWs have been expected to be health educators, identifiers and referrers of high-risk cases, and treaters of simple illnesses. The workers were expected to organise communities for preventive/promotive activities and explain to neighbour and community leaders the benefits of improved sanitation, growth monitoring, immunization, appropriate attendance for pre-natal care, and the use of oral rehydration therapy. CHWs have been expected to visit homes, organise group meetings and educational sessions, assist organised growth monitoring and immunization sessions, and collect data on household and community health conditions. Some CHWs (Kisumu, Junagadh, and Northern Pakistan) have also been trained and given support to sell basic drugs.

Service Strategies

Programme staff have generally tried to adapt CHW activities as much as possible to the interests and resources of their communities and have given residents considerable responsibility for role definition, trainee selection, and whatever compensation might be given. To encourage community responsibility and guide choices, they have taught both leaders and residents what they can do about health and what outside institutions can do to assist. Most projects, exemplified by those in Kenya, have also adapted training schedules and locations to trainee capacity, and at least one using illiterates (Mombasa) has developed special reporting forms.

Some of the programmes have tried to avoid paying community workers directly, both to keep them affordable and to reinforce the message that communities had to solve their own health problems with only guidance from the outside. It was, though, anticipated that new parents would continue making small payments to traditional birth attendants as they had done in the past. Staff introduced the message of community responsibility through multiple community meetings and workshops prior to worker selection. Planners hoped that residents would appreciate their workers sufficiently to find some means of motivating and compensating them, but they left this to community discretion in most cases.

> *"If we allow sufficient time for community involvement, we may get CHW sustainability. However, if we do not allow sufficient time, we are sure that CHWs will not be sustainable."*
>
> *— Participant in PHC Analysis Workshop*

Most workers were to have only the briefest of initial training followed by frequent technical supervision. A three-tier system was commonly developed, with CHWs at the base, paramedical social or health workers in supervisory roles in the middle, and professional managers at the top.

An Overview of CHW Outcomes

Community health workers vary markedly in personal characteristics, relationships to project personnel and communities, degree of training and technical support provided, and specific activities undertaken. Even community origin and socio-cultural affiliation with local population groups has not been a standard characteristic. Table 3-16 provides additional detail.

Selection

Representatives of most projects spent substantial time with the leaders and, in some cases, populations of participating communities prior to worker selection and gave residents responsibility for determining both worker characteristics and specific candidates (see Section 3.9, Community Participation, for additional description). Kisumu personnel favoured chiefs in their early community approaches but then found that chiefs selected their own favourites as CHWs; staff then made greater efforts to involve the full community. The Dhaka programme, on the other hand, first trained non-resident Ismaili volunteers, then took out newspaper ads for paid female workers. (Neither process worked well, and programme staff have now switched to community selection of CHWs.) In most programmes, communities were given the choice of joining the PHC programme and nominating a CHW or, if they preferred, opting out.

The degree to which staff attempted to influence the community selection process cannot be determined, though at least some programme representatives offered suggestions regarding desirable worker characteristics. Staff in Dhaka, but not elsewhere, made literacy a prerequisite. Northern Pakistan staff suggested that CHWs should be permanent village residents and not "too young or too old," but nevertheless encouraged community residents to choose whomever they preferred.

Five programmes assisted both male and female workers, while three involved only women. Women in conservative cultures may be unable to leave their communities for training, other project participation, or even, in some cases, visits to "community" sections outside their immediate neighbourhoods. Men in the same cultures, though, may be barred from visiting families when husbands are away. Both male and female volunteers immunize children on Baba Island (Karachi), but only women are permitted to administer tetanus toxoid to women.

Training

Some programmes trained CHWs for as little as 2 weeks, others for as long as 3 months. Mombasa staff offered training in five 1 week blocks, interspersed by community work. Most attempted to provide on-the-job training as well through frequent staff visits and regularly scheduled refresher courses. Kisumu staff offered separate certification for CHWs interested in distributing basic drugs, permitting only

Community health workers and village committees in the Vur PHC Project in Thatta District, Pakistan, have organised themselves well and are now in the process of creating their own NGO to help sustain the PHC programme. (Photo by Jean-Luc Ray/AKF)

Table 3-16. CHW Selection and Training

Programme	Total CHWs and TBAs	Population Per CHW	Compensation/Incentive	Length of Initial Training	Worker Characteristics
Kisumu	• 614 trained CHWs, 444 active • 115 trained TBAs, 81 active	• 31 households per active CHW • 98 persons per trained CHW • 140 persons per active CHW	• Volunteers • Some sommunities reward CHWs	• 6 weeks spread out over a 6 to 8 month period • Evaluated 1 year later	• Selected by community • Male/female
Dhaka	• 20 paid CHWs • 62 volunteers • 71 TBAs	• 600 households/3,000 persons per CHW • 580 persons per TBA	• Paid and volunteers	• Basics and refresher courses	• Female • Advertised in news-paper • Prefer these to be local
Karachi	• 74 CHWs * • 51 TBAs	• 631 persons/162 families per CHW • 916 persons per TBA	• CHWs are paid a stipend in five areas, volunteers in two areas	• 6 weeks to 3 months	• CHW aged 20 to 40 • Education level varies • CHV anyone who shows a willingness to work
Vur	• 53 (estimate)	• 184 persons	• Volunteers	• 15 days • Follow-up	• Male/female • Selected by community
Northern Pakistan	• 389 CHWs • 231 TBAs	• 874 per CHW • 1,471 persons per TBA	• Primarily volunteers • Some VOs and WOs paid small fees	• 15 days • Follow-up held twice per month initially • Thereafter monthly visits by field staff • Annual workshop	• Male/female
Bajju	• 17 CHWs • 6 TBAs	• 355 persons per CHW • 106 persons per TBA	• Paid small honorarium		• Prefer TBAs
Mombasa	• 130 CHWs • 80 TBAs	• 15 households/359 persons per CHW • 570 persons per TBA	• Volunteers	• Five 1-week blocks	• Male/female • Selected by village
Jungadh	• 9 paid CHWs in Jonpur • Volunteers in Chitravad	(1987) • 940 persons per CHW • 3,760 persons per TBA	• Paid CHWs in Jonpur • Volunteers in Chitravad	• Paid workers trained 3 months • Volunteers trained 2 weeks	• Married female • Completed primary education

** Excluding Baba Island and Karimbad colony.*

experienced workers to take on this additional responsibility.

The content of the CHW training course usually reflected staff and community preferences, but was sometimes determined by official government criteria. Training in Dhaka, the Jonpur area of Junagadh, and most Karachi areas followed a fairly set design, whereas the two Kenyan projects offered communities wide latitude in content selection.

Expectations

Communities, programme staff and CHWs often differed in their expectations of each other, causing disillusionment in some cases. Communities often expected CHWs to be "mini-doctors," able to treat most illnesses and secure access to formal facilities when they could not treat. Residents and CHWs sometimes saw workers (even volunteers) as project representatives, while professional programme staff insisted that they should represent their communities. Some staff, moreover, treated CHWs as jacks-of-all-trades, able to handle a full range of primary health care and data collection responsibilities, even as volunteers.

The job description for CHWs in Karachi was typical, workers are to:

- Help in work at the health centre.
- Visit each home once a month to enquire about family health.
- Do growth monitoring and promotion.
- Advise on diarrhoea management.
- Educate and motivate people regarding immunization, family planning, and nutrition.
- Create social awareness.
- Identify pregnant women and advise them on pre-natal care, immunization, and nutrition.
- Collect basic health information for programme management.
- Persuade ill persons to go to a health centre or hospital and accompany them if necessary.
- Identify community activists and arrange community meetings.

Tables 3-17 to 3-19 indicate activities actually undertaken. Almost all CHWs conduct group health education, make home visits, and participate (as either a direct provider or a motivator/referral agent) in growth monitoring, immunizations, and some aspects of maternal care and women's health. For preventive care, most programmes emphasise educational and motivational roles, though CHWs weigh children themselves in the two Kenyan programme areas and immunize children in the Baba Island district of Karachi. CHWs make referrals for maternal care but leave labour and delivery care for trained birth attendants (except in Northern Pakistan where the two roles are combined). Most programme staff rely on the government to provide family planning services, but the Kisumu programme recently trained several special purpose family planning motivators.

Table 3-18 shows that most CHWs train mothers to identify and manage diarrhoea, using sugar-salt solutions or prepackaged salts. (Cereal-based therapy has been introduced in Kisumu, Dhaka, and other sites but has not been emphasised.) Other conditions commonly treated include tuberculosis, malaria, scabies (especially Kisumu), anaemia, schistosomiasis (Kenyan projects) and drug addiction (Bajju). Some (but not all) CHWs in Kisumu, Mombasa, Northern Pakistan, and Bajju also sell basic pharmaceutical supplies to their neighbour.

CHWs participate directly in water supply and sanitation activities (especially latrine construction) and coordinate access to rural development groups (the Lake Basin Development Authority in Kenya, for example, and the Aga Khan Rural Support Programme in India and Pakistan). As shown in Table 3-19, CHWs have also helped to develop income-generating and school health activities in Kenya (also planned for Junagadh). Most CHWs also provide basic data for management information systems.

CHWs appear to have been particularly effective at education and referral and at building demand for such services as immunization, pre-natal care, and growth monitoring. Some along with their technical backstoppers have also helped to develop community latrine, water supply, and biogas projects.

CHWs have been particularly effective in these projects because programme staff carefully prepared them for their roles and because technical support has been exceptionally good (conditions often lacking in primary health care programmes). Most projects have devoted significant time to generation of community commitment prior to worker selection and training, increasing the likelihood that residents would understand and support their work later. Most have been able to supervise CHWs once or twice a month and to provide further technical support through mobile clinics.

CHWs have been able to generate demand for important services at least in part because project staff worked with the government or, in Junagadh's case,

other NGO health units to ensure an adequate response.

CHWs' most effective work has been in conjunction with others, generally from outside the community or, in Kisumu's case, in working with schools.

The Kisumu school health study discussed in Section 3.3 showed that illiterate CHWs most effectively promoted growth monitoring when school children helped them motivate parents to weigh children, and interpret results.

Sustainability

There are at least two threats to CHW sustainability in these projects, the one due to worker attrition, the other to technical support requirements. Financing to some degree lies behind both concerns, though CHWs' willingness to continue visiting homes, organising and attending meetings, collecting data and participating in other routine activities depends at least equally on moral support from their neighbour and professional colleagues.

CHW retention is difficult to define and, thus, difficult to measure because activity levels ebb and flow with seasonal and family responsibilities and because few workers formally cut their links with outside groups. Of 624 CHWs originally trained in Kisumu, 413 (66 percent) were still considered active in July 1990; of the dropouts, 62 percent were attributed to family illness, death of spouse, and absence from the village, and 29 percent were reportedly due to CHW selection by village chiefs rather than the group as a whole. Mid-level supervisors also reported serious morale problems in at least one other project.

The Dhaka programme has tried sequentially three different approaches to worker selection and compensation. The first was to use volunteers from outside the community, the second was to select CHWs competitively and then pay them a salary, and the third was to again use volunteers but this time recruited from within the community. Local residents were enthusiastic about the first group of volunteers, but then lost interest because:

- Expectations were unrealistic and targets overly ambitious.
- Volunteers were not full-time workers and had too many competing health and non-health responsibilities.
- Workers were not motivated and lacked incentive.
- Workers were isolated from "their" communities by social status and language differences and by the fact that they lived elsewhere.

Projects have differed in their approaches to CHW compensation, but many have tried to establish at least partial community responsibility. The volunteer concept has appealed to planners, not simply as a money-saving device but also to reinforce the point that communities had to assume responsibility for their own health. In Kenya, the government required that even NGO-sponsored community workers be unsalaried.

Programmes in Junagadh, Dhaka, and Karachi have paid at least some community workers, but it is not clear that this has improved either CHW morale or performance. Frustrated by failure with community-based volunteers, the programme in Dhaka resorted to national advertising and formal interviewing and testing, and then paid workers a salary. Concerned now about sustainability and the continuing weakness of community participation, the project has recently recruited volunteers from schools. These, too, have been only partially successful, since there are many competing interests for young persons in urban Dhaka.

Karachi staff paid workers in five areas a modest salary, partly because income is vital in the city and partly because the medical school to which the programme was attached wanted to ensure the availability of suitable student internship sites. The workers clearly considered themselves to be Aga Khan University employees rather than community representatives, however, and eventually went on strike for greater pay. All workers in the newly participating Baba Island district are volunteers.

The Junagadh project picked up the salaries of government-managed CHWs in one sub-area but found these workers to be primarily motivated by money and by supervisory directives rather than by their own sense of community interests and needs. In a second area, trainee selection was preceded by community orientation and motivation; village organisations were asked to nominate volunteers. Here, the response has been more positive: community health volunteers have been more spontaneous in their ideas about community projects, and the lack of concern for financial sustainability has allowed the project to aim for a higher worker to population ratio. (CHW and community health volunteers' functions are similar, but initial training time has been reduced from 3 months to 2 weeks; the difference is made up by more intensive on-the-job training.)

Workers in Kisumu and Northern Pakistan have earned very small incomes from approximately 10 percent mark-ups on drug sales, but in the case of Northern Pakistan, a month's average earnings have amounted to less than half a day's income for an unskilled labourer. Voluntary payments to TBAs have also produced only minimal income.

Table 3-17. CHW Preventive Care Roles*

Programmes	Growth Monitoring	Immunization	Maternal Care/Family Planning*
Kisumu	Weigh children, often with help from schools	School children and CHWs refer children to fixed and mobile facilities	Promotion of pre-natal and post-natal care; Some provide pre-natal care; Some provide non-clinical contraception
Dhaka	Yes	Make referrals	Promotion and referral
Karachi	Yes	Promotion; Volunteers immunise children in two areas	Promotion and advice to expectant mothers
Vur	Yes		
Northern Pakistan	Near Health Centres		Prenatal care and delivery, Refer high risk
Bajju	Discontinued except at facilities	Promotion	Family planning promotion; Pre-natal care, post-natal care and delivery
Mombasa	Weigh children	Promotion	Promotion
Junagadh	Yes	Promotion	Promotion; Identify, monitor and refer risks

**Chart includes some activities mainly conducted by trained birth attendants and special purpose volunteers.*

Table 3-18. CHW Treatment Roles

Project	ORT	Other Treatments	Drug Sales
Kisumu	Train mothers to make oral rehydration solutions	Malaria, scabies, anaemia, schisto, TB	Sell essential drugs
Dhaka	Yes		
Karachi	Advise on management of diarrhoea	Persuades and accompanies to Health Centre	
Vur	Yes		
Northern Pakistan	Yes	Treat some; Refer more complicated cases	Yes
Bajju	Yes	Yes, minor	Yes
Mombasa	Train mothers to make oral rehydration solution	Treat some; Refer more complicated cases	Sell essential drugs
Junagadh	Train mothers to mix packages of ORS	Treat some; Refer more complicated cases	

Community understanding, participation in CHW selection, and acceptance of responsibility are all said to be keys to worker morale, though staff from virtually every project also believe that this will be insufficient without accompanying tangible rewards. Most groups have trained female CHWs, and their retention for at least part-time work is probably due in part to new status and recognition. Many of these women are already fully employed in agriculture and child rearing, yet the opportunity to be trained and to participate in community meetings and other health work is perhaps a greater motivational factor for them than it is for men. As a further incentive (for both male and female CHWs), communities in one Kisumu sub-area have instituted annual award days and provided uniforms for their CHWs.

Evidence from other projects, though, indicates that on-going technical reinforcement and updating may be CHWs' most critical sustainability requirement. Project sustainability plans (discussed in Appendix B) emphasise the continued need for NGO and/or government presence and technical involvement after project activities are phased out. Kisumu plans to localise technical support by training residents to become voluntary or community-supported trainers.

Table 3-10. CHW Community Roles

Project	Water and Sanitation	Income Generation	Other Community Activities	Data Collection
Kisumu	Have helped construct latrines and coordinate assistance for water supply systems	Have developed numerous income-generating activities	CHWs work closely with schools	Record-keeping and feedback to the community
Dhaka			Yes	Yes
Karachi			Yes	Yes
Vur			Link between government and community; Hold regular community meetings	Yes
Northern Pakistan	Coordinate with AKRSP		Yes	Yes
Bajju			Yes	Yes
Mombasa	Have helped construct and coordinate assistance for water supply systems	Yes	CHWs work closely with schools; Link between government and community organisations	Yes, record-keeping (adapted for illiterates)
Junagadh	Coordinate links with AKRSP		School health activities are planned	Yes

Personnel from the Aga Khan Hospital will visit, perhaps once every 3 months, to provide additional support.

Alternatives to CHWs

Although all projects have trained, encouraged, and supported CHWs, a few staff are beginning to question whether multi-purpose CHWs with broad educational roles are essential in all PHC programmes. One alternative, being attempted in Kenya and in Karachi's Baba Island district, is to train everyone in the community who expresses interest, perhaps later focusing supervision and other technical support on those who prove most effective. Kisumu staff work closely with community "champions," energetic natural leaders who promote a variety of community activities. (Staff report that such trainees actually remain active longer than regular CHWs.) The ultimate goal in most such cases is to train the entire resident population as community-based health workers so that sustainability of individual CHWs becomes no longer an issue.

A second approach, being considered in Northern Pakistan, is to use CHWs as pioneers for changing health beliefs and practices and stimulating public demand for services eventually to be offered by others. CHWs may also be used to distribute Vitamin A capsules or ORS packets or simply to make antenatal care and childbirth referrals without taking on the broader functions usually attributed to them.

Conclusions and Lessons Learned

- Community health workers have contributed significantly to projects' effectiveness and are often the key element in community-based primary health care. CHWs have educated residents in the benefits and procedures of preventive/promotive activities; identified and motivated persons who have missed immunization and growth monitoring sessions; identified and referred high-risk children, pregnant women, and others in need of special care; and helped representatives of the formal health sector to appreciate community health needs and opportunities.

- CHWs appear to be more effective as links between residents and other health and development personnel than as independent actors. CHWs in AKHN projects have benefited from high quality and frequent supervision and from unusually motivated community organisations; when these have been lacking (both in AKHN projects and elsewhere), CHWs have had poor morale and high dropout rates. CHWs are part of systems of community-based primary health care, and failure in one element may lead to rapid failure of the system as a whole.

- Paradoxically, the great importance of CHWs has often been their greatest weakness, resulting in high expectations and consequent disillusionment.

Communities expect them to be "mini-doctors" and to draw on seemingly abundant Aga Khan resources, while project personnel sometimes expect them to work unrealistic hours and transform overnight long-held health beliefs and practices. Even when it is clearly stated that the CHW position is unpaid, many applicants hope (or expect) that it will lead to a paid position. Trained for only 6 to 8 weeks and highly sensitive to routine support systems, many workers fall short of expectations.

- CHWs perform educational and promotive roles most effectively if selection and training are delayed until the full community (not simply the leaders) have been oriented and convinced about their potential effectiveness. A commitment to some form of compensation may also be needed at this time. The problem is that the orientation process may take months or years, during which the project may have relatively little concrete to offer.

- Workers selected before communities are oriented to their roles may suffer morale problems and drop out. Doctors, and agencies providing money for water supply improvements, achieve instant (but generally non-sustainable) community support. Primary health care projects have not found ways to bridge the gap, that is, to build community support through obvious and immediately effective actions rather than through promises of future preventive/promotive benefits.

- Direct staff payment of community workers has inconsistent effects on both technical performance and activity levels, making it necessary to determine solutions locally. Paid workers (and their communities) tend to see CHWs as project rather than community agents and may look for outside direction rather than represent community initiatives themselves. Paid CHWs also tend to develop an unsustainable employee/employer relationship with project staff, demanding higher pay and other employment benefits. Volunteers, however, suffer from conflicting time obligations and often low morale (if the community does not actively support their work). It is particularly difficult to put paid and unpaid CHWs together in the same programme area. The payment question appears likely to be resolved on a project-by-project basis for the foreseeable future.

- Career ladders for CHWs (and other staff) are important for job satisfaction and retention. Some CHWs in Northern Pakistan have gone into training as lady health visitors, while some in Kisumu have become "senior CHWs" and trainers. When they reach this level, communities may be more willing to pay them a stipend, since it requires more work, also because it provides the community with more prestige.

- Worker gender has been an issue in some projects but not in others. Women may sometimes be more willing than men to work without pay, but this is not a tendency that projects wish to encourage. Women are less mobile in many settings, and may be unable to leave their homes for training and interaction with other CHWs. Men in some cultures, on the other hand, cannot visit homes when family men are absent and may be perceived as less sensitive than women to maternal and child health needs.

- Several projects have been plagued by high worker dropout rates and occasionally low productivity, due to weak community support, family time and availability conflicts (including illness), and the need to seek paid employment (sometimes outside the community). The process by which trainees are selected appears to have more effect than worker characteristics on activity levels: those selected by village chiefs or prior to community orientation are reportedly subject to weak community support and low morale.

- CHWs' dependence on both the community and technical support systems makes them unusually vulnerable to post-project deficiencies. The more firmly these systems are established during project lifetimes, the more likely they are to be sustained. Expectations for complete community self-reliance after funding ends are almost certainly unrealistic.

- Although project managers generally believe that they know how active and effective community workers are, too little may be known in some cases about performance quality.

- Illiteracy does not appear to impede either CHW training or performance, but special arrangements may need to be made for the recording aspects of growth monitoring and for other routine reporting. Kisumu found that illiterate CHWs often failed to record children's weights but that linkage with schools significantly reduced the problem. The Mombasa project has found that illiterates can accurately report activities on pictorial forms.

Recommendations

➤ The objectives of community-based primary health care are likely to be most efficiently met through CHWs, though CHWs may not be essential in every programme and community. Projects should continue to emphasise CHW training and supervision but with certain revisions as suggested here in following items.

- Despite CHWs' effectiveness and importance, neither communities nor project staff should create unrealistic expectations lest disillusionment turn people away. It may be best to concentrate on quick payoff activities as an initial entry point.

- Flexibility and periodic reassessments are needed in defining CHW roles, both to respond to community preferences and to adapt to changing epidemiological and service delivery priorities. Certain tasks might be adapted to seasonal conditions, e.g., diarrhoea in the summer and ARI in the winter. Services such as immunization might be transferred to other competent agencies as project objectives are met. CHWs in specific localities may also prove ineffective or unacceptable for certain activities and should be relieved of these responsibilities.

- Greater attention should be given to the sustainability of CHWs after donor funding ends, especially with regard to mid-level technical support and worker incentives. Communities that have been led to believe that they are working in "partnership" with outside institutions are unlikely to continue their own support or to engage in future "partnerships" if the outside group simply withdraws when funding ends.

- Projects and communities should explore avenues for CHW recognition and non-monetary incentives for particularly skilled CHWs but avoid creating unrealistic expectations of employment or career advancement. Upgrading to supervisory or training positions may be possible in some cases. Communities and programme staff should seek non-monetary means for rewarding particularly competent or diligent CHWs.

- Ways should be found to bring CHWs together for their own local and regional meetings to exchange experiences and discuss common problems and solutions.

3.8 INFORMATION SYSTEMS

An Overview of AKHN Experience

Needs/Objectives

Programme designers recognised the need for strong management information systems in each of the programmes to provide management with data needed for planning and monitoring. Some of the PHC programmes had specific objectives regarding information systems. Dhaka, for example, had as one of its six strategic components the development of "a simplified information system appropriate for community-based health care." Bajju planned to develop a "state-of-the-art, computer-based MIS for health care" that would be a model for other PHC programmes. One of Junagadh's objectives was to "establish a simple health information system (HIS)...for local monitoring of the health status and needs of mothers and children...[and] for programme monitoring, management and evaluation purposes." Initially, these systems were set up to provide information on programme operations and effectiveness. Recently, several have begun to collect data to be used to assess costs, efficiency, and sustainability.

Service Strategies

Most of the PHC programmes developed information systems that were based on (1) family records, (2) CHW registers, and (3) a computerized management information system that combined data from records and registers supplemented by clinic activity reports, periodic surveys, external evaluations, special studies, staff reports, and other *ad hoc* information. Recently, almost all have added cost data to their systems, which is distinct from regular financial reporting of expenditures.

There are two areas where this general strategy has not been used. Some programmes—notably Karachi, Bajju, Junagadh, and Dhaka—based their systems on complete household registration to assess health needs, with regular updating of relevant information to monitor progress. Others (e.g., Kisumu, Mombasa, Northern Pakistan, and Bajju) relied on baseline surveys to assess needs and follow-up surveys to assess progress.

The other significant difference is that, in five of the programmes, the staff and consultants analyse the data to determine needs, set priorities, and monitor progress. In Kisumu, Mombasa, and Bajju the data are used to help the communities assess their own needs, set their own priorities, and monitor their progress. Recently, both Dhaka and Karachi have adopted this approach in new service areas.

The final common element in the strategy was that all programmes were to collect, process, and report data on 41 "standard" indicators*, which were to be used for the PHC analysis.

Outputs

The majority of the programmes now produce most of the following information on a regular basis:

**These indicators were developed by AKF in collaboration with AKHS, AKU, WHO, UNICEF, the Ford Foundation, and others.*

- CHW and Health Centre monthly activity reports
- Quarterly or semi-annual progress reports, including key outcome indicators
- Periodic internal and/or external evaluations.

In addition, several programmes regularly produce the following:

- Monthly or bi-monthly lists of high-risk women and children for follow-up by CHWs and Health Centre staff
- Quarterly updates of target population or household registration, including in and out migration
- Cost estimates (usually included in progress reports)
- Reports on special studies

Conclusions and Lessons Learned

The experience gained in developing and operating the PHC information systems could be characterised as "systematic trial and error" to some degree. Some of the lessons appear negative at first, but by continually refining their systems, several of the programmes have learned quite a bit about how to make their MIS more effective, efficient, and useful. Many also received technical assistance in designing and setting up their systems, and many conducted "information audits" as a result of attending workshops and seminars on information systems.

- Some **baseline surveys** were delayed, inadequately designed, implemented without sufficient quality control, and/or omitted key outcome indicators. This limited their utility for assessing needs, planning interventions and, especially, for assessing improvements at mid-term and final evaluations.
- The forty-one **standard indicators** actually numbered over one hundred forty data items. Although they include many very important indicators, there were too many of them for most programmes to handle. In addition, some of the indicators were not relevant to some programmes. Consequently, most programmes only collected and reported on a selected number. Recently, several PHC programmes, stimulated by the Workshop on MIS and Microcomputers in PHC, have examined ways to reduce the list to a more manageable number of core indicators that each programme could use to select its own minimal list of indicators.
- **HIS/MIS.** AKU-Urban began with a Health Information System, then changed it to a MIS as the orientation of the projects moved from an epidemiological to a management perspective. This was considered a useful change by programme staff.
- Generally, AKHN programmes have found that the MIS is most useful when indicators are selected to meet the specific needs of different users: managers, policy makers, communities, CHWs, supervisors, and donors. For example, CHWs and supervisors tend to be more interested in activity data that they can use to plan their work. Managers and donors are more interested in coverage, impact and cost data that they can use in developing strategies.
- In addition, most programmes found that the recording and reporting requirements were too onerous. Karachi found that health workers were spending up to 40 percent of their time on record-keeping and reporting. Several programmes, including Karachi and Dhaka, have taken steps to simplify the MIS by reducing the number of indicators, the frequency of data collection, and the frequency of tabulation and reporting. This has made the information collected more useful and significantly reduced the amount of time health staff spend on MIS activities.
- All AKHN programmes have found that it takes a long time to design, install, and "debug" information systems. Dhaka began in 1985 and only completed the system in mid-1988. It is still being refined. Karachi spent almost 2 years setting up its system. Some programmes have had trouble getting started. Bajju, Northern Pakistan, Junagadh, and Mombasa have experienced delays of a year or more due to the difficulty of recruiting qualified staff.
- Some CHWs, especially in rural and remote areas, have trouble keeping complete and accurate records, especially if they are older and illiterate. Mombasa has introduced an innovative "pictorial register" to deal with this problem. Vur introduced simplified, colour-coded records that require little writing. Kisumu and Bajju have tried to get students to help CHWs with record-keeping.
- Many of the programmes have found that it is possible, and useful, to involve the communities in the development and operation of the MIS. Communities have been involved in self-assessments, surveys, record keeping, and other forms of data collection.
- In those programmes where the community is extensively involved in the decision-making process,

a simple information system has been developed to provide information that is needed by the communities and CHWs. Surveys are carried out to meet the additional information needs of programme management. In other programmes, where community participation is less extensive, more sophisticated MISs have been developed.

- Needs assessment. Both Mombasa and Vur found that their baseline surveys demonstrated that an activity that had been planned was not needed. Both altered their plans and saved valuable resources as a result.

- Complete and periodically updated household registration is a valuable tool. It provides the capacity for continual surveillance, which is the key to identifying and focusing on those in need and at risk. Dhaka and Karachi, in particular, have demonstrated the value of this approach and have developed highly selective, but effective and efficient, computerized systems. Bajju and Junagadh have used similar manual systems, with good results. Both are computerizing their systems now.

- Although computers are highly valued in most programmes, there is a reluctance to computerize the entire MIS lest it "dehumanise" staff. Managers are especially concerned that CHWs not become "computer dependent" and, thus, lose their initiative and sense of responsibility for their caseloads.

- One of the most valuable tools used by several of the PHC programmes is the production of lists and maps showing the location of high-risk women and children who need special attention. This information is used by CHWs and others to identify service needs and to set priorities for work plans. This system has been an especially effective tool for supervision and can be credited with helping programmes in such places as Karachi and Dhaka achieve high coverage rates.

- Complete household registration may be more feasible in urban populations than in populated rural and remote areas. Regular updating of this information can be especially difficult. This may not be a problem if the target populations are concentrated in a small number of discrete clusters or villages—as in Bajju and Northern Pakistan—but it seems to be a significant problem where the population is widely dispersed—as in Kisumu, Mombasa, and Vur. Several programmes (Kisumu, Bajju, Mombasa, Junagadh, Vur) are using low-cost Rapid Surveys to periodically assess coverage and health status.

- Baseline (and other) surveys can be valuable tools for engaging communities in self-assessments of health needs, as experiences in Bajju, Kisumu, Mombasa, Baba Island, and Dhaka have shown. This approach can result in extensive delays in completing the surveys, however. In Bajju, the team collected its data in a village and then spent the next week discussing the findings with the community leaders to identify needs and set PHC priorities. It took 8 months to complete the field work. In Dhaka, community volunteers could not be relied upon to finish collecting assigned data, and the analysis was delayed for several months while the staff tried to recruit members from the community to participate in the analysis.

- Dhaka and Karachi investigate the cause of every death and every instance of a preventable disease. Karachi uses a formal death report. Dhaka uses an informal verbal autopsy. Both approaches have produced valuable information for identifying and correcting possible problems with the PHC service systems. In addition, the information often shows, for example, that the victim had not been immunized or had been delivered by an untrained TBA, etc. This type of information has an important educational value for communities, CHWs, and health workers, and is also useful for assessing programme impact.

- Most of the programmes have now attempted to collect and analyse cost data. Experience so far indicates that (1) it is relatively easy to produce estimates of total costs, total revenues (by source), and costs/target population; (2) it is difficult to estimate unit costs (e.g., cost/immunization); (3) cost data need to be collected and analysed for a full 12-month period to allow for seasonal and spending variations; and (4) most current accounting systems used by the programmes cannot be used to analyse programme costs because they are structured to generate expenditure (not cost) data.

- None of the programmes has conducted a cost-effectiveness analysis, and none is likely to be able to do so because of the technical requirements of this type of analysis. Special studies will probably be needed if this type of information is sought.

- Many (but not all) programmes do not have staff who are qualified and experienced enough to design and carry out surveys and research programmes. Thus, they have had to rely on consultants, some of whom also have had limited qualifications and experience, especially in PHC. This has resulted in some surveys that are of doubtful quality and limited utility. Some programmes (Bajju, Dhaka, Northern Pakistan) have tried to carry out surveys themselves, with encouraging results. It appears that, with adequate guidance (e.g., the PHC MAP Module on Community Rapid

Surveys), staff are able to design and conduct relatively high-quality surveys. More complex surveys and research programmes will probably still require consultant assistance.

- AKU is developing a computer model for assessing the causes of death and developing risk factors that could be used in surveillance and screening at PHC centres. This type of model could be useful to all PHC programmes if it were designed as an interactive, menu-driven programme.

- Most programmes have not paid enough attention to the assessment of the quality of PHC services. AKU has begun to develop and test instruments for this (in collaboration with PHC MAP), which could result in additional useful MIS tools.

- Formal evaluations have been conducted of each programme. Some have now had a mid-term and final evaluation. In almost all cases, the programme staff have found these evaluations helpful and have used them to improve their programmes.

- Several projects offer ancillary (non-PHC) services (income generation, literacy, child care) but have not yet modified their MIS to include those services. It is, therefore, difficult to monitor these activities and determine if they are effective.

- Each AKHN programme has computerized its MIS, at least partially. All have experienced some hardware, power, and software problems that have been difficult to fix because (1) the staff lack sufficient expertise and experience, and (2) parts and technical advice are in limited supply locally, and difficult, time-consuming, and expensive to import. The programmes have come up with a number of ways to deal with these problems. For example, Northern Pakistan has set up a back-up generator and batteries for its computers; and portable computers have been used instead of PCs since the back-up batteries of the PCs are used as a power source during power blackouts.

- Management and policy makers now rely heavily on the computer, since all data aggregation is done and performance indicators developed on the computer.

- One of the problems with the computerized MIS is that the databases become very large, and data processing then becomes very time-consuming. It can take Dhaka, for example, several hours to sort through its 90,000 records to produce a single 3-variable table. One PHC programme has found that this problem can be solved by breaking the databases down into sub-areas and processing them separately.

Recommendations

- An effective, well designed, computerized MIS that provides timely and accurate data for programme planning, operations, monitoring, and evaluation should be a part of each PHC programme.

- In designing an MIS, it is important to involve the users (community, CHWs, policy makers) in deciding what information should be collected and for what purpose.

- Service providers should only collect and aggregate information that will help them to monitor their own activities. Additional information needed by the policy makers should be collected through sample surveys.

- The MIS should be reviewed periodically with field workers and managers to identify changes that could make the system more efficient and useful, and to respond to changing needs.

- The CHWs and communities should not be computer dependent, as this will not be sustainable in most cases. The computer system should support the information needs of the supervisory, management, and policy-making levels. A manual system should be run for parallel use by the CHWs and communities.

- Complete household registration data, periodically updated, should be incorporated into the MIS to the extent possible. Family folders and CHW records should be updated continuously, but the computer files can be updated periodically.

- Carefully designed and executed baseline and follow-up surveys should be included in the MIS to enable managers to assess community needs and programme impact.

- Where community participation is a priority, the system should be designed to facilitate community involvement in data collection, analysis, and interpretation.

- The MIS should, to the extent possible, be designed to provide continual surveillance data on the target population so that people in need and at risk can be identified and served.

- The MIS should be designed to require the minimal data necessary for planning and monitoring. The number of indicators and the frequency of collection/reporting should be assessed periodically to keep the MIS at a minimal level.

- The "standard" indicators should not be required; rather, a comprehensive list of useful indicators should be provided to the PHC programmes so that they can select those that are most appropriate for their target audiences. The list should be revised to identify (1) the most important one or two indicators for each PHC intervention and programme activity, and (2) additional indicators that could be used periodically to gather more detailed data on each intervention.

- The MIS should include follow-up investigations of causes of death and immunizable and other preventable diseases.

- The MIS should include cost and revenue data. Unit cost and cost-effectiveness analyses should be done as special studies, if such are needed.

- The MIS should include tools for assessing and monitoring the quality of services provided.

- Outside evaluations are valuable and should be carried out periodically. For AKHN programmes, they should be partially standardised to ensure that they are comprehensive and comparable.

- A task force should be formed to identify the best MIS tools and procedures developed by AKHN programmes and then compile a manual that describes how to apply them to other PHC and community health programmes.

- Social indicators should be generated by the PHC programmes only if they are (1) related to objectives, and (2) useful.

- Where possible, the MIS should be structured to produce a simplified list of indicators for community use and a more specialised list for management use.

- Although the amount of time a CHW spends on record-keeping and reporting will vary according to the programme's requirements, two rules of thumb may be helpful: (1) CHWs should only collect data that will be useful to them in performing their job (other data needed by management can be collected in other ways); and (2) CHWs should spend about 15 percent of their time on record-keeping and reporting.

- Communities can be (and should be) involved in all phases (but not necessarily all of the technical activities) of data collection, processing, and interpretation of PHC data, especially if the data will be used to make decisions that affect them.

- It would be helpful to study how Rapid Surveys and other quick assessment techniques can be used to replace the more time-consuming, record-based MIS.

- PHC MAP modules should be made available to all AKHN programmes to help them improve and streamline their information systems. Orientation and training in their use should be provided as necessary.

3.9 COMMUNITY PARTICIPATION

Health professionals generally define a community as people living within a contiguous geographic area and sharing common interests and needs. Local residents, on the other hand, may think of their own community in terms of a particular gender, economic class, or religious or ethnic group. As will be seen below, most AKHN staff have defined community implicitly, in terms of geographic contiguity, rather than shared sense of identity, and at least a few have encountered problems because local residents have not always felt that key interests were shared.

Analysts employ differing definitions of participation, resulting in very different conclusions about its feasibility and results. This paper uses a definition suggested by the PHC team of Azam Basti in Karachi: "By community participation, we mean that people should be able to understand the problems of

In Gujarat, India, the Junagadh PHC Project's Child-to-Child activities use plays to teach important health messages and increase community awareness about local health services and activities. (Photo by Katherine Pfitzer Hinckley/AKF)

their area and work collectively for their cure by discussion, planning, financial and personal contribution; also utilisation of services and allowing the team to come into their homes is participation."

An Overview of Community Participation

Need

Essentially all programme staff agree on the need for community involvement in health activities and on the need for extensive participation in other development spheres. Communities' basic needs have not been met in most programme districts: water supply is both unclean and insufficient; employment and income-generating opportunities are limited; women are particularly deprived, and the poor lack political power; health and nutritional status is poor; and household knowledge and practices are inappropriate. Communities need substantial outside help to overcome these problems, but they also need internal capacity and self-confidence. There is a widespread feeling within AKHN that communities can make substantial improvements in their socio-economic conditions if given the opportunity to help themselves.

Some programme managers have seen community participation as an end in itself, with objectives and means determined by local residents rather than outsiders. Managers who believe in this "empowerment" approach see capacity-building and change in power structures as ends in their own right because they enable communities to manage problems of most types without resorting to outside help. Capacity development, moreover, may be focused on specific segments of the community such as women and other socially deprived groups. Other managers have taken a "facilitative" view of community participation, emphasising achievement of more limited health objectives and the partial relief of manpower and financial constraints to primary health care activities.

Though their ultimate objectives differ, proponents of both views look to the communities to assess and prioritise health and related needs; to select community workers and volunteers; to participate in planning, managing, and evaluating activities; and (sometimes) to provide financial and/or labour resources.

Staff who take the facilitative approach to community participation rarely deny the need for broader development; they simply refer these problems to other (perhaps more competent) organisations. A common compromise approach is to include income-generating activities within health programmes and to give communities as much choice in health priorities as they can, while nevertheless emphasising health outcomes as the principal concern.

Objectives

The majority of programmes have taken the facilitative approach to participation, seeking community management capacity primarily as a tool for refining and implementing health activities. Exceptions are the two Kenyan programmes, the Baba Island sub-programme area in Karachi, and Bajju. Given the difficulty of defining (let alone quantifying) participation, most programme designs have emphasised process rather than output targets. Programme staff in Kisumu, for example, aimed to establish dialogue between residents and staff, mobilise the public towards self-reliance, and motivate people to identify needs and plan ways of meeting them.

Strategy

As suggested above, programmes have taken differing approaches to programme design and implementation. In Junagadh, Karachi, and Dhaka, different approaches have even been taken within programme sub-areas.

In Kenya, Bajju, Northern Pakistan, and Vur (as well as in sub-areas of the above programmes), programme staff have generally delayed health interventions until the majority of residents (not simply the leaders) had been oriented, consulted, involved in priority selection and activity design, and, in some cases, asked to make a written and/or financial commitment. Kisumu staff, for example, spent 12 to 18 months visiting communities, meeting with leaders, and conducting community-wide workshops. They introduced primary health care concepts, solicited expressions of interest and priorities, and sought access, acceptance, and support for programme activities. In Baba Island (Karachi), programme staff worked closely with the Fishermen's Association and a students' union to define needs and determine public interest. In both Dhaka and Bajju, residents helped to collect and analyse baseline data, meeting in community sessions immediately afterward to assess their needs.

Planners in Northern Pakistan negotiated "terms of partnership" with communities, specifying the responsibilities of local groups and the programme. Villagers were generally asked to provide land, unskilled labour, and all local materials, the total value of which exceeded AKHS,P contributions. Kisumu communities desiring improved water supply or local drug stores must generate start-up capital, while individuals wanting latrines must also invest their own funds to receive matching assistance. Prior financial commitment was also required for programme assistance with latrines and biogas

Table 3-20. Community Organisations Which Have Worked with AKHN Programmes

Programme	New Groups	Existing Groups
Kisumu	Village health committees; CHW organisations	Women's groups; Schools, Churches
Mombasa		Women's groups; Schools; Churches
Vur	Village health and committees	
Northern Pakistan		Village organisations
Junagadh	Village health and development committees	Mahila Mandals (women's groups)
Bajju		Dairy cooperatives; Women's groups; Ex-addicts groups
Karachi	Community management teams	Community-based NGOs (fisherman's and student's associations in Baba Island)
Dhaka	Family-based committees in new area	

Source: Khan, Kauser. "PHC Analysis: (1) Community Health Workers; (2) Community Participation". Draft prepared for PHC Analysis Workshop, May 1991.

plants in Jonpur (Junagadh). The point of these cofinancing efforts was only partially financial; in many cases, the more important goal was to secure explicit community acceptance of responsibility.

In contrast to this approach, several programmes have opted for more immediate implementation, at least in part to achieve early health status improvements. In Dhaka, programme staff identified non-resident volunteers and then trained them to mobilise participation. The Aga Khan University in Karachi needed programme sites for student internships and took a somewhat top-down approach in its initial locations. In starting their work in Jonpur, Junagadh staff accepted responsibility for pre-existing government CHWs, by-passing community involvement in worker selection or definition of functions.

The process of generating community participation generally involved:

- Orientation of residents and solicitation of interests
- Selection and role definition for community health workers and volunteers.
- Periodic meetings to assess progress, conduct health education, and identify emerging needs
- Door-to-door household visits to record family health and demographic information, and monitor immunization and growth monitoring status
- Service utilisation and participation in self-help activities.

Some of these are described in other sections of this report. Programmes have worked with both newly created and existing community organisations, as shown in Table 3-20.

After initial contacts and, in many cases, a long waiting period for community response, the staff of most programmes conducted workshops or training for community residents to familiarise them with primary health care concepts and to identify more concrete expressions of participation. Staff in Kisumu, for example, conducted week-long workshops in essentially all participating communities. Mombasa staff, in addition to orienting local residents, also trained 54 chiefs, assistant chiefs, political leaders, counsellors, community nurses, and public health technicians. In Karachi, the PHC team conducted a pre-service training session for women who manage a local day care centre. Substantial training was also conducted for school health programmes and community self-assessments in Kenya and Dhaka.

Overview of Community Participation Outcomes

With one or two exceptions, most programmes have secured substantial facilitative participation in activity selection, design and management, and health education. Communities have also provided substantial voluntary labour and participated in self-help activities and have, in a few cases, made small financial contributions. (See Chapter 5, Sustainability.) The degree to which programmes have succeeded in empowering communities for self-initiated activities in areas other than health cannot be determined.

Considerable educational and motivational effort has been required to generate voluntary labour, especially of the on-going sort represented by community health workers, and success of community involvement may be measurable to some degree by the proportion of target area villages which have selected and retained active volunteers. As further discussed in Section 3.3, worker morale is greatly affected by community support or lack thereof, and dropout rates have been high in several programme areas.

Communities in most locations have helped themselves through group and individual voluntary labour, guided by programme personnel and village leaders. Group labour has been contributed for water supply and latrine construction, as well as for numerous intersectoral activities.

In most cases, existing organisations—or ones created at community rather than staff initiative—have contributed more to primary health care in these programmes than have specially created groups, though there is no evidence that this need always be true. Junagadh staff created Village Health and Development Committees (VHDCs) but found them to be preoccupied with non-health interests; more recently, staff have emphasised women's groups (some newly created) as the preferred vehicle for health participation. The Northern Pakistan programme worked with pre-existing (and generally well established) village organisations, largely based on the Ismaili community, and found this to be an important advantage. Both Bajju and Baba Island (Karachi) worked with cooperatives (milk producers in Bajju and fishermen in Baba Island). Kisumu and Mombasa staff have collaborated with women's groups, schools and churches, as well as with village health committees (staff initially encouraged formation of new health committees, but later found that those established on community initiative were much more active). Community Management Teams and Boards are being established in Karachi and family-based groups in Dhaka, but it is too early to be certain how well they will work.

Community participation in Dhaka is affected by the transient nature of slum populations—up to 20 percent of the population move in and out each year. It is not known whether AKHN's other major urban programme in Karachi is similarly affected.

Staff of at least two programmes found that domination of existing groups by men or the relatively wealthy impeded health activities. Rajastani communities (Bajju) were polarised by both caste and gender, making it difficult to reach the poor through the recognised village leadership. Bajju's effort to generate financial resources through a levy on milk sales failed because larger farmers refused to subsidise the poor. Programme staff eventually decided to explicitly exclude existing community leaders from their activities, to by-pass cooperatives and other powerful groups, and to work directly with women. The failed VHDCs in Junagadh were similarly dominated by men. In Vur, staff reportedly drank "many cups of tea" with village leaders before securing permission to talk with the poor.

The roles of community organisations have obviously varied from one programme site to another, but the lack of standardised descriptions makes it difficult to analyse the effects of this variation. The Community Board in Northern Pakistan (the senior management body representing all six programme regions) makes all hiring and firing decisions including those relating to the programme director; community representatives used to be appointed but are now directly selected by residents. Kisumu committees have raised start-up capital for water supply systems and revolving drug funds; committees in Northern Pakistan have set and enforced service fees. Community groups in Baba Island (Karachi), Chitravad (Junagadh), and many Kenyan locations are also particularly active.

School children and teachers provide valuable volunteer assistance in Kisumu, Mombasa, and Dhaka, and will do so soon in Junagadh. In Kisumu, where the programme is perhaps best developed, they help illiterate CHWs weigh children and record weights; they then monitor malnourished children to ensure compliance with nutritional advice and return weighing schedules. Participation in growth monitoring and the recording of weights improved markedly during 1990, as a result. Similar services are provided for immunizations. School children also report family illnesses. A 1990 study found school children to be more cost-effective health workers than CHWs, at least for a limited range of activities, though a combination of the two was better than either alone.

The true test of effective community participation and ownership can only occur after an outside organisation has left and transferred all management and support of community-based activities to local residents. Nevertheless, certain results are already clear.

Conclusions and Lessons Learned

- Most programme staff, while sympathising with community empowerment, have taken a slightly narrower facilitative approach to participation. They have supported participatory ideals verbally but have often had to shortcut them in practice due to time constraints and manpower shortages.
- Several programmes have been affected by differences between community expectations and

hopes and the reality of limited skills and financial resources. In response, some programme staff have tried to educate residents to take greater responsibility for health, while others have decided not to work in uninterested communities.

- Narrow health foci are inherently difficult in participatory programmes because laymen do not divide their world into "sectors" as professionals do. Community priorities are likely to emphasise routine water supply, transport, access to improved seeds, education, and curative health care rather than disease prevention and health promotion. Women have particular needs for basic literacy skills and direct access to income.

- The staff of most programmes have invested extensively in community education, in expectation of eventual health benefits and broader participation in programme planning, management, and financing. Staff in most programmes have encouraged residents to at least acquiesce in health interventions, while a few have required communities to demonstrate their commitment (often in financial terms) before initiating certain activities.

- The time required to generate these commitments is long, up to 2 years in some locations, sometimes giving the impression of delayed service delivery and morbidity/mortality reductions. Communities find it difficult to express their interests in primary health care because they are unfamiliar with it and doubtful of its benefits. A great deal of time must, therefore, be spent explaining and justifying activities before the first concrete step—usually CHW selection and training—can be undertaken. Anecdotal evidence from Kisumu, Junagadh, and other locations is that this "spadework" makes participation more spontaneous and perhaps eventually more sustainable. Donors, though, may be impatient for tangible results, making it desirable that better ways be found to measure progress toward participation.

- School children, in addition to learning about health, can help monitor siblings and mothers needing growth monitoring and immunization. They can also help illiterate CHWs to keep records. A Kisumu study found collaboration between schools and CHWs to be the most cost-effective team arrangement for basic preventive services.

- The readiness of local residents to participate in health activities—or even to consider themselves a community—varies from setting to setting, making uniform approaches or targets inappropriate. Traditional social distinctions and reluctance of better-off residents to share with the poor may be particular obstacles.

- Community financing schemes, including intersectoral income generation, have produced only marginal income so far, though they show some promise for revolving drug funds. Northern Pakistan's current experiments with community-mandated user fees bear particular watching.

- The successes, trials, and tribulations of mobilising public involvement have not been adequately documented, making it difficult for others to learn from the process.

- At least in some settings, women may be more effective health activists than men, making women's organisations the preferred vehicle for community participation in some cases.

Recommendations

- Programme staff should continue to emphasise community education and participation and to give communities increasing responsibility for activity planning, management, and financing. Donors should accept the time commitments needed to get this started but should, nevertheless, encourage measurable progress. Ways should be found to gradually scale up programme staffing and other inputs so that start-up costs are commensurate with community activity levels.

- In line with the above, field tests conducted under the PHC Management Advancement Programme should validate indicators of progress toward community participation and management.

- Communities also need to see tangible progress. Ways need to be found within a community-oriented approach to build confidence through immediately and demonstrably effective actions as an alternative to vague promises of future benefits.

- Programme staff should nurture partnerships between communities and outside government and NGO institutions. They should also plan for the long-term continuation of these partnerships. The responsibilities that should be shared for the long-term rest as much on outside institutions as on local residents. Technical and service delivery institutions should not expect to break their side of the partnership simply because donor funding ends.

ary Health Care Programme: Based in Gilgit and Chitral Districts
dispersed and decentralised programme in the Aga Khan Health
trained lady health visitors (LHVs) and community health nurse
ealth care services to women and children. (Photo by Jean-Luc F

THE IMPACT OF THE PROGRAMMES

Chapter 3 deals with the effectiveness of each of the nine components of the PHC analysis. As mentioned, **effectiveness** is defined in this report as the degree to which programme goals and objectives are achieved.

This chapter looks at the **overall impact** of the programmes on health and socio-economic developments. Impacts are defined herein as effects on people's health and, sometimes, socio-economic status that are a result of programme activities.

4.1 PROGRAMME IMPACT ON HEALTH AND SOCIO-ECONOMIC STATUS

Although it is difficult to document and verify changes in mortality and morbidity in the programme areas, the data that have been collected show a pattern that is consistently positive.

Mortality

> Infant mortality has declined significantly in almost every area where it has been measured over time. These declines are significant, often amounting to decreases of 50 percent in just a few years.

How much of this can be attributed to the PHC programmes is a question that cannot be answered definitively because control groups were not established. However, there is every indication that the programmes made a major contribution to the impressive reductions in these infant mortality rates. There is also some evidence that mortality has declined more rapidly in the programme areas (Dhaka and Kisumu, for example) than in neighbouring areas where no PHC services are offered. In addition, there are anecdotal reports from several programmes (Kisumu, Northern Pakistan, Dhaka, Vur) that communities have noted significant decreases in deaths due to diseases that the PHC programmes are addressing. Verbal autopsies in Dhaka and Karachi give further weight to this conclusion. Most of the PHC-preventable infant deaths (for example, from diarrhoea and tetanus) in these areas have resulted from mothers not availing themselves or their children of the PHC interventions.

Neo-natal mortality, however, may be a weak area. Some recent evaluations have pointed out that neonatal mortality probably accounts for 40 to 60 percent of infant mortality, and the proportion may be rising in some programme areas as mortality between 1 and 12 months of age is reduced.

Unfortunately, there are no data on **maternal mortality**, which is difficult to measure in any case, particularly in small populations. The few verbal autopsies that have been conducted, however, indicate that many of the maternal deaths have been

Table 4-1. Changes in Infant Mortality Rates

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	216*	140	125	109	125	104		-112
Dhaka		87		89	73	65	65	- 22
Karachi	95-170**				108	77	87	- 83
Vur			251*		114	92	75	-176
Northern Pakistan			155-169			85		-84
Baiju					217	128		-89
Mombasa				122				
Junagadh				116*				

See Appendix A. Data are based on Indicator 55 of Programme Data Sheets.
** Estimates unconfirmed; if baseline figure was over-estimated, the difference would be lower*
*** Baseline period 1984-1987*

due to the failure of mothers to use pre-natal care service protocols, especially for tetanus toxoid immunization, safe delivery, and child spacing by high-risk women.

Morbidity

Numerous indicators of morbidity are measured in the health centres, but few are assessed for the entire target population. Thus, overall changes in morbidity patterns are difficult to gauge. However, a key indicator of health is the nutritional status of young children. The following table on malnutrition (Table 4-2, which is also included above in Section 3.3 Growth Monitoring and Nutrition Education) gives some indication of improvement, although there are too many gaps to draw a firm conclusion. Also, as was explained in Section 3.3, the measurements used are not always the same or consistent. Still, there is some evidence that new approaches to growth monitoring, now being applied in Kisumu, Karachi, and Dhaka, are having a positive and definite effect on nutritional status.

Disability

Disability is not mentioned in any of the PHC goals or objectives, but it is implicit in the immunization (polio, measles) and nutrition (Vitamin A and iodine supplements) objectives. Also, two of the Karachi modules (Baba Island and Azam Basti) have begun rehabilitation services for handicapped children. There is every reason to believe that the programmes have had a significant impact on disability prevention. As was demonstrated in Section 3.1, the immunization programme is one of the most effective of the interventions the programmes have provided, and there is anecdotal evidence that such diseases as polio have practically disappeared in programme areas. Kisumu, for example, has not had a reported case of polio since 1988.

Fertility

For various cultural and socio-political reasons, the programmes did not set fertility objectives or give family planning services a high priority. Consequently, changes in fertility would probably not be attributed to the programmes. Although data on this topic are very limited, there have not been significant changes in the past few years. Total fertility rates have remained high in several programme areas (8.5 in Kisumu, 8.4 in Chitral, 7.4 in Gilgit, 5.2 in Junagadh) and are probably high in most other rural programmes. There may have been some significant declines in the urban areas of Dhaka and Karachi, but it would be difficult to attribute this to the programmes because interventions have been minimal. The crude birth rates show large declines in two areas, but these may be artifacts of small samples.

Socio-economic Development

There are fairly consistent findings from evaluation reports that many of the programmes have made an important contribution to community organisation (see Section 3.9 Community Participation). Although this is a means to achieve the larger end of improvements in social and economic status, there is little hard evidence, either quantitative or qualitative, that the programmes have yet had a measurable impact in these areas. So far, none of the programmes has a system to monitor changes in socio-economic status. However, URMUL has requested assistance in developing indicators of changes in education, literacy, income, and other related areas.

Summary: Overall Impact

> It appears that the PHC programmes have made a significant contribution to the reduction of infant mortality. As will be shown next, this is likely due to improvements in access to PHC, in provision of immunization for women and children, and in some improvements in maternal care (pre-natal, tetanus toxoid immunizations, and safe delivery, in particular). Some improvements are also noticeable in the use of ORT for home-based management of acute diarrhoea and in measures to control diarrhoeal disease.

Until very recently, growth monitoring and nutrition education, as well as family planning, do not seem to have been very effective. However, there is promise, and room for significant impact, in all programmes.

4.2 PROGRAMME EFFECTS ON ACCESS, COVERAGE, AND BEHAVIOUR

Access

Almost all of the programmes have improved access to basic health services. Many of the target populations had limited or no access before the programmes began. Now, practically everyone lives within 5 kilometres of a programme health centre or health

Table 4-2. Percentage of Children Malnourished (Low Weight-for-Age, II and III Degree Malnutrition)

Programme	1987	1988	1989	1990	Difference
Kisumu	20		32	22	+ 2
Dhaka		46		46	
Karachi		14	99		-5
Vuri		13	16	13	
Northern Pakistan				12	
Bajju		73-81			
Mombasa		35		32	-3
Junagadh			36	47	+11

See Appendix A. Data are based on Indicators 49-54 of Programme Data Sheets.

Table 4-3. Changes in Crude Birth Rates

Programme	1984	1985	1986	1987	1988	1989	1990	Difference
Kisumu	68		39	45	38	39		-29
Dhaka		25		26	24	25		
Karachi	41-44*				20	30	33	-9
Vuri			47			42	29	-18
Northern Pakistan			44-46					
Bajju					29		34	+5
Mombasa						53		
Junagadh				39				

See Appendix A. Data are based on Indicator 56 of Programme Data Sheets.
** Baseline period 1984-87, average = 42.*

worker. Visits by CHWs and other health workers are high in most areas. In Dhaka, 72 percent of targeted households had been visited within the last month, and in Karachi, 85 percent. In Kisumu, 40 percent of the households had been visited within the last quarter; in Bajju, 93 percent. Figures are not available for the other programmes, but recent assessments have concluded that most households have been visited, with the exception of those in Mombasa, which is still in a community mobilisation stage.

Immunization

This has been the most effective PHC component. All of the PHC programmes identified a need for immunization services and took steps to meet that need. With the exception of Mombasa, where coverage was already high, they all offered the full range of immunizations recommended by WHO/UNICEF, employed similar strategies that relied heavily on local CHWs to inform and motivate mothers to attend the immunization clinics, and demonstrated that coverage rates can be increased dramatically in relatively short periods of time.

Maternal Care

This was a priority service in all programmes because most of these services were deficient when the programmes began. CHWs did most of the case finding, backed up by the second- and third-tier medical services. Traditional birth attendants conducted many of the deliveries and were a special target for training in sterile techniques.

There has been a significant improvement in access to maternal care since the programmes began, but there is insufficient data to determine if identification and registration of pregnant women has improved. There has been a significant increase in TT immunizations. Most of the programmes have had a difficult time increasing the proportion of safe deliveries for two reasons: 1) many women return to their mother's home to deliver; and 2) untrained TBAs and relatives still conduct most of the deliveries.

There is little information about post-natal care, and family planning has been a low priority service in most programmes. Much remains to be done to improve the quality and coverage of maternal care ser-

vices, especially early enrollment of pregnant women in pre-natal care, safe delivery, and child spacing.

Oral Rehydration Therapy; Diarrhoea Disease Control; Water and Sanitation

Diarrhoea was (and remains) a common problem in all programme areas. Oral rehydration therapy was promoted as a way to prevent children with the disease from becoming dehydrated and dying as a result. Thus, the programmes emphasised education of mothers to recognise diarrhoea, mix oral rehydration solution properly, and administer it correctly to their children. All of the programmes also attempted to educate mothers about the causes of diarrhoea and how to prevent it.

Most observers believe that knowledge about diarrhoea, its causes, and how to prepare and use ORT to treat it are now well known by most mothers, and many know how to mix ORS correctly. CHWs and their supervisors deserve a good deal of the credit for these improvements.

About half of the programmes, notably Kisumu, Mombasa, and Northern Pakistan, and to a lesser degree, Vur and Junagadh, promoted the development of potable water sources and the construction of sanitary latrines. Between 1987 and 1989, there has been a significant increase in access to clean water in several places, especially Kisumu, Dhaka, and Vur, but (if baseline data are correct) a decline in Bajju. Access has probably also increased in Northern Pakistan and Junagadh over the past several years.

Construction of sanitary latrines (usually pit latrines or water-sealed privies) has been a priority area for only a few programmes, especially Kisumu. Most of the remaining programmes recognise the importance of sanitary facilities, but have emphasised education rather than construction. Sanitation remains an area in which much more needs to be done by most programmes.

Both cereal-based ORT and immunizations are highly effective PHC interventions with powerful impact on improving infant and child health. Two mothers in the AKU Urban PHC programme have made a rice-salt ORS and test its palatability on their children. (Photo by Jean-Luc Ray/AKF)

Growth Monitoring and Nutrition Education

Malnutrition among small children (and mothers) was a problem in all programme areas. Most of the programmes attempted to address this problem through combined interventions of growth monitoring and nutrition education, which also included education on breastfeeding and weaning practices.

The standard GM strategy was employed by most of the programmes. But there were problems with implementing this strategy effectively, and many programmes did not see the results they expected. Recently, three programmes (Dhaka, Karachi, and Kisumu) have experimented with two new strategies that seem to be overcoming most of the problems and which also seem to be having an effect on malnutrition. Kisumu is using schools and community and women's groups to reduce the dependency on CHWs. Dhaka and Karachi concentrate on identifying and monitoring "faltering" children, who are given intensive attention.

The impression that emerges from the available data and the recent changes in strategy are that several programmes have been able to increase the proportion of children weighed and the frequency of weighing. Those concentrating on high-risk cases have increased the frequency of weighing of those children. Encouraging signs from Dhaka, Kisumu, and Karachi indicate that nutritional status may show more improvement over time with the new strategies than the old ones.

Treatment of Common Diseases

All of the programmes offered a number of additional health services, from simple first aid to specialised interventions designed to address local diseases. Most programmes have health centres that provide simple diagnostic and curative care, and many have satellite and mobile clinics to extend some of these services out to the communities. Several programmes also have back-up hospitals for referral services.

In addition to these basic services, most programmes have added special interventions. Northern Pakistan has a programme to reduce the prevalence of goitre. Dhaka and Bajju run a Vitamin A pro-

gramme to prevent night blindness among children. Bajju also has special programmes for tuberculosis and opium addiction. Kisumu, Mombasa, and AKCHP (and soon Karachi and Junagadh) operate school health programmes. Programmes see students and teachers both as recipients of health care and as agents of change in their communities. Kisumu and Mombasa also pay special attention to scabies, parasites, schistosomiasis, anaemia, malaria, ARI, and other endemic diseases.

The back-up curative services at the health centres and hospitals are certainly important and appreciated. All of the programmes downplay these services to make sure that their major preventive and promotive PHC objectives remain dominant. Among the other community-based services, the most effective seem to be the administration of Vitamin A, school health, and ARI treatment (although much more needs to be done in ARI treatment). Most of the other interventions seem to have had a limited impact on health.

4.3 PROGRAMME EFFECTS ON DEVELOPMENT

Most of the programmes have put some effort into helping target communities organise themselves to increase self-reliance. Several programmes have also tried to promote literacy and education, income generation, and other activities. Although these areas are the subject of intensive soul searching among the programmes, there is little evidence so far that the efforts made to date have had any significant effect on health or socio-economic development.

Organising the community was a high priority objective for Kisumu, Bajju, Mombasa, and recently, Junagadh. It was not an objective of two programmes (Karachi, Vur), initially, but now all programmes are involved to one degree or another. The strategies used, the extent of community involvement, and the agents of change who participated varied across programmes.

The results have been mixed so far. The process can be very slow and labour intensive if the approach places priority on mobilising the community before starting PHC services. Advocates argue that this is necessary if the results are going to be sustained. Critics argue that this process results in unnecessary delays in the delivery of health services and that there are faster and more efficient ways to achieve health objectives while involving the communities in meaningful ways. The successes and failures of the various approaches taken to community organisation have not been adequately documented, making it difficult for others to learn from these processes and to assess them objectively.

What seems to have emerged to date is that community organisation can take many forms, ranging from setting up formal committees representing the entire community to establishing interested groups from within the community to take responsibility for selected aspects of PHC, and to identifying and mobilising individuals to become leaders, advocates, and/or role models. Each of these has its advantages and disadvantages, and the question of which is best probably depends on the context.

Education and Literacy

Several programmes attempted to provide literacy training for CHWs, TBAs, and women. Some also attempted to set up educational programmes for women and school-age children. The most successful has been the *Shiksha Karmi* programme, which replaces non-functioning (absent) primary school teachers with local teachers selected, trained, and supervised by Bajju staff. The Trust currently operates 14 primary schools in Lunkaransar and has been assigned the schools (at least 7) in the Bajju area. Enrollment and attendance have increased markedly because of this programme.

Literacy programmes for adults (for CHWs and members of women's groups) in Bajju and other programmes have not been particularly effective to date. Several have been closed.

Income Generation

All but three programmes have made forays into activities to generate income: Karachi, Kisumu, Bajju, Junagadh, and Mombasa. The income-generating programme is still in the developmental stage in most programmes. The most successful programme has been a Bajju wool spinning and weaving programme in Phalodi. Traditional weavers have worked together to develop a prospering, self-managed community organisation that is able to provide improved and stable incomes to the poor in the area.

Bajju also has a seed loan programme that appears successful. Initial loan repayment rates are an encouraging 75 to 80 percent. Most of the other income-generating activities in Bajju and other programmes have encountered a variety of obstacles that are still being addressed.

Community Development

Few other development activities were undertaken in the PHC programme areas. Biogas plants have been developed in 12 to 18 villages in Junagadh.

Major Conclusions and Lessons Learned

The following are the major lessons learned about the impact of the PHC programmes on health and the effects of the principal PHC interventions.

- The PHC programmes appear to have had an important impact on health, especially infant mortality, and, very recently, nutrition of children under age 5. Deaths, morbidity (or disability) due to diarrhoea, measles, polio, and other immunizable diseases seem to have declined.

- The programmes did a great deal to improve access to PHC. Most people in the target area now live close to a health centre or health worker, and most have been visited rocently by programme health workers.

- The most effective health intervention appears to have been immunizations for children aged 5 and under, and tetanus toxoid for pregnant women, followed by some improvements in maternal care (pre-natal care and safe deliveries, in addition to TT).

- Growth monitoring and nutrition education have been problematic interventions until recently. Recent changes in the GM strategy at three programmes appear to be having a positive effect on the nutritional status of young children.

- Child spacing and family planning have not received enough attention so far in most programmes. This may be changing in several areas, since CHWs and staff believe they have established enough rapport with high-risk women to discuss this sometimes delicate topic. The impact of not promoting this intervention more aggressively is clearly evident in both infant and maternal mortality and morbidity.

- The programmes appear to have had a significant effect on mothers' knowledge and use of ORT for the treatment of diarrhoea. This can probably be attributed to the efforts of the CHWs, backed up by effective training, supervision, and adequate supplies of ORS.

- There have been some improvements in diarrhoeal disease control, apparently due to improvements in potable water and sanitation hygiene, but much more remains to be done, since diarrhoea and other water-borne diseases continue to be major health problems.

- Development of safe water supply and sanitation facilities is an important PHC component, especially for prevention of water-borne disease. However, it is also expensive (especially water) and not always viewed as a responsibility of PHC programmes, especially in urban areas where municipal authorities are often responsible for water and sewage systems. As a result, water and sanitation are not always included in PHC programmes, even though water-borne diseases and diarrhoea may be significant health problems.

- Vitamin A has been shown to be a simple, safe, effective, and inexpensive intervention in two programmes.

- Local, endemic diseases have been more difficult to address, especially anaemia, malaria, and goitre, probably because they are difficult to control and cure.

- Diagnosis and treatment of acute respiratory infections have been introduced in several programmes with encouraging results. However, there is much remaining to be done in most of the programmes where ARI is a leading cause of morbidity and mortality among children.

- AIDS and sexually transmitted diseases (STD) have been neglected, probably because they are so politically and culturally sensitive.

- Neo-natal morality has taken on more importance as the programmes have started to have an impact on overall infant mortality. More will have to be done to reduce neo-natal mortality in the future if the infant mortality rate is to continue to be reduced.

Management Factors

Some management factors (such as good planning) led to programme success; others led to shortcomings. Similarly, some environmental factors (such as topography) fostered PHCs' effectiveness, while others hindered it. Some of the factors that probably account for similarities and differences in performance are as follows:

- One of the most important management factors is the existence of **effective organisation**. Community-based PHC programmes are likely to be more effective and to start providing services earlier if there are viable community organisations to work through (e.g., the village organisations in Northern Pakistan). Otherwise, a good deal of time has to be spent developing local organisations to assume PHC responsibilities.

- **A three-tier organisation and management structure** (which may soon become four tiers in Northern Pakistan) that was adopted by almost all programmes was especially effective in improving access to PHC. The most important elements appear to be the first two tiers: (1) CHWs who are resident in communities and (2) mid-level health professionals who provide regular supervision of CHWs and PHC services to community members.

- **The patient-oriented delivery system also made access easier.** Although the programmes all had static health facilities, the emphasis was on bringing the services to the people through (a) household visits, (b) mobile clinics/teams, and (c) satellite clinics held periodically in convenient locations.

- The programmes demonstrated that **high-tech medical services are not necessary for PHC to be effective.** The principal interventions of all programmes were education and motivation. Medical interventions were limited and usually simple (immunizations, tablets, ORS packets). Referral services, with high technology, are required, however. The scope of PHC services was quite similar among the programmes. They tended to offer a core set of MCH services (immunization, ORT, GM, pre-natal care, and health education on nutrition, sanitation, and family planning), supplemented with a small amount of curative care, drugs, and attention to locally endemic diseases. Thus, differences in performance are not likely attributable to differences in the scope of health services.

- **Effectiveness** appears to be greater where community demands and professional perceptions of priority needs come together (e.g., community demand for immunization in an area where coverage is low).

- Where community and professional perceptions do not mesh, programme staff have found that it is necessary to **devote considerable time to education and dialogue within the community** to stimulate a demand for activities which are known to be effective or to discourage pursuit of those that are known to be ineffective or unnecessary.

- **Programme emphasis on activities for which there is no demand is unlikely to bear fruit,** even if the activities are proven technically effective. Similarly, programme disregard for activities that are high priorities in the community is likely to have a negative effect on community acceptance of the programme. Programmes have found that it is helpful, therefore, to be able to respond to a variety of community needs, either directly or indirectly (by mobilising support from other agencies, for example). The network experience suggests that it is difficult to be appropriately responsive if the programme restricts itself rigidly to a pre-determined mix of services.

- **The best mix of services and priorities changes over time** as community problems and demands change, and as social, health, and other environmental parameters change.

- **Phasing of PHC interventions** (geographic area, the order of introduction of interventions, etc.) depends partly on technical, logistical, cultural, and other factors. But acceptance and coverage were greater where (1) the first services introduced were in demand, had a visible output, and could demonstrate a short-term impact and (2) services were introduced simultaneously to the entire target population.

- **Decentralised management improved performance.** Programmes have been able to respond to varied demands, problems, and opportunities better where day-to-day management decisions have been delegated to the field managers rather than taken by centralised boards and other policy makers.

- **Decentralisation is more important in programmes that are spread out over large rural areas** than in smaller urban areas where communication is faster and easier. Northern Pakistan, for example, was "forced" to decentralise because of its widespread field sites. The central office could not provide enough support to the sites to take responsibility for operational decisions.

- **Indicators are useful management tools,** as staff and volunteers tend to devote attention to achieving them. For example, if coverage is a priority indicator, staff will work to increase coverage.

- **Target setting improved performance.** Those programmes that set targets for their PHC interventions were likely to be more effective because they knew what they were trying to achieve. However, most programmes did not set targets for all of their key interventions. However, programmes found that they did better if targets were set at the local, rather than central, levels. Vur, for example, did not set targets at the central level. The field teams set their own targets. Targets for many programmes were specified in the proposals, before needs were assessed and priorities set with the communities. This approach was found to result in some unrealistic and irrelevant targets.

- **Micro-planning improved performance.** Immunization, pre-natal care, growth monitoring, and ORT follow-up were all done better where managers, supervisors, and CHWs did careful planning to identify the specific people in need of service, made sure they were contacted, and reported on results.

- **Useful management information improved performance.** The MIS—computerized and manual—has been identified repeatedly as one of the most important management tools for delivery of effective PHC services. MIS clearly has had a larger role and has been more effective in improving the performance of programmes that collected and utilised baseline, routine, survey, evaluation, cost, and other data. Those programmes that have not had adequate data, whether in general or for specific interventions, have had more difficulty in planning and monitoring. These difficulties, in turn, affect performance. As good as most of the data systems are, there are still important gaps in epidemiological and operational data. Important documentation of how interventions are carried out is also missing.

- **Supportive supervision improves performance.** Most programme managers and supervisors adopted a modern approach to supervision and stressed teamwork, continual learning, and mutual identification and resolution of problems. Those managers and supervisors who retained a hierarchical and authoritarian style were less successful because their subordinates were intimidated and reluctant to identify problems or propose solutions.

- **Continuing education/training improved performance.** Almost all staff required reorientation and/or training to become effective. Many CHWs, staff, and managers did not know enough about PHC, community organisation, management, and other key areas when they were hired to know how to function effectively. All of the programmes have emphasised staff training to build capability.

- **Coordination and collaboration with governmental organisations improved performance.** This was especially true of immunization, where governments usually provided vaccines, staff, vehicles, etc., and administered the immunizations. Coordination and collaboration also had the advantage of reducing costs, responsibilities, and workload of each organisation for the service provided. Even in areas where the government did not operate (e.g., Bajju), coordination led to political and bureaucratic support as the government saw the NGO as doing it as a service. All of this means that the agency can be more effective and efficient since it can achieve its objectives without having to bear all the costs.

- It is essential for the NGO and government to have similar views and similar priorities, or there is little chance of collaboration, much less expanded impact.

- **Community participation is essential for effective PHC.** This is a *sine qua non* in the PHC philosophy, and for good reason. The three-tier system cannot work well without CHWs who come from the communities. Programmes cannot be sustained without community support. Immunization services will not be effective without community mobilisation. The programmes have learned and applied many important lessons from their experience (which are summarised elsewhere).

Exogenous Factors

These factors, which are often acknowledged but overlooked by outsiders, are especially important for the performance of these PHC programmes. Although many are constraints on effective performance (e.g., lack of roads), there are also exogenous factors that facilitate effectiveness (pre-existing community organisations). An important lesson that has emerged from the collective experience of the programmes is that programmes can cope with exogenous factors better if they have (1) an effective means of "scanning the horizon" to recognise changes in the environment; and (2) the flexibility and willingness to adapt to changing conditions and opportunities.

- **Culture.** This may be one of the most important environmental factors. It affects the willingness and ability of communities, staff, politicians, and others to work together to make PHC effective. In Mombasa, for example, the concept of volunteerism is alien, while in Northern Pakistan it is an accepted norm. Effective staffing is affected by culture. All programmes have had problems recruiting productive CHWs, TBAs, mid-level health workers, and managers because of illiteracy, lack of education, sex-role stereotypes, cultural taboos, and ethnic/racial/caste discrimination. There is resistance to some PHC intervention (e.g., weighing babies, family planning) for the same reasons. Programmes have often coped with cultural variations in imaginative ways. For example, in Bajju and Kisumu, health education messages are conveyed through local songs and skits.

- **Health conditions and practices.** Variations in morbidity due to seasonal changes, epidemics, and migratory practices can effect the pro-

grammes ability to stick to a scheduled work plan and use scarce resources for planned PHC interventions. The local practice of medicine by traditional practitioners and faith-healing, etc., can also affect the acceptance and utilisation of "modern" PHC.

- **Physical environment.** Numerous geographic, climatic, and other environmental factors have had a great effect on performance. For example, Northern Pakistan operates in semi-accessible mountainous areas that are cut off during winter; Dhaka operates in a delta that is subject to severe floods every year; Bajju operates in a desert that is inhospitable and isolated. Access to PHC is highly dependent on this set of factors—easier in urban areas, more difficult in rural areas, very difficult in remote settings.

- **Politics.** Political support or opposition is very important for all programmes and affects everything from the initial design of the programme to its structure, staffing, financing, and evaluation. Some programmes spend a large amount of time working through or around local red tape, but as important are the politics within the implementing agency and the donors. As long as the PHC interventions and strategies are consonant with those of the influential bodies, everything goes smoothly. When they are not, there is potential for significant conflict, and PHC programmes rarely have enough clout to "buck the system." Politics can also erupt on a national scale, as they have in each programme country (Pakistan, India, Bangladesh, Kenya) almost every year.

- **Public policies.** A special case of the above is the degree of concordance between public policies and PHC programme policies. Examples of conflicts are government promotion of ORS packets vs. programme promotion of home-made solutions (SSS, cereal-based ORT) and government emphasis on clinical and curative services vs. programme emphasis on outreach and preventive services.

- **Economics.** Poverty is common to all programme areas but worse in some (e.g., Bajju) than others (e.g., Karimabad). Employment opportunities and income levels translate into take-home pay, which affects housing, clothing, food and all other essentials. This, of course, determines the starting point in a needs assessment and affects the likelihood of success.

- **Competing and complimentary interventions.** Obviously, these PHC programmes were not the only development activities going on in the areas. In some cases, other donors, the government, and NGOs were investing heavily in various development programmes. Those programmes could have helped or hindered improvements in health. In some cases, the programmes received support from multiple donors, which complicates the assessment of the programmes' impact and effectiveness.

- **Donors.** There is a natural tension between donor and grantee that usually stems from differences in objectives and target audiences. Donors are often interested in demonstrating short-term impact to justify their portfolios to their contributors; programmes are often interested in responding to local demands. Again, where there is concordance, this can be a mutually supportive relationship. Where there is not, there can be conflict.

- Often overlooked by the PHC programmes are the **positive effects donors have on performance.** In addition to funding, the donors to the AKHN programmes have provided training opportunities, access to expert advice, technical help in developing and refining services and management systems, continuing education (including advanced training), exposure to other PHC programmes and staff, and so forth. These benefits are often not available to the "typical" government PHC programme and should not be underestimated.

RECOMMENDATIONS

- Programmes should develop local capacity to monitor and respond to changing priorities at both the community and programme levels, through appropriate information and planning systems.

- Programmes should develop, to the extent possible, an attitude of regular enquiry, assessment, and analysis of ongoing activities and emerging problems, including collaboration with communities on locally appropriate investigation into the determinants of health and programme effectiveness.

- Where local capacity for microplanning, monitoring, and analysis is weak, programmes should include training to increase this capacity.

- Donors should not only accept, but encourage, a more flexible approach to planning and implementation that accommodates changing priorities.

- Donors should also adopt a more realistic view of the time required to establish PHC, achieve an impact, and make PHC self-sustaining. A 2-, 3-, even 5-year period of time is very short. Local conditions need to be taken into account and al-

lowances made for the time needed for each PHC component to become operational and effective.

- Programmes should develop collaborative and complementary relationships with government, which should go beyond sharing the costs of service provision. Programmes should look for opportunities to influence government policies, help strengthen capability, introduce innovations in management and service delivery, and work with communities to demonstrate how to work effectively with government.

Junagadh PHC Project, Gujarat, India:
PHC Project emphasises multi-sectoral and NGO/Governmental agency c
g improvements in health status. This young child is a beneficiary of the
activity in Junagadh. (Photo by Jean-Luc Ray/AKF)

THE SUSTAINABILITY OF THE PROGRAMMES

5.1 OVERVIEW OF SUSTAINABILITY

Sustainability and replicability are both aspects of extended project effects—beyond the time period and/or geographic area of donor funding. Sustainability specifically refers to the continuation over time of significant project outcomes, inputs, and processes, and replicability refers to extension of project models and findings to additional population groups or geographic areas. Together, they address the question of extended benefits: to what degree are the products of donor assistance likely to be useful for time periods and population groups not directly served.

The definition of sustainability should not be confused with individual project objectives regarding what is to be sustained or how sustainability will be achieved. To some persons, the only acceptable sustainability is one based on community self-reliance and total independence of help from external agencies. Other planners deliberately seek continued ties with outside technical bodies and are willing to accept a partial shift of project funding to new donors. Consensus about a definition is generally possible, whereas values about objectives and means are commonly influenced by local requirements and circumstances.

Needs

Most projects are only beginning to address the question of what is to be sustained. As shown in Figure 5-1, a clear distinction should be drawn between project goals (or outcomes) and the inputs, processes, and outputs (enabling factors) that may or may not be needed to sustain them. The distinction is critical because goals normally remain constant whereas enabling factors may shift over time as local circumstances and capacities change.

Most planners see their goal as continuation of mortality and morbidity reductions—either at the level achieved by project termination or at a certain rate of decline. Most sustainability strategies emphasise community self-management capacity or institutional sustainability as well, although for some these are goals in their own right and for others they are enabling factors that may be considered essential now but dispensed with later if more efficient means to the goal can be found. Money—the usual focus of sustainability discussions—is never more than an enabling factor (one among several), and its importance can often be reduced by cutting costs and/or finding alternative means to the desired end.

Enabling factors are themselves related in a hierarchical fashion, with some factors contributing to others. Projects aimed at sustained mortality reduction, for example, may require continuation of both managerial and service delivery processes, as illustrated in Figure 5-1. Maintenance of these processes, moreover, is likely to require sustained technical and managerial capacity at both the community and external agency level, and these in turn are likely to require both financial and technical resources.1. The term "project" in this chapter refers to the time period and activities funded by the donors while "programme" refers to a longer time period and a broader range of activities. This usage differs from other sections of the report.

The point of Figure 5-1 is not to suggest a definitive conceptual model of sustainability but rather to illustrate both the complexity of the problem and the hierarchical relationship among various project elements. Most sustainability strategies are based to some degree on:

- Community self-management of health problems, partially represented by community-based health workers
- Strong user demand
- Outside technical support for supervision, referral, management information, problem solving, and adaptation to new situations
- Partial service provision by continuing entities (especially the government and NGOs)
- Financing from community and other sources.

Management processes include planning, monitoring, evaluation, problem solving, supervision, training, other technical support, cost accounting, revenue generation, financial planning and management, and logistical support. The importance of sustaining specific service delivery and managerial processes in a given programme obviously depends on programme goals.

To continue essential processes, capacity must normally be established at both the institutional and community levels. Essential institutional needs are likely to include management information systems, training and supervision capacity, referral systems, inventory management and procurement procedures, and managerial commitment to project goals. Depending on the programme, the responsible institution or institutions may be a governmental body, an NGO, or perhaps some other private organisation.

Community capacity needs may include locally based educators and service providers, planning and management skills, understanding and demand for key services, acceptance of responsibility for certain activities, and financial capacity.

Finally, certain inputs will be required to maintain institutional and community capacity and resulting processes. These inputs commonly include technical resources, commodities, and money.

Complex as this model is, it still does not represent all the exogenous factors that threaten (or perhaps enhance) sustainability, that is, events or circumstances outside programme control but nevertheless critical to viability. In the modern world, these include political and economic change, drought and flood, environmental degradation, and war.

Health care service delivery processes that may need to be sustained occur at the community, first-line facility, and hospital levels and are likely to include health education, immunizations, growth monitoring, contraceptive distribution, pre-natal care, water and sanitation improvements, and, in some projects, income-generating and related developmental activities.

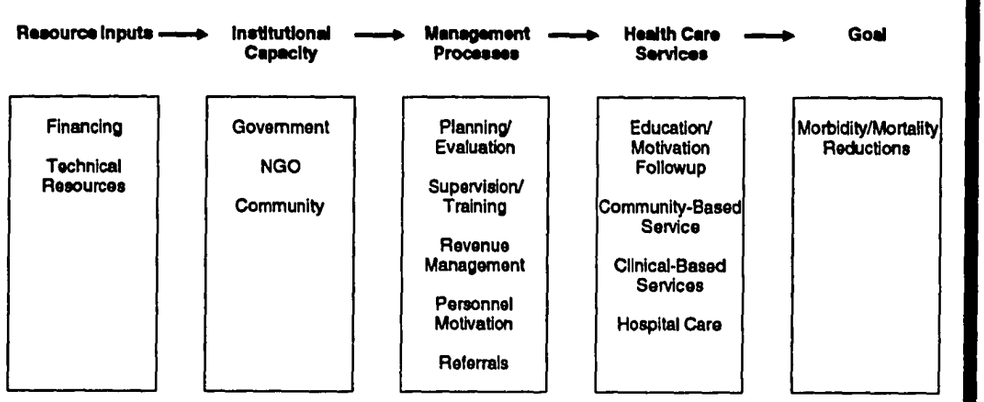
Goals and strategies. To achieve post-funding sustainability, projects need (1) a clear statement of the health and developmental outcomes that they wish to see continued after external funding ends, plus identification of the processes, capacities, and resources currently considered essential for these outcomes and (2) a plan for achieving outcomes, establishing processes, and creating capacity during the project lifetime. Few primary health care programmes, regardless of current funding source, have planned in this level of detail.

The projects considered in this analysis did not generally state sustainability goals in either original or renewal funding proposals. Clearly, though, most programme staff seek continuation of project benefits and service delivery systems, with some diminution in senior management and a gradual transfer of significant responsibilities to community groups and government health systems. Several also seek to empower communities to manage their own health problems (and sometimes other problems) in the future, using both village resources and those drawn from outside.

Staff of most programmes have now developed preliminary sustainability strategies, as illustrated in Appendix B. These strategies emphasise:

- Strengthening of community demand for PHC services and of a local capacity to plan, manage, and partially finance these services
- Dependence on the government (Kenya, Bajju) or other outside agency (Junagadh) for immunizations, growth monitoring, curative care (especially referral), and pre-natal care

Figure 5-1. What Is to be Sustained?



- A variety of financing schemes, including service fees, drug sales, income-generating activities, and cooperatives.

Figure 5-2 lists actions commonly taken to implement these strategies.

- The Dhaka programme, for example, is gradually reducing central staff and handing certain functions over to other NGOs. Subsidies for locally used equipment will be gradually reduced, from 75 percent in the first year to virtually nothing in the fourth, with community groups hopefully picking up the balance.

- Kisumu staff are bolstering communities' ability to manage both the participatory and technical aspects of activities through continuous consultations with local groups and development of community-based trainers to give CHWs ongoing technical guidance.

- Staff in Northern Pakistan, while emphasising NGO sustainability for technical support, have made considerable progress in examining community financing options, including the possible development of community endowments to generate funds for recurrent costs.

- Junagadh staff are looking to health centre surpluses as a possible source of recurrent cost financing. Community participation in activity initiation and management is increasingly sought.

Programme staff have emphasised strong community demand for PHC services as a lever that will force governments or other outside agencies to continue immunization, pre-natal, and other key activities. To develop demand, most programmes have sought to establish firmly the expectation that every child will be regularly weighed and immunized and that every pregnant woman will receive pre-natal care. Community health workers have gone door to door to educate mothers (most programmes); management information systems have been used to identify and help health workers remind specific parents of immunization and growth monitoring dates (Junagadh, Dhaka, and Bajju); and school children and their teachers have been taught to follow defaulters and those with special needs (Kenya). In addition to general orientation of village leaders, several projects have conducted skills training and other human resource development in an effort to ensure that local residents will be both willing and able to support certain activities after external support ends.

Many projects look to the government to assume long-term responsibility for facility-based services and certain technical support for community workers. To increase government interest, project designers in Kisumu and Mombasa involved government officials well before project initiation, getting their views of project components and, where possible, securing their commitment to pick up activities during and after the project lifetime. In Kisumu, the project limited its mobile services to areas where the government was clearly planning to build and staff permanent facilities. In both Indian sites, project staff had limited hope that the government would ever take over; as a result, in Junagadh the expectation is that the privately funded Aga Khan medical centres will cross-subsidise preventive services with fees from curative care, but in Bajju the project is simply giving the government 6 months notice of its intention to halt immunization service and then seeing what happens.

Projects in Northern Pakistan and Junagadh have stressed ties with other Aga Khan institutions for education and rural development as means to secure continuing support. This has been particularly useful for intersectoral activities, though this support, too, is likely to be phased out eventually.

Figure 5-2. What Projects do to Achieve Sustainability

Build linkages
- Collaborate with government
- Ascertain and respect community preferences
- Consult other development agencies

Develop capacity
- Train community members and managers
- Design management systems
- Develop MIS
- Develop adaptive problem solving capacity
- Assess ongoing costs before starting out

Generate demand for PHC activities
- Conduct demonstrably effective programmes
- Motivate and follow up users
- Measure and publicise impact
- Increase demand on government services

Gradually shift responsibilities for:
- Management functions
- Service delivery functions
- Financing

Maintain community/NGO/Government ties for:
- Technical reinforcement
- Special purpose financing
- Sharing experiences

Efforts to generate sustainable financing have included:

- Income-generating activities (Kisumu, Mombasa, Bajju)
- Drug sales by community health workers (Kisumu, Mombasa)
- Service fees for childbirth and curative care (Northern Pakistan, Junagadh, Dhaka, Kisumu, Mombasa)
- Cooperatives (Bajju, Junagadh)
- Fees for training of non-project personnel (Kisumu).

Income-generating activities in most locations have focused on women and have been primarily intended to increase personal income rather than health system support. There have also been discussions within the network (but so far no experience) of endowments, pre-paid health benefit schemes, and cross-subsidies from curative to preventive care.

Community-financed drug supply systems have been established in the two Kenyan projects and in Northern Pakistan. In Kisumu, 197 of 565 community health workers have generated community funds to purchase initial drug stocks and sell commodities at a roughly 10 percent markup. A similar scheme in Northern Pakistan produces a monthly surplus for CHWs of about $1, or half the average day's earnings for unskilled labour.

Active community involvement and management of local community-based PHC activities is crucial to the sustainability of PHC services and outcomes. Members of a village organisation in North Pakistan discuss how they can help build a health centre and support local health workers. (Photo by Pierre Claquin/AKF)

Service fees have been established in Northern Pakistan, Bajju, and at Aga Khan medical centres in Junagadh. Northern Pakistani TBAs receive an average of Rupees 50 ($2) per delivery, or 19 Rupees per month. Many village organisations have mandated fees for certain services, including deliveries, curative care in difficult locations, and even pre-natal care.

Bajju planners had hoped to use the revenue-generating potential of dairy cooperatives but was not able to do so. Junagadh hopes to revive cooperatives as a long-term financing strategy in its project area.

Communities and staff in Northern Pakistan are considering the option of building up a community health centre fund large enough so that interest from it could finance the health centre. AKHS,P would pay operational costs for 4 years while communities generated the estimated $55,000 to $60,000 in start-up capital that would be required.

The Kisumu programme charges non-project trainees a fee for attending its courses, though this is not intended to cover other programmatic costs.

Sustainability Outcomes

Efforts to involve the government in long-term service delivery appear to have been successful in Kisumu. The Ministry of Health and Kisumu Municipality have assumed responsibility for previously project-operated clinic sessions and plan to serve those now reached by mobile services, driven, at least in part, by obvious community demand. In Mombasa the government and the project shared immunization responsibilities from the start. Bajju staff are hoping that community demand will force the Rajastani government to continue immunization services after the project stops them, but this is not at all certain. (Project staff are prepared to resume responsibility if this stratagem does not work.)

Although community demand and managerial capacity, accompanied by government service provision, are essential elements in most sustainability strategies, almost every project will require at least some financing to maintain core inputs and activities. Only one project has thoroughly identified the cost of the inputs and activities that staff and communities wish to sustain.

Cost analyses have been undertaken for most programmes, but the methodologies employed have not

been comparable. Staff have been understandably reluctant to share cost data if the results imply that their programme is more expensive than others. Some analyses have included all project-related costs, but others have excluded such categories as overhead and other induced costs, international travel to attend seminars, and management costs. A few analyses classified costs into functional categories to determine what it costs now to finance all functions (e.g., research, system development) and to pull out operating costs for PHC services. Projects that broke their costs into functional categories could make more realistic and accurate projections of future operating costs than those that did not.

Most projects have found it difficult to compute total projected costs and unit costs of key services for this reason, and also because they have not included government, community, and other contributions (e.g., from other NGOs and donors). In effect, analysts have not calculated the underlying costs of either current or projected services. Unit cost estimates have often been misleading because they excluded costs borne by the government, community, and others.

Preliminary estimates for cost per capita, per target population member, and per beneficiary are available from several projects. Variations among projects and within projects over time are very large, raising both substantive and analytical questions about causes and about the types of costs included. Costs might be expected to decline over time as start-up costs diminish and coverage increases, yet all three of the Pakistani projects exhibit a contrary direction. Tenfold interproject differences appear and are also unexplained. It is also unclear to what extent these are the costs that will have to be covered from non-donor sources after external funding ends.

Financing

Experiments with revenue generation have not produced substantial income to date. Revolving drug funds have been self-sustaining in Kisumu, according to impressionistic evidence, but have not produced significant income for individual health workers. Evaluators in Northern Pakistan (as in numerous programmes elsewhere) doubted that drug profits would ever provide sufficient worker incentives. Health centres in Northern Pakistan now cover 15 percent of costs through service fees.

A few of the income-generating activities in Kisumu are now meeting costs and producing income for participants, but this has not so far contributed to health care.

Bajju's experiences in using milk levies cast doubt on these means of health care financing, at least in such impoverished and socially divided settings as Rajastan's. The URMUL Trust originally worked out agreements with individual cooperatives, whereby they would collect a small levy on each litre of milk and use it for health services. These agreements broke down almost immediately, however, as wealthy farmers with greater milk output realised that they were subsidising the poor. The population in general, moreover, was reluctant to have resources expended on anything except curative care. A fee-for-service system was instituted as a result.

Conclusions and Lessons Learned

As a largely future-oriented concept, sustainability cannot be objectively observed at this time and must be assessed with only limited knowledge of factors outside programme control. Projects can and should have strategies for achieving sustainability, but their ultimate effectiveness can only be judged after donor funding is significantly reduced.

No one expects these projects to look exactly the same after donor funding ends, and in any case, disappearance of project staff, activities, and other artifacts would not necessarily indicate a failure of sustainability. In some areas, NGOs are showing the way for other agencies or generating demand that may eventually be better served by community groups or individuals, the government, other NGOs, or even the private for-profit sector. Curative services may become less essential as preventive activities take hold, and even growth monitoring and other nutritional services may become less important as nutritional status improves. Some projects, moreover, may be considered justifiable as immediate service delivery activities, even if they are not sustained.

Sustainability is a critical concern for all primary health care activities, but especially for donor-initiated projects. Finance, the usually cited concern, may be less critical for sustainability than routine management, technical support, and worker morale. Not all threats are within programme control; political upheaval, economic downturns, and environmental degradation, to mention only a few, are unpredictable and uncontrollable. Programme staff have only partially clarified what they want to see in place, say, 5 years after donor funding is phased out, and only a few have assessed the financial and managerial resources that will be required.

Sustainability does not begin at a fixed point in time, nor does it end at some arbitrary day of judgment some time after donor funding is phased out. Rather, sustainability is a process—a gradual transition from certain financing and management sources to other, more local, sources for these inputs. Diversity of financial and managerial sources, both during and after project support, appears to be a key to success. The goals of a sustainability process usually do not change over time, but means may well shift even during a project's lifetime as local capacity develops and community circumstances change.

- **Communities' ability and willingness to initiate and manage activities** is widely considered critical to sustainability and is the first objective of most sustainability strategies in AKHN projects. Community independence from outside help is not an appropriate sustainability objective, however, because of the interlinked nature of PHC systems. Even trained and motivated community residents need access to referral services, technical updates, and supplies.

- **Governments** may be suitable partners for some programmes but have sometimes proven unreliable because of staff turnover and weak commitment. Prospects may be improved by early coordination and gradual transfer of responsibilities, but expectations need to be kept realistic.

- **NGO sustainability** is a valid concern except where the NGO plays a purely catalytic role (much less frequently than is usually assumed). Sustainability of even community-level activities appears more likely in areas such as Northern Pakistan where the NGO has a long and largely successful history.

- **The demand for quick health status improvements and the demand for sustainability may push projects in conflicting directions**, a problem that may be accentuated by the difficulty of measuring and hence evaluating such important intangibles as community participation and intersectoral collaboration. New projects need time to build their bases and work with local rather than outside resources and personnel. The time required to legitimise community entry may be much shorter than that needed to establish community self-management processes

- To date, **cost recovery mechanisms** have covered only a fraction of the current levels of expenditures (much less costs) of PHC programmes. Populations that have traditionally received free services find it particularly difficult to initiate user payments. Virtually no non-health income-generating activities have helped to offset PHC costs.

- **Private for-profit providers** have sustained themselves for centuries, yet so far offer little promise for sustaining primary health care interventions. Creative work will be needed to make effective use of private practitioner skills and resource generation potential so that they may contribute to sustainability.

- Projects appear more likely to be sustained if there are 1) **an existing community organisation** to work through, 2) four-tier organisation to provide **long-term technical support**, and 3) **"sister" NGOs to respond to non-health community needs.**

- **Management information systems** contribute to sustainability by identifying problems for quick resolution and by documenting project benefits to those sceptical about primary health care. There are two key audiences, with somewhat different needs: 1) community leaders and CHWs and 2) local NGOs and government units expected to take over project activities. Information systems aimed only at mid-level managers may only partly meet the needs of these audiences.

- Attempts to create **cross-subsidies** from middle class to poor population segments may require careful promotion in the former group to ensure commitment.

- Although firm evidence is lacking, **communities are probably more likely to sustain latrines, water supply systems, and drug kits** when they have been required to contribute to capital costs. This expression of commitment seems likely to lead to managerial as well as financial responsibility later on.

- **Equity** has not so far been an important issue in revenue generation efforts but is likely to become so as additional projects establish community-based drug supplies and service fees.

Recommendations

➤ Primary health care programmes should give the highest priority to actions to enhance sustainability, including clarification of objectives; identification and development of responsible community, government, and private agencies; and assessment and reduction of resource requirements. While very solid planning has occurred over the past year, more is needed and should be made as concrete and realistic as possible.

- Sustainability strategies for community-based programmes should emphasise community capacity building, but should nevertheless plan for long-term technical support, referral systems, and other elements of integration with the broader health care system. Strategies that consider only one system level or that are based on only one source of support are likely to fail. Cost-recovery strategies, in particular, should seek to link curative with preventive care and middle class populations with the poor.

- Programmes should be encouraged to spend the time needed to develop activities in a sustainable manner, using local resources and building on community and intersectoral commitments. "Quick fixes" to produce rapid mortality and fertility declines should be discouraged.

- Cost analyses should relate to institutional sustainability objectives. Projects should determine the functions to be sustained and compute these costs separately. Development, research, technical assistance, and other such costs should not be included in the analysis unless they are to be continued. For some, the meaningful costs are those related to tiers: what, for example, does it cost to set up and run a health centre, to support a field team?

- Costs should not be compared across projects unless identical and strict cost-effectiveness methodology is used. Otherwise the results will be inaccurate and misleading. This type of comparative analysis will probably require outside technical assistance.

- Income-generating activities, when included in project designs, should be directly linked to health programmes so that a portion of resulting revenue benefits these programmes.

- Management assessment tools now in development under the PHC Management Advancement Programme should include indicators of progress toward sustainability, including measures of planning, resource generation, and community and managerial capacity. These should include estimates of the value of volunteer labour as well as all service fees and drug charges paid by users. The PHC Management Advancement Programme (PHC MAP) should give high priority to sustainability as a key PHC issue.

- AKF should consider funding a workshop of about 1-week's duration to help project staff clarify sustainability goals and strategies and identify analytical and research questions. This workshop should present the results of cost reduction and financing experiences in AKHN and other primary health care projects and guide participants in the preparation of comprehensive project sustainability strategies.

- Cost constraints will become more severe as donor funding winds down, making early unit cost and cost-effectiveness analyses imperative. These should be standardised as much as possible across projects to facilitate comparison.

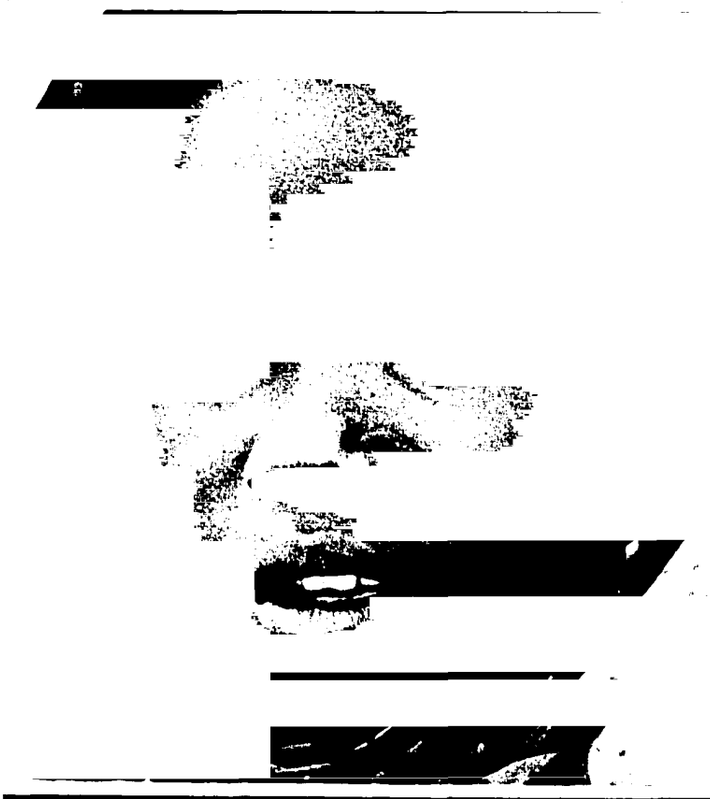
- Hospital and other facility resources should be drawn on wherever feasible to help sustain primary health care. Personnel can be encouraged to contribute their technical skills, and cross-subsidies from facility-based curative care may be possible in some cases. At the same time, hospitals must not be distracted from their primary missions.

- All efforts to generate innovative financing should be carefully documented, both quantitatively and qualitatively.

- The responsibilities of all parties to a sustainability plan should be spelled out in advance, preferably in writing. Replication of the "Terms of Partnership" developed in Northern Pakistan and Kenya should be considered.

- Managers seeking to develop community financing schemes should concentrate first on community demand and managerial capacity rather than on resource generation.

- Analyses of unit cost should include all costs of providing a service, not just the portion borne by the project. This is important for sustainability analysis because projections must be made of total costs, and not only of the project's portion (its expenditures).



Project, Kwale District, Mombasa, Kenya: A healthy Muslim child from K
ry of the Aga Khan Health Service, Kenya's second PHC project near Mon
strategy needs to sustain improvements in health status, as well as sust
isational support of community-based PHC activities. (Photo by Jean-Luc

CONCLUSION

The logic for primary health care has long been clear, but the reality of its implementation more problematic. The majority of morbidity and mortality among children under 5 in developing countries is due to environmental and behavioural factors. Most diagnoses are not complex: simple treatments often suffice, and prevention through community action and health education are seemingly easy. Doctors are not needed for most routine health concerns and even where available are often inappropriate for the community organisation and self-help tasks that are often the best way to prevent recurrence of common problems. The logic for primary health care is that health problems are best managed holistically, that remedial activities need to be community as well as facility based, and that prevention is less costly and more effective than curative care. The World Health Organization endorsed primary health care in 1978, and most international development agencies, including UNICEF, USAID, CIDA, and others have given it full support ever since.

The reality of implementation has rarely been as appealing as the logic, however, and some have begun to question whether PHC is, in fact, worth the effort required to establish and sustain it. The reality is that many "beneficiaries" are not interested in what they see as second-class health care, that health workers are often ineffective or thought to be so, that the supposed simplicity and low cost of PHC interventions is illusory, and that many activities and processes cease once donor attention and funding terminates. The fundamental causes of ill health are socio-economic and political, moreover, and some conclude from this that shorter term measures like primary health care have no benefits. Effectiveness and sustainability problems appear to be particularly acute in large government-managed programmes and in NGO-initiated activities after replication or takeover by government.

Some have responded to these undeniable problems by limiting efforts to a few highly effective interventions, even when communities have not seen them as priorities. Others have emphasised fully user-financed services and "privatisation" so that public resources are not used for what are seen as consumption goods rather than productive investments. The first approach effectively rejects the notion of autonomous community decision making and comprehensive health and economic development but does produce quick health benefits; the problem is that these benefits may not be sustainable. The second approach may do little for basic needs or for long-term health development. Few have been happy with the choice, but most have gone along while apparently waiting for a possibly new direction for the next decade.

The programmes discussed in this report have effectively rejected both the selective primary health care approach and the idea that only self-financed curative care should be developed. In seeking an alternative, several programmes have reverted to original PHC tenets, including broad-based community participation, self-help and use of local resources, intersectoral coordination, comprehensive health education, and inclusion of water supply and sanitation as basic PHC components. Others, while often more selective, have strengthened training and supervision and renewed emphasis on information systems. No programme has included all eight PHC components as identified at Alma Ata, but most have gone beyond narrow technological selection criteria to include activities especially desired by communities. The result has not been a new approach to primary health care as much as a more concerted effort to reach neglected populations and make certain ideas work better.

6.1 EFFECTIVENESS AND IMPACT

Based as they have been on significant community education and capacity building, it is not surprising that the programmes discussed in this report have been particularly effective at generating demand for such preventive/promotive services as growth monitoring and immunizations. To some degree, they have also increased use of pre-natal care though not so far of family planning.

These programmes have been eminently (but not universally) successful in reducing infant mortality rates and may have affected maternal mortality as well. The proximate causes of this mortality decline—and in fact its ultimate attribution to programme activities—cannot be determined, but greatly increased immunization coverage appears to be at least partly responsible. Some programmes seem to have reduced infant and child malnutrition, and this may, in turn, have reduced mortality. Fer-

tility does not appear to have been significantly decreased in any location, however, contributing to continuing maternal malnutrition and high neo-natal mortality.

Programmes, in brief, have had a significant impact—in some cases, in a very short time—but programme responsibility for this impact cannot be documented conclusively. Several programmes invested heavily in community health education and intersectoral activities, while others concentrated on direct service delivery, especially for immunizations and pre-natal care. In some cases, staff argue that the community capacity building approach or the service delivery approach are particularly responsible, but the number of programmes and their varying ages and circumstances prevent any scientific determination. It is similarly unclear whether these experiences resolve debates about PHC selectivity, though the suggestion is strong that enhanced immunization coverage deserves substantiel credit.

Concluding Recommendation 1

Programmes conclusively demonstrated the potential benefits of intensive community and service delivery efforts in small areas, yet not the relative costs and benefits of alternative approaches.

Both donors and host country governments should continue to invest in a variety of primary health care approaches, monitor costs and effects as closely as possible, yet not look excessively for short-term (and perhaps passing) results. The approach to be taken within a given area should be adjusted to local interests and resources, but with a preference for starting modestly and expanding activities only after initial ones have demonstrated their effectiveness.

Concluding Recommendation 2

AKHN should use the many skilled and innovative personnel working in its programmes to pioneer new approaches to primary health care organisation and financing, including closer links between facility and community-based services, and new ways to use community resources for health care. Innovation rather than mere replication of approaches tried elsewhere should be encouraged, especially in the areas of community organisation, use of CHWs and other change agents, the mix and scope of services, information systems and other management tools, and continuous quality improvement.

6.2 QUALITY CONTROL

The programmes described in this report have been characterised by unusual attention to quality, especially with regard to community-based education, individual motivation, the non-technical aspects of CHW performance, and management information systems. Programme personnel have represented some of the best in the field and have encouraged both their community and government colleagues to meet high standards as well. Individual trainers and supervisors have also paid great attention to the quality of worker technical performance, though this is less well documented. These inputs have been invaluable at a time when primary health care is being scrutinised for inadequate quality control measures.

Concluding Recommendation 3

While encouraging community self-help and autonomy, programmes must nevertheless take responsibility for the technical quality of PHC services and ensure that communities' trust in their CHWs is not misplaced. It is not disrespectful of communities for professionals to oversee worker performance and take action to improve quality when it is deficient. Good quality should be explicitly recognised, bad quality remedied, or *in extremis*, disciplined.

6.3 SUSTAINABILITY

Programmes have not neglected the supply side of primary health care services, but the community emphasis that contributes so significantly to demand creation may ultimately be less productive for this side of the equation. While the final evidence is not yet in, previous community-based groups have sustained simple supply systems (ORS, chloroquine, basic drugs, occasionally contraceptives) but not the more complex knowledge and practice changes needed for growth monitoring, oral rehydration therapy, and even pre-natal care referral. NGOs can take every possible measure to secure the *commitment* of established bodies to strengthen and expand the service supply side, and they can temporarily fill supply gaps; but NGOs ultimately have little lasting influence over either the government or the private sector.

Even effective activities should not be supported, of course, if their effects quickly disappear or if they are so dependent on non-local financial and technical resources that they collapse as soon as this support

is withdrawn. Practical experience and empirical evidence regarding sustainability are scarce and of questionable objectivity, yet attention to future possibilities appears critical at all stages of planning and implementation. Programme actions greatly influence the sustainability of community-based activities and mid- to peripheral-level managerial systems, but continued service delivery by government and other outside agencies depends heavily on factors beyond programme control. Comprehensive sustainability planning—a rarity in primary health care programmes—requires clarification of goals, means, and resources and an assessment of their current and future effectiveness.

6.4 THE DONOR ROLE

There is a natural tension between donor and grantee that usually stems from differences in objectives and target audiences. Donors are often interested in demonstrating short-term impact to justify their portfolios to their contributors; programmes are often interested in responding to local demands. Again, where there is concordance, this can be a mutually supportive relationship. Where there is not, there can be conflict.

Often overlooked by the PHC programmes are the positive effects donors have on performance. In addition to funding, the donors to the AKHN programmes have provided training opportunities, access to expert advice, technical help in developing and refining services and management systems, continuing education (including advanced training), exposure to other PHC programmes and staff, and so forth. These benefits are often not available to the "typical" government PHC programme and should not be underestimated.

6.5 PRIMARY HEALTH CARE ANALYSIS

The PHC Analysis reported herein illustrates the difficulties of comparative studies in a field so dependent on community events as primary health care. Field personnel *can* report data in a standardised format if so motivated and trained, but the significance of data for analysing progress and generalising findings depends crucially on programme circumstances. Justifiably proud of their achievements and dependent on donor funding, field personnel may be reluctant to discuss weaknesses and problems with often critical analysts and evaluators—even though problem sharing eventually promotes joint solution development.

Concluding Recommendation 4

AKHN should continue to promote internal information exchange regarding PHC problems and solutions, using newsletters, working groups, and in-house consultants.

Concluding Recommendation 5

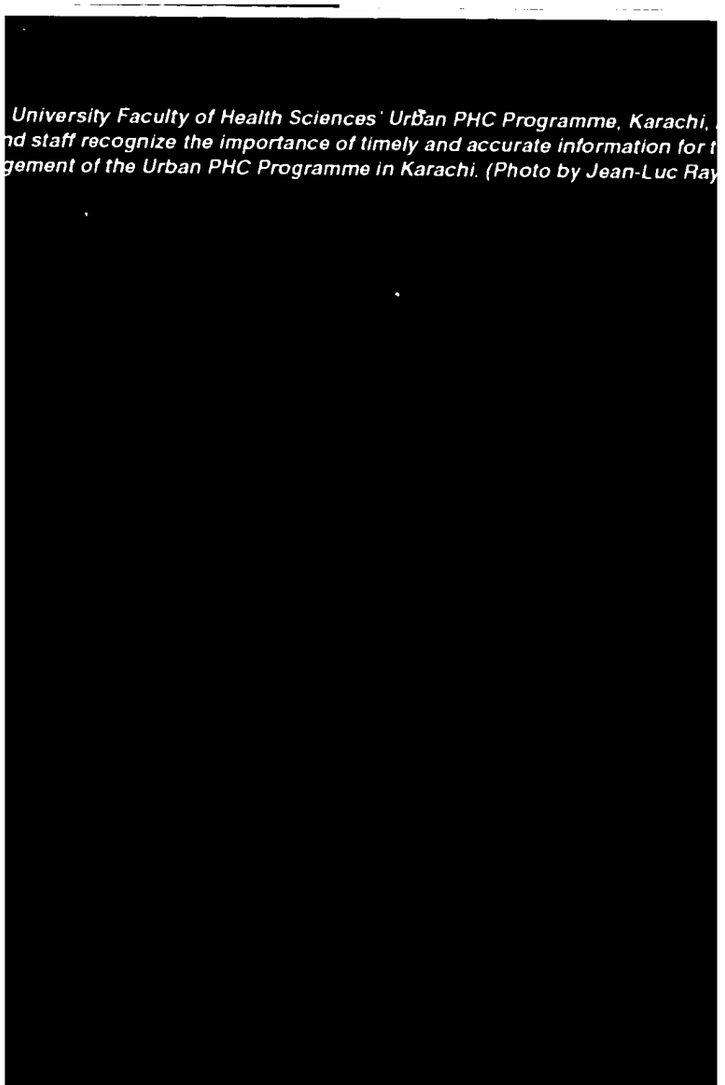
The AKHN should continue to collect both quantitative and qualitative data with a view to repeating the PHC analysis in approximately 3 years.

6.6 THE WAY FORWARD

There is much left to learn about primary health care: how to assemble and implement effective service delivery strategies, how to inculcate community acceptance for unfamiliar services and responsibility for certain functions, how to ensure continuing resource provision and managerial competence, and how to put quality into the sometimes hollow shell of "structure."

These are not simple questions, nor ones that can be answered in one place and time through massive research and demonstration projects. Rather, they will require careful monitoring and often quantitative measurement, from routinely operating programmes worldwide.

They will also require continuous analytical planning and problem solving, constant adaptation to changing circumstances, and a willingness to see communities as equal, though differently skilled, partners in endeavours to improve access and change behaviour. The eight programmes discussed in this report have collectively made important contributions to this body of practical knowledge.



University Faculty of Health Sciences' Urban PHC Programme, Karachi,
nd staff recognize the importance of timely and accurate information for t
gement of the Urban PHC Programme in Karachi. (Photo by Jean-Luc Ray

Kisumu, June 1991

	B 1984	1985	1986	1987	1988	1989	1990	1991	
									TARGET POPULATION
1	51137	54221	55883	59384	60996		63500		Total Population
2	12175	12650			13485				Total Households
3		10990	11354	12065	12389				Women 15-45 years
4		10082	10255	10555	11188				Children under 5 years
5									Children under 2 years
									AVAILABILITY OF HEALTH CARE
6		417	172	176		99			Population per trained CHW
7		713	490	1142		108[b]			Population per trained TBA
8									Population per health centre
9						31			Households per active[a] CHW
10						28			Women 15-45 per active[a] CHW
11						25			Children < 5 per active[a] CHW
12						100.0			% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13									Aware of available Maternal and Child Health services
14									Aware of available Family Planning services
15									Aware of available Immunization services
16									Aware of available Medical Care services
17				71.3		77.0			Who know CHW by name
18						39.0			Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19	89.0								Percentage of pregnant women who receive pre-natal care at least once
20	3.5			3.7		4.0			Average number of pre-natal contacts per pregnancy
21	58.0			77.0		81.0			Percentage of pregnant women delivered by trained attendant
22				53.8[c]		62.8[c]			Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23	45.6			56.4		65.3			Percentage who know at least one method of FP
24	7.0					12.7			Percentage using FP
25	2.6					11.0	6-11		Percentage using a modern FP method
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26									6 months
27	91.0					98.6			12 months
28									18 months
29	83.0					74.8			24 months or longer
30						9.5			Percentage of mothers starting supplemental foods to infants by age 4-6 months
									Percentage of children under 5 weighed at least:
31						55-60		70.0	once per year
32									twice per year
33									thrice per year
34					26.5	16.6		78.0	four times per year

Kisumu, June 1991 (continued)

	B 1984	1985	1986	1987	1988	1989	1990	1991	
									IMMUNIZATION
35	22.0			61.1		88.2	87.2		Percentage of children < 5 with immunization cards
36				19.6		45.1			Percentage of women who know right age for measles immunization
37							90.3		Percentage of mothers who know next date for immunization
38									Percentage of children < 5 with at least 1 immunization
39									Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40	11.0			37.3		60.1	72.7		fully immunized with BCG, DPT, measles, and polio vaccines
41				54.4		36.8			partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42	12.0			37.5		61.5	77.7		fully immunized with BCG, DPT, measles, and polio vaccines (age 2-5)
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44	16.0			16.8		44.8	44.4		Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45	80.0			87.5		89.7	61-78		Percentage of population who regularly use water-seal privies or pit latrines
46				29.5		43.8			Percentage of mothers who know how to properly prepare and give ORT
47	6-31			22-31	29	22-31	75.7		Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48									Percentage of newborns with low birth weight
									Percentage of children who are low weight for age:
49				19.5		31.6	21.5		Total under 5
50									< 12 months
51							44.6		=> 12 months < 24 months
52							46.9		=> 24 months < 36 months
53							11.8		=> 36 months < 48 months
54							38.7		=> 48 months < 60 months
55	216.0	139.9	124.7	108.9	124.8	104.2			Infant mortality rate
56	68.3		39.3	44.6	38.4	39.2			Crude birth rate
57	18.2		17.2	15.9	16.2	15.1			Crude death rate
58	8.8		6.1	8.6	8.5	8.5			Total fertility rate
									COSTS (K Shillings)
59			48.0	96.0	112.0				Cost per capita
60			124.0	248.0	290.0				Cost per target population
61									Cost per beneficiary

Notes – a: The project classifies CHWs and TBAs as trained and active. b: Per women 16-49 per trained TBA. c: 2 doses of TT; coverage for 1 dose of TT = 1987 - 82.0, 1989 - 76.9.

Dhaka, June 1991

	1984	B 1985	1986	1987	MID 1988	1989	FIN 1990	1991	
									TARGET POPULATION
1					59134	62100	60334		Total Population
2					9963		14500		Total Households
3					16351	17520	16846		Women 15-49 years
4					17925	8162	7467		Children under 5 years
5						3325	2861		Children under 2 years
									AVAILABILITY OF HEALTH CARE
6					3000		3000		Population per CHW
7					1879		579		Population per trained TBA
8									Population per health centre
9					383		600		Households per CHW
10					630		860		Women 15-49 per CHW
11					305		390		Children < 5 per CHW
12					100.0		100.0		% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-49 years:
13		7.4			77.4		99.9		Aware of available Maternal and Child Health services
14							7.5		Aware of available Family Planning Services
15		9.6			70.2		86.2		Aware of available Immunization services
16		7.2			42.6		64.8		Aware of available Medical Care services
17							25.2		Who know CHW by name
18							64.5		Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19		55.3			74.2		72.4		Percentage of pregnant women who receive pre-natal care at least once
20					4.2		3.4		Average number of pre-natal contacts per pregnancy
21					33.7		56.4		Percentage of pregnant women delivered by trained attendant
22		27.8		48[a]	37.2[a]	64.9[a]	65.1[a]		Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24					53.5		58.2		Percentage using FP
25					46.0		50.7		Percentage using a modern FP method
									NUTRITION PROMOTION
					75.2		67.4		Percentage of mothers breast-feeding babies up to the age of:
26					68.6		39.1		6 months
27					17.6		32.8		6-11 months
28					4.0		18.7		12+ months
29									
30					44.2		55.4		Percentage of mothers starting supplemental foods to infants by age 4-6 months
					13.5		51.6		Percentage of children under 3 weighed at least:
31									once per year
32									twice per year
33									thrice per year
34									four times per year

Dhaka, June 1991 (continued)

	1984	B 1985	1986	1987	MID 1988	1989	FIN 1990	1991	
									IMMUNIZATION
35									Percentage of children < 5 with immunization cards
36									Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38									Percentage of children < 5 with at least 1 immunization
39					33.7		74.0		Percentage of children 12-23 months with at least 1 immunization
									Percentage of children < 2 who are:
40		6.0	6.0		24.2	49.3	42.9		fully immunized with BCG, DPT, measles, and polio vaccines
41					33.7		31.1		partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42									fully immunized with BCG, DPT, measles, and polio vaccines
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44		29[b]			41.3[b]		50.4[b]		Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45									Percentage of population who regularly use water-seal privies or pit latrines
46					81.5		95.5		Percentage of mothers who know how to properly prepare and give ORT
47					90.4		90.7		Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48									Percentage of newborns with low birth weight
									Percentage of children who are low weight for age:
49					46.4		46.2		Total under 3
50					27.6		31.0		< 12 months
51					47.1		46.4		= > 12 months < 24 months
52					60.0		45.1		= > 24 months < 36 months
53					46.7		53.8		= > 36 months < 48 months
54					54.5		57.4		= > 48 months < 60 months
55		87.0		89.0	73.0	65.0	65.0		Infant mortality rate
56		24.9		28.0	24.0	25.0			Crude birth rate
57				5.0	4.0	4.0			Crude death rate
58									Total fertility rate
									COSTS
59						1.88			Cost per capita
60						4.54			Cost per target population
61						4.13			Cost per beneficiary

Notes -- a: Data for 1988, 1989, 1990 from Progress Reports of January - September 1988, October 1988 - September 1989, October 1989 - March 1990, and April - September 1990. Survey data show 48.3 in 1988, 60.6 in 1990. Percent of all women 15-49 immunized was 41.6 in 1988; 64.1 in 1990. Percent of all mothers who ever received TT was 80.4 in 1988, and 92.4 in 1990. b: % of poulation drinking boiled water. Sources: The Aga Khan Community Health Programme, Mid-Term Survey, 1988; Selected data from final report on Community Baseline Survey, December 1986; Progress Report, April-September 1990; and The Aga Kan Community Health Programme, Final Survey, November 1990.

Karachi[a], June 1991

	1984	1985	1986	1987	B 1988	1989	1990	1991	
									TARGET POPULATION
1				23783	43321	45362	46704		Total Population
2					6946	7513	7568		Total Households (families)
3					5904	6661	6505		Married women 15-45 years
4				2682	7635	8271	7998		Children under 5 years
5							4925		Children under 2 years
									AVAILABILITY OF HEALTH CARE
6				1321	963	810	631		Population per CHW
7						889	916		Population per trained TBA
8					8664	9072	9341		Population per health centre
9									Families per CHW
10					131	119	88		Married women per CHW
11				149	170	148	108		Children < 5 per CHW
12				100.0	100.0	100.0	100.0		% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13									Aware of available Maternal and Child Health services
14									Aware of available Family Planning Services
15									Aware of available Immunization services
16									Aware of available Medical Care services
17									Who know CHW by name
18									Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19							56[a]		Percentage of pregnant women who receive pre-natal care at least once
20									Average number of pre-natal contacts per pregnancy
21									Percentage of pregnant women delivered by trained attendant
22						71.9	80.0		Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24						16.6	18.0		Percentage using FP
25									Percentage using a modern FP method
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26									6 months
27									12 months
28									18 months
29									24 months or longer
30									Percentage of mothers starting supplemental foods to infants by age 4-6 months
					93.0	83.0	68.0		Percentage of children under 2 weighed at least:
31									once per year
32									twice per year
33									thrice per year
34									four times per year

Karachi*, June 1991 (continued)

	1984	1985	1986	1987	B 1988	1989	1990	1991	
									IMMUNIZATION
35									Percentage of children < 5 with immunization cards
36									Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38			64.0	80.8	92.0	92.0	95.0		Percentage of children < 5 with at least 1 immunization
39									Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40									fully immunized with BCG, DPT, measles, and polio vaccines
41									partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children < 5 who are:
42			4.0	7.8	63.0	71.0	70.0		fully immunized with BCG, DPT, measles, and polio vaccines
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44						63[b]			Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45						61[c]			Percentage of population who regularly use water-seal privies or pit latrines
46									Percentage of mothers who know how to properly prepare and give ORT
47						93.0	90.0		Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48									Percentage of newborns with low birth weight
									Percentage of children who are low weight for age, Grade II & III:
49					13.5	9.4	8.5		Total under 5,
50									< 12 months
51									=> 12 months < 24 months
52									=> 24 months < 36 months
53									=> 36 months < 48 months
54									=> 48 months < 60 months
55					108.4	76.5	87.0		Infant mortality rate
56					19.8	30.2	33.0		Crude birth rate
57					6.8	5.6	8.0		Crude death rate
58									Total fertility rate
									COSTS (Incurred by AKU)
59					70.0	64.0	74.0		Cost per capita
60						167.0	232.0		Cost per target population
61									Cost per beneficiary

*Notes -- *: Does not include Baba Island or Karimabad colony. a: Does not include Baba Island, Orangi or Karimabad colony. b: Access to clean water supply. c: Access to water-seal privies or pit latrines.*

Vur, June 1991

	1984	1985	B 1986	1987	1988	1989	1990	1991	
									TARGET POPULATION
1			12570	8379	8990	9300	9727		Total Population
2			2250						Total Households
3			2080						Women 15-49 years
4			3394						Children under 5 years
5									Children under 2 years
									AVAILABILITY OF HEALTH CARE
6							184		Population per CHW
7									Population per trained TBA
8									Population per health centre
9									Households per CHW
10									Women 15-49 per CHW
11									Children < 5 per CHW
12							100.0		% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-49 years:
13			60.1						Aware of available Maternal and Child Health services
14			12.3						Aware of available Family Planning Services
15			55.9						Aware of available Immunization services
16			84.6						Aware of available Medical Care services
17									Who know CHW by name
18									Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19			27.0			73.0	75.0		Percentage of pregnant women who receive pre-natal care at least once
20									Average number of pre-natal contacts per pregnancy
21			15.0		52.0	53.0	57.0		Percentage of pregnant women delivered by trained attendant
22			7.3		90.0	90.0	89.0		Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24									Percentage using FP
25									Percentage using a modern FP method
									NUTRITION PROMOTION
			58.0		88.0	85.0	92.0		Percentage of mothers breast-feeding babies up to the age of:
26						100.0	100.0		6 months
27					98.0	94.0	100.0		9-12 months
28						92.0	100.0		12-18 months
29					73.0[a]	88.0	92.0		18-24 months or longer
30									Percentage of mothers starting supplemental foods to infants by age 4-6 months
							67.0[b]		Percentage of children under 2 weighed at least:
31									once per year
32									twice per year
33									thrice per year
34									four times per year

Vur, June 1991 (continued)

	1984	1985	B 1986	1987	1988	1989	1990	1991	
									IMMUNIZATION
35									Percentage of children < 5 with immunization cards
36									Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38									Percentage of children < 5 with at least 1 immunization
39									Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40					14.0	36.0	49.6[c]		fully immunized with BCG, DPT, measles, and polio vaccines
41									partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42					40.0				fully immunized with BCG, DPT, measles, and polio vaccines
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44				33.0			[c]1.0		Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45				14.0			14.0		Percentage of population with access to regular use of water-seal privies or pit latrines
46			14.2						Percentage of mothers who know how to properly prepare and give ORT
47					71.4				Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48					8.2				Percentage of newborns with low birth weight
									Percentage of children who are low weight for age, Grades II & III:
49					13.0	15.0	13.0		Total
50					38.0	25.0	17.7		< 12 months
51					40.0	41.0	13.8		= > 12 months < 24 months
52					42.0	38.0	12.7		= > 24 months < 36 months
53							9.7		= > 36 months < 48 months
54							10.7		= > 48 months < 60 months
55			170[a]		114.0	92.0	75.0		Infant mortality rate
56			47.0			42.0	29.0		Crude birth rate
57			23.0			9.0	6.5		Crude death rate
58									Total fertility rate
									COSTS
59									Cost per capita
60									Cost per target population
61									Cost per beneficiary

Notes – a: 1988 reflects 24 months or longer. b: Percent of children under 5 registered and weighed last quarter. c: 1990 = 68.9% of registered population.

Northern Pakistan, June 1991

	1984	1985	G 1986	C 1987	1988	1989	F 1990	1991	
									TARGET POPULATION
1							340	340	Total Population (000)
2							8529		Total Households (Reflects # of families)
3									Women 15-45 years
4							9642		Children under 5 years
5							3960		Children under 2 years
									AVAILABILITY OF HEALTH CARE
6							874[a]		Population per CHW (389 CHWs)
7							1471[a]		Population per trained TBA (231 TBAs)
8							10303		Population per health centre (33 health centres)
9									Households per CHW
10									Women 15-45 per CHW
11									Children < 5 per CHW
12							40-50		% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13			42.1						Aware of available Maternal and Child Health services
14									Aware of available Family Planning Services
15			47.9						Aware of available Immunization services
16			51.1						Aware of available Medical Care services
17									Who know CHW by name
18									Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19			47.8	11.4					Percentage of pregnant women who receive pre-natal care at least once
20									Average number of pre-natal contacts per pregnancy
21			17.4				25-50		Percentage of pregnant women delivered by trained attendant
22			18.9				54.7[b]		Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24									Percentage using FP
25									Percentage using a modern FP method
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26			16.4	98.6			95[c]		6 months (reflects < 1)
27			31.0	97.3					12 months
28				76.6					18 months
29				29.8			86[c]		24 months or longer (reflects 1-2 years)
30									Percentage of mothers starting supplemental foods to infants by age 4-6 months
							15-20		
31									once per year
32									twice per year
33									thrice per year
34									four times per year

Northern Pakistan, June 1991 (continued)

	1984	1985	G 1986	C 1987	1988	1989	F 1990	1991	
									IMMUNIZATION
35							67.3[d]		Percentage of children < 5 with immunization cards
36									Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38			26.3						Percentage of children < 5 with at least 1 immunization
39							80.3[d]		Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40							81[e]		fully immunized with BCG, DPT, measles, and polio vaccines
41									partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42				11.2					fully immunized with BCG, DPT, measles, and polio vaccines
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44			4.8						Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45			7.3	3.7					Percentage of population who regularly use water-seal privies or pit latrines
46			28.0				37-91		Percentage of mothers who know how to properly prepare and give ORT
47							63.3[f]		Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48									Percentage of newborns with low birth weight
									Percentage of children who are low weight for age:
49							14.5[g]		Total
50							12.3[g]		< 12 months (reflects < 2)
51									= > 12 months < 24 months
52									= > 24 months < 36 months
53									= > 36 months < 48 months
54									= > 48 months < 60 months
55			155.3	168.9			85.4		Infant mortality rate
56			44.1	45.7					Crude birth rate
57			14.5	17.2					Crude death rate
58			7.4	8.4					Total fertility rate
									COSTS
59									Cost per capita
60									Cost per target population
61									Cost per beneficiary

Notes – G: Gilgit (1986). C: Chitral (1987). e: By the end of 1990, CHWs and TBAs had been trained for a population of about 115,000. b: 2 doses of TT = 45.3% (1990 Sample Survey); Registered women immunized = 88%. c: Women registered in health centres only. d: 1990 Sample Survey. e: Health centre target population only (about 20% of total population); children < 1 year. f: Yasin survey data. g: Children 0-5 registered in health centres. Source for 1990 data: Sirajul Haq, Assessment of PHC Programme Indicators, AKHSP in Northern Areas of Pakistan, 7/90; AKHSP Northern AReas and Chitral 1990 Annual Report; and Steve Rasmussen, NPPHC Director.

Bajju, June 1991

	1984	1985	1986	1987	B 1988	MIS 1989	RS 1990	1991	
									TARGET POPULATION
1					5826	5931	6036		Total Population
2					920				Total Households
3					1026[a]		1057[b]		Women 15-45 years
4					673[c]	1116	826		Children under 5 years
5									Children under 2 years
									AVAILABILITY OF HEALTH CARE
6					971[d]	349	355		Population per CHW
7					233		1006		Population per trained TBA
8					5826				Population per health centre
9									Households per CHW
10									Children < 5 per CHW
11									Children < 5 per CHW
12							93.5		% within 1km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13							95.4		Aware of available Maternal and Child Health services
14							92.8		Aware of available Family Planning services
15							98.7		Aware of available Immunization services
16							99.3		Aware of available Medical Care services
17							91.5		Who know CHW by name
18							92.8		Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19						85.1	59.3		Percentage of pregnant women who receive pre-natal care at least once
20							2.3		Average number of pre-natal contacts per pregnancy
21					2.0		30.4[e]		Percentage of pregnant women delivered by trained attendant
22					1.5	40.9	42.2		Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24							28.3[f]		Percentage using FP
25							38.2		Percentage using a modern FP method
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26					17.8		3.7		6 months
27					53.3		26.7		12 months
28							14.8		18 months
29							48.1		24 months or longer
30					18.3		25.9		Percentage of mothers starting supplemental foods to infants by age 4-6 months
							54.0		Percentage of children under 5 weighed at least:
31							42.5		once per year
32							11.1		twice per year
33							.01		thrice per year
34									four times per year

Bajju, June 1991 (continued)

B 1984	1985	1986	1987	1988	1989	1990	1991	
								IMMUNIZATION
35						88.3[g]		Percentage of children < 5 with immunization cards
36						77.1		Percentage of women who know right age for measles immunization
37								Percentage of mothers who know next date for immunization
38				4-10	54.4			Percentage of children < 5 with at least 1 immunization
39				3-7	59.7			Percentage of children < 2 with at least 1 immunization
								Percentage of children age 12 through 23 months who are:
40				2-4	7.0	7.8		fully immunized with DPT, measles, and polio vaccines
41						53-57		partially immunized with DPT, measles, and polio vaccines
								Percentage of children age 2 through 4 years who are:
42				3-10	19.7	24.6		fully immunized with DPT, measles, and polio vaccines (age 2-5)
43						69-71		partially immunized with DPT, measles, and polio vaccines
								WATER AND SANITATION
44				39.5[h]		28.8[i]		Percentage of households using clean water supply
								PREVENTION AND CONTROL OF ENDEMIC DISEASES
45						0.7		Percentage of population who regularly use water-seal privies or pit latrines
46						85.6[j]		Percentage of mothers who know how to properly prepare and give ORT
47						47.9		Percentage who used ORT in last diarrhoea
								HEALTH STATUS OF POPULATION
48								Percentage of newborns with low birth weight
				M F				Percentage of children who are low weight for age:
49				73-81				Total under 5
50				62-82				< 12 months
51				67-94				= > 12 months < 24 months
52				75-82				= > 24 months < 36 months
53				74-64				= > 36 months < 48 months
54				88-86				= > 48 months < 60 months
55				217.0	128.0			Infant mortality rate
56				29.2	34.0			Crude birth rate
57								Crude death rate
58								Total fertility rate
								COSTS
59				3.19	9.30	5.57		Cost per capita
60				9.47	28.71	17.85		Cost per target population
61				12.62	38.28	23.81		Cost per beneficiary

Notes – a: Women 15-44. b: Women 15-49. c: Children under 4 years. d: Per government extensions worker. e: Or 31.1% of live births. f: Excludes those currently pregnant. g: Age of children used as sample is unknown. h: Within 15'. i: On premises. j: Percentage of mothers who know how to mix ORS.

Mombasa, June 1991

	1984	1985	1986	1987	1988	1989	B 1990	1991	
									TARGET POPULATION
1					42500	45500	45000		Total Population
2						6500			Total Households
3						10150			Women 15-45 years
4						11690			Children under 5 years
5									Children under 2 years
									AVAILABILITY OF HEALTH CARE
6							350		Population per CHW
7							570		Population per trained TBA
8							11370		Population per health centre
9							15		Households per CHW
10									Women 15-45 per CHW
11									Children < 5 per CHW
12							29.6		% within 5km of health centre or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13									Aware of available Maternal and Child Health services
14									Aware of available Family Planning services
15									Aware of available Immunization services
16									Aware of available Medical Care services
17									Who know CHW by name
18									Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19			81.0			87.3			Percentage of pregnant women who receive pre-natal care at least once
20									Average number of pre-natal contacts per pregnancy
21						18.1			Percentage of pregnant women delivered by trained attendant
22						84.8[a]			Percentage of women delivering who were immunized against tetanus
									FAMILY PLANNING (CHILD SPACING)
23									Percentage who know at least one method of FP
24									Percentage using FP
25						9.8			Percentage using a modern FP method
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26						97.6			6 months
27						96.9			12 months
28									18 months
29						64.6[b]			24 months or longer
30						30.9			Percentage of mothers starting supplemental foods to infants by age 4-6 months
									Percentage of children under 2 weighed at least:
31							70.8		once per year
32							55.3		twice per year
33							46.8		thrice per year
34			-						four times per year

Mombasa, June 1991 (continued)

	1984	1985	1986	1987	1988	B 1989	1990	1991	
									IMMUNIZATION
35						77.6	89.1		Percentage of children < 5 with immunization cards
36									Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38						93.5[c]	90.3		Percentage of children < 5 with at least 1 immunization
39						92.2[d]	92.8		Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40						79.5	79.9		fully immunized with BCG, DPT, measles, and polio vaccines
41						92.2	92.8		partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42						63[e]	76[f]		fully immunized with BCG, DPT, measles, and polio vaccines (age 2-5)
43						93.5	87.8		partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44						5.8			Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45						33.0	40.2		Percentage of population who regularly use water-seal privies or pit latrines
46									Percentage of mothers who know how to properly prepare and give ORT
47									Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48									Percentage of newborns with low birth weight
									Percentage of children who are low weight for age:
49						34.7	31.9		Total under 5
50						27.2	13.0[g]		< 12 months
51						42.4	31.6		= > 12 months < 24 months
52						37.3	20.6		= > 24 months < 36 months
53						32.6			= > 36 months < 48 months
54									= > 48 months < 60 months
55				122.0			125.0		Infant mortality rate
56						53.3			Crude birth rate
57						17.9			Crude death rate
58			6.0						Total fertility rate
									COSTS
59									Cost per capita
60									Cost per target population
61									Cost per beneficiary

Notes – a: At lease 1 TT. b: Figure from Baseline Survey for 24 months or longer. c: Children 12-23 months. d: Children 9-59 months. e: Children 24-59 months. f: Children 1-5 years. g: Children 0-5 months.

***Junagadh*, June 1991**

	1984	1985	1986	B 1987	1988	1989	up to March 1990	1991	
									TARGET POPULATION
1				7519		8151	8230	8261	Total Population
2				1136					Total Households
3				1670		1799	1937	1937	Women 15-45 years for 1987, 16-45 for 1989-91
4				759		1174	1019	997	Children under 6 years
5						175	186	185	Children under 1 years
									AVAILABILITY OF HEALTH CARE
6				940					Population per CHW
7				3759					Population per trained TBA
8				7519		8151	8260	8261	Population per health center
9				126					Households per CHW
10									Women 15-45 per CHW
11									Children < 5 per CHW
12						100.0	100.0	100.0	% within 5km of health center or CHW
									AWARE OF AVAILABLE SERVICES
									Percentage of women, age 15-45 years:
13				70					Aware of available Maternal and Child Health services
14									Aware of available Family Planning services
15									Aware of available Immunization services
16									Aware of available Medical Care services
17									Who know CHW by name
18									Visited by CHW this quarter
									MATERNAL AND CHILD HEALTH
19				38.8		82.0	66.0	58.0	Percentage of pregnant women who receive pre-natal care at least once
20									Average number of pre-natal contacts per pregnancy
21				32.6		57.0	72.0	75.0	Percentage of pregnant women delivered by trained attendant
22				41.0		82.0	72.0	60.0	Percentage of women delivering who were immunized against tetanus (TT2)
									NUTRITION PROMOTION
									Percentage of mothers breast-feeding babies up to the age of:
26				92.5					6 months
27				13.7					12 months
28				7.5					18 months
29									24 months or longer
				20.0					Percentage of children under 6 years weighed at least:
31				6.6					once per year
32				1.3					twice per year
33				2.3					thrice per year
34						3.0	19.0		22.infants by age 4-6 months

Junagadh[a], June 1991 (continued)

	1984	1985	1986	B 1987	1988	1989	up to March 1990	1991	
									IMMUNIZATION
35									Percentage of children < 5 with immunization cards
36				9.4					Percentage of women who know right age for measles immunization
37									Percentage of mothers who know next date for immunization
38									Percentage of children < 5 with at least 1 immunization
39									Percentage of children < 2 with at least 1 immunization
									Percentage of children age 12 through 23 months who are:
40				12.0		47[a]	65[a]	75[a]	fully immunized with BCG, DPT, measles, and polio vaccines
41									partially immunized with BCG, DPT, measles, and polio vaccines
									Percentage of children age 2 through 4 years who are:
42						44[b]	59[b]	62[b]	fully immunized with BCG, DPT, measles, and polio vaccines
43									partially immunized with BCG, DPT, measles, and polio vaccines
									WATER AND SANITATION
44		9.9		15.8					Percentage of households using clean water supply
									PREVENTION AND CONTROL OF ENDEMIC DISEASES
45									Percentage of population who regularly use water-seal privies or pit latrines
46				15.5					Percentage of mothers who know how to properly prepare and give ORT
47									Percentage who used ORT in last diarrhoea
									HEALTH STATUS OF POPULATION
48							33.3[c]	8[d]	Percentage of newborns with low birth weight
									Percentage of children who are low weight for age:
49						36.0	47.1		Total, < 6
50						36.0	55.0	59.0	< 12 months (reflects 0-3 years)
51									=> 12 months < 24 months
52									=> 24 months < 36 months
53									=> 36 months < 48 months
54							47.0	50.0	3-6 years
55				116.0					Infant mortality rate
56				38.4					Crude birth rate
57									Crude death rate
58				5.2					Total fertility rate
									COSTS
59									Cost per capita
60									Cost per target population
61									Cost per beneficiary

Notes – [a]: Jonpur area only. a: Children age 0-1, b: Children age 1-6. c: Of 63.3% weighed. d: Of 40% weighed.

Community Health Programme Ghana

mmunity mother volunteers distribut
olic acid tablets to anaemic mothers.

COUNTRY SUSTAINABILITY STATEMENTS

Participants in the PHC Analysis Workshop were asked to discuss a number of issues related to programme sustainability and to make preliminary comments regarding sustainability of activities in their own countries. Discussants met in country groups and drafted the attached statements. These do not follow a standard format and are very preliminary, but they are included because they illustrate the broad range of ideas currently under discussion.

The issues discussed related to four themes:

A. Continuing technical support

- What are the continuing managerial and technical support requirements likely to be for programme-initiated activities?
- To what degree are communities likely to be able to manage these on their own? To what degree will a local NGO or government unit need to assist?
- What will be the respective roles of government, NGOs, community groups, and others in providing or supporting these activities?

B. Changing NGO and donor roles

- How have NGO, community, and government roles changed in your programme area since programme initiation?
- What respective sustainable roles do you envisage for each in the future, and how will you achieve that?
- Is a referral system essential to sustainability? If so, how will it be maintained?

C. Programme costs

- Have programme costs generally been reasonable? Are there costs which should be avoided or reduced in future programme designs?
- From what we know now, are programme activities likely to be sustainable from non-donor sources?
- What types of cost analysis are appropriate for sustainability planning?

D. Sustainability strategies

- In what way are programme start-up processes likely to affect sustainability? Do programme planners or donors make mistakes that should be avoided in the future?
- What steps can be taken now to develop programme sustainability strategies?

BANGLADESH

A. Continuing technical support

The programme will continue to need technical support from the NGO in the future in the following areas:

- Training
- MIS
- Supervision
- Adapting to changing circumstances.

B. Changing NGO and donor roles

The AKCH,P programme is moving in the following direction:

- Increased community involvement
- Increased community contribution through user fees for immunization and curative care services, and in-kind inputs for the programme.

The future roles of the participants in the AKCH,P programme are:

- *Community.* Involvement in management of field-based programme, motivation, health education, and immunization. Greater participation of community volunteers.
- *Government.* Provision of vaccines. There is no clearly defined urban health policy by the government.
- *NGO.* Provision of technical support to programme.

C. Programme costs

Two components of the programme costs were identified:

- Central office costs
- Field level costs.

It would not be possible for the community to pay for the full cost of the programme. The future goal was for the community to bear the field-level costs of the programme approximately 25 percent of total cost). Possible strategies identified to achieve this goal are user fees, income-generating activities, and establishing a health fund at the community level.

Strategies were also being thought through to sustain the costs of the central office. Options being looked into include:

- Absorption by a larger organization
- Establishing consulting clinics, a clinical laboratory, and a drug store for income generation
- Conducting consultation for other NGOs in the area.

D. Sustainability strategies

The following are possible strategies for planning for sustainability:

- Reducing the central level staff as the programme goes into the maintenance phase.
- Handing over to other NGOs.
- Introducing new programme activities and applying for fresh funding. The new activities could be built into the existing programme, sustaining both.
- Establishing a core consultation service for the network. This would reduce the need for highly qualified individual staff in the network programmes. Consultation could also be done for other NGOs.

Referral Systems. At present, referrals are made to other institutions in the area mainly for third degree malnutrition, family planning services, and maternal care.

KENYA

A. Continuing technical support

Four principal activities were discussed and, in response to the issues, an appropriate format was developed (see Table B.1). We felt that this format responds to most, if not all, the questions raised.

B. Changing NGO and donor roles

In large part, many of the questions raised under this issue were responded to under Section A. The righthand column in Table B.1 (Changing Roles)

Table B-1. Changing Community/Government/AKHS Roles in Kenya

Type of Support	Role of Community	Government	AKHS	Changing Roles AKHS, 1988-1991-1995
IGA Support System	To undertake activities that will generate income	Support from extension workers and departments/ ministries	Minimal, ongoing role, e.g. honey refinery, training, etc.	10-8-5
Management of Community Funds for Financing of Healthcare	To allocate, by priority, the funds generated for specific activity	Training, assistance, grants, water and sanitation, and other activities	Assistance with management of such funds, identification of expertise for application of funds — on a **need** basis	8-8-4
Training of Community-based Workers	Largely through existing health workers and infrastructure of the PHC committees	Minimal — for occasional refresher courses and support from TOTS/ extension workers	Training at community level (low cost) and refreshers, etc. — minimal	10-6-2
Community-based Drug Supply System	Responsible for supervision (already being done and appears sustainable)	Support as required — TOTS, etc.	Provide drugs at cost price through hospitals as is being done	10-6-2

provides an indication of the position of AKHS on a scale of 1 to 10 (with 10 implying maximal involvement), during the years 1988 to 1995. We hope to achieve these roles by continuing with our activities as planned.

If we correctly understood "referral system" (that a system of referral exists from CHW level to tertiary medical care), we think two answers are Yes. In Kenya, the set-up of the government health system is in place and is the referral base. It will continue to be maintained by the Ministry of Health.

The group contrasted the "changing roles" concept as opposed to the "phase-in/phase-out" concept. The initial intent to "hand-over" the PHC programme to government is being reconsidered. We feel that the point is not that the government cannot take over PHC activities, but that the **level** and **quality** would be different from ours. This raises ethical issues relating to **standards** in programme **design** and implementation.

C. Programme costs

What is the definition of "reasonable"? The group examined the area of costs which could have been avoided or reduced, and made the following comments:

- Programme start-up costs were high, but these are necessary, one-time development costs.
- Perhaps the largest chunk of costs has been for Community Process/Mobilization, in terms of staff costs and transport. We feel this is a justified cost.
- In some cases, donor needs have raised costs, e.g., travel, information systems.
- Support and administrative costs could perhaps be reduced.

We believe that programme activities can and are likely to be sustainable.

D. Sustainability strategies

If start-up processes keep in mind sustainability (and if it is a part of programme design), it would help. (Both Kisumu and Mombasa have had sustainability in mind all along.) Lessons learned from programmes such as Kisumu are most useful. As stated earlier, mistakes may not really be mistakes at the time. Nonetheless, sharing of lessons learned, as is being done, is useful. Steps are being taken.

There is no single strategy which can be pursued to achieve this goal. A variety of things have to be done. In the Kisumu and Mombasa programmes, the following tangible steps have been taken:

1. Close collaboration and cooperation, including joint planning of programme activities with the municipality (Kisumu only) and the ministry (both places). As a result:

- Their staff worked with us and, in the process, were or are being trained and developed. They realized that PHC quality standards can be higher.
- There is a constant reminder to them that eventually they have to assume certain responsibilities.
- We use their static facilities for various purposes; we do not construct our facilities unless strategically we wish to provide referral support on a fee-for-service basis.
- There is a commitment on their part to assume certain responsibilities eventually.
- They are preparing a plan to provide an effective balance of curative care and MCH service facilities in Kisumu now (Mombasa will follow).

2. All PHC initiatives are truly community based. From the very beginning, it is explained to communities that there are respective roles and how they will change over time. In the Kisumu first phase, the term "phase-in/phase-out," taken from the Programme Proposal, was over used, but now we feel that the expression "changing roles" is more appropriate and, certainly to the government and communities, more favourable.

Initially, efforts are directed at community development rather than health development. This process takes as long as 2 years. The services come later. In Kisumu Phase II, planning has been done with communities. Then, in an action plan for each sublocation in which their mission was articulated, the communities took full part. The planning process was a series of open meetings where everyone was invited. It soon became apparent that they were willing to take on many responsibilities and functions which at one time we thought would only be carried out by the government or some other NGO like AKHS,K. For example, they have agreed to identify and develop their own community-based TOTs who will support, supervise and train CHWs. The former will be older (and more experienced) CHWs, extension field workers (multisectorals who live in the community), teachers, etc. The TOTs will need regular (1 to 2 days a year) refresher training which can be given **free** by government front-liners (community nurses from static facilities) or by our community nurse who will stay on in the programme after donor funding ceases.

In summary, there is massive emphasis on development of the community in its broader sense to take over many responsibilities and functions. They are now organizing—on their own initiative—into a community structure of communities for PHC. Each location has or will have a locational PHC committee and each sub-location will have a similar committee so that, very soon, there will be a network of independent PHC committees led and managed by local people without any interference from other locations or even from the locational entity. They would all have supportive linkages but would be free from overall central control.

The capacity of communities is being developed to write and submit proposals to us and other agencies for support in specific areas. Examples are IGA and water. Groups are actually doing that presently. The idea is to develop this capacity so that in the future they can approach any other NGO for specific services. A more professional approach will also guarantee a more sympathetic hearing when, through the government structure, they submit a request for programme approval and funding from the district development committees which exist in all Kenyan districts and which, through the District Focus for Rural Development Strategies, must approve all programmes, e.g., schools, clinics, water works, etc.

When donor funding ceases, the following scenario is anticipated:

Communities. They will continue many of the services, e.g., CHW activities, their supervision, etc. IGA efforts currently underway and beginning to appear more successful will result in higher disposable income to individuals, groups, or the community as a whole. The latter two groups already have funds deposited with us and will continue to generate more money, which can be used in an appropriate way to support individual, family, and community health. Examples are water source maintenance, purchasing community weighing scales for CHW use, etc. School children and teachers will play a key role.

Government. Will provide curative care and MCH services through an effective network as agreed. There could be, as part of this network, an AKHS,K satellite clinic primarily for curative care, but also as part of its operations, supporting PHC in some way and operating on a break-even basis so that it is no draw on AKHS,K resources. Government staff will provide, to the extent feasible, support to community-based TOTs and CHWs. TOTs will supervise and support the latter to supplement community efforts.

AKHS,K, on a long-term basis, will form a regional (including Tanzania) team-based structure. In each PHC centre, the field staff could be simply one community nurse who travels on a motorbike, providing, in addition to an on-going presence and relationship, support, supervision, motivation—all supplementing government and community efforts.

Locally and regionally, the cost of this relationship will be small and affordable. Any IGA activities, such as the honey refinery which is an AKHS,K venture, is intended to generate revenue to support two staff members who will, with assistance from government field extension workers, social development assistants (SDAs), support the communities in IGA to enhance income levels.

The presence of a community nurse (CN) in each programme area will enable AKHS,K to monitor performance and programmes. Review and monitoring structures, led by the community, will be set up so that, in regular meetings convened by it, government and AKHS,K can participate to get an overview and details of what has been happening in the field. The CN and such review structures will enable AKHS,K to keep an eye on standards of services.

INDIA

Topics and Issues Discussed:

- Indian context and overview of experience and lessons learned to date
- Technical and managerial support of CHWs and community-based activities
- Changing roles and responsibilities of NGO, AKHS, communities
- Cost monitoring and assessing financial sustainability
- Strategic planning for sustainability.

Overview

The Indian government health service system provides basic health care free or at minimal cost to beneficiaries and attempts to cover the entire population. It is a three-tiered, institution-based health care system with chronic staff shortages, low quality and cost-ineffective health services, and minimal community participation. NGOs working in health care can receive government subsidies to facilitate their work.

AKHS,I enjoys a very good reputation wherever it operates, but it is a health care system in transition. Formerly a loosely connected, institution-based medical and health care "system," AKHS,I is in the process of strengthening and linking its health

facilities, upgrading and reorienting personnel, and developing an integrated, comprehensive health care system to be tested in Sidhpur, based in part on the experience being gained in the Junagadh PHC programme. In additional to the Junagadh and Sidhpur health care programmes in rural Gujarat, AKHS,I is also planning a major greater Bombay comprehensive health care programme. An overview of health care in India and AKHS,I's current and future system are summarized in the attached matrix.

The AKHS,I experience in the Junagadh programme, now in its second year, and other areas have enabled it to state the following lessons/recommendations:

- The various key issues concerning sustainability—maintaining technical support; changing relationships between AKHS,I, government health services, and communities; maintaining financial support, etc.—must be taken up in the planning phase and involve consultations with communities (Nagalpur, Sidhpur).

- Fee-for-service appears to be a feasible means of recovering some of the costs of improved health care services, such as the costs of supplies, support, and a portion of salaries.

- Clearly defined relationships within communities of a particular size appear to facilitate the establishment of the new health care system and provide useful opportunities to "iron out" any issues concerning the sustainability of the system (Nagalpur, Jonpur).

- The government of India is a generally unreliable partner. Although its policies encourage NGOs to work in health and it will help finance health centres and provide material and financial support, the government bureaucracy can be a serious impediment. Government supplies and other types of local and regional support can be quite irregular and unreliable.

- Top-down planning without proper consultation with and involvement of the communities can be an impediment in the early implementation phase, as the health programme will not be easily accepted, community participation develops slowly, and the achievement of a sustainable health system with substantial community participation could be delayed (Jonpur).

- Bottom-up planning with substantial involvement of the communities is a slow, time-consuming process, but it yields strong community participation and appears to foster development of a sustainable system (Sidhpur), which can eventually be partly managed and financed by the communities (AKB/Jonpur).

- It appears that the road to establishing a sustainable health system requires that the programme have flexibility and the ability to expand its objectives and scope of work to enable it to make substantial improvements in the health status of its defined target population. (SPHC)

A. Continuing technical support

Technical and managerial support of CHWs and community-based activities are likely to have to be maintained over the medium to long term. Other experience in India and elsewhere demonstrates a positive association between the level of technical and managerial support and the performance and longevity of CHWs and acceptance of local health activities.

On the other hand, the same positive association has not been found between the level of community participation alone and the sustainability of the programme. This might be because of the constantly changing health environment and the need to monitor and to respond effectively to these changes. As health needs change, programme objectives and methods will change, for which on-going technical and managerial support is needed.

The changing health environment and need to monitor and respond effectively to these changes , such as in the case of disease surveillance and epidemic preparedness, require appropriate and reliable information support, and the latter often requires continued technical and managerial support including training (AKB).

As technical and managerial support might be required over the long term, attention must be given early to developing a practical and affordable technical, managerial, and information support system.

NGOs need to be involved in capacity building to develop the local technical and managerial skills. The programme should be linked to the NGO's strategy and involve the development of local community and health worker capacities to assess the current issues and to initiate appropriate local actions. Thus, the programme must involve a strong human resources development component with the capacity to develop local technical and managerial talents if sustainability is to be established (Jonpur, AKB).

B. Changing NGO and donor roles

The early implementation period requires major efforts to develop effective linkages with both communities and government agencies (Jonpur, Sidhpur).

Table B-2. Health Care Services in India

Variables	Government System	Private for-Profit Sector	Non-government Organisations	Existing AKSHI System	New Total Health Care System of AKHSI
Organisational structure.	State government: comprehensive health care through a 3-tier system. Union government: national programmes.	Free-standing clinics/nursing homes/ institutions. Informal referral system especially through polyclinics.	Free-standing clinics/ institutions/ projects. Some collaborate with government or other NGOs. Some implement government programmes.	Network of facilities and services. Outside referrals. Four-tier management structure: local, district, regional, and national levels.	National health system with regional subsystems. Five-tier facilities/ management. Community-based activities. Vertical medical referral system.
Facilities/ coverage.	Health subcentres with outreach. Primary health centres. Community health centres. District hospitals. Medical schools with attached hospitals. On paper they cover the entire population.	General practioners, specialists, and paramedics operating through clinics, polyclinics, nursing homes, hospitals. More in urban areas, especially slums, and in areas with affluent populations.	Community projects, clinics, institutions/ hospitals. More in deprived and underserved rural areas and slums.	Community-based activities with visiting MPWs (225 sites), health centres (22), medical centres (2), and Prince Aly Khan Hospital. Targeted villages/towns in Gujarat, Maharashtra, and Andhra Pradesh.	Health system in India with inter-linked community-based activities: health centres (43), medical centres (8); diagnostic centres (3), ambulatory care centres (3), secondary/ tertiary hospitals (3); It is proposed to cover over 90% of the targeted population.
Services provided.	Preventive, diagnostic, curative, and rehabilitative services.	Diagnostic and curative services.	Curative, rehabilitative, and preventive services.	Preventive, promotive, diagnostic, and curative services.	Comprehensive health care supported by state-of-the-art diagnostic, secondary, and tertiary care.
Salient features.	Free/minimal cost to beneficiaries. Attempts to cover the entire population. Few constraints of resources.	Quick remedies. Easy access in many areas. Benefits of home visits and credit facilities by some. Family physicians develop good rapport. Confidentiality maintained. Tailor-made services offered.	Focus on charity, disability limitation, and image promotion. Some seek active community participation and catalyse social development.	Community participation in planning and management. Good access in some areas. Better quality of services compared to local providers. Subsidised care. Focus on awareness.	Accessible to targeted groups. Good quality services. Referrals and continuity of care. Good infrastructural components. Training capability. Responds to community demands and nuances. National and international network.
Limitations.	Institutional-based. Minimal community participation. Shortage of staff. Poor quality. Rigid/ categorical programmes. Low health impact. Cost-ineffectiveness.	Urban concentration. Expensive. No outreach or follow-up. Little health education. Variable quality. Mystification of medical care. Cosmetic approach to care.	Limited areas of operation. Generally donor driven. Limited resources. Activities centred around individuals in the NGOs. Many lack long-range plans. Poor prospects for self-sustainability.	Lack of trained staff. Poor physical infrastructure. Categorical programmes. Caps in health service delivery. Low facility utilisation. Low cost recovery.	Limitations in reaching out to scattered targeted populations. Sustainability of projects needs to be tested. Investments and programmes will need highly competent personnel, who are scarce.

Substantial time and effort is needed to build up the local community organization and infrastructure of the health care system (AKB, Jonpur).

The partnership with the government should be developed vigorously, although with appropriate caution and independence, as the government can support certain activities and health workers (LHVs TBAs, CHWs).

Normally, the government assigns the NGO a specific geopolitical area and the NGO is then obligated to provide services in the whole of that area. And, generally speaking, the objectives of the government must be shared, at least in part, by the NGO (Bombay Municipal Corporation, Bombay HC, Jonpur).

Where the government has clear policies and methods for collaborating with NGOs, it would appear most sensible to develop and maintain clear roles and responsibilities of the NGO, government, and communities, rather than try to begin a programme with one arrangement and then later trying to shift more responsibility on to one (government) or the other (communities). Dialogue with government officials, like community dialogue and preparation, takes time and effort that often leads to an apparently slow early implementation process, but one which could facilitate achievement of sustainability at an earlier time than if the NGO used a top-down, "quick fix," impact-oriented "crash" programme.

Donors need to understand the long-term benefits of giving sufficient and appropriate early attention to community organization, infrastructure development, skills training and capacity building (in contrast to crash programmes which often neglect or down play these activities and are generally unsustainable). Results in terms of impact might not be seen quickly, but the feasibility of establishing a sustainable health system is likely to be enhanced (Jonpur/Sidhpur Planning).

C. Programme costs

The development of a plan on financial sustainability of the programme requires fresh, innovative planning and the systematic assessment of the feasibilities of various local financing mechanisms, such as:

- User fee-for-service
- Community contributions
- Government subsidies and other contributions
- AKHS subsidies and other contributions
- Establishment of an endowment
- Prepaid health benefits schemes of various types
- Cross-subsidy for health/non-health service

A proper assessment of the financial sustainability of a programme requires than an accurate and reliable cost analysis be conducted, that development costs be clearly separated from recurrent costs. The return on investment (ROI) of development costs be treated as both tangible and intangible.

Early diversification might increase financial risk; the service delivery programme **should expand** in a **gradual, staged manner** (Jonpur MC) and allow the financing mechanisms to be tested and introduced gradually. Hence, service expansion and financial requirements (some of which are recovered through the testing period and after) should grow together and keep pace with one another.

Income-generating activities should be tested, but these also have a certain "gestation" period before they possibly become productive. Direct linkages between the IGA and the health services should be developed; otherwise, the IGA will produce only a supplemental income for community members, not the health care organization.

Health systems which cover both poor and middle class populations offer the possibility to earn income from service provision to the middle class which can then be used to subsidize the cost of free or below-cost services for the poor.

D. Sustainability strategies

Before the process of planning for sustainability can be completed, NGO staff need to develop stronger skills in the areas of cost monitoring, cost analysis, and sustainability analysis.

Feasibility studies on various methods of local financing of health care should be conducted after extensive consultations with communities and other health care providers (if any).

The development and application of skills to enable health workers to monitor costs, conduct cost analyses, conduct feasibility studies, and assess sustainability will require practical tools, such as those being developed by the PHC Management Advancement Programme of the Aga Khan Health Network.

Group Recommendation. A week-long planning and/or training workshop is needed to help develop, apply, and practice new skills in cost monitoring, analysis, and projection as well as in assessing the

sustainability of the programme. This will enable the second phase to address the strategy so that implementation can be innovative financially and to test both feasibility and implementation.

PAKISTAN

AKHS,P's Objective

Up to now, AKHS,P has stated its overall objective in fairly traditional terms that would be common to most other programmes/projects, i.e., to improve the health and nutritional status primarily of women and children. AKHS,P has had a service orientation concentrating on health, as distinct from more comprehensive development, and within that on traditional MCH interventions. However, there is clearly a shift occurring, based on experience to date, whereby AKHS,P is changing its objective to attempting to develop sustainable institutions able to respond to changing morbidity and mortality patterns.

In contrast to many other groups, AKHS,P has the comparative advantage of already having been in existence for almost 70 years, and of operating programmes in areas where other AK network institutions are actively carrying on related community development activities (special reference to the Northern Areas and Chitral). This, if nothing else, makes it easier to sustain efforts as well as to focus the sustainability strategy.

A. Continuing technical support

AKHS,P has learned that, in the long term, at least, a minimal level of continuing technical support is necessary, and it believes that the NGO should provide this. There are faint hints in experience to date that communities might finance at least some of this in the longer term, particularly if it is combined with the provision of clinical referral services. However, it is clear that communities want continuing support from AKHS,P and they are concerned about AKHS,P's commitment on this issue right from the beginning. Experience has taught them that they cannot count on government for such support.

The source of technical support may change over time. AKHS,P's field teams are the key support element at this time, but recent experience is beginning to show that health centres, or even the existing volunteer board structure, could take on more technical and management support responsibilities in the future. There is a dynamic, staged process with shifting foci of the various kinds of required support. AKHS,P cited two sources of experience for its strong feeling that continued technical support by the NGO is necessary:

- Almost 70 years of experience has repeatedly showed that programmes stagnate if there is not at least a minimal level of on-going involvement with communities of a competent "outside" support.

- The first major PHC programme in Pakistan was the government-managed Health Guard scheme started in the Northern Areas in 1973. It was successful in training community-based health guards and in greatly increasing health awareness, but the government phased out support for it in 1981. The *post mortem* on the programme, confirmed by AKHS,P findings, is that the cutting off of some level of on-going support to the communities (the regular government health service being unwilling to even recognize the programme) was a major reason why very little was sustained past 1981, either in terms of health benefits or community interest. Communities also recognized this and have often said that AKHS,P should not "go away" as the health guard scheme did.

B. Changing NGO and donor roles

The NGO is gradually changing its role from being entirely service provision oriented to a role of capacity building within and support to communities as well as, in a few cases, to government. Service provision is the major role, but the relative distribution of responsibilities between the NGO and communities is shifting. The communities are progressing from being "unempowered" recipients of health services to being managers and providers of services. This is true both in Sind and in the north. It is also true of both the village organizations and their related CHWs and TBAs, and of the volunteer board structure. In this process, the donors are being asked to shift their role from that of exclusive support to direct service provision activities to also including funding for capacity building in the communities.

A major shift is being attempted in the north, where many communities would like to have their own health centres. AKHS,P subsidies to health centre operational costs averaged 85 percent (with community contributions from fees for service ranging from 5 percent to 35 percent) in 1990. AKHS,P cannot afford to provide subsidies to an indefinite number of health centres for an indefinite period of time. The communities suggested various means by which they could finance and manage their own health centres with AKHS,P support; and they also asked AKHS,P to request donor support. One option under consideration is to build up a community fund large enough so that the interest from it could finance the health centre. This plan could involve the community contributing most of the required amount for the fund, Rs. 900,000 out of an estimated total of Rs. 1.3

million, with Rs. 500,000 put in up front and the rest put in over a 3-year period. AKHS,P would pay operational costs for 4 years, help the community learn to manage its health centre, and maintain a long-term support role. The donor would be asked to put Rs. 400,000 in the community health centre fund instead of paying operational subsidies for 3 or 4 years. This example only illustrates discussion that is going on at this time about changing roles, and is not yet an approved or implemented scheme.

A question being asked, but not directly answered, is whether or not in this process of changing roles AKHS,P was willing to get out of the limelight and let the community take centre stage. AKHS,P believes that actions speak louder than words.

Another example comes from Vur where the communities have formed and registered their own NGO to take over community-level responsibilities that AKHS,P has had up to now. AKHSP will play an ongoing, though more distant, support role. The donor's role, if any, is not yet clear.

AKHSP believes that institutional sustainability is important for itself, the communities, and even for the government and donor.

C. Programme costs

Analysis of costs should be done according to objectives. For example, given AKHSP's tiered system and the issues surrounding such things as health centre funding, it is important for AKHS,P to analyze costs by tier, though not necessarily by service provided (growth monitoring, immunizations, etc.). However, as time goes on, a closer look at cost effectiveness of various approaches might also be useful.

The health centre example given earlier illustrates another lesson learned by AKHS,P. Communities can be fairly sophisticated in understanding financial sustainability issues, in analyzing costs and benefits, and in proposing means to solve problems. AKHS,P has not, so far, found it useful to cost out community managed/funded efforts except to respond to questions by outside agencies.

D. Sustainability strategies

AKHS,P does not yet have a well articulated sustainability strategy but would point to three key activities to illustrate its strategy:

- *Building up community capacity*, as mentioned above, is the most important element of the strategy.

- *Development of local personpower.* This is true for all personnel, community, boards, and all categories of staff, but is best illustrated by the LHVs. In an area where the government has been almost entirely unable to put female professional staff in place, AKHS,P has about 90 LHVs working in remote rural communities. Ten years ago, all the LHVs—a smaller group at that time—were from down country, whereas today, 85 percent of them are local and about 20 more are being trained every year. This allows AKHS,P to sustain programmes in remote areas, improve staff stability, and discuss with communities the possibility of having their own community; all important to sustainability.

- *Better links with government* are important to an NGO like AKHS,P. An illustration of the advantages of such linkages is the EPI programme in Chitral, which was previously largely done by AKHS,P but is now largely done by government with AKHS,P support.
- *Developing community awareness on health issues.* This is vital for any strategy which aims at achieving sustainability. Community ownership of health programmes would be achieved only when the people have knowledge of the dynamics of health risk factors and intervention methodologies and consider health as a priority. Transferring this knowledge to the communities constitutes an important link in the chain of events which leads to sustainability.

Referral System Development

AKHS,P experience in Karachi and Hyderabad and more recently in Sind and Punjab, show that ensured access to referral-level clinical services is important to long-term sustainability of the health care system. AKHS,P cannot say that this is essential, but it certainly is a community demand/need, and in the north, it is now accepted by AKHS,P that the system should be extended to include referral services. Communities want to support a more comprehensive system than simply community-based service provision, and the existing programme is unable to address certain important needs, e.g.. maternal care—complications of delivery—without developing other "tiers" in the system.

AKHS,P has an objective of supporting the development, with communities and government, of a comprehensive health care system.

d treating malnutrition is one of the greatest challenges facing PHC progra
lations. This chronically malnourished, young Bengali girl could be wond
What can we do to get enough food? Who can — and will — help us to help
(Photo by Shehzad Noorani/AKCHP)

BIBLIOGRAPHY

The Kisumu Community-Based Primary Health Care Programme, Kisumu, Kenya

Aga Khan Health Services, Kenya. "Progress Report, October 1988—March 1989."

_____. "Progress Report, October 1989—March 1990."

_____. "Results of the Immunization Survey, 19-21 November 1990."

_____. "Ngima en Mwandu: Proposal for Kisumu Primary Health Care Programme Phase 2, 1991-95."

Aga Khan Health Service, Kenya, Kisumu Primary Health Care Programme. "Final Report of the Study "Schools Versus CHWs as Agents of Change in CBHC Programmes," 1989-90."

Aga Khan Health Services, Kenya and Aga Khan Foundation, Kenya. "Kisumu Primary Health Care Project Development Phase II (1986-89): Proposal to the Aga Khan Foundation, Canada and the Canadian International Development Agency, 15 August 1986."

"Kisumu Primary Health Care Project Proposal—A Community-Based Health Care Project of the Aga Khan Health Services, Kisumu in cooperation with the Health Services of the Government of Kenya 1983-89." July 1983.

Rawji, A. and Brown, M. "Kisumu Primary Health Care Programme Cost Analysis." 20 December 1989.

Reynolds, J., et al., "Final Evaluation of the Kisumu Community-Based Primary Health Care Programme." Aga Khan Foundation, Aga Khan Health Services, May 1990.

The Aga Khan Community Health Programme, Dhaka, Bangladesh

Aga Khan Community Health Programme, Dhaka, Bangladesh, "Progress Report, April 1990 - September 1990."

Das, A.M., and Shahidullah, B.A., "The Aga Khan Community Health Programme: Midterm Survey, June - August, 1988." National Institute of Preventive and Social Medicine, Mohakhali, Dhaka-1212, November 1988. Selected data from Final Report on Community Baseline Survey, December, 1986.

Das, A.M., Shahidullah, B.A., and Bangali, A.M. "Final Survey: Aga Khan Community Health Programme, Dhaka, Bangladesh." National Institute of Preventive and Social Medicine, Mohakhali, Dhaka-1212, November 1990.

Selected data from Final Report on Community Baseline Survey, December 1986.

Selected data from Fact Sheet, June 1990.

AKU Urban Primary Health Care Programme, Karachi, Pakistan

Aga Khan Foundation U.S.A. "Annual Report to Agency for International Development on Matching Grant for Strengthening the Management, Monitoring, and Evaluation of Primary Health Care and Mother/Child Survival Programmes in Selected Countries of Asia and Africa, for Fiscal Year Ending June 30, 1989." May 30, 1989.

Department of Community Health Sciences, Aga Khan University. "First Progress Report of the Aga Khan University Sequential Development of Urban PHC Programmes in Katchi Abadis Supported by AKF, CIDA and Alberta Aid." Karachi, Pakistan, January 1 - June 30, 1986.

_____. "Second Progress Report of the Aga Khan University Sequential Development of Urban PHC Programmes in Katchi Abadis Supported by AKF (Canada), CIDA and Alberta Aid." Karachi, Pakistan, July 1 - December 31, 1986.

_____. "Annual Report: 1986-87." Karachi, Pakistan.

_____. "Third Progress Report of the AKU Sequential Development of Urban PHC Programmes in Katchi Abadis in Karachi Supported by AKF (Canada), CIDA and Alberta Aid." Karachi, Pakistan, January 1 - June 30, 1987.

_____. "Fourth Progress Report of the AKU Sequential Development of Urban PHC Programmes in Katchi Abadis in Karachi Supported by AKF

(Canada), CIDA and Alberta Aid." July 1 -December 31, 1987. Karachi, Pakistan, January, 1988.

_____. "USAID Matching Grant for Urban PHC Modules Programme (Phase II): Report for the Period April 1, 1988 - September 30, 1989." Karachi, Pakistan.

_____. "USAID Matching Grant for Urban PHC Modules Programme (Phase II): Report for the Period July 1, 1988 - June 30, 1989." Karachi, Pakistan.

_____. "USAID Matching Grant for Urban PHC Modules Programme (Phase II): Report for the Period July 1, 1989 - June 30, 1990." Karachi, Pakistan.

_____. "Cost Analysis - AKU Urban PHC Programme." Draft Report, April 1991.

Department of Community Health Sciences, MIS Unit, Aga Khan University. AKU-Urban Data 1987-1991.

Khan, K. "PHC Analysis: (1) Community Health Workers; (2) Community Participation." Draft prepared for PHC Analysis Workshop, May 1991.

McCord, C. "Report on the Katchi Abaddi Field Sites." Department of Community Health Science, Aga Khan University, Karachi, 1987.

Segall A., et el., "Department of Community Health Sciences' Evaluation." Aga Khan University, Karachi, Pakistan, December 8 - 16, 1989.

Segall, A., Reynolds, J., Sitthi-Amorn C., and Ul Haque, B., "AKU/AKUF/AKF Joint Evaluation of the Aga Khan University." Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan, 7 February 1990.

Vur Community-Based Health Care Demonstration (VCHD), Health Manpower Reorientation Project (HMRP), Thatta District, Pakistan

Aga Khan Health Service, Pakistan. "Health Manpower Reorientation Project: First Year Implementation." January 1987.

_____. "Health Manpower Reorientation Project: Annual Report, 1987." March 1988.

_____. "Health Manpower Reorientation Project: Third Annual Report." May 1989.

Community Health Division, Aga Khan Health Service, Pakistan. "Health Manpower Reorientation Project: Quarterly Report, April - June, 1988." August 1988.

_____. "Health Manpower Reorientation Project: Quarterly Report, July - September, 1988". August 1988.

Upreti, T.S., and Memon, N. "Midterm Evaluation (Monitoring Report) of Phase I: Health Manpower Reorientation Project." December 1988.

The Northern Pakistan Primary Health Care Programme, Gilgit and Chitral Districts, Pakistan

Aga Khan Health Service, Pakistan Northern Areas and Chitral. "1990 Annual Report."

Karim, M.S., and Aquil A. "Demographic and Health Situation in the Punial Valley: Report of a Baseline Survey Conducted in 1986." Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan (undated).

Le Sar, J.W., et al. "Evaluation of the Northern Pakistan Primary Health Care Programme Phase I (1987-91)." Aga Khan Health Services, Pakistan, September 1990.

"Northern Pakistan Primary Health Care Programme: Third Quarterly Report, July - September 1988."

"Report of Demographic and Health Survey in Garam Chashma Valley of Chitral District: Baseline Survey Conducted in 1987."

Shah, Z. "TBAs and CHWs in the Northern Areas and Chitral." AK-RNP Newsletter, No. 3, April 1991.

URMUL Trust Primary Health Care Programme, Bajju Project, Rajastan, India

Makhija, K. "Baseline Survey: Bajju Project." Prepared for URMUL Rural Health Research and Development Trust. Health, Epidemiology, Informatics: New Delhi, June 1989.

Reynolds, J., et al. "Evaluation of the URMUL Trust's Bajju Primary Health Care Programme." 15 February 1991.

URMUL Trust. "Application for the Continued Funding for a Rural Development Programme Based in Bajju, Rajastan, India." Zero Draft Proposal, 5 September 1990.

URMUL Trust Report for January - June 1990.

Mombasa Primary Health Care Programme, Kenya

Aga Khan Health Service, Kenya. "Mombasa Primary Health Care Project: A Community-Based Primary Health Care Development Effort." July 1988.

_____. "Mombasa Primary Health Care Project: Baseline Survey Report, July 1988 - December 1988."

_____. "Mombasa Primary Health Care Project: Progress Report, July 1988 - June 1989."

_____. "Mombasa Primary Health Care Project: Baseline Survey Report, July 1989."

Henn, A.E., et al. "Evaluation of an AID/AKF USA Matching Grant Programme for Strengthening the Management, Monitoring, and Evaluation of Primary Health Care and Mother/Child Survival Programmes in Selected Countries of Asia and Africa." Provisional Summary of Observations and Recommendations, October 31, 1990.

Junagadh Primary Health Care Programme, Gujarat, India

Aga Khan Health Services, India. "Junagadh Health Care Project: Progress Report, July - September 1989."

_____. "Junagadh Health Care Project: Progress Report, October - December 1989."

_____. Junagadh Health Care Project: Chitravad Area. Various data for 1990 and 1991.

Khan, M.E. and Dey, A.S., "Socio-Demographic Profile of Selected Villages in Junagadh District." Operations Research Group, New Delhi, 1988.