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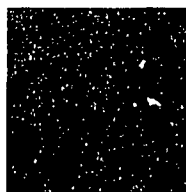
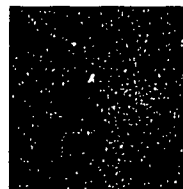
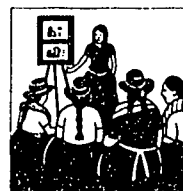
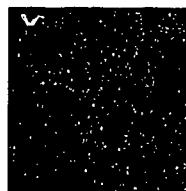
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PRITECH

Technologies for Primary Health Care

PRITECH II

FINAL REPORT



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FINAL REPORT

Contract No: DPE-5969-Z-00-7064-00

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EXECUTIVE SUMMARY

From September 1987 through October 1993, the PRITECH II project was one of USAID's primary means to promote child survival technologies around the world. In 1987, with encouragement from the World Health Organization (WHO) and UNICEF, the USAID Office of Health extended for five more years the program that had begun under the first PRITECH project (1983-1988). The contract for the extension provided authority to spend up to \$35.9 million to speed the adoption of oral rehydration therapy (ORT) in Asia, in Latin America, and especially in Africa. The authorized amount was almost double the previous five-year authorization. The contract was awarded to the same consortium of implementing organizations headed by Management Sciences for Health and including the Academy for Educational Development (AED), Johns Hopkins School of Public Health (JHU), the Program for Applied Technology in Health (PATH), the Centre for Development and Population Activities (CEDPA), and Creative Associates, Inc. (CAI). The program was completed with \$33.4 million of expenditures.

The hallmarks of the PRITECH II project are:

- 23 country and regional programs that became significant forces in determining the course of national diarrheal disease control (CDD) programs, due mainly to the effectiveness of long term staff members in the field;
- innovative research and development activities that extended diarrheal disease programs beyond ORT and beyond the public sector;
- a service oriented organization, responsive to the priorities of USAID missions, renowned for its information services, and notable for collaboration with USAID's main allies in the child survival effort, WHO and UNICEF.

Country and Regional Programs

The template for PRITECH's country programs, developed by the first Technical Director, Robert Northrup, was a comprehensive model of a national CDD program, including:

- clear and effective national CDD policies, in line with global WHO case management policies;
- decentralized planning and program management of health services in the public sector;
- emphasis on experiential case management training, with follow-up and supervision;
- reform of pre-service pediatric training at medical and nursing schools;
- public education, using mass media, to increase demand for and effective use of ORT;
- incorporation of breastfeeding and effective nutrition messages within CDD program efforts;
- supply of oral rehydration salts (ORS) through improved public sector drug management systems, and towards the end of the project, increasingly through sales in the private sector;
- management information systems and evaluation activities.

Most of the countries with programs during PRITECH I were continued into the second phase. PRITECH I had already been at work helping to fill gaps and to strengthen crucial parts of country programs, so PRITECH II could build on earlier progress and give special attention to some long-term fundamental problems. In concert with WHO, more attention was given to rigorous, experiential case management training for health workers, for example, in Pakistan, Cameroon, Kenya and Mexico. As country programs matured, more attention could be given to important complements of CDD/ORT programs, such as improved child nutrition in the Sahel and breastfeeding, or to outbreaks of grave types of diarrhea: cholera in Latin America, and dysentery in southern Africa. Out of concern for the sustainability of national CDD programs, private sector services were explored and promoted to relieve the financial burden on the government of procuring ORS (Pakistan, Kenya, and Indonesia). Medical schools (Indonesia, Philippines, and Pakistan) and nursing schools (the Sahel) were provided with new curricula to teach CDD properly at the beginning of careers. In moving beyond ORT and beyond the public sector, PRITECH utilized USAID Research and Development (RAD) funds to introduce innovations into country programs.

Depending on the particular needs in a country, PRITECH provided a roster of expertise in:

- formulating CDD policies,
- planning and organizing national programs,
- establishing nationwide training for health professionals,
- using mass media to promote ORT and breastfeeding,
- bolstering logistic systems for supplies of ORS,
- design of health and management information systems,
- marketing of ORS to compete against dangerous use of anti-diarrheals and antibiotics, and
- evaluation methods to assess performance of national programs.

The secret to using these resources effectively was the presence of long-term resident staff in the countries and in regional offices. During the life of the project, PRITECH placed 30 long-term advisors in the field. These advisors developed trust among their colleagues in ministries, among other donors and in the private sector. The mandate of the PRITECH advisors was to do whatever they could, drawing on all of PRITECH's available resources, to make the national CDD program successful. PRITECH's technical resources were rich and substantial; however, the financial resources were skimpy. The fact that financial resources were very limited (at most perhaps \$100,000 a year for local program costs) became an important stimulus for the staff; funds had to be sought from other organizations. The PRITECH country advisors were forced to help other organizations and donors spend their money. PRITECH's program was small enough not to threaten or to compete with other donors. PRITECH was perceived as dedicated to making other donors and the national program successful. At the same time, PRITECH's steady presence was reassuring to national program managers, and small amounts of money, quickly available, could sometimes turn potential failure of activities into success. By being directly involved with national managers, the field staff were able to understand clearly the needs of the program and to spot the right opportunities to deal with problems effectively. Several of PRITECH's best field staff had tenures of more than five years

dealing steadily with a country's problems. With creative, effective staff in the field, this longevity had a high payoff.

The main risk of having long-tenured effective field staff is that the countries may come to rely on the technical advisors as substitutes for national staff and in Burkina Faso, Cameroon, and Niger, this risk became real. PRITECH's regional and headquarters staff were needed to help the advisor step back from a primary role and to pressure the government to recruit capable program managers.

PRITECH staff were often asked to play multiple roles, sometimes working as an extension of USAID mission staff or of another donor's staff, sometimes becoming integral to a ministry organization, sometimes working among entrepreneurs in the private sector. In Pakistan, the country representative began as an advisor to the National Institutes of Health, working within the public sector. Later, when a major USAID bilateral project for CDD began with long delay in the arrival of a technical assistance team, the PRITECH advisor also worked as an extension of USAID mission staff, helping to launch the new project. Finally, the PRITECH advisor worked directly with the private commercial sector in Pakistan, especially with pharmaceutical firms. In each role, the PRITECH advisor built on relationships of trust and confidence, often bringing together elements of the government at national and provincial levels, donors such as UNICEF and WHO, and commercial firms or mass media broadcasters. To a large degree, the advisors charted their own courses; substantial delegation of authority to the field was fundamental to the success of the project. The PRITECH advisors who played multiple roles did so with discretion, integrity and skill; they had the maturity and judgment to keep their functions within appropriate bounds. The staff kept programs on target because they were successful in keeping the objective -- success of the national CDD program -- clearly in mind.

A major benefit of PRITECH's long-term presence working in a country's health sector was the knowledge and trust that accumulated in PRITECH's field staff, who were then poised to seize opportunities for action. For example, in the Sahel region, the underlying poor nutrition of children was continuously evident as an important factor in child mortality. Drawing on experience with CDD case management training and supervision, and by observing health worker interaction with mothers and mothers' role in child feeding, a program need emerged: simple feeding messages which health workers could transmit to mothers, and which mothers could translate into improved feeding practices in the home. To capture the attention of decision-makers, PRITECH sponsored research to better understand the reasons for poor nutrition and to identify practical actions which could be incorporated into CDD programs. This research and program development effort brought together technical experts from headquarters with PRITECH's regional staff and consultants. RAD funds came from PRITECH headquarters. The effort culminated in a regional conference sponsored by the Africa Bureau. The conference was organized by PRITECH and another centrally-funded project, the Nutrition Communications Project. The conference was notable for the participation of high-level, intensely interested officials from ministries of health (MOHs) in West Africa. The conclusions of the conference provided the basis for new program strategies to introduce effective feeding messages into the interaction between health workers and mothers.

The geographic focus of the PRITECH II project, like its predecessor, was on Africa: 72 percent of the expenditures for country programs (sustained and intermittent) was for African country and regional programs. The PRITECH regional offices for the Sahel, located in Dakar, and for Central, Eastern and Southern Africa (CESA), located initially in Nairobi and later in Yaounde, provided strong technical and programmatic leadership for the country programs. Many of PRITECH's innovative activities related to national CDD programs--decentralized program planning and management, commercialization of ORS, feeding messages for mothers, promotion of breastfeeding, CDD curricula for nursing schools, performance-based follow-up testing of clinically trained health workers, innovative uses of mass media such as village theater, involvement of traditional healers, involvement of public elementary schools, and involvement of community organizations--occurred in African countries.

Although some USAID missions in Africa were unable to support CDD programs because health was not a mission priority, PRITECH was able to link with other donors, notably UNICEF and WHO in Zambia, Mauritania, The Gambia, and initially in Uganda and Kenya. Towards the end of PRITECH activities in Zambia, political and economic disruption began to force infant mortality rates upward again. In 1993 in Zambia, the IBRD and USAID were initiating primary health care programs which could build on PRITECH's efforts.

In all the country programs, PRITECH gave high priority to the sustainability of national programs. In African countries where PRITECH worked, the prospects were low for governments to become self-reliant; continuing external financial assistance will be necessary to fund any special health services or to reach most of their citizens with health programs. Nevertheless, PRITECH designed activities which would avoid requirements for recurrent funding from the national budget: training of health workers, curriculum changes in professional schools, education of the public, and reliance on case management of sick children in the household. Of course, all of these functions bear repetition and reinforcement over time; PRITECH's attention to health worker supervision, and monitoring of health status, will hopefully reinforce proper case management practices. The main recurrent cost arises with the supply of ORS packets by the MOH and for the poorer African countries, the purchase of ORS packets will continue to be a burden.

In only a few of the more developed African countries, such as Kenya, is it reasonable to expect a steady shift of responsibility from the public to the private sector. In contrast, Asian and Latin American countries already can rely on more vigorous private sectors to meet an increasing share of child health needs. During 1987 in Pakistan, the MOH budget supplied ORS for the entire country, with the objective of having ORS packets in every household. Packets were available at government health facilities and immunization (EPI) workers delivered packets to households. The MOH budget could not sustain this level of annual procurement of 21 million packets. PRITECH helped to stimulate a commitment from the ORS producers and distributors to increase supplies of ORS through pharmacies and consumer goods outlets. As a cooperative effort, the government undertook a nation-wide mass media campaign to increase effective demand for ORS. As a result, commercial sales of ORS packets rose from 10.1 million packets in 1987, to 26.5 million packets in 1990. Government procurement dropped from 21 million in 1987 to 10 million in 1990. These figures reveal

not only a dramatic shift from government supply to commercial sales, but also show an increase of 18 percent in total supply.

Not all of PRITECH's successes were so dramatic. Success was elusive where lack of public sector leadership frustrated attempts to plan and organize effective national programs (Senegal and Kenya), where lack of funds for local costs stalled the program (Cameroon and Niger), and where USAID mission interest was lacking (Zambia). In some countries, affiliation with the CDD program sometimes became an obstacle to working on some of the fundamental problems in the health care system; there was resistance from those bureaucratic entities responsible for planning or health information systems. Some country programs started late in the project, in part because the USAID Office of Health and project management were reluctant to commit core funds early in the project. Programs in Indonesia (commercialization), Uganda (traditional healers), the CESA regional initiatives (urban sector and drug management), and Central America (Instituto de Nutricion de Centro America y Panama [INCAP] initiative for CDD technical assistance) had insufficient time and funding to demonstrate concrete results. Evaluation activities started slowly and did not achieve the anticipated results. In at least one case, Indonesia, it may be possible for BASICS to return to produce evidence of project accomplishments.

Research and Development Activities

The original PRITECH II contract set-aside \$1.5 million for operations research activities, known as Program Problem-Solving Studies (PPSS). Although there was real need, most country programs chose to use funds already available, rather than deal with the additional bureaucracy encountered by a PPSS request to headquarters. After more than two years, only about 15 percent of the PPSS funds were committed. An alternative approach was proposed to the USAID Office of Health and was approved. The technical unit (TU) developed innovative programs in conjunction with field staff in selected countries to be carried out in the context of a country program, where application of the innovative activity was foreseeable. Each innovative activity had a designated program manager (a technical officer or operations officer at headquarters, or a regional officer), a target country/ies for field application, and usually an existing technical approach or capability which could be incorporated into the PRITECH program without stretching PRITECH staff too thinly.

The following activities were intended to go "beyond ORT," and substantial progress was made with breastfeeding and feeding messages:

- (1) **Breastfeeding.** PRITECH staff collaborated with the WELLSTART program to promote breastfeeding through national CDD programs, notably in Pakistan, Bolivia, Cameroon, Zambia, Uganda, and Kenya. In Pakistan, "ORS + breastmilk" was promoted as a "new and improved product" that could reduce the severity of diarrhea.
- (2) **Nutrition and feeding messages.** PRITECH field staff in West and Central Africa worked with headquarters and JHU staff to identify culture-specific feeding messages for mothers.

This work culminated in a regional conference on feeding and breastfeeding, featuring research results from the region.

- (3) **Acute respiratory infections (ARI) case management.** Late in the project, a regional position for an ARI expert was established in the Sahel. Country analysis and planning for national programs occurred in Bolivia, The Gambia, Mali, Niger, and Senegal.
- (4) **Persistent diarrhea and dysentery.** PRITECH collaborated with a world-wide effort, led by WHO and JHU, to assess the importance of persistent diarrhea and dysentery, and to collect information useful for program strategies. Field research was conducted in Burkina Faso, Niger, Senegal, Zambia, and Bolivia.
- (5) **Commercial marketing of ORS and demand creation for ORT.** In Pakistan, Kenya and Indonesia, PRITECH organized national-scale programs using commercial private resources to promote ORS, and ORT concepts including breastfeeding. See the PRITECH publication, *Forging New Partnerships: PRITECH's Pakistan Experience*.
- (6) **Work at community-level and with non-governmental organizations (NGOs).** Virtually all of PRITECH's country programs involved NGOs and activities at the community level; however, developmental approaches were used in Mexico (market-day promotion to Indian communities), Bolivia (resident technical expertise provided through a consortium of NGOs), and Central/Eastern Africa (use of planning workshops to stimulate technically-sound NGO activities). The African program was a joint effort with CEDPA.
- (7) **Enlistment and training of private practitioners, including physicians, pharmacists and traditional healers.** In addition to the "detailing" of private physicians and pharmacists in Pakistan, Kenya and Indonesia, the most significant effort occurred in Uganda, where PRITECH staff led the effort to work with traditional healers.)
- (8) **Improvements in drug management, especially reduced use of harmful anti-diarrheals and antibiotics.** Innovations in management of ORS distribution occurred in Indonesia and Honduras. PRITECH facilitated restriction of harmful drugs for diarrhea in Pakistan and the Sahel.

Other initiatives included the improvement of case management training (standardized methods for assessing performance of trained health workers were developed by PRITECH staff working with HealthCom and the Quality Assurance projects) and the involvement of the public elementary schools (ORT educational materials were developed and used in Kenya's primary school system).

Service Orientation

PRITECH's Information Center became renowned for its rapid and useful responses to requests for information. The steady stream of the Monthly Acquisitions List permitted those people working with

the project to order the latest articles and documents from a library of over 6,000 documents. Support for regional information activities in Dakar (ORANA) and Guatemala (INCAP) enlarged the audience to include French and Spanish speakers. The 60 issues of the *Technical Literature Update* (TLU) put recent important research findings into perspective for managers of child survival programs.

Health Systems Support (HSS) financed 162 short-term technical assistance assignments, utilizing 177 consultants in a total of 42 countries. PRITECH also supported participants to workshops and conferences concerned with child survival.

The level of collaboration with USAID's main allies in the child survival effort, WHO and UNICEF, is suggested by noting that in 10 countries this collaboration was explicit, substantial, and sustained. WHO and UNICEF were active participants in the Technical Advisory Group (TAG) chaired by the Office of Health. Technical initiatives for breastfeeding and traditional healers were developed in response to WHO recommendations. PRITECH organized a technical meeting to assist USAID and WHO in their deliberations about the efficacy of cereal-based ORS.

Financial Status

At the end of the project, October 31, 1993, accrued expenditures totaled \$33.2 million. Of the total spent, 62 percent or \$20.9 million came from core funds, very close to the 60 percent envisioned at the beginning of the project. PRITECH received \$12.9 million of buy-in funds from USAID missions and Washington offices for specific programs. PRITECH worked hard to acquire the buy-ins; for example, program development efforts took place in 45 countries, although only about 40 percent of the country programs proposals could be brought to the point of approval and funding. The balance unexpended at the end of the contract was 2 percent of available funds.

The term of the contract was extended fourteen months beyond the originally approved five years, from August 1992 to October 1993. Some activities can be continued under the newly awarded BASICS project; there is a one month overlap between the two projects. Because the award of the BASICS contract did not occur until shortly before the end of PRITECH II, almost all the PRITECH activities in the field were terminated according to plan during the last year of the project. In the future, if the Office of Health anticipates extension of activities into a new contract, a longer overlap period, as occurred between PRITECH I and PRITECH II, should be provided to permit an orderly transition.

OVERVIEW OF COUNTRY PROGRAMS

I. HISTORY OF BACKGROUND ACTIVITIES

Many PRITECH II country programs were continuations of programs begun under the first PRITECH contract. Under PRITECH I, country programs had been established as long-term efforts to assist governments in carrying out national programs. The objective was to make existing primary health care programs (PHC) more effective by focusing on diarrheal disease, using the proven oral rehydration therapy (ORT) technology. PRITECH created a niche among donor programs, working alongside national program managers who were formulating national policy, organizing training for primary health care workers, developing mass media and other public education efforts, and sometimes stimulating public sector production and distribution of oral rehydration salts (ORS). The nature of these national programs was determined by the World Health Organization (WHO) guidance on control of diarrheal disease (CDD) programs. WHO's approach was based on case management technology, which became the organizing principle in national programs. WHO's policies were used in defining case management practices for each country's circumstances. Typically, PRITECH helped to define the policy and then helped to translate the policy into training materials for health workers, educational messages for mass media dissemination, and guidelines for production and distribution of ORS. Once the policy and program plans were agreed upon by the government and the donors, PRITECH slipped into the role of facilitator, often becoming a catalyst to speed program implementation through timely, small inputs of funds or technical assistance. This role was fundamentally different from the original concept of PRITECH as a source of high-level, short-term technical assistance to countries which could organize programs pretty much on their own.

The country program assistance envisioned for PRITECH II endorsed PRITECH's role and the need for long-term field staff. Missions recognized the value of helping national programs make good use of their own and donor resources by having PRITECH get involved in the day-to-day process of planning and implementing programs. PRITECH's funds were often used to fill gaps when funds from large donors became snared in broad disputes about funding policies and procedures. Since PRITECH's funds for local costs were relatively small, there was no competition with major donors who were seeking ways to spend large sums. PRITECH could help the national program manager and a donor find a way to use effectively the donor's large sums, while adhering to the donor's rules for accountability.

PRITECH II programs gave more attention to longer-term issues: pre-service education about CDD in medical and nursing schools; operations research on breastfeeding and appropriate weaning foods; and testing new approaches to delivering CDD services by traditional healers, pharmacists, private physicians, and community level organizations.

Contractual Objectives for Sustained, Intermittent, and Ad Hoc Programs

The PRITECH II project was asked to produce 12 to 15 long-term country programs with resident staff (sustained programs) and up to 15 long-term programs relying mainly on short-term technical assistance (intermittent programs). By the end of the project, 15 sustained regional and country programs were approved; seven were completed. In total, 22 regional and country programs were implemented. Programs in several countries, particularly in Africa, continued from PRITECH I: Bolivia, Cameroon, Indonesia, Kenya, Mali, Mauritania, Mexico, Niger, Pakistan, Senegal, Zambia, and the Sahel Regional Office. Other programs were new or recent starts: Burkina Faso, the Central America Regional Office, The Gambia, and the Philippines. Some programs were new departures into the private sector, fundamentally different from the previous public sector programs: Indonesia, Kenya, and Pakistan.

A new category, ad hoc country programs, became the vehicle for short-term, problem-oriented CDD activities consisting mainly of cholera activities in response to alarm in Latin America about a new epidemic.

II. DEVELOPMENT OF COUNTRY PROGRAMS

At the beginning of PRITECH II there was a one-year overlapping period with PRITECH I. During this overlap year, assessments were made of the ongoing program and new multi-year program plans were developed with Ministries of Health (MOHs) and USAID missions and presented to the Office of Health and to the A.I.D. Regional Bureaus. Most of the continuing programs were in the sustained country category; however, PRITECH sought additional country programs in both the sustained and intermittent categories. Promotional visits were used to spark interest with USAID missions and MOHs. When there was serious interest in a program, teams were sent to assess the CDD programs and to recommend plans for country programs. PRITECH seriously pursued programs in forty-five countries. The greatest response was for resident advisors and long-term sustained programs. Missions had more difficulty providing support for a series of visits by short-term experts; without a resident PRITECH representative, the administrative burden was more than most missions could handle.

In some of those forty-five countries, PRITECH actually planned and developed country programs which were not implemented. In Sudan, the civil unrest forced cancellation of a program shortly before assigning a country representative. In Chad, after a six-month assignment of a PRITECH representative, PRITECH and the mission concluded that their strategies were diverging; there was mutual agreement not to field a permanent country representative. In Guinea and Nigeria, PRITECH-designed programs which were then implemented by the Africa Regional Combating Childhood Communicable Diseases (CCCD) Project. Private sector programs were designed for Zaire and Haiti, but not implemented because of civil disturbances.

In February 1990, the PRITECH Technical Advisory Group (TAG) authorized pursuit of country programs in the private sector. Funds were set aside to promote and to design private sector programs. To explore possibilities in the private sector, workshops were organized to bring representatives from the private sector together with A.I.D. and PRITECH staffs.

Funding Sources: Buy-ins, Shared Funding, and R&D/Health Funding

The PRITECH II contract budget included \$21 million for country programs, of which \$14 million was to come from buy-ins from USAID missions or regional bureaus. During the first three and a half years of the contract, PRITECH secured virtually all of the expected buy-in funds. The buy-ins came from African and Asian missions and from the Africa Regional Bureau. Office of Health funds were programmed for continuing programs in Zambia, Bolivia, Mexico, and half of the Kenya country budget. Additional Office of Health funds were left unprogrammed because of uncertainty about available funds in the future. The remaining Office of Health funds were programmed for activities beginning late in the fourth year of the contract, with the expectation that a one-year, no-cost extension would be approved by A.I.D. Private sector programs were approved for Indonesia and Kenya. A regional program was approved for Central America. A conference on private sector ORS production in Asia was approved. A substantial buy-in for a country program in Madagascar was also approved. Finally, the entire budget for country programs was authorized for approved program plans.

Collaboration with Other Donors

From the outset, PRITECH's activities have benefitted from close collaboration with WHO and UNICEF, at headquarters and country levels. Country program plans developed by PRITECH and USAID missions have been most successful when planning occurred as a national effort led by the government, with active roles played by WHO and UNICEF, as well as other bilateral donors. These plans have defined needs comprehensively and have made clear what resources will be available for each need. PRITECH often takes the lead by stimulating the planning process and acting as an informal liaison among the key parties until the process takes on its own momentum.

Management Structure and Staffing

Country programs have functioned best when there is a broad mandate from headquarters, with substantial decentralization of authority to staff in the field for innovation and response to local needs. Program opportunities often emerge from complex events that are difficult to foresee. Mobilization of resources to respond to those opportunities often depends on trust deriving from personal as well as institutional relationships. Over time, PRITECH has steadily upgraded the qualifications for country representatives as the importance of field-level judgment and initiative became more apparent. Appointments of exceptionally able staff at the regional level with responsibility for program direction has been an equally successful way to get creative, pragmatic, and wise judgments applied directly to problems and to opportunities in countries.

To achieve what becomes possible when creative and effective staff are in the field, requires a smoothly functioning, service-oriented, and problem-solving administrative and financial management organization at headquarters. The field staff needs clear procedures and adequate training to carry out their financial management and administrative responsibilities. The technical and program-oriented staff on the project and the financial and administrative staff must realize that both groups are essential and equally important. When there is a lapse of respect or concern for either domain, the technical/programmatic or the financial/administrative domain, problems develop whose solution is vastly more complicated and difficult than the preventive action needed to avoid the problems. In the early years of the contract, not enough attention not staff was given to financial and administrative matters. As problems emerged mid-way i the project, management attention and staff were increasingly shifted towards finance and administration until these problems were solved.

Project Management

PRITECH had two groups of leaders: headquarters managers and senior field staff. Headquarters leadership went through a long period of controversy and crisis during the middle of the project, which diverted attention from upgrading financial systems and delayed developmental work: promotion of new country programs, and creation of the RAD initiatives. Most of the senior field staff continued from PRITECH I and remained stable through most of PRITECH II; the senior field staff provided direction and resilience for the most significant part of the project, the country programs. Until the fourth year of the project, headquarters was "under-managed"; there were not enough senior, experienced managers on the project. As a result, proposals for new and expanded country programs (Indonesia, Uganda, CESA region, Central America, Mexico, and Kenya) and virtually all of the RAD initiatives were not ready for implementation until the end of the third year or the beginning of the fourth year. The toll on the headquarters staff, coping with internal controversy while trying to move ahead with program development and routine project management, was visible. Nevertheless, by the end of 1990 the project was moving steadily to achieve its objectives, mainly because of the skilful, experienced and dedicated staff in the field.

Glenn Patterson was appointed as project director in February 1991. Although most of funds for country programs and RAD initiatives had been approved or were nearly ready for approval, it was clear that actual implementation and disbursement of funds was far behind schedule. Part of the reason for low disbursement was the 13 month overlap of PRITECH I and PRITECH II; PRITECH I funds were used to cover most of the program costs during the first year of PRITECH II. The Office of Health was prepared to consider a one-year, no-cost extension of PRITECH II. Patterson linked the extension to a thorough overhaul of the financial and administrative systems. Senior, experienced finance and contracting staff were recruited to renovate systems and to bring the accounting records and the budgets for funds and level-of-effort into line. Despite the difficulty of tracking expenditures against funding sources and over 1,200 task assignments, systems were established to monitor expenditures during the the 14 month, no-cost extension of the contract.

PRITECH BOLIVIA PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

In August 1985, PRITECH initiated activities in Bolivia. The PRITECH mandate was to provide technical assistance to a nationwide child survival education project implemented by a national private voluntary organization (PVO) — Caritas Boliviana. The joint USAID/Washington and USAID/La Paz project aimed to reduce infant and child mortality by introducing oral rehydration therapy (ORT) and child-growth monitoring to the members of 1,800 rural mothers' clubs.

The PRITECH team in Bolivia provided technical assistance to Caritas Boliviana and assumed additional implementation and funding responsibilities. In 1988, the final year of the PRITECH I project, PRITECH expanded activities by providing technical support to a variety of USAID-funded international PVOs with child survival projects. Coincident with the conclusion of the original PRITECH commitments to Caritas Boliviana in 1988, USAID/La Paz established a coordinating group for USAID-funded PVOs working in child survival programs in Bolivia. The purpose of this consortium was to avoid duplication of services and to make the greatest use of all resources available to child survival PVOs.

As a way to build on the gains that PRITECH had made up to 1988 and as a way to channel resources to the new consortium, PRITECH offered to provide the services of its experienced Bolivian staff to the group. The PRITECH library and librarian had already been incorporated into the consortium, with all costs covered by the consortium. PRITECH then proposed that Dra. Ana Maria Aguilar, its Bolivian technical medical consultant, and Lic. Susana Barrera, its Bolivian educational consultant, join the consortium as technical resource persons, but employed with PRITECH funds. This arrangement allowed the previous PRITECH investment in Bolivia to be carried forward with even broader impact than was possible working with one PVO alone (Caritas Boliviana) and to fit in effectively with the new consortium to support child survival activities more extensively in Bolivia. The consortium was also to coordinate its efforts with those of the Ministry of Health (MOH).

Thus from 1988 to 1991, PRITECH provided technical assistance to the consortium of USAID-funded PVOs working in health in Bolivia. This consortium was called the Programa de Coordinación en Supervivencia Infantil (PROCOSI), and members included CARE, Project Concern, Save the Children, Andean Rural Health, Meals for Millions, Caritas Boliviana, Freedom from Hunger, Catholic Relief Services, Plan International, and Project Esperanza. Because of the constraints within the Bolivian MOH, PVOs play an important role in the delivery of health services, in many areas not just in supplementing MOH efforts but in taking on the principal burden of health care delivery.

In 1990, an USAID evaluation was carried out to review PROCOSI because its initial funding was coming to an end; the first operational program grant was to expire at the end of July 1991, and

USAID needed guidance on whether PROCOSI should be continued. The evaluators gave high marks to the technical inputs by PROCOSI, including the PRITECH staff, calling them "skillful, qualified employees." The evaluation cited many major elements of PROCOSI for modification, one being the recommendation that PRITECH's technical assistance be incorporated directly into PROCOSI under its anticipated new grant from USAID.

The implication of this recommendation was that PRITECH would no longer provide technical assistance to PROCOSI. PROCOSI made direct offers of employment to both advisers, asking them to either become PROCOSI staff by October 1991 or to conclude their service to PROCOSI. The communication adviser chose to stay on, while the pediatrician chose to conclude her PROCOSI work. However, Dra. Aguilar remained with PRITECH as the PRITECH country representative, initiating a period of providing direct technical assistance to the MOH (especially for its cholera program) and to other institutions.

II. PRITECH/PROCOSI COLLABORATION

The goals set forth for PRITECH in working with PROCOSI were to:

- assist PROCOSI in developing activities and materials that would better coordinate the child survival programs of its various PVO members and enhance the technical appropriateness and effectiveness of the members;
- assist individual PVO members of PROCOSI to develop effective and comprehensive child survival programs and activities, particularly in the area of diarrheal disease control (CDD), and to assist PROCOSI and its members to make their child survival activities and materials consistent with those of the MOH, and;
- support limited but focused research of village women by PVOs to increase the understanding of the reasons that deter women from adopting recommended practices for CDD. We were especially interested in learning how to close the knowledge and practices gap — the failure of mothers who know about recommended CDD practices to adopt those practices.

Activities

- (1) **Training.** Substantial effort was committed to enhance the levels of technical expertise of PVOs and of coordination with the MOH. These activities included the organization of workshops, seminars, and round tables to discuss and attempt to find answers to several key child survival program issues such as growth monitoring and the correct use of the national growth chart; breast and infant feeding; acute respiratory infections (ARI); feeding and cultural barriers to ORT; and endemic disorders such as Chagas and malaria, which were significant programs of several PVOs.
- (2) **Evaluation.** An initial activity carried out by the country representative was an evaluation to determine the strengths and constraints of the diarrheal disease programs of the PVOs.

Although CDD was regarded as one of the most important child survival components, the review identified important weaknesses such as an inadequate amount of educational materials and the existence of technically inappropriate and inconsistent educational materials. The findings led to efforts to improve ORT activities, including the collective training and educational materials development.

- (3) **Information, education, and communication (IEC).** Under the leadership of PRITECH's educational consultant Lic. Barrera, written and audiovisual educational materials were developed by the PVOs. Many of the manuals, flip charts, handouts, slides, and videos developed for child survival programs are still in use.
- (4) **Research.** Research projects undertaken during this period addressed issues such as the use of ORT in rural communities (CARE); the use of an improved growth chart (CARE); and the developmental aspects of child care (joint PVO effort). The PRITECH country representative reviewed the proposals for these research projects, supervised the research, evaluated the results, and organized meetings for the presentation of the results.

Strengths and Constraints

The principal strength of PRITECH assistance within the PROCOSI context was the private and public sector links formed by PRITECH staff with the other PROCOSI PVOs and with the MOH. The PRITECH representative facilitated the integration of technical issues amongst the PVOs. The principal constraint faced by PRITECH was the slow pace at which decisions were made by PROCOSI. In addition, as an institution, PROCOSI did not communicate with outside organizations such as PRITECH with enough frequency.

III. PRITECH AND THE NATIONAL CDD PROGRAM

Background and Policies

The national CDD program (NCDDP) of Bolivia was established in 1983 and is situated within DINAP (Dirección a la Atención de las Personas), the maternal and child health division of the MOH. Dr. Marta Mejia served as national CDD program manager, a full-time permanent position in the MOH, until 1991 when she left to work with the Pan American Health Organization (PAHO). She was succeeded by Dr. Jacqueline Reyes who still holds this position. Since 1991, the priorities of the program have been case management training, the distribution of oral rehydration salts (ORS), and field investigations and research. These priorities are outlined in the Bolivian NCDDP, first written in late 1983, and are embodied in the **National Survival Plan for Maternal and Child Health Development**. The MOH's policies on home case management, breastfeeding, and feeding during diarrhea are incorporated within the national CDD policy.

With the arrival of cholera in August 1991, the epidemiology division of the MOH initiated some cholera activities, although the cholera control program was not established until January 1992 when the MOH appointed Dr. Johnny Mollinedo as the national cholera coordinator. Dr. Mollinedo was to coordinate cholera prevention and control activities with other sectors of the MOH. In December 1991, USAID/La Paz requested that a combined PRITECH/WASH (Water and Sanitation for Health Project) consultant team work with the MOH to outline the preliminary steps for writing a national cholera plan. Despite a severe outbreak of cholera in early 1992, the draft national cholera plan was not finalized while Dr. Mollinedo was cholera coordinator. In addition, with an overwhelming emphasis on epidemiological surveillance and minimal guidance on appropriate services, the draft cholera plan had little practical use. The lack of a plan, combined with minimal efforts at internal MOH coordination, impeded the implementation of cholera control activities.

In reaction to the cholera epidemic, a Latin American CDD program managers meeting was held in Santa Cruz, Bolivia in June 1992. Sponsored by the World Health Organization (WHO), PAHO, USAID, and the Bolivian MOH, the meeting convened representatives from 19 countries experiencing or threatened by cholera. Conclusions drawn on the last day included the importance of integrating cholera and CDD activities, developing national cholera plans, and developing a tool to measure the cost of cholera prevention and control programs.

In November 1992, faced with a severe outbreak of cholera, the MOH named Dr. Rolando Suarez to replace Dr. Mollinedo as national cholera coordinator. With strong encouragement from USAID and other donors, Dr. Suarez convened a workshop to draft a new national cholera plan. Joining the MOH in the workshop were representatives of various donor agencies, including PRITECH and USAID.

Structure of the Bolivian Health System

The MOH is made up of various directorates, including DINAP, the maternal and child health division which covers CDD. Bolivia is divided into 12 health regions, or Unidades Sanitarias. Each region is comprised of districts of hospitals and clinics. The districts are comprised of areas of clinics and health posts, which are basic health centers.

In addition, extra-institutional community oral rehydration units (C-UROs) distribute ORS and provide information on ORT. In general, C-UROs are small shops or private homes in a rural community or urban neighborhood where the shopkeeper or homeowner has, in theory, been trained to some degree in the use of ORS, distributes ORS free of charge, and provides this information to the community as a volunteer. The Responsables Populares de Salud (RPS) are voluntary village health workers who provide some health services; in some cases, they are the individuals in charge of the C-URO in their community. The official estimate of the number of C-UROs is 6,000 although difficulties in defining the nature and role of C-UROs have most likely inflated this estimate.

Other MOH departments which affect CDD are CEASS, or the Centro de Abastecimiento de Suministros en Salud, the national level division of the MOH that manages the supply, storage, and

distribution of all public health supplies, including ORS and other basic medicines and hospital supplies; and the national health information system SNIS, or Sistema Nacional de Información, which was established in 1991.

PRITECH's Scope of Work

With the conclusion of the formal PRITECH/PROCOSI collaboration in September 1991, PRITECH began to provide more direct technical assistance to the MOH. Collaboration with the CDD program, the national cholera coordinator, and donors intensified with extensive efforts to address the urgency of the cholera epidemic. The PRITECH country representative began to respond to more requests for technical assistance from the MOH and from the bilateral project Community and Child Health Project (CCH), and began to participate in more frequent interagency meetings.

In early 1992, USAID/La Paz requested that the PRITECH representative provide technical assistance in the development of training materials for auxiliary nurses and village health workers, and in the evaluation of the quality of services and knowledge levels of individuals responsible for C-UROs. PRITECH's successful response prompted the mission's request that Dra. Aguilar devote 75 percent of her time through February 1993 to cholera activities, and 100 percent, effective March 1, 1993.

Of the five lines of action outlined in the national cholera plan (case management, IEC, administration/logistics [including ORS], epidemiological surveillance and environmental sanitation) PRITECH's assistance falls under the first three areas.

Financing Levels

The majority of funding for the PRITECH II Bolivia program has been provided by the RAD/Health Bureau. Beginning in 1992, funds from LAC Bureau buy-ins for cholera prevention and control have supported local program costs and, in part, the PRITECH representative.

Activities In Support of CDD and Cholera

(1) **Training.**

- (a) **Cholera/CDD training.** PRITECH has been involved in the design of training sessions for physicians, nurses and auxiliary nurses using the materials described under IEC. Since July 1992, PRITECH has helped conduct an average of two courses per month for health district personnel throughout the country. In conjunction with training sessions, PRITECH distributed training manuals directly to 150 of the 802 MOH doctors in Bolivia, and 500 of the approximately 1,750 MOH nurses and auxiliary nurses.

During the first trimester of 1993, PRITECH and the cholera team trained teams from five regional health units. Each team was composed of a physician with experience in epidemiology and maternal and child health, the head nurse, and the water and sanitation technician. The main purpose of this training was to familiarize the teams with the cholera/CDD manuals' teaching methodologies, and observe the trainees' performance when teaching other professionals in their health facility.

- (b) At the request of USAID, PRITECH participated in team visits to Saipina in the Santa Cruz health region, and Santa Anna de Yacuma in the Beni region to assess the extent of the cholera epidemic. In each case, the team gave practical training to health personnel, ensured the consistent application of treatment norms, and reviewed educational messages and cholera prevention measures.

(2) **IEC.**

- (a) PRITECH supported the development of two manuals on the case management of cholera and diarrhea. The **Manual del Responsable Popular de Salud - La diarrea comun y la diarrea por cólera** was developed for village health workers located in urban and rural communities. Twenty thousand copies were printed for use in health districts throughout the country.

The **Manual para Auxiliares de Enfermería - La diarrea comun y la diarrea por cólera**, which was developed for nurses, addressed technical aspects of cholera and diarrhea management as well as training-of-trainer (TOT) methodologies. Three thousand, five hundred copies were printed for distribution to nurses in health facilities throughout the country.

- (b) PRITECH also coordinated a workshop for the updating of the national norms for the prevention and treatment of cholera. The **Manual de Normas y Procedimientos De Lucha Contra El Cólera** was finalized and printed in early 1993. Prior to its finalization, the PRITECH country representative and Dr. Suarez, the cholera coordinator, traveled to various health regions to introduce the manual and to gather feedback from health personnel in the field.
- (c) PRITECH supported the production of a series of slides to be used during cholera and diarrhea case management training sessions for regional-level physicians and nurses responsible for training health workers at lower levels. The slides describe the epidemiology of diarrhea and cholera, their etiology, and effective case management and prevention.

(3) **Evaluation.**

- (a) As a follow-up to an evaluation conducted by the country representative during PRITECH's association with PROCOSI, Dra. Aguilar participated in an evaluation of Project Concern International's child survival programs in Potosí and Cochabamba.
- (b) In December 1991, PRITECH supported the census and evaluation of C-UROs in six regional units at risk of cholera. Although the official estimate of the number of C-UROs in the country is 6,000, the lack of a standard definition of an URO has probably distorted this figure.

During the study, 2,284 C-UROs were visited and charted, 642 C-URO leaders were interviewed in terms of their knowledge of appropriate case management; 2,398 community members were interviewed to determine their awareness of the location of the nearest C-URO and their opinions of the quality of services delivered by the village health workers responsible for the C-UROs.

It was discovered that: 1) nearly half of C-URO leaders had been recruited during the previous six months; 2) they received no supervision; 3) they did not perform ORT according to the national norms; and 4) they did not know referential criteria. Most village health workers in charge of C-UROs viewed their main responsibility as the distribution of ORS. On the part of the community: 1) less than half of the population knew the role of the C-UROs; 2) nearly one-third knew the address of the nearest C-URO; and 3) 25 percent could identify the village health worker. Each of the regional units in which the C-UROs were located were informed of the results and several follow-up activities were developed.

It was anticipated that a follow-up evaluation would be conducted in June and July 1993 to review the progress made since the development of follow-up activities. However, given that the April 1993 WHO health facilities survey (HFS) of CDD in Bolivia reconfirmed that the government has yet to focus a significant effort on the C-UROs, it was decided that PRITECH's efforts were better spent on the identification of hospitals throughout the country that are interested in serving as ORT training centers.

- (c) **WHO/PAHO HFS.** PRITECH participated in a WHO/PAHO-sponsored HFS in April 1993 during which 93 hospitals and health centers across 10 health regions were visited. Problem areas detected in case management were in the areas of evaluation of the level of dehydration and the quality of advice given to patients and their caretakers. In interviewing health workers, the same problems were encountered, and, in some cases, there appeared to be no difference in knowledge between those who had been trained and those who had not. In evaluating the support given by the health

facilities to CDD, deficiencies were noted in the statistical registries and clinical histories. The general conclusion reached was that more attention should be devoted to the development of new training strategies for health personnel involved in diarrheal disease case management.

Since April 1993, the PRITECH representative and her colleagues have gone beyond the manual data analyses done with PAHO to conduct computer analyses of the survey data utilizing EPIINFO, a software package. Initial results point to disparities in case management between case management recorded in the hospitals' medical files prior to the HFS, and the case management observed during the HFS. For example, the medical records revealed a high use of antibiotics in the treatment of CDD. The final results will be available in a report by the end of the PRITECH project.

- (d) PRITECH is supporting the identification and assessment of Bolivian hospitals that could serve as ORT training centers. The PRITECH representative and the CDD program manager will travel to interested hospitals to evaluate the degree to which the hospitals are adhering to good clinical case management practices with their own patients. It is widely held that strengthening hospital diarrheal training units (DTUs) is necessary to assure appropriate case management beyond the confines of the DTUs.

(4) **Research.**

- (a) In February 1992, the PRITECH country representative and Dr. Oscar Gonzales of CCH went to Saipina to conduct the first case control study of cholera in Bolivia. The goal of the study was to develop a rapid and easy technique to be used by local health personnel for detecting the source of contamination in cholera outbreaks. In a short period of time, it was determined that there was a direct link between contaminated water and cholera, and appropriate measures were quickly identified and implemented.
- (b) PRITECH has been part of a team which began a case control study of acute and persistent diarrhea in May 1991. Both a retrospective and prospective study, PRITECH, the Centers for Disease Control and Prevention (CDC), the CCH project, the Hospital del Niño, and the Bolivian national laboratory INLASA, undertook this study in order to determine why, despite increased success in the use of ORT, an increasing number of persistent diarrhea cases were being presented at hospitals. PRITECH supported the data analysis of the persistent diarrhea component of the study. The principal findings of the study were: 1) 17 percent of the total number of cases lasted 14 days or more; 2) persistent diarrhea cases were not particularly related to an increased exposure of antimicrobials or other medicines, or to previous hospitalizations. Early consultations were found to be beneficial.

- (c) **KAP Study:** PRITECH also supported a preliminary knowledge, attitudes, and practices (KAP) study to examine prescription practices and advice given to clients by pharmacists in relation to diarrheal diseases, including cholera.
- (5) **ORS supply and distribution.** This area has not been a focus of PRITECH assistance, due in part, to the lack of priority placed on this area by the MOH. In May 1991, a PRITECH consultant conducted an analysis of the ORS supply and distribution system, concluding that low levels of ORS are due to variables such as distribution constraints combined with behavioral, cultural, and educational factors.

Although the consultant found that ORS did not appear to be in short supply in 1991, she noted that the weak distribution system suggested periods of scarcity at the district and area levels. This also makes difficult the measurement of ORS demand, as low levels of use may be due to lack of supplies rather than lack of demand.

The need to address the ORS supply and distribution system has become more apparent with the cholera epidemic. CEASS appears to have made little progress since 1991 in ensuring distribution beyond the regional level to the districts and areas where ORS is sorely needed. Compounding this problem is the risk that the pending expiration of USAID's sole source contract for ORS may reduce Bolivia's annual supply of ORS.

- (6) **Assistance to the national cholera coordinator.** Dra. Aguilar has devoted substantial time to helping the national cholera coordinator define his role, familiarizing him with the history of cholera efforts, and devising a budget for the national cholera plan.
- (7) **Other initiatives.** The PRITECH representative has been an active participant in and consultant to COTALMA, the group of WELLSTART alumni dedicated to the promotion of breastfeeding in Bolivia. Trained at WELLSTART, Dra. Aguilar helped develop and lead lactation management training courses which emphasized the link between breastfeeding and diarrhea. This has helped breastfeeding promotional activities gain national recognition in Bolivia. In addition, Dra. Aguilar attended international nutrition conferences in Geneva and Rome under the sponsorship of WELLSTART and USAID's Office of Nutrition. Dra. Aguilar gave presentations on breastfeeding issues at both meetings, and continues to promote breastfeeding in Bolivia.

Strengths and Constraints

Several strengths of the PRITECH interventions described above can be noted. Through the persistent diarrhea study and cholera activities, a strong team of health care professionals has developed, and they have continued to collaborate in other areas. INLASA, the national laboratory, gained confidence in its abilities to diagnose cholera as its diagnoses were confirmed by CDC. The increase in credibility has opened doors for the institution's involvement in other research activities.

In terms of IEC, with PRITECH's technical and financial support there now exists a packet of educational training materials which did not exist prior to PRITECH's involvement in cholera activities. Although initially slow to use, physicians, nurses, and village health workers have shown increased acceptance and use of the materials. Furthermore, CDC has pointed to the high technical quality of the epidemiology section of the norms manual in particular.

General constraints faced by PRITECH include hospital strikes which interrupted research activities, physicians' preference for comprehensive child survival training programs over focused CDD/cholera training, a lack of coordination of cholera activities within the MOH, and significant difficulties in the ORS supply and distribution system.

IV. LESSONS LEARNED

- (1) **Flexibility.** From the beginning of PRITECH activities in Bolivia in 1985, PRITECH has been extremely flexible in its ability to respond to the needs of various PVOs and the MOH. In its early stages, the small size of the PRITECH team enabled it to respond quickly to the needs of Caritas Boliviana. The PRITECH/PROCOSI collaboration afforded PRITECH with the opportunity to develop important public and private sector institutional relationships, and to interact with other child survival interventions such as growth monitoring, breastfeeding, and ARI. As a result of these institutional relationships, a network of local consultants with expertise in CDD and other areas formed, a network which continues to serve as an important resource for the CDD program.

While there were some difficulties working within a 10 member organization, the flexibility experienced by the PRITECH employees enabled them to make important contributions to child survival programs. Working more independently following her departure from PROCOSI, the PRITECH representative was able to provide technical assistance in many intervention areas such as breastfeeding, CDD training, cholera strategy development, and nutrition; her technical skills continue to be in high demand.

- (2) **Institutional strengthening.** An important lesson has been learned from the continuity of technical assistance provided by PRITECH in the form of its country representative. As a Bolivian citizen, through PRITECH the country representative has been establishing links amongst PROCOSI PVOs and with the MOH for several years. The sharing of technical information and experiences has increased the capabilities of these organizations, and teams of individuals representing those institutions have formed and continue to apply their skills to a variety of health interventions and research. As described earlier, the team approach to the persistent diarrhea study strengthened the national laboratory in particular, and has created possibilities for involvement in additional research activities.
- (3) **MOH's ability to respond to a cholera epidemic.** In the Bolivian context, the timing of responses to health issues and the level of coordination represent significant areas for lessons

learned. Despite the positive efforts made in the face of a cholera epidemic, the MOH's response can be described as "too little, too late." Underlying difficulties in completing the national cholera plan was a lack of coordination amongst different sectors of the government and MOH. The highly political nature of the MOH, where key individuals would not work with the cholera coordinator because of his lack of prior experience in the public sector, prevented effective coordination. Overall, key issues of the cholera program were not addressed early enough, diminishing the impact of the efforts made.

Through activities such as the C-UROs evaluation and the PAHO HFS, PRITECH helped identify discrepancies in case management knowledge which exist within the MOH health structure. Ideally, training provided at the regional level was to spread to the district level, which was to spread to the community level. The spread effect has been weak as training does not often extend beyond the regional level. The need for training seems significant as inappropriate case management has been noted at all levels. The MOH has been isolated in its ability to project itself, particularly to the community level. This gap has prompted donors to develop a direct training strategy for the C-UROs, as they offer the nearest services to the end user.

- (4) **ORS supply and distribution.** Despite some efforts, the CDD program and the central Bolivian government have lacked the funding necessary to make this area a priority, thus problems identified during the PRITECH consultant's 1991 visit appear to persist. The demand for ORS increased when cholera arrived and the distribution channels have not been able to meet the demand. Increasingly, efforts are being made by DINAP to identify alternative methods for ORS distribution, although a comprehensive approach needs to be developed and implemented.

The policy of the CDD program in Bolivia has been to distribute ORS packets free of charge and through MOH facilities, a policy which should be reviewed in light of the possible reduction in donor supplies of ORS. National ORS production capabilities are limited and should be considered as an area of further pursuit.

- (5) **Program sustainability.** Diarrheal disease remains the second leading cause of morbidity and mortality in children under five in Bolivia, although PRITECH has observed an overall reduction in infant morbidity and mortality during its years of operation in Bolivia. It appears that fewer children with severe dehydration present at health facilities; those that do suffer instead from dysentery, persistent diarrhea, undernutrition, septicemia, and other complications.

Noteworthy progress has been made in cholera prevention and control, particularly in the last two years. This is reflected in an increase in the awareness of ORS which the epidemic prompted, and with accomplishments such as the development of training educational materials, implementation of numerous training activities, and the strengthening of the national laboratory where diagnoses of cholera are made. This progress can be attributed to

the combined efforts of donors, such as USAID/PRITECH, and the MOH, whose political commitment to combatting cholera has been reflected in the appointment of a national cholera coordinator.

However, with the change of government imminent, it is not certain whether the political will to promote diarrheal disease and cholera control programs will continue into the next administration. Furthermore, with only 25 percent of funding for the national cholera plan acquired to date, future political resolve is even more crucial to carrying out the plan's objectives. As the number of (now endemic) cholera cases ebbs and flows, the risk also exists that cholera control efforts will be limited to emergency rather than long-term measures.

Efforts to integrate diarrheal disease and cholera control, as promoted at the CDD program managers meeting in Bolivia, have not been maximized. Despite some progress, diarrheal disease and cholera are viewed, not as one problem, but as separate issues. To the degree that they are viewed as one problem, any abatement in attention to cholera control may impact CDD similarly.

In terms of ORS and other medical supplies, the CDD program remains dependent upon donor support as all ORS and medical supplies are donated by foreign sources. An important step has been taken towards sustainability with the obligation of some funds from ministry budgets to the national cholera/CDD plan. However, this represents a small portion of the overall needs of the country as enumerated in the plan.

The sustainability of CDD/cholera training activities is also questionable. With the exception of health personnel salaries, training activities have been supported exclusively by donors. PRITECH played a major role in this area. With other donors experiencing reductions in available funding, the extent to which regular training activities will be offered is uncertain.

Finally, the sustainability of the CDD program throughout the country will also depend on DINAP's ability both to decentralize some decision-making to regional-level administration and to allow the CDD program manager to concentrate on CDD activities, rather than on other areas into which she has frequently been drawn.

PRITECH BURKINA FASO PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Elements of the PRITECH Country Plan

The USAID/Ouagadougou initiative was the first concerted effort in Burkina Faso to develop methodologies and materials for control of diarrheal disease (CDD) case management training and information, education, and communication (IEC) activities at the provincial level. Four provinces were originally chosen by the Ministry of Health (MOH) for PRITECH intervention. It was hoped that the instruments and materials developed through PRITECH would be adopted by other donor agencies, such as UNICEF, which provided funding for CDD activities in 12 provinces, thus influencing CDD activities at a national level.

PRITECH included in its plans a component of support to the national CDD program (NCDDP), since provincial activities cannot take place without central support. The intention was to assist a national CDD coordinator in structuring a national program, including the updating of the national CDD plan originally drafted in 1984. Provisions were made for some operations research, which was less well-defined, given that research needs were expected to arise during program implementation. Support for structuring the NCDDP was also less well-defined since PRITECH intended to respond to requests for assistance as they arose.

Chronology of PRITECH Activities

PRITECH's involvement in Burkina Faso started shortly after the first NCDDP document was developed in 1985. In 1986, following a revision of the program with the World Health Organization's (WHO) input, PRITECH included Burkina Faso's nurses training schools in the development and testing of the PRITECH/Sahel CDD nursing school training modules. PRITECH, however, was not called upon to assist with operationalizing the CDD plan, which, at that time, remained largely theoretical. In 1988, USAID/Burkina allocated the sum of \$110,000 for limited support to the barely functioning and unstructured NCDDP to be used for training, IEC, and supervisory activities in four provinces.

In October 1988, Dr. Colette Geslin was placed in Ouagadougou as PRITECH's country representative. Her presence increased dramatically the interest in and success of CDD activities at the national level and in 1989, USAID/Ouagadougou allocated an additional \$100,000 for PRITECH interventions. In June 1990, support for structuring the CDD program at the national level was made possible when a full-time national CDD coordinator was finally appointed after many months of lobbying. During this same year Ms. Chantal Corbin replaced Dr. Geslin as the in-country representative. Since that time, efforts have been made to assist the national coordinator in pursuing

national coverage of the program, harmonization of methods used, and the drafting of an updated CDD plan.

In 1991, an additional \$210,000 was provided by USAID/Ouagadougou for the CDD program and activities were expanded to include four new provinces, bringing the total number of provinces receiving direct PRITECH assistance to eight. Late in 1992, a CDD activities planning meeting held in Ouagadougou included new provinces interested in learning more about PRITECH's approach to CDD. This brought the total number of provinces directly involved in PRITECH-sponsored activities to nineteen. An additional \$140,976 was invested in the PRITECH project at the end of 1992 in order to continue PRITECH-sponsored activities through July 1993.

Major Contributions of PRITECH

PRITECH accomplished a number of specific objectives in the process of assisting in the development of the provincial and national CDD programs. The following is a short summary of those major contributions:

- (1) **Planning.** PRITECH played an important role in the development and establishment of annual provincial action plans for provincial CDD programs and assisted in the development of a national action plan. UNICEF and WHO have also participated in the national planning sessions.
- (2) **Pre-service training.** The integration of CDD training modules in the national public health school system curriculum was accomplished in 1988. An evaluation of the schools in 1992 demonstrated the need for refresher courses for teachers. Refresher courses are scheduled to be held before the close of the project in July 1993.
- (3) **In-service training.** The promotion of appropriate treatment of diarrhea cases in health facilities and village health outposts and at the community level has been accomplished by numerous training courses for health personnel and community health workers. Several sets of training materials were prepared for these training courses.
- (4) **Case management.** Oral rehydration therapy (ORT) corners and oral rehydration units (ORUs) were established in the provinces following training courses. Technical guides have been provided to health personnel to encourage high quality evaluation of dehydration, correct treatment, and systematic follow-up of cases.
- (5) **IEC.** Nutritional rehabilitation and the promotion of oral rehydration salts (ORS) have been principal parts of training. These topics were also introduced into community outreach activities with the help of an animator's guide that was translated into local languages and provided to health personnel and community health workers. A film was produced in one province to help with the transmission of messages; an evaluation of this strategy is currently taking place.

- (6) **Supervision.** A supervision form was developed and introduced and was modified for use at all levels.
- (7) **Studies.** A study concerning ORS distribution patterns was done in 1989. An evaluation of case management in health facilities took place in 1990 and a study on dysentery was done in 1992.
- (8) **Nutrition.** There has been an effort to coordinate activities between the Directorate of Family Health (FHD) which oversees children's nutrition, and the CDD program, although there is no organized form of communication set up between programs at the MOH.
- (9) **Private sector.** PRITECH has worked with non-governmental organizations (NGOs) such as Africare, OCCGE (French bilateral assistance), GTZ (German bilateral assistance), Medicus Mundi, and Save the Children to lead research activities and to coordinate field activities. PRITECH also collaborated with health facilities run by church-affiliated organizations for research activities, particularly the dysentery study.

Major Constraints Encountered

PRITECH's funding was initially managed by the MOH. The administrative process for releasing funds for planned activities was complicated and lengthy, leading to the cancellation or delay of many activities. As a result, the implementation of activities did not improve until management of funds was turned over to Management Sciences for Health (MSH).

The PRITECH intervention was never able to cover all the desired CDD activities in any given province. Various funding agencies supported diverse activities in select provinces, according to agreements with the MOH. Unfortunately, this resulted in a lack of coordination in activities from one province to another. Much of the coordination problems were caused by the lack of a NCDDP manager and CDD program personnel.

The lack of a full-time NCDDP manager and CDD program personnel resulted in much of the workload falling on the PRITECH country representative. In effect, Ms. Corbin, originally hired to be an advisor to the NCDDP manager, functioned as the non-official CDD program manager. She is involved in the ministry's administrative procedures at the central level and in the follow-up of activities at the provincial level. These are responsibilities which belong to the NCDDP manager position.

Another difficulty was the physical location of the PRITECH country representative, who, until the assignment of space within the MOH for the NCDDP, went without an office for four years. She had to work at her home or at the USAID mission during this time. This did not promote good relations with government personnel and impeded regular and detailed follow-up of activities.

Other general constraints of the CDD program included:

- considerable political instability in Burkina Faso and constant personnel changes within the MOH;
- lack of coordination within the MOH and also within the Communicable Diseases Division which houses the CDD program;
- hierarchy problems within the MOH, e.g., the MOH is constituted by a central level and 30 provinces which have effectively decentralized. This made coordination and supervision by the small central level staff extremely difficult.

II. THE NATIONAL CDD PROGRAM

Organization of the National CDD Program (NCDDP)

The NCDDP has been a part of the Directorate of Preventive Medicine (DPM) under the General Directorate of Public Health since September 1992. The MOH's organizational chart has changed four times since the beginning of the program. The DPM was initially named the Directorate of Epidemiology and Prevention by Vaccinations, then Directorate of Epidemiological Surveillance and Vaccinations, then Directorate of Control of Transmissible Diseases, and finally the Directorate of Preventive Medicine.

At the outset of the program, PRITECH generated what turned out to be unsuccessful efforts to secure the nomination of a NCDDP manager and the creation of a technical committee. The members for the technical committee were identified and proposed for official confirmation. Confirmation, however, has been delayed by changes within the MOH. Still, even though it is not officially recognized, the committee meets often for planning workshops and training courses.

The lack of a full-time national CDD manager for the first two years of the program made the coordination of activities extremely difficult. After the first two years without a manager, a CDD manager, Dr. Zelbo, was appointed and given the responsibility for creating a national program. Dr. Zelbo's position as CDD program manager, however, was never given official status and this reduced his decision making powers considerably. In addition, the Dr. Zelbo started to take on additional responsibilities which prevented him from working with CDD on a full-time basis. From January to August 1992, he was available for only three months. In September 1992, he left the country for long-term training and has not yet been replaced. The new director of preventive medicine has assumed the responsibility of CDD manager, but does not have much time for this task.

Until recently, the NCDDP consisted of 30 independently functioning provinces following separate agendas regarding CDD. For example, a plan of action exists for 19 provinces supported by UNICEF and PRITECH. This plan of action includes strategies and activities, particularly training of health workers by provincial training teams, training of community health workers by health center staff, IEC activities in ORT centers and ORUs, case management in all facilities, supervision (often

integrated), and ORS stock management. In the 11 remaining provinces, activities are planned through the chief medical officer of the province and, at times, with NGOs working in the province.

In 1992, the MOH decided that all of Burkina Faso's 30 provinces would be integrated into one NCDDP. At the same time, the various funding agencies involved in CDD reached a consensus that coordinating activities throughout the country would greatly benefit the program.

Statement of National CDD Policy

There is no written national CDD policy document; however, certain policy aspects recommended by WHO such as continued breastfeeding, use of anti-diarrheal drugs, and continued feeding during diarrheal episodes are included in the case management training materials for health facilities. Clear policies are not defined for drug use (e.g., for dysentery), ORS pricing, a method of measuring a liter of water for preparing ORS, home-available fluids, and the quantity of ORS to give to a child with diarrhea.

Program Planning

Three major types of CDD planning documents exist: 1) a five-year plan (1986-1991), 2) annual action plans of funding organizations, and 3) provincial action plans. The five-year plan expired in 1991, and a new one needs to be written. The action plans of funding organizations are developed with the MOH at the central level. There is no annual action plan at the central level. Each funding agency creates a separate action plan for the provinces that it supports. In the remaining "orphan" provinces activities are isolated and often do not conform to the national program.

For provincial-level planning, there are annual planning meetings held in Ouagadougou attended by the provincial chief medical officers and those responsible for coordinating CDD activities in each province. The meetings in 1988 and 1989 covered only four provinces; in 1990, eight provinces were involved; and, in 1991, 19 provinces. In 1992, for the first time, all 30 of the provinces were represented. Each province presented a description of activities for the previous year and planned activities for 1993.

Sources of Support

At the national level, financial and technical assistance have been provided to the CDD program by WHO, UNICEF, and PRITECH. Other funding sources, such as GTZ and Save the Children, limit their support to a commune or a province.

Description of Activities, Achievements and Constraints by Program Area

Training. The following training activities have been supported by PRITECH:

TRAINING	NUMBER OF PERSONNEL		PLACE	OBSERVATIONS
	Trained	Retrained		
Trainers	114	26	Ouagadougou (training) Ouahigouya (retraining - refresher course)	Training of 46 personnel with the training document. In a 5-6 day course, 1-2 days are reserved for case management practice.
Health personnel	1257	NA	Capital of the province where the personnel work	Out of 6 days, 2 days of case management practice advised.
Community health workers	4318	NA	Health center	Trained by the health personnel.
Teachers at the national public health school	19	0	Ouagadougou	5 day training not sufficient as only 1 day is available for case management practice.
Training of medical students	NA	NA	Ouagadougou	Case management practice only for those who do advanced study in pediatrics.
Training of managers of pharmaceutical depots	28	0	Provincial capital	Training has been uneven and insufficient due to lack of training documents.

NA = Data Not Available

Training of health personnel in case management as well as in supervision and training has been a primary emphasis of the program from the beginning. Extreme importance was placed on early training of the health professionals in case management.

Pre-service Training

Training modules (developed jointly by PRITECH and WHO) have been distributed since 1988 in the nursing schools of Ouagadougou, Bobo-Dioulasso and Ouahigouya. With technical assistance from PRITECH and funding from WHO, training of teachers at the national school of public health began at the end of 1992. Training of medical students was accomplished over the past year with the assistance of a pediatrician who is a member of the technical committee team using the WHO manual for DTU (diarrhea training unit) training.

In-service Training

A training document entitled "In-Service Training Manual for Health and Community Action Personnel" was developed for trainers (doctors and senior-level nurses) and for health personnel (nurses and midwives). For the 19 provinces covered by the program, training sessions for trainers have taken place (about six trainers per province), using the PRITECH training document. The training of community health workers is being accomplished by nurses at the health center level who have themselves been trained in diarrhea case management. In-service training sessions are planned every two years for nurses who are still experiencing problems in the execution of their work. In addition, an international program manager's training course was organized in June 1991 by WHO and PRITECH at the DTU in Bobo-Dioulasso, with the participation of six countries.

The lack of personnel at the central level has been a constraint in that it prevented supervision of the health personnel training at the provincial level. In addition, the training of community health workers is being led by health personnel who often do not have strong experience as trainers.

Future plans for the NCDDP include the following activities in training:

- continued training of teachers at the national public health schools;
- follow-up to ensure the integration of CDD modules in the nursing schools;
- continued CDD training in the medical schools;
- development of a training strategy for the 11 "orphan" provinces, if funding can be found;
- refresher courses for health personnel and community health workers; and
- supervision training to improve case management practices.

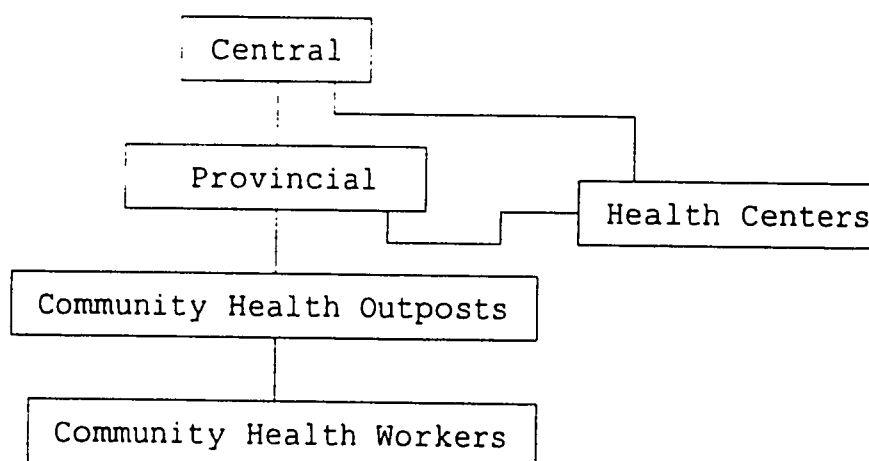
Supervision

Data are only available from the eight provinces directly supported by PRITECH:

Province	Supervision from Central Level 1990 -1992		Supervision by the Province of Health Centers, 1990- 1992
	Province	Health Center	
Bazega	6	2	20
Gnagna	2	2	1
Gourma	2	1	0
Kossi	2	2	22
Mouhoun	2	2	13
Oubritenga	4	3	0
Sissili	2	0	0
Yatenga	3	NA	4

As stated previously, supervision at both the central and provincial levels has been a weak point in the CDD program. Manpower constraints have forced the responsibility of supervisory visits on the funding agencies. It is acknowledged, however, that supervision is an important part of the program and steps are being made to establish a more consistent form of supervision at all levels.

The hierarchy of supervision in the Burkina Faso program has been organized according to the following diagram:



From 1986 to 1989, due to the lack of a program manager, supervision from the central level was done by a pediatrician from the hospital in Ouagadougou. This supervision involved only a short visit and no documents existed to guide its content. In 1990, supervisory visits were made to eight provinces as part of the extension of PRITECH's involvement; these visits made it possible to establish lists of ongoing activities and to identify problems related to case management in certain health centers.

Due to government instability and changes within the ministry, supervisory visits planned for 1991 did not take place. In 1992, 13 provinces received supervisory visits from the central level, which permitted an overview of activities in six provinces which had never before had supervisory visits from the central-level CDD program.

During the December 1992 CDD meeting which brought together representatives from all of the provinces, the supervisory checklist was revised and edited for use at all levels. This checklist can also be included in a guide for integrated supervision. Use of this checklist, however, has not been studied.

Future plans for the NCDDP include supervisory training for personnel involved in supervision, the distribution of supervisory checklists to all of the provinces, and integrated supervision planning for all provinces.

ORS Supply and Distribution

UNICEF provides ORS to the MOH. The first delivery of free ORS, in 1986, was for the opening of primary health care posts. UNICEF provided 700,000 sachets to the NCDDP which were distributed throughout the country even before any CDD training had taken place. Since 1987, UNICEF has continued to provide ORS (300,000 sachets in 1989 and 500,000 in 1992). Some health centers receive ORS free of charge from NGOs working at the local level. WHO gave 25,000 sachets of ORS in 1991 for cholera.

There is no local production of ORS supported by the Government of Burkina Faso. There are two places in Burkina Faso where ORS is produced on a small scale however, in Ouagadougou, in a church-affiliated health facility, and in the Sissili Province, supported by a Dutch donor.

In the private sector there are two distribution networks for ORS. The first is through SONAPHARM (national pharmaceutical company), which has ordered ORS from Niger. SONAPHARM ORS sachets are sold in village pharmaceutical depots at a price varying from CFA 50 to CFA 125. The second distribution network is through private drug companies which sell ORS primarily in large cities; the sale price varies from CFA 200 to CFA 600 per sachet.

A study of ORS supply and distribution patterns was completed in 1989. At that time, 47 percent of the village health posts visited for the study were experiencing ORS stock-outs and had no ORS on hand. Currently, supervisory visits show that the village health posts no longer receive ORS through private channels but are given ORS by the MOH at the provincial level. This ORS, provided to the

health posts free of charge, is sometimes given to the public at no cost, and is sometimes sold to caretakers for prices varying from CFA 10 to CFA 100.

Burkina Faso has adopted the Bamako Initiative Policy for drugs. A central warehouse has been created for generic and essential drugs (CAMEG). Supply and distribution of drugs, including ORS, will be done through this channel.

Information, Education, and Communication (IEC)

The main activities involved in IEC efforts for CDD have been the development and printing of educational materials, coloring booklets, posters for health personnel, flipcharts for educators and trainers, and radio and television spots. A large number of documents, including coloring booklets for pre-school children, posters, a flipchart (which is not up to date), and radio and television spots have been provided by UNICEF.

PRITECH has supported the development and distribution in eight provinces of a flipchart translated into five languages. In total, around 2,500 flipcharts have been distributed to health centers and village health posts. The FHD has trained several trainers and health personnel in communication techniques in the same provinces. The booklets for children at pre-school are being utilized in the two major cities of Burkina Faso.

A major constraint is that IEC is not perceived as an activity of value by health personnel, who prefer direct health care of patients. Therefore, community health workers, who are in closer contact with the population, are not being properly trained in communication. The CDD program has been struggling largely with training activities and has never developed a coherent national IEC component. UNICEF's IEC efforts were carried out in 1986 through 1988, long before there was even a full-time CDD coordinator.

Future plans for the NCDDP include the development of a coherent IEC component in the national CDD effort, training for community health workers using the current educational materials available and the formation of a national logo promoting ORS to be developed and distributed in 1993.

Case Management

Case management activities in Burkina Faso have focussed on the establishment of ORT corners or units, and the provision of the required minimum of material for village health posts.

- (1) **In the health facilities.** The opening of the ORUs was accomplished with the financial help of UNICEF. Only one of these centers has been evaluated; the center at the hospital in Bobo-Dioulasso. This 1990 evaluation showed that the health personnel (10 out of 29 had been trained) correctly classified 54.3 percent of diarrhea cases. Only 23.8 percent of the health workers, however, correctly treated the cases. Supplementary training was implemented after

this study. In national hospitals (Ouagadougou and Bobo Dioulasso), the portion of infant mortality due to diarrhea remains at 14.9 percent.

UNICEF has assisted in the creation of about 195 ORT corners in 11 provinces, and PRITECH with 189 ORT corners in eight provinces. These figures mean that over three-quarters of health centers in these 19 provinces have an ORT corner.

A study concerning case management practices in health centers (health facilities survey - HFS)) was performed in December 1990 in these ORUs. Inappropriate prescribing was recorded in 65 percent of the cases in the provinces before CDD training and in 52 percent of cases where initial training had taken place. This figure is due in large part to the prescription of anti-diarrheal drugs. Similarly, ORS was used in 44 percent of cases before training and 75 percent after training. Advice to mothers concerning correct feeding of the child according to the case and the child's age was given in 34.5 percent of cases, and for the danger signs of dehydration in 15.5 percent of cases. As for severely dehydrated children, none were correctly treated in provincial health centers due to the absence of Ringer's Lactate and other solutions. Refresher courses for health personnel have been organized every two years in order to improve the knowledge and practices of health personnel.

- (2) **In the home.** Sugar-salt-solution (SSS) has been provided for home treatment in some provinces but a consensus for a national policy on this has not been reached. PRITECH chose to promote ORS packets for home use, given their reported availability at the village health worker level and evidence of severe under-utilization of packets in the field. A household survey carried out by UNICEF in 1987 showed an ORS use rate of 22 percent and an ORT use rate of 39 percent. The correct ORS preparation rate, however, was only 17 percent. The rate for continued feeding was 47 percent. Forty-five percent of mothers knew the signs indicating that they should take their child to a health center.

Community health workers are trained to treat diarrhea cases that do not involve dehydration and are supposed to refer dehydrated cases to the closest health center. No research has yet been conducted concerning their work.

- (3) **Rational use of drugs.** The use of drugs remains a serious problem in Burkina Faso. Health personnel without CDD training prescribe antibiotics and anti-diarrheals in an irrational manner. Also noteworthy is the fact that some NGOs and missionaries distribute anti-diarrheals free of charge in their health centers. According to the HFS, 20 percent of diarrhea cases are treated with either an antibiotic or an anti-diarrheal, but observation of registers yields a use rate of 65 percent for these drugs. A study concerning dysentery was undertaken to document the etiologic agents responsible for bloody diarrhea to improve case management of dysentery. Currently, the majority of dysentery cases are treated with metronidazole.

The major constraints in increasing the level of proper case management are that health personnel are not receiving adequate training in case management, many are not aware that their practices are

incorrect (for example, the prescription of flagyl for stools with blood, mucus or phlegm is common), and the absence of policies concerning prescription drugs, including antibiotics and anti-diarrheals. For training courses, one or two days are scheduled for case management practice, but only two or three diarrhea cases are typically at the provincial health centers at any given time. This is an insufficient number of cases to persuade 20 to 25 participants of the effectiveness of ORS.

Future plans for the NCDDP include the following activities in the area of case management:

- write and distribute the national policy;
- evaluate methods used for training courses and refresher courses;
- widely distribute a technical guide for the management of diarrhea; and
- study the possibility for importation of Ringer's Lactate.

Nutrition

Nutritional activities in Burkina Faso are handled by the FHD. There is no formal collaborative arrangement between the FHD and the CDD program, however, informal collaborative arrangements do exist. Each health worker CDD training course, at every level, contains a section on nutrition. Additionally, all studies and technical/educational materials on CDD contain elements concerning nutrition.

The CDD training materials for health workers contain a module concerning the education of family members in the correct feeding of children in general and particularly for those children with diarrhea.

The animator's (educator's) guide distributed in eight provinces includes materials concerning care of children with diarrhea, the need to continue breastfeeding and diversified feeding of the child after the diarrheal episode, and includes the use of ORS and correct feeding practices during and after the diarrhea episode. Health personnel have been trained in communication techniques using this guide.

The 1987 UNICEF household survey showed that 96 percent of mothers continue to feed the child during bouts of diarrhea. A more recent study (1991) led by the FHD showed that mothers approve of certain foods in 61.2 percent of cases, especially solid foods, but advise against other types of foods, particularly those with oil and liquids, in 69.7 percent of cases. Interestingly, 43 percent of people interviewed did not agree that a child with diarrhea should drink water, versus 45 percent who were in full agreement. These figures illustrate the difficulty faced in promoting ORT.

One of the major constraints for the program is that there is no established line of communication with the FHD. The nutritional content of the CDD program is weakened by the lack of formal communication routes and coordination with the FHD.

Future plans for the NCDDP include establishing formal lines of communication with the FHD, improving coordination between directorates, and updating existing educational material concerning nutrition.

Private Sector

Very few activities have been conducted in collaboration with the private sector in Burkina Faso. Some health workers working for non-profit NGOs in the field are involved in CDD training courses and there are health centers managed by religious organizations but the commercial private sector has not had a role in the CDD program.

The CDD activities of NGOs and others in the private sector do not seem to pose difficulties for the CDD program and tend to be complementary with the program's own activities. For example, in Kadiogo the head of a private, religious, medical center was given health administration responsibilities by the government for the administrative zone in which he worked. He was thus obliged to follow current government health care policies.

The CDD program had the opportunity of working with the Saint Camille Dispensary in Ouagadougou on a study concerning dysentery. In addition, training in CDD for the heads of drug depots was accomplished in a certain number of provinces.

Future plans for the NCDDP in the area of the private sector include writing the national CDD policy and distributing it among NGOs and private health centers, involving the private sector in the development of annual action plans at the provincial level, as well as discussing with them how to best utilize their material and resources.

Research and Evaluation

- (1) **Program reviews/evaluation.** A program review was carried out in May 1992 by the CDD program with the help of PRITECH, UNICEF, and WHO. The program review produced many recommendations, in five key areas:
 - (a) **Planning, management, coordination:**
 - lead a household knowledge, attitudes, and practices (KAP) study (WHO household survey);
 - establish a national policy;
 - produce national action plans.
 - (b) **ORS, other solutions:**
 - correctly assign ORS stocks for distribution to provinces;
 - keep a reserve ORS stock;
 - establish a national policy for sale of ORS.
 - (c) **Information, education, communication (IEC):**
 - carry out the household survey in order to establish national policy concerning ORS and SSS;

- pre-test educational material to be developed; respect norms established by the national program;
 - develop a national CDD program logo in order to make the program better known.
- (d) **Case management:**
- improve the communications component of case management, emphasizing interpersonal communication;
 - ensure regular supply of ORS, appropriate drugs and small materials for health facilities;
 - develop performance indicators for the ORT centers.
- (e) **Supervision:**
- develop with the provincial chief medical officers a standardized supervision checklist;
 - support and collaborate with appropriate projects for integrated supervision;
 - reinforce supervision at the intermediate level.
- (2) **Surveys.** An evaluation of case management was accomplished in 1990 with PRITECH's help. The HFS survey showed that 20 percent of cases receive anti-diarrheal drugs. A household survey was done in 1988 by UNICEF. It showed that 55 percent of cases are correctly evaluated, and 8.5 percent are correctly rehydrated. The household survey is scheduled to be done again in 1993 since behaviors are thought to have changed following the intervention of the CDD program.
- (3) **Operations research.** The following is a list of operations research activities that were undertaken in Burkina Faso:
- study of risk factors for diarrhea in Bobo-Dioulasso;
 - nutrition communication project KAP study;
 - KAP study in Ganzourgou by AFRICARE;
 - study on acute diarrhea at the Bobo-Dioulasso hospital;
 - KAP study concerning mothers in Kiembara;
 - study on diarrhea in Ouahigouya;
 - study on ORS supply and distribution networks; and
 - study on dysentery in Ouagadougou.

The studies cited above were all carried out with the support of the NCDDP; a copy of each study is available at the national CDD program office. For those NGOs without representation in Ouagadougou, copies of reports are sometimes given to the chief medical officer of the province concerned.

The major constraint in conducting evaluation activities is financial. Another constraint is that the NCDDP is not always informed of all studies concerning diarrheal diseases that are being conducted

by organizations in the individual provinces. There is also a problem in the use of information and data provided to the ministry. Often recommendations are not implemented or not all results are discussed thoroughly for possible revision of existing strategies. Furthermore, results obtained by projects are used at the local level to adjust strategies, but the national program is not involved in this process.

Future plans involve the official creation of a CDD Technical Committee that will meet to discuss the results and recommendations of various operations research studies in order to change strategies and adjust the planning of activities if necessary.

III. KEY ISSUES AND LESSONS LEARNED FROM NATIONAL CDD EFFORTS

- (1) **Program sustainability.** Burkina Faso's CDD program is financially supported by PRITECH, UNICEF, and WHO. UNICEF, WHO, and other NGOs, however, tend only to fund specific activities. With the closure of PRITECH II, future funding for recurrent costs related to CDD program administration and supervision, therefore, is uncertain. In addition, the management of the program has largely been the responsibility of the PRITECH country representative(s). Without an experienced, full-time NCDDP manager and the establishment of a CDD Technical Committee, the CDD program's prospects of sustainability are poor.
- (2) **Supervision.** Health personnel in supervisory positions have undergone training in supervisory techniques using updated supervisory checklists, however, supervision still remains an inconsistent element in the program. Funding constraints and logistical problems in transportation for supervisory visits contribute to the problem. The underlying weakness, however, is that health personnel do not fully realize the vital role that supervision plays in an effective program. Efforts to strengthen supervision must focus on improving the overall understanding of the role of supervision in the health system.
- (3) **ORS supply and distribution.** ORS supply and distribution in Burkina Faso is widespread, however, it is disorganized and no policies currently exist to regulate pricing. As a result, ORS supplied at no cost by the MOH (from UNICEF) to health posts is given away for free or sold from anywhere between CFA 10 to CFA 100/sachet. This has made it difficult for private companies to find a large enough market. Two small local ORS producers are still producing, however, the MOH system is mostly reliant on ORS supplies from UNICEF.
- (4) **IEC importance.** The importance of IEC in the success of the CDD program is underestimated by the health personnel in general who prefer direct health care of patients. PRITECH and the CDD program have attempted to change this by emphasizing communications in training and through the publication of informative, easy-to-use education materials. The IEC component has been strengthened considerably, mostly due to the influence of the PRITECH representative, however, a coherent IEC strategy has yet to be included in a national CDD program strategy. Continued training in communications for

health personnel and creative efforts in IEC are essential to the success of the program, therefore, more emphasis should be placed on showing the positive effect of IEC activities on CDD.

- (5) **Case management.** The establishment of ORT corners and ORUs in Burkina Faso health centers was a cornerstone of the program. While the establishment of these CDD case management centers has been a major achievement, it is of equal importance that the case management skills of the health workers be improved as well. Refresher courses for health personnel every two years will be important, as will improving the supply of Ringer's Lactate and reducing the prescription of anti-diarrheal drugs.
- (6) **Nutrition.** Nutrition has been well incorporated into every level of the CDD training curriculum and in all educational materials. This has been done through the efforts of the CDD program, without much collaboration with the FHD, which is in charge of nutrition activities. While the nutritional content of the program is considered adequate, more formal lines of communication and collaboration with the FHD would strengthen the nutritional content of the program.
- (7) **Private sector.** Cooperation with the private sector is found much more at the provincial level than at the central level. It is not currently a priority of the ministry to pursue collaborative efforts with the private sector. Cooperation with the private sector has occurred, but for the most part, activities have been of minor scale. Limited manpower has constrained the capacity of the ministry to pursue significant collaborative efforts. In addition, breakdowns in the flow of communication from the provincial to the central level make it difficult for central-level program staff to benefit from the positive collaborative experiences occurring in the provinces. It is possible that more exposure to the role that the private sector is playing in the provinces may result in some attention at the central level to possibilities in the private sector. Improving communications will yield many benefits for the program both in the private sector and in many other areas.
- (8) **Research and evaluation.** While studies have been carried out by the NCDDP, many studies regarding CDD have been carried out without the NCDDP's involvement and/or knowledge. This is particularly the case for studies carried out by NGOs working in only one province. For such studies, reports can be found while visiting the various project offices in Ouagadougou. Research reports are also found at the offices of the chief medical officer of the province, however, these are most often never seen at the central level. Again, much more could be learned if there was improved system of communications with the central level.

PRITECH CAMEROON PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Since 1987, PRITECH has represented the principal source of donor support to the Cameroon national CDD program (NCDDP). In terms of both technical and financial assistance, PRITECH's contributions to the national program have been essential elements of the program's success and accomplishments. PRITECH's activities have been very closely intertwined with those of the national program, and vice versa. This close relationship has produced impressive results, particularly in the areas of training of health workers, health education, and the implementation of initiatives such as breastfeeding promotion. At the same time, a persistent lack of sufficient donor funding has been exasperated by a lack of strong management in the Ministry of Health (MOH) for the program, propelling PRITECH into a management role and creating problems for long-term sustainability for the program. Because of the close working relationship between PRITECH and the NCDDP, the activities and outputs of the two are virtually indistinguishable.

Background

PRITECH's involvement in Cameroon began in October 1986 with the visit of an assessment team, followed by visits in December 1986 and February 1987 by Ms. Agma Prins, PRITECH senior program manager (SPM). This involvement, and the hiring of a local PRITECH representative, Ms. Wendy Githens, led to PRITECH's support for the successful conference CAMCORT (April 1987), which effectively launched Cameroon's NCDDP (the program had existed previously with a very low profile mostly limited to international training opportunities). CAMCORT brought together 100 participants from four ministries and ten international agencies to develop national program guidelines and objectives.

Ms. Robin Steinwand was hired as the PRITECH country representative for Cameroon in November 1987. Since that time, PRITECH has had a permanent technical advisor working with the CDD program, with an office in the MOH. Ms. Steinwand was replaced in this position in July 1990 by Mr. Hugh Waters, who was likewise replaced by Ms. Denyse Léger in October 1992. The SPM continued to provide supervision to the PRITECH/Cameroon country program until her departure from PRITECH in September 1992. Since 1988, PRITECH/Cameroon has had a full-time secretary and driver, and a vehicle.

PRITECH's personnel, logistical, and financial resources have consistently been the main source of operational viability for the NCDDP. The MOH provided office space and telephone service to the PRITECH representative. This relationship was initially formalized by a letter of understanding and later with the signing of an official agreement in August 1990 between PRITECH and the MOH.

Financing Levels

The activities of the PRITECH II project in Cameroon have been financed by USAID/Yaounde, with occasional supplementary funding from central sources for research initiatives. The level of support from the USAID mission has varied slightly, since 1988 averaging approximately \$225,000 per fiscal year. This financing has been sufficient to pay for a full-time in-country representative, part-time supervision by the SPM, and a variety of operational activities.

USAID/Yaounde's investment in the PRITECH project appears to have been extremely cost effective. Considering the broad range of support which PRITECH provided to the NCDDP, and considering the fact that PRITECH was the principal source of financing for CDD activities in Cameroon during this time period, the success of the CDD program can be considered as primarily resulting from the USAID mission's interventions through PRITECH.

Strengths and Constraints

Partly due to limitations in terms of manpower and financing, PRITECH and the CDD program strongly emphasized collaboration with other services in the MOH, with other ministries, and with other projects working for primary health care (PHC). PRITECH's open working style, as well as having an office located in the MOH, greatly facilitated this cooperation, which permitted the project, for example, to implement programs with the Service of Community Development (in the Ministry of Agriculture) for distribution of home treatment flyers, and with the Directorate of Family Health in the MOH for breastfeeding promotion. Most importantly during the time period of 1990 through 1993, strong relationships with each of the major projects working for the decentralized PHC approach of the MOH permitted PRITECH and the CDD program to integrate CDD treatment guidelines and training materials into the ongoing work of these projects.

PRITECH encountered very few constraints in the execution of activities in Cameroon. The director of the NCDDP, Dr. René Owona, fully supported PRITECH's intervention; Dr. Owona has become steadily more influential in the MOH while keeping his CDD portfolio (he is currently director of preventive medicine) and his support has been very helpful to PRITECH and to the CDD program. Additionally, the SPM and each of the PRITECH country representatives enjoyed excellent working relationships within the MOH.

II. THE NATIONAL CDD PROGRAM

After the CAMCORT Conference in 1987, the Cameroon NCDDP was established in the Directorate of Preventive Medicine. The technical director for the program (Dr. Owona) was at that time deputy director of preventive medicine. Dr. Owona, who had received CDD training through the World Health Organization (WHO), has been very supportive of the national program. The CDD program manager was Mr. Ndeso Atanga, working in the Epidemiology Service. These two MOH officials, together with the PRITECH representative, managed the daily activities of the CDD program.

Professor Tetanye Ekoé, chief of the pediatric unit at the Yaounde Central Hospital, has acted since the program's inception as an informal technical advisor and has directed the national diarrheal training unit (DTU). His technical competence (he was named to the WHO Technical Advisory Group in 1990) and training skills have been invaluable to the CDD program and to PRITECH.

After Dr. Owona's promotion to director of preventive medicine in 1989, the PRITECH representative found herself increasingly alone in the management of the program as her two counterparts were busy with other responsibilities. This concern was to some extent addressed by the appointment the same year of two full time MOH staff members to the CDD program, Mr. Emmanuel Mbaniko and Ms. Mbella Colette. Mr. Mbaniko and Ms. Mbella added much needed manpower, but did not relieve PRITECH of its role in managing the program. After Mr. Ndeso's transfer in 1991, there was no CDD program manager at all until the naming of Dr. Ncharre Chaibou in this position in late 1992.

The position of the CDD program in the MOH organizational chart is not entirely clear. After a reorganization of the MOH in 1989, the program was located, in principle, in the Epidemiology Service of the Preventive Medicine Directorate. However, the program has in fact enjoyed direct access to and the support of the director of preventive medicine. This ambiguity became an issue as it became clear that PRITECH's intervention would end in 1993, raising questions about the future role of the program, including its place in the organizational chart.

An additional complication has been a lack of coordination between the Directorate of Preventive Medicine and the Directorate of Family Health in the MOH. The latter directorate includes the Health Education Service and, at the provincial level, the chief provincial pediatrician. In many of Cameroon's ten provinces, it has been the chief pediatrician who has effectively led CDD activities, while the provincial chief of preventive medicine supervises other PHC programs such as immunization. With PRITECH's help, the CDD program has largely been able to overcome tension between the two directorates, enabling the program to operate effectively both at the national and provincial levels. This tension, however, further complicates the future for CDD in Cameroon.

Policy

In 1990, the Cameroon NCDDP drafted a national policy covering case management in health facilities as well as home treatment and prevention. To a large extent, the policy is based on WHO/CDD recommended policy, taking into account Cameroonian realities and the results of focus group research. This policy was signed by the Minister of Health, printed in poster form in English and French, and distributed to each of the country's health facilities. During the 1992 WHO focused program review, the policy was criticized for not being strong enough in its discouragement of the use of anti-diarrheal drugs. The CDD program intends to revise the policy following the completion of research to identify acceptable home-available fluids planned for 1993.

Program Planning

The CDD program has had a series of medium- and long-term plans, which for the most part have been closely and successfully followed by the program. An initial five-year strategy (1987-1991), printed and widely distributed, was followed by an interim plan (1991-1992) and a long-term plan for 1992-1994, conceived following the 1992 focused program review. The biggest constraints on the full realization of each of these plans have been limited funding and limited personnel.

Program Inputs and Activities

During the 1988-1993 time period, the NCDDP has been directly supported by PRITECH, UNICEF, and WHO, and indirectly supported by a variety of PHC projects working at the provincial level. The table on the following pages presents a summary of the major inputs and activities of the CDD program during this time period, and the funding source for each. As the table shows, UNICEF and WHO have provided important financing to the program, particularly for oral rehydration salts (ORS) (UNICEF) and evaluation activities (WHO). PRITECH has provided a large part of the funding for training, communications, and daily logistical resources.

INPUTS AND MAJOR ACTIVITIES OF THE CAMEROON NATIONAL CDD PROGRAM, 1987-1993.

INPUTS/ACTIVITIES	DATES	FUNDING SOURCE
PERSONNEL		
Part-time director and part-time program manager	Continuous (no program manager 1991-1992)	MOH
Two full time CDD staff members	Continuous from 1989	MOH
PRITECH representative	1987-1993	PRITECH
PRITECH senior program manager (part-time)	1987-1992	PRITECH
Full time secretary and driver	1988-1993	PRITECH
DAILY RESOURCES		
Office space and telephones	Continuous	MOH
Vehicle	1989-1993	PRITECH

INPUTS/ACTIVITIES	DATES	FUNDING SOURCE
Costs for office supplies and other daily costs	1987-1993	PRITECH
TRAINING		
CDD training for 4 Cameroonian doctors in Cairo and 4 in Kinshasa	1985 and 1987	WHO
National CDD clinical course	1987	WHO
CDD program manager course in Brazzaville for 2 full-time MOH staff members	1989	WHO
International course in Yaounde	1990	WHO
Provincial program managers' course in Yaounde	1993	WHO
CDD inserted into medical school curriculum, with rotations at the national DTU	1987	Government of Cameroon
TRAINING		
3 training of trainers (TOT) courses	1988	PRITECH
Development and modification of Cameroon-specific training materials	1988-1992	PRITECH/SESA
Clinical courses at the provincial level	1988-1993	PRITECH - 20 PRITECH/ SESA - 7 SCF - 1
Clinical courses at the divisional level	1990-1993	PRITECH/GTZ - 2
Clinical courses at the health center level	1991-1992	PRITECH/ SESA - 15 GTZ - 45
Annual courses at the advanced nursing school (CESSI)	1991-1992	PRITECH

INPUTS/ACTIVITIES	DATES	FUNDING SOURCE
SUPERVISION		
1 supervisory visit by national CDD team following each provincial clinical course	1989-1993	PRITECH
ORS SUPPLY AND DISTRIBUTION		
Purchase of 2.5 million packets	1985-1990	UNICEF
Purchase of 1 million packets	1990	MOH
Distribution of ORS	1987-1990	MOH-ONAPHARM
Distribution of ORS	1991-1992	PRITECH
EQUIPMENT AND MATERIALS FOR HEALTH FACILITIES AND DTU'S		
Equipment and materials for national DTU; beds and benches for 10 health centers	1989-90	WHO
EQUIPMENT AND MATERIALS FOR HEALTH FACILITIES AND DTU'S		
Small materials (cups, bowls, spoons) for ORT corners	1990	WHO/PRITECH/MOH
IEC AND PRINTING OF MATERIALS		
IEC seminar - Mbalmayo	1989	PRITECH
Conception and printing of CDD "message sheets" for use by radio stations and provincial health educators	1989-1992	PRITECH
Spots on national and provincial radio stations	1989-1993	--

INPUTS/ACTIVITIES	DATES	FUNDING SOURCE
Printing of series of treatment posters for health centers	1988 and 1991	PRITECH
Printing of program logo as T-shirt (1,000)	1990	PRITECH
Printing of program logo as sticker (28,000)	1990	PRITECH
Printing of matchboxes with CDD program logo (1,000,000+)	1991	--
Printing of ORS preparation and home treatment flyers (250,000)	1990-1991	PRITECH
Seminars for distribution of home treatment flyers	1992	PRITECH
Seminar for provincial health educators	1993	PRITECH
EVALUATION		
Program review/assessment	1989	PRITECH
Health facilities survey	1991	PRITECH
EVALUATION		
Household survey	1991	PRITECH/WHO
Focused program review	1992	WHO
MAJOR RESEARCH INITIATIVES		
Home treatment survey	1988	MOH/OCEAC
"Focus Group" ethnographic studies	1988-1989	PRITECH
Study of traditional healers	1990	PRITECH
Breastfeeding KAP and water supplementation study	1991	PRITECH
Home foods and fluids	1993 (planned)	WHO/ADDR

INPUTS/ACTIVITIES	DATES	FUNDING SOURCE
OTHER INITIATIVES		
Work with Community Development and church groups	1991-1993	PRITECH
Breastfeeding promotion	1991-1993	PRITECH/WELLST ART
Social marketing of ORS	1992-1993	PSI/PRITECH

ABBREVIATIONS:

SESA	USAID bilateral maternal/child health (MCH) project working in the South and Adamaoua Provinces.
GTZ	German PHC project working in the Northwest, Southwest and Littoral Provinces.
SCF	Save the Children PHC project, financed by USAID, working in the Extreme North Province.
ONAPHARM	Cameroonian parastatal organization charged with purchase and distribution of essential drugs.
OCEAC	Regional epidemiological surveillance organization, supported by the Government of France.
ADDR	Applied Diarrheal Disease Research Project.
PSI	Population Services International.

Description of Activities, Achievements and Constraints by Program Area

- (1) **Training.** From the program's beginning, training of health personnel has been the single biggest operational emphasis. Initially, the program adopted a top-down training approach. After three training-of-trainers (TOT) sessions in 1988, clinical courses were organized at the provincial level targeting provincial and divisional level staff. Each trainee was given the responsibility of opening an oral rehydration therapy (ORT) corner at his or her hospital or health center after the training courses, and passing on the knowledge gained to other, typically subordinate, health personnel.

The provincial CDD training courses carried out in the 1988-1991 period were of five days duration, using Cameroon-specific training materials developed by the CDD program with PRITECH support. These materials were based on WHO and PRITECH/Sahel training modules, and were revised over time to reflect newly available technical and cultural information and the experience of previous courses. During these training courses, a strong

emphasis was placed on active participation in the course by the trainees, and on the development of communications skills.

In 1991, the CDD program changed its training strategy to reflect the new "Reorientation of Primary Health Care" approach adopted by the MOH. This approach, loosely based on the Bamako Initiative, calls for decentralization, integrated PHC, and cost recovery using the health district as the operational level. The CDD program developed training materials for health district staff, adopting a three-day curriculum which could be utilized together with another topic to make a one-week course. The technical content of the CDD materials remained much as before, based on the WHO case management guidelines, with a continued emphasis on health education.

In total, the program has directly trained 560 health personnel in clinical courses, 35 in TOT courses, and an additional 47 through the advanced nursing school (CESSI) in Yaounde. These figures do not include additional health personnel trained in follow-up to courses organized by the NCDDP or doctors who received CDD training as part of their education at the national medical school where CDD has been part of the curriculum since 1987.

A health facilities survey (HFS) conducted in 1991 showed that the training efforts of the NCDDP had made a strong impact with 57 percent of health workers showing correct knowledge of assessment, 62.5 percent correct knowledge for rehydration, and 92.3 percent advising mothers on ORS preparation. There is good reason to believe that the considerable effort invested by the program, and PRITECH, into case management training has been both effective and worthwhile. Training has not, however, seemed to have had much impact on habits of prescribing anti-diarrheal drugs.

Additionally, the experience of the CDD program shows clearly that training alone is not enough to ensure good, consistent case management in health centers. Due to a lack of confidence and infrastructure in the health system in general, and to a lack of supervision in particular, many of the ORT corners originally established have ceased to function. ORS, and all other essential drugs, are regularly available only in those areas of the country covered by a donor PHC project. A related factor is a low visitation rate; rough calculations show that less than 2 percent of child diarrhea cases come to a health facility. These system-wide constraints have impeded the institutionalization of good diarrhea case management in the health system.

- (2) **Supervision.** As stated above, supervision has been a weak point for the CDD program and for the Cameroonian PHC system in general. Funding and manpower constraints have limited supervisory visits by the national CDD team to one supervisory tour after each training course. These tours have been conducted together with provincial MOH staff and include a visit to each trainee to offer support and correct errors. Ongoing supervision within the regular health system is not strong and is heavily dependent on donor support. Several efforts to institutionalize PHC supervision have been undertaken, most recently within the

reorientation initiative and in each case CDD has been included and the CDD team has participated in the development of supervisory guidelines. Unfortunately, these efforts have not produced lasting results.

- (3) **ORS supply and distribution.** Distribution patterns for ORS changed with the MOH decision in 1991 to adopt cost-recovery for essential drugs. Until that time, the official MOH policy was that essential drugs were distributed free of charge in public health facilities. However, essential drugs were increasingly unavailable; ORS was one of the few that was available due to contributions by UNICEF and purchases by the MOH. By 1990, ONAPHARM, the parastatal company charged with the purchase and distribution of drugs for the MOH, had completely ceased to function in its distribution capacity.

In those provinces where a PHC donor has supported a cost recovery system for essential drugs, the CDD program has ensured that ORS is part of the system, and that the cost of sale be consistent around the country (the price has been set at CFA 50 -- approximately US \$0.17). In areas where no such cost recovery system exists, the CDD program initially continued to distribute ORS separately at no cost by any means available; PRITECH was involved in these efforts and occasionally paid for fuel and/or other costs for ORS distribution. Driving these efforts was the knowledge that considerable quantities of ORS in stock in Yaounde would expire if they were not distributed and used.

This parallel system, and the effort it required, was recognized as non-viable by the 1992 focused program review and was abandoned in favor of a sell-only approach. This decision corresponded with the theoretical expansion of the MOH cost recovery system covering the entire country and the distribution of nearly all of the CDD program's ORS stocks. The remaining stock of 250,000 packets was converted into a cholera emergency stock.

The future of the cost recovery system, however, is unsure since the system is institutionalized in only certain provinces and parts of provinces. Continued difficulties in attaining widespread distribution of ORS are the principal cause of Cameroon's low ORS use rate of 4.9 percent. In 1992, the Government of Japan gave Cameroon a gift of essential drugs, including 1,162,000 ORS packets. These packets are destined for sale, but the mechanism to recover costs and repurchase future stocks is unclear.

Cameroon has never had local production of ORS. In 1989-1990, a serious proposal for collaboration between a local company, Plantecam, and PATH (Program for Appropriate Technology in Health) nearly led to an initiative for local production but was never realized. Visits by PATH representatives, beginning in 1987, were funded and coordinated by PRITECH.

- (4) **Equipping health centers and DTUs.** WHO, PRITECH, and the MOH have provided small materials for mixing and administering ORS in ORT corners. WHO has equipped the national DTU in Yaounde. The national DTU, under the leadership of Professor Tetanye Ekoé, has

consistently functioned extremely well and hosted an international CDD course in 1990. Although DTUs were in principle created in each of the ten provinces, only those in Yaounde and Bamenda have continued to function as both a reference treatment unit and a continuous training site. In other provinces, a lack of funding for materials and training, and a lack of surveillance from the national CDD team, appear to be the principal reasons the DTUs did not continue. It is also important to note that the units in Yaounde and Bamenda have both strongly benefitted from the personal efforts of dedicated individuals (Professor Tetanye in Yaounde and Dr. Armand Ekambi in Bamenda).

- (5) **Information, education, and communication (IEC) and print materials.** Low visitation rates within the public health system, and awareness of the importance of home case management and correct referral, led the CDD program and PRITECH to launch a high visibility IEC campaign in 1989. A seminar in Mbalmayo that year brought together several ministries and representatives of the press. Since that time, the CDD program has produced message sheets designed to aid provincial health educators and radio personnel with the conception of messages for CDD. The program has also produced a variety of print materials for use by health personnel and for promotion of the program. With limited manpower and financial resources, the CDD program conceived a strategy for communication efforts that provides the materials and technical inputs but largely relies on other actors to implement activities.

This approach has been successful, particularly in those provinces where dynamic health educators have led radio campaigns and have encouraged the correct use of CDD educational materials. Additionally, projects working for integrated PHC have adopted the CDD printed materials and have found them useful. The national radio station has carried CDD spots in both English and French on a semi-regular basis. Health education techniques, and messages for diarrhea home management and prevention, have also played an important part in clinical training led by the CDD program.

Interventions specific to IEC include two seminars with the provincial health educators to conceive provincial action plans - in Mbalmayo (1989) and Okola (1993). Also, a pilot initiative for collaboration with the Community Development Service and with community religious organizations was launched in 1992 to promote the distribution of the home treatment flyer developed by the CDD program.

Unfortunately, the CDD program has little data evaluating the impact of the IEC campaign conducted since 1989. Anecdotal evidence and data from the household survey (1991) and home flyer study (1992) indicate that IEC efforts have indeed had an impact on specific populations but have not been widespread enough to lead to major behavioral changes on a national scale. Constraining factors have been difficulties with ORS availability which have compromised IEC messages promoting ORS, and a lack of viable, convincing, alternatives to recommend as home-available fluids.

- (6) **Evaluation.** Major evaluation efforts led by the NCDDP have included a mid-term PRITECH assessment (1989), a health facilities survey (1991), a household survey (1991), and a WHO focused program review (1992). The health facilities and household surveys have provided the program with very useful data. The focused program review helped the CDD program to focus on impending challenges related to the ending of PRITECH's involvement and to produce a plan of action for the 1992 through 1994 time period.
- (7) **Research.** The program has undertaken several major research initiatives to answer specific questions. A series of "focus group" studies conducted in 1988 through 1989 in six different socio-cultural regions of the country revealed indigenous attitudes related to the causes and treatment of diarrhea. The results of these studies have proved very useful in designing educational materials and particularly, in synthesized form, in CDD training courses.

A 1990 study looked at traditional healers, who see at least as many child diarrhea cases as does the health system. The study revealed both positive and negative practices, often at the same time, on the part of the healers, and showed overwhelmingly that the healers would be willing to distribute ORS and otherwise collaborate with the CDD program if such a possibility existed. Unfortunately, a lack of potential funding and a lack of structured organizations of traditional healers have not permitted the introduction of a concentrated effort to work with the healers.

- (8) **Other initiatives.** The NCDDP and PRITECH/Cameroon have been actively involved in the following major additional efforts:
- (a) **Work with the Community Development Service and church groups.** In 1992 the CDD program and PRITECH organized seminars with the Service of Community Development (Ministry of Agriculture) in the Littoral Province and with a variety of religious and women's organizations in the Northwest Province. These seminars provided the participants with basic information on good diarrhea home treatment and prevention, concentrating on the program's home treatment flyer as a source of information. The participants developed plans for the distribution of the flyers.

A follow-up survey approximately six months later showed that in those areas where the flyer had been distributed, between 44 percent and 66 percent of caretakers interviewed reported having seen the flyer, and between 11 percent and 16 percent had received a copy of the flyer. Among those caretakers who received the flyer, 71 percent to 87 percent had kept it.

Also in 1992, PRITECH, in collaboration with the organization CEDPA (Centre for Development and Population Activities), organized a workshop in Yaounde for the regional leaders of an umbrella protestant church group, FEMEC. The experiences of these contacts with Community Development Service and church groups have been

very positive for the CDD program, showing that there are viable and willing channels, alternative to the MOH, for reaching the population.

- (b) **Breastfeeding promotion.** In preparation for an USAID-sponsored child survival conference held in Lome, Togo in September 1991, PRITECH financed two studies on breastfeeding in Cameroon. One of these studies showed conclusively that supplemental water was physiologically not necessary for healthy infants up to the age of 4-6 months, even in the hottest part of Cameroon (the Extreme North Province).

After the Lome conference, the CDD program became actively involved in starting a breastfeeding promotion program in Cameroon, concentrating on the beneficial effects of exclusive breastfeeding in preventing diarrhea for infants. With support from PRITECH and from the WELLSTART project, major steps in this involvement included organizing a national breastfeeding policy workshop (March 1992) and a planning session for national breastfeeding promotion activities (September 1992).

- (c) **Social marketing of ORS.** In 1992, PSI proposed to import and sell ORS at an affordable price through pharmacies. The CDD program and PRITECH have strongly supported this initiative, particularly given the problems with ORS distribution within the MOH system and the fact that the two principal private suppliers of ORS to pharmacies have withdrawn their products from Cameroon.

The CDD program worked with PSI to pre-test a brand name and logo for the ORS and the name "Biosel" was chosen. In September 1992, PRITECH social marketing expert Camille Saade assisted PSI in the development of a comprehensive marketing plan for the new product. The launching of this product was initially delayed by administrative factors in the MOH and questions raised by USAID concerning the quality of the ORS produced by PSI's supplier, KBI in Berlin. However, Biosel was successfully launched in May 1993.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Program sustainability.** The Cameroon NCDDP has achieved a great deal in a short period of time and with relatively limited funding. However, translation of these achievements into permanent changes in the health system and in caretakers' behavior has been compromised by a lack of sustained financing and complex factors involving PHC integration and decentralization within the MOH.
 - (a) **Funding.** Funding for CDD in Cameroon has been limited since the inception of the program. As stated above in Section I, PRITECH has provided much of the financing for the program's daily activities. Hopes that UNICEF would play a major role in supporting CDD have never been realized, and in 1990 the UNICEF/Cameroon office

opted to completely eliminate support for the NCDDP. Financial difficulties in the MOH have limited the ministry's contributions to personnel, telephones, and some supplies.

With the completion of the PRITECH project, the NCDDP faces serious funding difficulties, which will almost certainly lead to a greatly reduced profile for the program and the suspension of many activities. In anticipation of these funding shortfalls, PRITECH is printing extra copies of training and educational materials before the end of the project. The CDD program will use these materials and will continue to work with the different PHC project zones in Cameroon to ensure that correct CDD guidelines are being applied.

- (b) **Integration and decentralization.** In 1989, the MOH adopted the "Reorientation of Primary Health Care" approach, with different donors and projects working with the ministry in geographically distinct areas to implement cost recovery and integrated PHC. This approach has represented both an opportunity and a challenge for the CDD program. In those areas where the projects are well established, they offer an excellent vehicle for CDD training and follow-up, and assure the availability of ORS. The CDD program has had particularly beneficial relationships with GTZ and the USAID-funded SESA Project. Together, these two projects work in five of Cameroon's ten provinces.

Unfortunately, in those areas of the country where there is no project working, there is also no essential drug system and very limited resources or organization to follow-up PHC activities. Additionally, each of the donors or projects working with the MOH for reorientation has conceived different training materials and treatment guidelines, complicating the task of integrating the guidelines of the CDD program.

A related difficulty has been a lack of support for programs considered to be "vertical" within the MOH. For a period of time (1991-1992) the MOH was unwilling to name a CDD program manager; in principle the reason for this reticence was to promote the integration of PHC. However, considering Cameroon's diversity of experiences with the implementation of integrated PHC, having a strong central CDD program is essential in order to assure that each of the integrated projects is implementing appropriate and consistent measures for CDD. The same argument applies for other national "vertical" programs.

- (2) **Limited reach of the MOH.** An essential dilemma for PRITECH has been the fact that the MOH system reaches only a small fraction of total diarrhea cases, less than 2 percent according to the CDD program's estimates. This limitation, coupled with structural problems within the MOH and a general lack of supervision, argues for the identification of alternative channels to reach the population. The CDD program and PRITECH have made several initiatives to work with community and religious organizations to communicate diarrhea home

treatment messages, have attempted to promote the sale of ORS in pharmacies (with PSI), and have frequently included representatives from the private (missionary) health system in training courses. These multi-sectoral efforts have yielded promising and encouraging results.

Perhaps the most important lesson learned from PRITECH's experience in Cameroon has been that the MOH has inherent structural difficulties and a limited impact on the population, while other structures and organizations offer more promising avenues to reinforce positive home management of diarrhea. Among the difficulties faced by the MOH is the low percentage of the population which visits the public health system, caused in large part by a lack of confidence by the population. Additionally, the MOH suffers from significant moral problems due to the lack of motivation, worsened by expectations on the part of MOH personnel that staff will receive extra financial motivation in the form of per diems for attending seminars or for supporting project initiatives.

- (3) **Home fluids.** The NCDDP has not been able to specify with clarity appropriate recipes for home-available fluids. Research, including focus group studies in 1989 and 1990 and a household survey in 1991, has shown which fluids are most commonly given for child diarrhea, but Cameroon's enormous cultural diversity has made the formulation of pertinent recommendations very difficult. As a default, the program has recommended the administration of plain water, carrot soup, guava tea, and rice water (per the program's 1990 policy) but not all of these liquids are available or culturally appropriate in all of Cameroon's regions.

Confusion over liquids for home treatment has been complicated by the role of sugar-salt-solution (SSS). SSS has been recommended in parts of Cameroon since the early 1980s. The NCDDP initially promoted it, then backed away from SSS when results of research from Nigeria and other countries showed that it was often incorrectly prepared and could be dangerous. However, the program has not had a viable alternative to replace SSS when recommending fluids for home treatment. Hopefully research concerning home fluids and foods, planned for 1993 with support from WHO and ADDR, will clarify the home fluids issue for the national program, resulting in simple recommendations for different regions of the country.

- (4) **Inappropriate use of anti-diarrheal drugs.** This problem has continued to plague the CDD program despite official declarations from the MOH banning the use of anti-diarrheals for children in the public health system, and despite considerable emphasis on the rational use of drugs during clinical CDD training courses. In the 1991 HFS, 83 percent of health workers indicated that they prescribe drugs, most commonly anti-diarrheals, in addition to ORS for diarrhea cases. Prescription of anti-diarrheal drugs by physicians is related to the age of the physician; those who have graduated from Cameroon's medical school since 1987 have received pre-service training concerning ORS and are less likely to prescribe anti-diarrheals for children. Nevertheless, the pharmaceutical industry remains powerful in Cameroon.

- (5) **Cholera.** Cameroon has experienced several epidemics of cholera, most recently in the Extreme North Province in 1991. The disease has become endemic in certain parts of the country (Extreme North Province, and parts of the North, Littoral and South Provinces). Despite efforts by PRITECH to assist the MOH to develop a coordinated response to this threat, the ministry has not yet been able to put into place preventive, early warning or curative measures. There have been many expressions of interest by donors to help with cholera preparedness; most recently the Centers for Disease Control and Prevention (CDC) sent a cholera expert in early 1993 to help develop a response system. The CDD program has created a reserve ORS stock of approximately 200,000 packets for use in event of cholera outbreaks.

- (6) **Expiration of ORS.** A final difficulty encountered which merits mention is the expiration of ORS stocks. Despite the fact that WHO recommendations indicate that ORS, if properly used, can be used for up to seven years after its date of expiration, the stamping of an expiration date on ORS packets renders their use after expiration nearly impossible. Due to problems with the MOH drug distribution system, the CDD program was left with significant stocks of expired ORS in 1992. Efforts to convince health personnel to use these packets despite their expiration have been met with understandable skepticism.

PRITECH CENTRAL AMERICAN REGIONAL OFFICE FINAL INTERVENTION REPORT

I. HISTORY OF THE CENTRAL AMERICAN OFFICE

The PRITECH Central American Regional Office was established in July 1991 in response to the PRITECH mid-term evaluation which determined that PRITECH still had a large pipeline and that, among other strategies, PRITECH should consider extending its activities into other geographic regions. At that time PRITECH had two regional offices in Africa, one covering the Sahel and the other for Eastern and Southern Africa (CESA). PRITECH also had large country programs in Pakistan, Mexico, and Bolivia which did not fall under any regional office. In response to the evaluation recommendation, the decision was made to establish a Central American office. Central America was chosen because it was a clearly defined region with generally poor health conditions and the continued presence of diarrheal diseases as the major contributor to infant and child mortality and because MSH, the prime PRITECH contractor, had an experienced field manager in the area who was available to assist in the establishment of the regional program.

Principal Functions of Central American Regional Office

From July 1991 to the present time, the Central American Regional Office has had the following principal functions:

- development and implementation of the PRITECH strategy for Central America;
- management, supervision and closeout of the Mexican PRITECH/Pan American Health and Education Foundation (PAHEF) program;
- respond to mission requests for PRITECH services in the region; and
- provide technical assistance to A.I.D missions and other international donors in the Latin American region as required.

Central American Strategy

In order to orient development of the Central American program, PRITECH developed a Central American strategy. That strategy established the following objectives:

- contribute to the reduction of mortality and morbidity from diarrheal disease in Central America;
- reduce the nutritional impact of diarrheal disease in children and infants in Central America;
- stimulate private sector interest in and activity directed toward ORS production and marketing in Central America;
- strengthen public and private sector technical and managerial competence in dealing with diarrheal disease and facilitate cooperation between those two sectors; and
- assist countries in the region in dealing with the cholera epidemic.

In order to achieve these objectives, PRITECH attempted to develop both regional and country-specific programs. Furthermore, PRITECH saw the high level of interest in cholera in the Americas as an opportunity to rapidly advance control of diarrhea disease (CDD) program development in the region.

The strategy identified continued physician resistance to oral rehydration therapy (ORT); improper nutritional management of diarrhea; lack of skilled and experienced personnel to deal with cholera; and installed, but under-utilized operations research capacity as problems which could be addressed through regional programs. The strategy called for the development of a distance education program and pre-service education to address the problem of physician resistance to the use of oral rehydration salts (ORS); a social communication program to address the problem of the improper nutritional management of diarrhea; a cholera program and clinical management training to address the problem of the lack of experience with cholera; and a CDD operations research effort to utilize the under-utilized operations research capacity in the region.

The strategy also contemplated some country-specific programs, especially in Nicaragua and Guatemala, the countries with the major problem with diarrheal diseases.

PRITECH proposed to assist the Nicaraguan Ministry of Health (MINSa) in case management training for both cholera and CDD. PRITECH thought to encourage the Agency for International Development (USAID), the Pan American Health Organization (PAHO), and UNICEF to join in a comprehensive evaluation of the diarrhea program and to commit resources to its improvement based on that evaluation. PRITECH also planned to encourage the development of community oral rehydration units (UROs). MINSa hoped to build on the experience acquired by the Adventist Development and Relief Agency (ADRA) in region I in the implementation of this activity. PRITECH proposed working with HealthCom in developing MINSa's social communication capacities, both with respect to cholera and to diarrheal diseases in general. In this activity MINSa was to draw on a number of community level organizations, a principal one being the Movimiento Comunal. PRITECH proposed assisting MINSa in implementing its plan to strengthen the 820 MINSa-operated UROs.

In Guatemala, PRITECH thought to work with PAHO, UNICEF, CARE and the Ministry of Health (MOH) to develop special programs for the indigenous population, drawing upon its experience with a private social sciences consulting firm, CICLOPE, in social marketing of ORT among indigenous populations in Mexico. In Guatemala, non-government organizations (NGOs) such as CARE provide a significant amount of health care, especially to the indigenous population. These organizations often have good community organization abilities, but often lack in-depth technical knowledge. Therefore, PRITECH proposed to develop contacts with the NGO community involved in child survival activities in order to strengthen technical know-how and operative capacity in the management of CDD problems and programs. PRITECH anticipated supporting PAHO and the MOH in the implementation of training plans.

II. SUMMARY OF PRITECH CENTRAL AMERICAN ACTIVITIES

COUNTRY	START	END	COMMENTS
A. Significant Country Programs			
Mexico	1990	1992	PAHO/PRITECH country representative with backstop in Washington during 1990-1991 and regional office in 1991-1992.
Guatemala	1993	1993	Guatemala project manager contemplated with supervision from regional office.
Regional	1992	1993	INCAP implementation with heavy PRITECH regional office involvement in implementation, supervision, and management.
B. Potential Country Programs/Assessments			
Nicaragua			Mission developing large bilateral project.
El Salvador			Mission with large bilateral project.
Dominican Republic			PRITECH financial limitations prevented exploring option.
Honduras			Mission with large bilateral project with CDD component.

Mexico

PRITECH I was active in Mexico from 1985 to 1988. PRITECH conducted a country assessment in 1985 and then financed a training program designed to train trainers in all 32 Mexican states and to assist with in-state training in six priority states during 1987 and 1988.

The PRITECH II intervention which began in 1990 was three-pronged. The principal activity, a follow-on to PRITECH I, was training health workers in appropriate case management. This activity was implemented through PAHEF, a non-profit subsidiary of PAHO, and had the national CDD program (NCDDP) as its direct counterpart. The second prong was the health education effort carried out through CICLOPE. The final prong, aimed at increasing the availability of ORS in the commercial market, is still being implemented through a technical advisor working independently of the MOH or any other national institution.

The Central American senior program manager (SPM), Dr. Barry Smith, began supervision and management of the program during a difficult period at the end of 1991 when USAID and PRITECH were both considering pulling out of the program because of decisions by the MOH which negatively impacted on the PRITECH program. The SPM assisted in articulating the USAID/PRITECH concern to the MOH and worked with the PRITECH/PAHO country representative to assure smooth working relationships. These efforts were appreciated by USAID and the MOH and resulted in a relatively smooth implementation of the final project year.

INCAP Regional Program

Early in the process of forming the Central American Regional Office consultations were held with the USAID Latin American and Caribbean Health Office (LAC). Guidance from that office was that in its efforts to establish a Central American program, PRITECH should concentrate on developing regional institutions.

Two visits to the region were conducted by PRITECH technical officers, staff from the PRITECH program office, and the Central American regional office. One focus of these visits was the Nutrition Institute of Central America and Panama (INCAP), the principal regional health institution in Central America. These visits resulted in the identification of three activities for PRITECH support. The first of these was a social communication effort designed to improve the home management of diarrheal disease; the second was an operations research effort; and, the third was a distance education effort oriented towards physicians and nurses in Central America.

Considerable effort was expended on the part of both INCAP and PRITECH in the development of the social communication proposal. The effort struggled through several rounds of internal reviews at headquarters and was finally approved for implementation in phases. The first phase, a literature search, was completed in June 1992 but then the project was suspended because of lack of funds.

An operations research proposal was also developed, but the PRITECH financial crisis prevented it from being reviewed or approved.

An initial proposal for the distance education of physicians and nurses in regard to cholera and acute diarrheal diseases was prepared in September 1991. That proposal was forwarded to PRITECH for review in August 1992. USAID approved financing for the materials development phase of the activity in February 1993. Implementation began in March 1993 and is currently underway.

Guatemala

PRITECH was asked by the Guatemalan USAID Mission to develop a diarrhea case management and prevention training program for community health workers in Guatemala as part of the mission's efforts to help the Guatemalan public and private health sector deal with the cholera and diarrheal disease program.

Description of Program Initiatives

The following table summarizes program components of PRITECH's involvement in Central America and Mexico.

Activities	Regional	Mexico	Guatemala	Honduras	Nicaragua
REGULAR PROGRAM ACTIVITIES					
Case management training	O	O			O
ORS marketing		O			
Social communication for mothers' education		O			
CHW training			O		
Health facility surveys		O		O	
Household management surveys		O			
Social communication for Nutritional management	O				O
OTHER ACTIVITIES					
Decentralization					O
Activities	Regional	Mexico	Guatemala	Honduras	Nicaragua
OTHER ACTIVITIES					
Girls' education			O		
Cholera management	O		O		O
Institutional strengthening	O				
Activities	Regional	Mexico	Guatemala	Honduras	Nicaragua
MCH program development			O		O

The PRITECH SPM for Central America participated in a number of ancillary activities in the region, most as part of the strengthening health service (HSS) component of PRITECH.

Decentralization

The SPM formed a part of a Management Sciences for Health (MSH) team which was invited by the USAID mission in Nicaragua to assist that mission in identifying the major obstacles to the decentralization of health services and administration, and the integration of primary health care programs at the health center level.

Girls' Education

A large body of research has demonstrated that there is no more powerful determinate of a child's health than the level of his mother's education. Dr. Smith, as part of a PRITECH consultancy in 1989, helped stimulate an USAID-led effort in Guatemala aimed at encouraging girls to go to school and stay in school as a novel, extremely effective and powerful long-term tool to improve health care. As a PRITECH SPM, he continued to support that effort periodically through policy dialogue using conferences directed at leaders of thought and government in Guatemala.

Cholera Management

The Central American office has facilitated three efforts with LAC/cholera funds. These were: 1) a review of the Nicaragua cholera plan with emphasis on water and sanitation, health education, and case management; 2) community health worker training in case management and prevention in Guatemala; and 3) distance education for doctors and nurses in Central America have been recently initiated and will be completed in July 1993.

Institutional Strengthening

Dr. Smith has been asked to serve as part of a team to analyze the results of the Regional Office for Central American Programs (ROCAP) Institutional Strengthening Project with INCAP. The SPM's efforts will focus on the area of technology transfer from the central level through the INCAP basic technical groups (GTBs) to the client MOHs.

MCH Program Development

The SPM served as the leader of a multi-disciplinary team put together by USAID/Guatemala to develop a long-term family health project.

III. ISSUES AND LESSONS LEARNED

- (1) **Benefits of a regional office in Central America.** Central America is clearly the most disadvantaged region of the Americas and thus the most logical site in the continent for a regional office. Nevertheless, there are clear differences between it and Africa which have given rise to regional offices of totally different natures. Africa is characterized in general with

small or non-existent health offices in individual countries and with few bilateral health programs. Central America, coming out of a decade in which it played a central role in United States foreign policy, has been flush with USAID bilateral assistance and has well staffed health offices. In Africa, PRITECH often played the health office role, being the technical group to whom missions turned to help address the diarrhea problem and through whom they channeled funds for that purpose. The field was much more crowded in Central America with its multi-million dollar bilateral health programs and hefty CDD. The single exception to this has been Nicaragua where USAID may well have placed some funds if the government had been able to articulate a program.

Even in its relatively short life, the benefits of a regional office in Central America were apparent. In all of our major efforts (the two current cholera activities, the aborted social communication effort, and the Mexico country program), the benefit of having someone readily available who knows the region, the language, and the culture was apparent. Both the USAID mission and the Mexican MOH mentioned that they felt that things went smoother after the management of the program was moved to the regional office. USAID/Guatemala and ROCAP clearly indicated their interest in the participation of the regional office in the negotiations concerning the two current cholera activities.

- (2) **Country allocation to future regional offices.** In a future, similar project, the Central American region should be expanded to include the Dominican Republic. The Dominican Republic shares health and socio-economic conditions with Central America and is increasingly participating in regional activities. There are two other distinct regions, the Caribbean and the Andean countries, and then there is Haiti. There is no neat way to tie all of these together in anything other than a continental office for the Americas and that would be simply too large. I see three ways to divide up South and Central America for regional offices in a PRITECH-type project. The first would be a Central American office (including the Dominican Republic), a Caribbean office (including Haiti) and a South American office. A second option would be a Latin American office (including the Dominican Republic) and a Caribbean office. The third would be South American and Central American offices, recognizing the Caribbean as being more developed and handling it and Haiti on an ad hoc basis.
- (3) **Funding difficulties.** The shortfall in PRITECH's funding provided by the R&D/Bureau was realized shortly after the establishment of the Central American office. This caused the inability of the SPM to honor program activities previously discussed because the lack of funds made for a very difficult environment in which to develop the regional office. One can only speculate what might have been accomplished under more favorable circumstances.

PRITECH CENTRAL, EAST AND SOUTHERN AFRICA (CESA) REGIONAL OFFICE FINAL INTERVENTION REPORT

I. DESCRIPTION OF REGIONAL OFFICE ACTIVITIES

From September 1988 to September 1992, the PRITECH Central, East and Southern Africa (CESA) Regional Office had the following principal functions:

- provision of regular and continuous technical and administrative supervision to PRITECH sustained country programs in Cameroon, Uganda, and Chad;
- Periodic technical input and support for PRITECH country programs in Zambia, Tunisia, and Kenya;
- assessment visits and punctual technical assistance to other countries including the design of a private sector oral rehydration salts (ORS) production and promotion activity and a PRITECH country program in Zaire; development of improved information, education, and communication (IEC) and training activities and a PRITECH intermittent country program in Sudan; assessment of the national CDD program (NCDDP) in Malawi; start-up of a full country program in Madagascar; and participation in a country program review in Bangladesh; and
- technical and administrative leadership for a series of complementary program initiatives intended to increase the scope of ongoing CDD programs by working with extra-ministerial organizations (traditional healers, church groups) and establishing program links with other primary health care (PHC) programs such as WASH (Water and Sanitation for Health Project), WELLSTART, and CEDPA (Center for Development and Population Activities).

Despite serious constraints imposed by the lack of sufficient regional staff, the accomplishments in the region clearly demonstrate the positive influence of a regional office able to give consistent administrative and technical support to country programs. Sustained country programs were established in Cameroon, Uganda, and Madagascar, a region where the majority of USAID missions emphasized population and AIDS over other health sector interventions and were wary of centrally funded projects and host governments were resistant to accepting technical support from "outside consultants". All three USAID missions demonstrated their commitment to the PRITECH intervention through the contribution of substantial buy-in funding. Two other intermittent country programs were supported by the office until the local USAID missions shifted away from the health sector (Tunisia) or moved toward a more restricted bilateral intervention (Chad).

Accomplishing positive working relationships with local government and donor representatives required several initial exploratory visits to build professional collaboration based on mutual respect and trust as well as to clarify the objectives and expectations of future cooperation. Sustaining the positive environment required a responsiveness that is only possible from a regional base.

The result of PRITECH's hard work was one program that was identified by the World Health Organization (WHO) as the best small country program in Africa (Cameroon); one program which became a model for special activities in the area of breastfeeding; control of diarrheal diseases (CDD) integrated training and work with traditional healers (Uganda); and one which is now rapidly evolving into an example of successful decentralization and integration of CDD activities (Madagascar).

In addition, several "Special Initiatives" have taken root including the Uganda Traditional Healers Initiative (UTHI), cooperation with the WELLSTART project for support of breastfeeding promotion (Cameroon, Uganda, Kenya), collaboration with CEDPA to enhance collaboration with non-governmental organizations (NGOs) leading to specific interventions in Cameroon, Kenya and Uganda, and efforts to improve CDD training in Uganda, Kenya, Cameroon and Madagascar.

These activities were accomplished by PRITECH's senior program manager (SPM), Ms. Agma Frins, working alone without support staff and out of her home, first in Nairobi then in Cameroon. A proposal approved by PRITECH's cognizant technical officer (CTO) in January 1989 authorized the expenditure of \$375,000 over four years for the regional office, intended to cover office expenses, administrative support, and 40 percent of the SPM's time with the remaining 60 percent to be billed to individual country programs. The approval by the CTO of a second proposal in October 1990 increased funding for the CESA Regional Office to \$575,000 (covering the same four year time period) and authorized the hiring of additional senior staff to be supervised by the SPM for support in the accomplishment of PRITECH's priorities in the region.

Administrative delays, a bias towards the expansion of the PRITECH/Dakar office and a shortage of available central funds prevented the expansion of the CESA Regional Office foreseen in these proposals. The consequent lack of on-the-ground technical and administrative support for the region's initiatives compromised the success of both country programs and special initiatives and led to the eventual resignation of the SPM and the closing of the CESA office in September 1992.

II. SUMMARY OF COUNTRY INTERVENTIONS

The following table summarizes PRITECH's involvement in the different countries that have been considered as part of the CESA region:

TABLE I

COUNTRY	1st VISIT	END OF ASSIST.	COMMENTS
A. SUSTAINED COUNTRY PROGRAMS			
Cameroon	1986	1993	Managed by regional office. Initiated and sustained as a full country program with PRITECH supporting national program staff in all components of the intervention. Full-time PRITECH country representative from July 1987.
Uganda	1989	1993	Managed by regional office. Initiated as a collaborative venture with UNICEF to work more closely with traditional healers and the Health Inspectorate (hygiene and sanitation staff). Subsequently expanded to support a wide range of CDD activities under direct USAID auspices. Full-time country representative from October 1991.
Madagascar	1990	1993	First visit in 1990, second visit in 1991, third in 1992. Plans for PRITECH support delayed each time due first to country politics, then to USAID/Madagascar staff changes then to PRITECH/Washington delays. Full-time country representative as of March 1993. Implementation from March-July 1993. PRITECH involvement will rollover into USAID bilateral child survival project.

COUNTRY	1ST VISIT	END OF ASSIST.	COMMENTS
Kenya	1987	1993	Managed from Washington: USAID Mission refused oversight by Regional Office due to conflict with the USAID Health Officer. Increasing involvement by regional office after 1991 change of USAID staff. Part-time country representative from October 1987; full-time from November 1988.
Zambia	1986	1993	Managed from Washington with limited involvement by regional office. Full-time country representative from 1986.
B. AD HOC AND INTERMITTENT COUNTRY PROGRAMS			
Tunisia	1984	1988	In collaboration with Catholic Relief Society (CRS). When CRS closed, USAID mission did not continue program due to lack of apparent commitment by MOH and low priority of health sector in mission portfolio.
Sudan	1988	1989	After initiation of collaboration with PRITECH in training and IEC and initial design of potential long-term intervention, national political changes led to pull-out of USAID mission.
Chad	1986	1989	Program management transferred from Dakar office to CESA in 1987. Full-time PRITECH representative from end 1988. Change in USAID mission staff and switch to bilateral health project as well as national political unrest led to discontinuation.
Zaire	1990	1990	After two successful program design missions by PRITECH, political unrest led to mission pull-out.

COUNTRY	1ST VISIT	END OF ASSIST.	COMMENTS
C. POTENTIAL COUNTRY PROGRAMS VISITED OR ASSESSED			
Guinea\Conakry			Combatting Childhood Communicable Diseases (CCCD) country. After three exploratory visits by SPM, USAID mission decided to direct all support through ongoing CCCD program despite repeated government requests for PRITECH assistance.
Malawi			CCCD country. Mission decided not to follow up initial visit by SPM.
Tanzania			Mission concentrating on population activities.
Mozambique			Mission concentrating on population activities.
Nigeria			CCCD country. Initial exploratory visits by PRITECH/Washington staff did not lead to mission request for assistance.

The countries making up the CESA region are geographically, culturally, linguistically, and historically extremely diverse. As the above table indicates, the sometimes shifting priorities of USAID missions and intervening political crises in host countries impeded development of PRITECH programs in many of the countries in the region.

In those countries where PRITECH successfully started country programs, PRITECH initially responded to a request for assistance to meet specific, limited needs of the NCDDP. Once these initial needs were being addressed and a positive working relationship had developed, PRITECH was then asked to expand its assistance to a more comprehensive support for a wide range of CDD program components. This process typically took between nine and eighteen months. Involvement in Cameroon began with assistance for program planning; in Uganda, PRITECH's initial involvement was closely tied to planning support to the Health Inspectorate and, later, to the traditional healers initiative; and, in Madagascar, PRITECH responded to a request for assistance in the production and marketing of ORS.

III. DESCRIPTION OF COUNTRY PROGRAM ACTIVITIES

The following table summarizes program components of PRITECH's involvement in the principal CESA sustained country programs.

TABLE II

Activities	Cameroon	Uganda	Madagascar	Kenya	Zambia
A. REGULAR PROGRAM ACTIVITIES					
Support to overall national program	O*	O	O		O
Program management	O	O	O		
Clinical training	O*	O	O		O
Training materials	O*	O*	O*	O ¹	O
DTUs/ORT corners	O*	O*	O*	O ¹	O*
Supervision		O			
Mother education	O*		O*	O*	O
ORS production	I	with PATH*	O*	O* ¹	O*
Integration	O*	O			O
Decentralization	O	O		O	O*
Social marketing	with PSI	with PATH*	O*	O*	
B. COMPLEMENTARY PROGRAM INITIATIVES					
Breastfeeding	O*	O*		O*	O
NGOs/church-based health care	O			O*	O
Traditional healers	I	O*			O
Rational use of drugs	I				O

O = Ongoing program activity

* = Key program area

I = Initiated but abandoned due to non-feasibility (because of insufficient funding, support staff or technical constraints)

O¹ = In private sector only

Tables I and II demonstrate the diversity of situations and inputs which the one-person CESA Regional Office successfully addressed. In addition to broad support for the NCDDP in Cameroon, Uganda, Kenya, and Zambia, a series of complementary program initiatives were developed to expand the reach of these programs to the private sector and to under-served populations, as well as to address persistent problems in CDD such as the continued inappropriate use of drugs and the insufficient emphasis on the prevention of diarrhea.

The following is a description of the principal complementary program initiatives led by the CESA Regional Office:

- (1) **Breastfeeding promotion.** To prevent diarrhea, the CESA office worked in several countries to reinforce links between CDD programs and programs to strengthen breastfeeding practices. Through a close collaboration with the WELLSTART project, PRITECH assisted in the creation of breastfeeding promotion programs in Cameroon, Uganda, and Kenya.

For francophone Africa, the Child Survival and Infant Feeding Conference held in Lomé, Togo during September 1991, proved to be a catalyst for breastfeeding promotion in a number of countries. In Cameroon, PRITECH sponsored a series of operations research projects related to breastfeeding prior to the Lomé conference, and, together with WELLSTART, a breastfeeding policy workshop in March 1992. Additionally, six Cameroonians attended WELLSTART's lactation management education (LME) training in San Diego.

These efforts have led to the development of a national breastfeeding policy for Cameroon as well as a breastfeeding promotion program within the MOH, supported by WELLSTART and UNICEF and coordinated initially by PRITECH. The activities of the Cameroon breastfeeding promotion program are continuing to be closely coordinated with the CDD program.

Teams from Uganda and Kenya also attended the LME training in San Diego, and returned to set up breastfeeding promotion training units with PRITECH's support. In Uganda, a lactation management center was established in the diarrheal training center (DTU) at Mulago Hospital in Kampala under the direction of Dr. G. Mukasa. In Kenya, a similar unit was established at the Kenyatta Hospital in Nairobi and a national breastfeeding curriculum was designed with technical assistance by the PRITECH country representative.

- (2) **Traditional healers.** As an alternative to, or in addition to care provided by modern health services, traditional healers provide health care to a majority of the population in most African countries. Their role has become perhaps more important in recent years as state-supported health systems have suffered from a chronic lack of funding and medications.

Under the supervision of the CESA office, PRITECH established an initiative to target traditional healers in order to improve home case management by families frequenting

traditional healers as well as to teach healers to more effectively manage diarrhea in their clinics.

Initial steps in the initiative included an extensive literature review documenting past efforts to collaborate with traditional healers and information related to the distribution, practices, and organization of traditional healers in sub-Saharan Africa. This important body of knowledge is available through the PRITECH Information Center. A second major step was in-country fact finding, including detailed studies in Uganda and Cameroon. Both studies showed that traditional healers would be willing to cooperate with the MOH for the distribution of ORS and to improve case management practices by healers and families. The study also showed the potential difficulty of finding an appropriate organizational structure through which to contact healers in significant numbers.

Uganda is the only country where PRITECH developed a full scale intervention to address traditional healers. After the completion of research, a detailed proposal was completed at a workshop in February-March 1992. Following this proposal, implementation of the Uganda Traditional Healers Initiative (UTHI) continues. Over 450 traditional healers have been contacted for training. It is too early to evaluate the effectiveness of this intervention, which holds a good deal of promise.

- (3) **NGOs and church-based health care.** PRITECH's effort to address NGOs and church-based health institutions was designed to extend good case management practices for diarrhea beyond the public sector health system. In several countries (Cameroon and Zambia), the NCDDPs have consistently included representatives from the private, church-based sector in training courses and other CDD activities. However, collaboration between NCDDPs and NGOs has generally been weak and case management practices in privately-run health facilities are often poor and do not follow national policy guidelines.

PRITECH's initial plans for a broad intervention to target the church-based sector in Zambia, Kenya, Uganda, and Cameroon have not been realized. These plans called for health facilities surveys to evaluate current case management practices in church-affiliated hospitals, establishment of private sector DTUs and subsequent training courses to address deficiencies. Only in Kenya was a modified version of this approach successfully implemented.

PRITECH's major NGO activity, a workshop for 10 NGOs from anglophone Africa and Cameroon, was organized in Nairobi in March 1992 by the CESA office in collaboration with CEDPA. Each NGO attending the workshop drafted a proposal for follow-up activities to promote CDD. This workshop produced limited interventions in Cameroon, Uganda, and Kenya. In Cameroon, FEMEC, a Protestant Church umbrella group, has produced flyers for diarrhea home treatment and has conducted a training course for members of the women's groups of the Methodist Church. In Kenya, three major church-based umbrella organizations have established DTUs and implemented case management training.

- (4) **Links with water/sanitation.** The CESA office designed and facilitated a workshop in collaboration with WASH and CARE in Bamako, Mali in March 1991 to promote links between CDD and water/sanitation programs. The workshop brought together five NGOs from francophone African countries in addition to PRITECH and WASH staff and produced a plan to develop a joint WASH/PRITECH training manual. The development of the manual was later dropped; a lack of financing prevented further efforts by PRITECH to develop links with water/sanitation activities.
- (5) **Rational use of drugs.** As a first step to the development of an activity to improve the rational use of drugs in the case management of diarrhea, the CESA office facilitated the attendance of three senior Cameroonian MOH officials at a Management Sciences for Health (MSH) course on the rational use of drugs (RUD) in Kathmandu, Nepal in February 1992. While this course sparked a good deal of interest in MSH's methods, a lack of financing and PRITECH staff time has prevented the implementation of an intervention in Cameroon. A similar effort was planned in Madagascar and shelved for lack of time.

Efforts to develop activities targeted at urban and refugee populations were abandoned due to lack of resources.

IV. ISSUES AND LESSONS LEARNED

- (1) **Decentralized program management approach.** The decentralized program management approach reflected in the establishment of PRITECH regional offices has been extremely effective in assuring continuity and consistency in country programs and in enabling PRITECH to undertake collaborative initiatives with other USAID-funded health sector projects. Supervision of ongoing country programs from the regional offices has been cost-effective in comparison to direct supervision and management of programs from the PRITECH/Washington office.

Consistent support from the regional office has greatly contributed to the development of country programs. Once the Cameroon and Uganda country programs were fully functioning, consistent and regular supervision of the PRITECH country representatives as well as regular contacts with USAID and MOH personnel by the SPM helped assure that PRITECH inputs responded effectively to local needs. The SPM's knowledge and in-depth understanding of program issues was essential to PRITECH's success in both countries. By promoting cross-fertilization of ideas between country programs, and by serving as an interface between country level concerns and priorities and those of PRITECH/Washington and other donors, the CESA Regional Office was able to further enhance the effectiveness and relevance of PRITECH assistance. Additionally, the SPM's involvement in multiple countries in the region enabled the implementation of coordinated initiatives, such as the promotion of breastfeeding in collaboration with WELLSTART and work with NGOs in several countries.

- (2) **Need for adequate staffing.** In the long term, the effective implementation of country programs as well as necessary follow-through for the implementation of complementary activities suffered as plans to increase the staff of the regional office went unrealized. For a period of over four years, the regional program manager maintained a travel schedule of between 65 percent and 70 percent of total worktime to develop and maintain programs at the achieved levels. Efforts to increase the staff of the CESA Regional Office suffered from administrative delays in the PRITECH/Washington office and overall funding shortfalls in the PRITECH project.

A further consequence of the lack of sufficient regional technical staff was the increased reliance on the PRITECH/Washington technical staff to support and implement specific country-level interventions such as the UTHI, the breastfeeding initiative, and the development of DTU training materials in Uganda. While it would have been impossible to implement these activities without this central support, the result was a lack of coordination of activities at the country level and confusion over roles and responsibilities. As the CESA office was increasingly unable to provide oversight and vision for these activities, PRITECH country representatives or, in the absence of a country representative, host country NCDDP and USAID mission staff were left to deal with sometimes conflicting messages and agendas. In addition, Washington-based staff was generally unable to provide sufficiently frequent on-the-ground support to help advance these initiatives as planned, resulting in frequent postponements and delays.

- (3) **Role of country representative.** The presence of a full time PRITECH country representative is key to assuring coordination of diverse activities, maintaining momentum, and identifying and utilizing opportunities for program expansion. The difference in the development and success of PRITECH country programs with (Cameroon, Uganda, Zambia, Kenya) and programs without a full-time country representative (Tunisia, Chad, Madagascar), is striking. In Kenya, Uganda, and Madagascar, program implementation accelerated dramatically once a full-time PRITECH representative was in place.
- (4) **Complementary program initiatives.** Complementary program initiatives have proved to be effective in introducing PRITECH to a country and attracting the attention of USAID missions, as well as expanding CDD program reach to under-served populations. However, these initiatives have a long-term impact only where there is funding available for follow-up activities as with the traditional healers initiative in Uganda, and where the initiatives are linked to ongoing or permanent structures such as the breastfeeding promotion effort, which is part of MOH structures and has the continuing support of WELLSTART and UNICEF.
- (5) **CDD program sustainability.** Funding available for health programs and the general effectiveness of MOHs has declined over the past five years in many African countries, a combined result of decreasing economic stability, increasing political unrest, and growing donor withdrawal from Africa and from the health sector in general. In the CESA region, USAID/PRITECH has been the major, and in some cases the only, donor for CDD in recent

years. Funding for CDD programs by most African governments has dropped nearly to zero. Sustainability of CDD efforts is doubtful as PRITECH prepares to end its support. In many countries, "integration" of PHC activities has in fact diminished the profile of CDD and decreased emphasis on good diarrhea case management. The job for CDD, however, is not done, as health facilities surveys and household surveys from several countries indicate. MOHs and donors will need to find appropriate mechanisms to continue to promote CDD within an integrated PHC context.

PRITECH THE GAMBIA PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Elements of the PRITECH Country Plan

In 1988 the purpose of the PRITECH II intervention in The Gambia was stated as:

- giving technical assistance to the national control of diarrheal diseases program (NCDDP), thus improving the program; and
- financing key activities of the NCDDP, as defined in a workplan developed with the medical and health department.

As part of the specification of the goals of PRITECH's assistance to the CDD program in 1988, the Medical and Health Department (MHD) developed a four-year CDD plan with PRITECH input. This plan focused on improvement of case management, intensification of community education, improvement of oral rehydration salts (ORS) access, and monitoring and evaluation.

Chronology of PRITECH Activities

USAID/Banjul and the MHD have a long history of collaboration in the area of diarrheal disease control. From 1981 to 1984, The Gambia was one of the countries involved in the USAID Mass Media for Health Project (MMHP). The involvement of PRITECH in The Gambia was initially due to the concern of both the MHD and USAID that caretakers' knowledge and use of oral rehydration therapy (ORT) was declining after substantial gains had been made the MMHP. During PRITECH II, efforts to consolidate gains made during the MMHP and PRITECH I have continued, with the emphasis shifting from support of communication activities to support for a more well-rounded disease control program.

The USAID mission in The Gambia provided \$300,000 dollars (\$100,000 annually for three years) for the PRITECH II intervention. Expenditures are on target for the end of the project in 1993. With these funds, PRITECH has primarily provided technical assistance as originally planned. For the first four years of the project, technical assistance was provided primarily by the PRITECH/Sahel Regional Office in Dakar, Senegal on an intermittent basis.

In 1990, the PRITECH regional office became concerned that intermittent assistance was inadequate input to ensure that CDD program activities progressed as planned. Staff changes within the CDD program and absences from the program contributed to a low implementation rate. Assessment of expenditures against the \$300,000 buy-in confirmed that placement of a resident technical assistant would be a feasible means of expediting project implementation. Negotiations with USAID/Banjul and the MHD resulted in the arrival of a long-term PRITECH country representative in July 1991.

PRITECH support to the program has been closely coordinated with that of UNICEF and the World Health Organization (WHO). Visits from the PRITECH/Sahel Regional Office have regularly included meetings with these key actors. Prior to the placement of the PRITECH representative, the UNICEF office monitored the ongoing efforts of the CDD program, and administered some of the PRITECH financial inputs to the program. Close collaboration between UNICEF and PRITECH has continued since the arrival of the country representative.

WHO support to the program has focused primarily on program management, case management training outside the country, and in-country case management training for health facility staff. UNICEF's primary input has been the provision of ORS packets. PRITECH and UNICEF have jointly provided support to strengthen the program's administrative and logistics capacity. As part of the CDD program's planning and budgeting, PRITECH assisted the program to identify and secure funding for proposed activities. Where shortfalls in necessary financial assistance were unaddressed, PRITECH made efforts to provide funding.

Major Contributions of PRITECH

PRITECH's primary contributions to the Gambian CDD program have been through technical assistance, which accounted for approximately \$250,000 of the \$300,000 PRITECH II budget for The Gambia. The country representative and PRITECH regional office staff have helped with program planning, integration of CDD topics into nursing school curricula, work with the private sector, and ethnographic research on weaning practices. Additionally, three short-term PRITECH consultancies have provided assistance in the use of ethnographic methods for improving nutrition practices, and the promotion of ORS in the private sector. PRITECH also financed key activities in the NCDDP workplans; approximately \$50,000 has been spent for office and administrative support and for specific program activities.

Impact of PRITECH on National CDD Efforts

PRITECH has worked very closely with the NCDDP in The Gambia. Prior to the installation of the country representative, intermittent technical assistance served as an impetus to the implementation of CDD activities. Having a full-time country representative present provided a similar impetus, facilitated funding and administration, and effectively provided an extra CDD staff person.

The Government of The Gambia cannot afford all the costs associated with the CDD program, therefore the level of outside financial assistance has an important influence on the pace of program implementation. PRITECH's technical and financial assistance has been critical, enabling the implementation of activities that would not have otherwise taken place, including activities in the areas of research, private sector, training and curriculum development. No other donor has shown the ability or willingness to support the CDD program as comprehensively as PRITECH has done.

II. THE NATIONAL CDD PROGRAM

Organization of the NCDDP

The MHD, within the Ministry of Health and Social Welfare, is responsible for managing health interventions in The Gambia. At the central level in Banjul, the MHD is organized into "units", each responsible for a program such as CDD, acute respiratory infections (ARI), Expanded Program for Immunization (EPI), maternal child health (MCH), and/or program-support function(s) such as health education, epidemiology and statistics, and in-service training. The country is divided into three administrative regions. A process of further decentralizing the programming and administrative functions to six "divisions" is currently underway. The working relationships between the units at the central level and the regional health teams (RHTs), particularly within the context of the present decentralization process, continues to have profound implications for and influence on the implementation of CDD and other program interventions.

There are two full-time staff members assigned to the CDD unit. The program manager has been in place since the inception of the program in 1985, and an assistant began working with him in early 1991 (due in large part to PRITECH's advocacy for the placement of an assistant). The assistant was in charge of the CDD program from September 1991 to May 1993, while the program manager was studying overseas.

Program Planning

Annual workplans are developed by the CDD unit with input from PRITECH. It has been a recognized problem within the MHD that RHTs, although responsible for implementing and supervising field-level activities, are often not adequately involved in the planning process. The end result is that RHTs feel no sense of ownership or commitment to the activities, and follow-up supervision suffers accordingly. However, joint planning meetings with RHTs, central units and non-governmental organizations (NGOs) were held in two of the regions in 1993. Additionally, the need for a clear planning process has been recognized within the Ministry of Health and Social Welfare.

Description of Activities, Achievements, and Constraints by Program Area

- (1) **Training.** Since 1988, 75 senior health workers have been trained in diarrhea case management. There is now at least one trained worker at each health facility in the country. Future training efforts will focus on training staff at facilities where transfers have left gaps, training staff at the two major hospitals, and then building upon this core of trained personnel by training additional persons at each facility.

The major constraint to implementing case management training has been the availability of RHT and health facility staff. As most programs have the training of health workers as a priority intervention, RHTs and health facility staff have incredible demands placed upon them to organize and attend week-long training sessions. Accordingly, the CDD program plans to

pilot test on-site individual training, and an integrated CDD/ARI/malaria (including nutrition) training course. A second constraint is that per diems are expected by participants, thus outside funding for training courses is essential.

In the long term, the only solution to decreasing the dependence on one-time training courses is to ensure high-quality, pre-service training. Recognizing this need, the CDD unit has worked with the country's three nursing schools and the public health school to assess and strengthen the training of their students. Six hundred copies of the PRITECH training modules have been produced in English and distributed. PRITECH facilitated a workshop with tutors from each of the four schools in 1989.

The CDD program has further attempted to involve the three nursing schools in the supervision of ORT corners at nearby health centers. Two of the schools initiated contact with the centers and requested assistance from the CDD unit in late 1992; a promising sign of increased interest and sense of responsibility. PRITECH has provided support for copying case management forms and for purchasing ORS mixing materials. Work with the schools will continue as a priority in the coming years.

There are more than 350 village health workers (VHWs) and traditional birth attendants (TBAs) in The Gambia; all of them have been trained in the use of ORS, including a review of appropriate case management. This training and the current case management skills of the VHWs will be evaluated during 1993 in order to plan updated in-service training sessions.

- (2) **Supervision.** Supervision of activities in health facilities and village health services is recognized as a major weakness of the primary health care (PHC) system in The Gambia and, unfortunately, CDD activities are no exception. Weak supervision is due to several factors, such as low staff morale at up-country postings, heavy workloads combined with understaffing, poor staff organizational skills, and lack of expertise for specific responsibilities expected of the supervisory staff. From 1989 to 1991, the CDD and nutrition units encouraged the regional nutrition assistants to take responsibility for CDD supervision. Although agreement on this arrangement was reached with the necessary authorities, the practical steps of implementation, such as developing a job description, were slow to progress.

By late 1992 this approach for improving CDD supervision at the regional level had been superseded by plans to decentralize to divisional health teams (DHTs) and to cut out specialized staff from central units. The CDD unit plans to train the new DHT staff "generalists" in case management and supervisory skills in 1993. To support the DHT staff, a CDD/ARI supervisory manual has been developed and is ready for printing.

- (3) **ORS supply and distribution.** The Gambia has an extensive PHC system, reaching approximately 60 percent of the population. In 1991, following a policy decision by the CDD Technical Committee, VHWs were trained in the use of ORS and distribution of packets to

these community workers began. Through the public sector, including VHWs and health facilities, approximately 80 percent of the population has access to ORS.

ORS packets available in the Gambian public sector are supplied by UNICEF. In 1988, a drug revolving fund (DRF) was established in The Gambia; at present the full costs of most drugs in this system, including ORS, are not being recovered. By 1993 UNICEF no longer imported ORS; all public sector ORS is currently channeled through the DRF. While supplies of ORS have been adequate over the past two to three years, monitoring by the CDD unit has shown that stock-outs at peripheral health facilities and village posts often occur. Hoarding against possible future shortages takes place at all levels of the distribution system, and a system to monitor and match population and consumption needs with supply levels has yet to become fully functional.

Through regular field visits and monitoring, the CDD unit has been able to identify and alert the appropriate persons about impending distribution problems and stock-outs. The importance of regular monitoring of ORS supplies at health facilities and villages will be emphasized during upcoming supervisory training of DHT staff.

- (4) **Information, education, and communication (IEC).** After the auspicious start of IEC activities made by the health education unit under the MMHP, activities in this area have been limited. The CDD unit has instead emphasized training in order to develop a core of trained personnel. Limited staff at the CDD and Health Education units has further constrained activity in the area of community education.

The CDD unit continued to work in conjunction with the Health Education unit and Radio Gambia to air the radio spots which were produced during MMHP. Unfortunately, Radio Gambia has been unable to develop a system of monitoring the timing and frequency of the spots. The spots are now in dire need of updating. Radio Gambia and the CDD unit have produced and aired seven half-hour episodes in four languages about diarrhea case management in the home, as part of a popular radio drama series. PRITECH has provided some financial support to the radio station for these activities.

As part of PRITECH II, community health workers have been trained in the use of flipbooks (2,000 of which were produced under PRITECH I). Additionally, 5,000 sugar-salt-solution (SSS) mixing flyers, 5,000 ORS mixing flyers, and 2,500 "When Your Child Has Diarrhea" posters have been developed and printed with PRITECH II financing. The presence of these visual aids and demonstration materials for mixing SSS has prompted health workers at peripheral levels to undertake CDD health education activities much more frequently than for other health topics.

In 1991, work was begun with local musicians and school children to develop appropriate songs and dramas about CDD. One song about ORS which was created by a traditional singer has become quite popular through repeated airing on the radio. A pre-test of training

materials on communications skills for health workers was carried out by WHO, CDD, and the health education unit in 1992.

It is unlikely that diarrhea case management practices at the household level have greatly improved in recent years, given the low level of the IEC intervention. The provision of information to households is complicated by a very high illiteracy rate and the absence of country-wide radio or newspaper coverage. There is no television station. A large investment of time and effort is needed to carry out most IEC activities.

A household survey conducted in 1988 showed an ORS use rate of 15 percent, and a continued feeding rate of 99 percent. A second household survey conducted in January 1993 showed an ORS use rate of 40 percent, an SSS use rate of 16.5 percent, a continued feeding rate of 95.4 percent, and a continued breastfeeding rate of 97.5 percent. Child diarrhea morbidity was estimated by the 1993 study at 5.72 episodes per child per year. Starting in 1993, the CDD program intends to place greater emphasis on health education.

- (5) **Case management.** ORT corners set up (with furniture and supplies) at the eight major health centers in the country have essentially ceased to function, mainly due to staff changes, staff shortages, and an uncertain commitment to change well-established routines. Regular and effective supervision from regional staff has been a further missing element. The CDD unit decided in 1991 to focus efforts on revitalizing the ORT corners at the three health facilities located in proximity to nursing schools.

The appropriate and rational use of drugs is outlined for all health staff in their Standard Drug Treatment Manual, produced by the DRF. Although specific information about case management practices at the health facility level is not available, it has been noted by CDD staff at case management training sessions that flagyl is commonly, and incorrectly, substituted for septrin in the treatment of dysentery. Discussion of this item has been added to all case management training sessions.

- (6) **Nutrition.** The CDD unit has worked closely with the nutrition unit to promote child nutrition in general, and specifically for children suffering from diarrhea. The primary area of collaboration has been training for all levels of health workers; nutrition courses always include sessions on the sick child, and CDD courses always include sessions on feeding during and following illness.

Ongoing nutrition activities are managed quite capably by the nutrition unit; the CDD program has provided input for specific interventions such as the current development of a national nutrition policy and a breastfeeding policy. However, joint activities which require daily collaboration, for example past efforts to have the regional nutrition assistants take up CDD responsibilities and discussions about joint ORT/feeding corners, move very slowly if at all.

PRITECH has provided funds to the Gambian Food and Nutrition Association (GAFNA) to conduct ethnographic studies about weaning practices and to develop weaning food recipe trials. These findings have been incorporated into CDD and nutrition unit training courses, and also formed the basis of messages for a pilot nutrition education campaign using local musicians.

- (7) **Private sector.** A PRITECH consultancy in 1989 investigated the potential for commercialization of ORS in the private sector. No follow-up actions have occurred due to time limitations and the CDD program's focus on strengthening the public sector. The CDD unit and other workers in the department recognize the lack of knowledge about private pharmacies' practices as a weakness of the program and there is a commitment to address this area in the coming year. With the present staff complement, however, realization of this proposal looks as unlikely as in past years. Discussions with the ARI unit to jointly investigate and begin work with private practitioners is more promising as the work load could be shared.

A project proposal for social marketing of contraceptives and ORS through a local NGO was developed by Population Services International (PSI) and submitted to USAID/Banjul. The mission declined to fund the intervention, but there is some possibility that another donor will pick up the plan.

Work with NGOs in the health sector is generally coordinated and implemented at the regional and community levels. At these levels, health education activities and training, often involving CDD topics, are implemented in collaboration with MHD staff. A local NGO, GAFNA, attended the CEDPA/PRITECH workshop for NGOs in 1992. The proposal that they developed to support CDD efforts was very well received, however, due to GAFNA staff time commitments no follow-up has yet taken place for this initiative.

- (8) **Evaluation and research.** A household survey was carried out in 1988 to measure caretakers' knowledge and practice relating to care of their child during diarrhea episodes; a second household survey was conducted in January 1993 (the results are presented above in the section on IEC). A health facility survey was carried out in the Western Region by the CDD program manager as part of his Masters studies in August 1992.

Reports about studies in the health field are often poorly circulated in The Gambia. Studies with a potential impact on CDD are frequently not brought to the CDD unit's attention.

Operations research during PRITECH II focused on identifying appropriate weaning foods and more appropriate foods for feeding during diarrheal illnesses. These studies were carried out by GAFNA. Field trials of weaning recipes were completed in October 1992. The CDD unit is represented on the Nutrition Education Committee, which will oversee the development and implementation of a nutrition education campaign utilizing messages derived from the study results.

- (9) **Prevention.** The CDD unit has focused its efforts on improving case management in health facilities and in homes. In The Gambia several of the strategies that will help decrease the incidence of diarrhea are well-managed by units and departments other than the CDD unit; the unit has endeavored to support their work through the provision of appropriate and accurate information. CDD staff have sought and now have representation on the Central Nutrition Education Committee, and the Water and Sanitation Working Group.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Program sustainability.** Two factors will determine the rate at which CDD efforts continue in The Gambia after the closure of PRITECH II. The first of these is the availability of funding and the second is the CDD staff's motivation and capacity to bring their ideas to fruition. UNICEF and WHO are the only two organizations which have provided funding for the program in the past and have indicated an interest in doing so in the future. However, both UNICEF and WHO only tend to fund specific activities. Future funding for recurrent costs related to administration and supervision for the program is therefore uncertain.

PRITECH and the CDD unit have discussed options for coping with anticipated funding reductions after 1993. It is a priority of PRITECH and the CDD unit to ensure that a proposal for future funding is developed and circulated to donors by June 1993. This will most likely take the form of an integrated CDD/ARI/malaria/nutrition proposal, a child survival project. The ARI and malaria programs also face funding shortages after 1993, and USAID is not alone among donors in moving towards a more integrated approach to reducing childhood mortality.

There are significant reasons for optimism concerning the future of the NCDDP. PRITECH's technical assistance has clearly had a positive impact on CDD program management and implementation of activities; this impact should continue beyond the completion of PRITECH's involvement in The Gambia. CDD is one of oldest and best established programs in the MHD, and is recognized by health workers as an important problem in terms of morbidity and mortality. The CDD program manager will return from his studies in 1993; the assistant program manager is enthusiastic, bright, and energetic.

- (2) **Private sector activities.** Commitment to working with private practitioners, primarily drugstore owners, and the private sector is strong within the ministry and the CDD program. However, the priority remains to strengthen the public sector and limited manpower has constrained the capacity to begin work with the private sector.

Because The Gambia is a small country, even modest efforts to involve private practitioners in CDD can yield significant results. Drugstores provide a significant proportion of health care and anecdotal information concerning cost indicates that price is not a major factor in deterring the utilization of this source of care. First steps in addressing the private sector are

planned for 1993, including cataloguing private practitioners working in the country, identifying their present practices, and identifying channels of communication with them.

Informal observations show that only one anti-diarrheal, Kaonorm, is imported into the country. The Medicines Board, responsible for establishing and enforcing drug regulations, has recently been restored after a one-year suspension. In 1993, the CDD unit will revive efforts to have the importation of anti-diarrheals banned. There is no in-country production of ORS and this does not seem feasible given the small population.

- (3) **Integration of child survival activities.** The Gambia has had an ARI program in place since 1988. The current CDD program manager was at one time manager for both programs. It was found that CDD efforts fell by the wayside as emphasis was placed on ensuring that ARI activities got underway. Additional staff (a CDD assistant manager, an ARI manager, and an ARI assistant manager) and the separation of the programs into separate entities relieved some of the difficulties of jointly implementing the two programs.

However, after the arrival of the PRITECH country representative the possibilities for providing assistance to the relatively new ARI staff became progressively apparent. The CDD program had experience in curriculum development, organizing case management training workshops, conducting household surveys, and developing workplans. Working with the ARI program was a logical option, although collaboration has been limited by staff time constraints.

In The Gambia, opportunities for the child survival programs to implement interventions together are limited. The household survey planned for 1993 involves the CDD, ARI and malaria programs. A trial of integrated case management training is planned for June. Working with private pharmacists could involve all three programs. The supervisory manual is a CDD/ARI effort with input from the nutrition unit. These experiences have shown that ensuring that two or three programs work together requires more time and effort than "doing it yourself"; one program must have a vested interest in the activity and be identified as leading the process.

The units have begun to take steps to better coordinate their efforts, primarily during the planning phase. Joint planning meetings are now taking place both at the central and regional levels. Staff in all areas of the MHD recognize the potential benefits in working together more closely. However, although the program staff feel pressure from donors and MHD leadership to speed up the integration process, there does not seem to be a clear idea of what "integration" means.

- (4) **Decentralization of public sector activities.** Decentralization is currently the principal issue of concern within the MHD. It remains unclear what effect decentralizing administrative and programming responsibilities to six divisions instead of three regions will have on the day-to-day structure and functioning of the MHD. There is a real reluctance to decentralize decision-

making power; the chief nursing officer will still retain control over all staffing decisions; financial responsibility will not be given to the teams until other ministries also decentralize; and a strong central level will still be maintained.

Ideally in the future the divisional health teams will have the capacity to develop their own plans with input from the CDD unit. However, the process through which this would happen is not clear. There is some disagreement about whether, in a country the size of The Gambia, further decentralization is needed. The present regions (approximately 300,000 people) are already smaller than most districts in other countries. There is concern that the resources needed to support six teams are not present. People are questioning why resources are not being used to strengthen the present three regional teams, rather than decentralize to six teams. Donors, while expressing support for decentralization in principle, are reluctant to provide the additional resources required, including extra vehicles, and to put financial management of projects into the hands of inexperienced district-level staff.

- (5) **The importance of CDD staff.** Ultimately, the programs of the MHD are only as good as their staff. PRITECH has recognized this fact and has made significant attempts to transfer skills to CDD program staff. Nonetheless, the continuity of PRITECH's contributions and the future success of the CDD program depend to a great extent on the capabilities and motivation of program staff.
- (6) **Supervision.** CDD efforts in The Gambia are presently initiated at a national, central level. However, the basis of the CDD strategy - to change behavior of caretakers and health care providers - implies that most activities be carried out at the peripheral field level. The system of communication and coordination joining the two levels thus becomes the critical element in the successful implementation of the program. The CDD program can only be as good as the supervisory system at each stage in this structure. Supervision is frequently quite weak in The Gambia; efforts to strengthen CDD must include strengthening supervision within the health system.
- (7) **Qualitative research.** The type of work done by CDD programs requires qualitative information in order for interventions to be effectively planned and implemented. The nature of these interventions requires a sound understanding of community members' and health workers' perceptions of diarrhea and related issues. As in most countries, there is resistance in The Gambia to using qualitative methods.

Ethnographic methods and focus group research are new and unknown; misperceptions exist that these are not legitimate and recognized methods of collecting information. Donors could actively work to change these misperceptions and to support qualitative forms of information gathering by requesting qualitative research in country plans, providing more technical support for such research, citing results in their own documents, and utilizing qualitative methods for program evaluations.

- (8) **Quality versus quantity.** The interventions needed to effectively strengthen CDD efforts are often mundane, daily activities such as visiting MHD supply stores to check ORS levels and printing more copies of a case management form. Yet within the MHD, the health community in The Gambia, and the international donor community there is little recognition for successful management of these aspects of the program. Donors can enhance the attention paid to these important administrative functions by clearly stating in project documents that such functions need to be successfully and regularly carried out.

Furthermore, both government and donor personnel should focus more on the quality of work performed and less on the quantity of output. Professional and personal pressures exist to accomplish as much as possible to reduce child morbidity and mortality, and to achieve professional recognition. However, quality and follow-up of activities are often sacrificed in the rush to conduct as many activities as possible. Instead of conducting two case management training courses, it would be better to conduct one training course and then ensure that the program visited each trained health worker at his or her facility two or three times to follow-up and provide support for the changes that must be made.

PRITECH INDONESIA PROGRAM (1988-1989) FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

A one-year PRITECH II program, building on a three-year PRITECH I program, was jointly funded by USAID/Jakarta (\$667,000) and R&D/Health (\$100,000). The program began in October 1988 and was completed in September 1989.

Under the conditions of the USAID buy-in, PRITECH II, through a combination of long-term and short-term technical assistance, was to help the Indonesian Ministry of Health (MOH) establish by September 1989 the institutional capacity to manage development of a national control of diarrheal diseases (CDD) program (NCDDP). PRITECH's long-term experts were a full-time public health management specialist and a part-time drug supply management specialist. Decentralization of program management to the provinces was an important objective; PRITECH worked with managers at the national level and in three provinces: West Java, South Sumatra, and South Sulawesi. PRITECH concentrated on the following: 1) introducing a new World Health Organization (WHO)-sponsored curriculum for training physicians at eight medical colleges; 2) setting up program management systems for CDD program managers, and training them to use these systems at the national and provincial levels; 3) improving management of ORS supplies; 4) monitoring prescribing practices to identify problems such as use of anti-diarrheals; and 5) developing activities to expand private sector sales of oral rehydration salts (ORS).

II. MAJOR ACHIEVEMENTS OF PRITECH

CDD Program Planning and Management

An important legacy of the PRITECH II effort was a planning process which the MOH adopted and now uses to design and monitor its annual CDD workplan. In October 1987, PRITECH participated with WHO and other donors in a CDD joint planning workshop which marked an important turning point in the history of the Indonesian CDD program. Although Indonesia has had a CDD program since 1981, no real planning or collaboration with provincial health departments had taken place. The workshops changed the approach to developing a new CDD workplan. PRITECH's public health management specialist helped to organize and design the new planning process. Instead of continuing to make decisions at the central level only, personnel at all levels of the CDD program were involved in the planning process. This change gave health personnel from the district and provincial levels a vested interest in the definition and successful implementation of the workplan. Responsibilities were redefined so that CDD managers at the national level would set policy and distribute funds, while personnel at the provincial level would develop and implement workplans. As a result of the new planning process, the provincial and national CDD program managers prepared a workplan analysis

for the 1987-1989 period, much of which was successfully implemented. Some of the results as of September 1989 are shown in an accompanying table.

Beginning with the development of provincial workplans and with a financial management structure to support the implementation of the workplans, the CDD program's support of provincial responsibility for the management of local initiatives represented the strongest possible evidence of the program's commitment to the development of appropriate institutionalized management capacity at each organizational level. In other words, the CDD program made every effort to vest authority for planning and implementation of the program's range of activities in those persons who were most directly responsible for seeing that the activities are, in fact, implemented. At the same time, at the central level, the CDD program maintained oversight responsibility as a means of ensuring that the program met its overall objectives. This planning and program-management approach was an extraordinary departure from a traditional centrally-oriented organization and management system; decentralization enhances the prospects for the CDD program's long-term sustainability.

Training of Medical Students

In early 1986, staff from WHO and PRITECH began the development of oral rehydration therapy (ORT)-related training material (MEDIAC). The objective was to provide medical schools with technically current curricula on CDD and on the appropriate response to dehydration. PRITECH's technical director, Dr. Robert Northrup, provided technical assistance from the beginning of this effort, continuing through PRITECH II. In early September 1988, senior Government of Indonesia (GOI) medical school staff - all of whom had earlier been trained by the ICDDR/B in Dhaka, Bangladesh - began the process of adapting the international MEDIAC training material for use in Indonesia. Adaptation and translation of this material for use in Indonesia's teaching-hospital curricula has now progressed through its first phase of being introduced into eight teaching institutions. Following an August 1989 evaluation of phase I activities, it was expected that between September 1989 and the termination of the USAID project in September 1990, an additional eight institutions would be included in the program's second phase of development. In preparation for this second phase of MEDIAC-material introduction, ten physicians and ten nurses were sent for training at ICDDR/B during the month of December 1988. Upon their return to Indonesia, those persons who received training were expected to establish diarrheal training units (DTUs) in their respective institutions. With the assistance of an expert committee, the CDD program continues to evaluate this DTU-development process.

Management/Information

In the assessment of development needs prior to the design of the workplan, the CDD program determined that the program's staff would benefit from training in basic computer skills as a means of establishing a foundation for continued strengthening of the program's management information systems. With the assistance of a local computer-training firm provided through PRITECH, the CDD program assessed the training needs of its central-level staff and staff associated with the program in the three selected provinces. Following this assessment, a basic skills training course was developed

and implemented for staff from the three targeted provinces and a slightly higher-level training course for the central level's more experienced staff. Twenty-seven staff from the provinces and nine staff from the central level successfully completed this training.

Drug-Supply Management

As indicated in the following paragraphs, CDD program efforts to strengthen its drug supply management capacity followed a deliberate and steady pattern:

- (1) **Drug supply management assessment package.** Over the past year, CDD program staff have developed a computer-assisted drug supply management assessment package through a step-by-step process of data collection, computer development, field trials, and staff training in the use of the package. As designed, the computer package enabled the CDD program to assess prescribing practices, level of supply, and quality of drug supply management through inputting relevant data from any level of the developed CDD program's delivery system. In addition to providing the programs with summary data in a tabular layout, the program was designed so that a novice user could design and use graphic presentations. Although the program has been developed for use by central-level staff, its applicability to provincial management needs was demonstrated on a trial basis.
- (2) **Drug supply management information systems.** On the basis of a November 1988 assessment of its drug supply management information system, the CDD program concluded that there was a need for more reliable and comprehensive information on national supplies of Oralit, an Indonesian brand of ORS. The CDD program designed, tested, and trained its staff on the use of a program which pulls together data on levels of supply from the many separate sources within Indonesia which maintain stocks of Oralit. As with the drug supply management assessment package, the CDD program's drug supply management information system was designed so the relatively novice user could design and use both tabular and graphic presentations.
- (3) **Training in drug supply management.** In September 1988, CDD central-level staff, with PRITECH technical assistance, carried out a survey to assess training needs for provincial staff who manage ORS supplies. This assessment led to the following two training efforts:
 - to set the stage for drug supply management training of CDD program staff and to provide for a common understanding of supply management needs among all health-care staff at provincial level, the CDD program selected key decision-makers in each provincial health structure for a one to two-day training course in basic drug supply management. A total of 158 health care staff from the three selected provinces completed the training.
 - following the completion of the decision-maker training, central-level staff collaborated with provincial staff in the development and implementation of a one to

two-day drug supply management training curriculum of CDD program staff at provincial, district, and health-center levels. A total of 488 health care staff from the three selected provinces completed the training.

Private Sector and Social Marketing

The CDD program deliberated the use of the private sector's marketing advantages for sustaining the public's use of Oralit. With the assistance of USAID funding and an initial PRITECH sub-contract with the Program for Appropriate Technology in Health (PATH), the CDD program set in place the elements of an aggressive social marketing program for the city of Jakarta. Supported by extensive consumer research and by pro bono assistance from local industry and the media, this CDD initiative became the first test case for public service announcements to be promoted and developed by the newly developed, USAID-supported Indonesian Advertising Council.

III. ACTIVITIES OF THE NATIONAL CDD PROGRAM

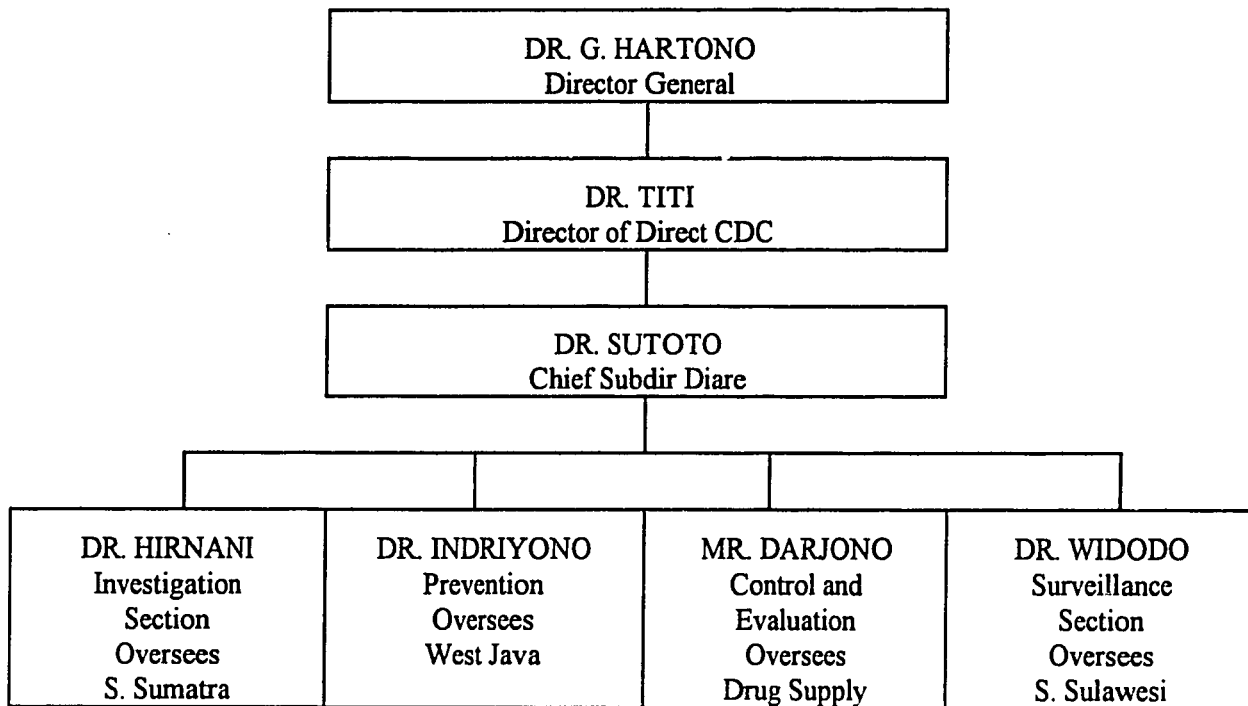
Review of CDD/Indonesia Targets

As a simple and effective means of preventing, as well as responding to dehydration caused by diarrhea of all etiologies in all age groups, oral rehydration therapy (ORT) and the distribution of ORS became, as early as 1982, the center point of the GOI program to combat childhood diarrhea in Indonesia.

With USAID, UNICEF, and WHO support, CDD staff and selected consultants completed an 18-month organizational development effort in March 1988 which culminated in the collaborative design of a CDD workplan for activities to be completed by the end of September 1989. In specifying a completion schedule for activities focused on central program infrastructure development and upon the design and implementation of CDD-related activities in West Java, South Sulawesi, and South Sumatra, the CDD workplan identified three specific objectives: 1) to improve the knowledge, attitudes, and practices (KAP) of mothers and caretakers, of health personnel, and of volunteer village health workers (Kader) regarding ORT/ORS; 2) to strengthen the capability of the MOH to manage complex coordination activities that relate to widespread activities of a NCDDP; and 3) to strengthen the capability of the national management support systems related to CDD interventions (i.e., information collection, analysis and dissemination, training, research, monitoring and evaluation, logistics, and program operations).

Organization of National CDD Program

DIRECTORATE GENERAL FOR COMMUNICABLE
DISEASES AND ENVIRONMENTAL HEALTH



Indonesia - July 1988

Workplan Components

To respond to the three objectives outlined in the above paragraph, staff from each of the three selected provinces and from the CDD program's central office were required to define and develop their own workplans. Each of the four CDD program area-specific workplans focused on a number of activities within the broad categories of training, communications, and organizational development. In addition, the central-level workplan included additional activities under the categories of research and private sector development. Within each workplan component, CDD program staff from the central level of the CDD program and from the three selected provinces were specifically designated as having prime responsibility for major tasks and subordinate activities to be completed by specific dates within the 18-month window of March 1988 through September 1989. For each activity, funding requirements, together with a financial management plan, were established and made available from a defined combination of GOI, USAID, UNICEF, and WHO resources. The following paragraphs summarize the major foci and principal outputs achieved with each of the workplan's five components:

**TABLE 1. Republic of Indonesia - Ministry of Health
Program for the Control of Diarrheal Diseases
Workplan Output Summary
March 1988 - September 1989**

<u>Activity Type</u>	<u>Output per Activity Location</u>			
	<u>Central Level</u>	<u>South Sulawesi</u>	<u>South Sumatra</u>	<u>West Java</u>
TRAINING				
Case Management (Physicians)		46	70	364
Case Management (Nurses)		56	70	488
Village Health Workers - ORT (In Process)		1200	1800	19465
Village Health Workers - Logistics (In Process)		1200	1800	12427
Decision Makers - Logistics		56	55	52
Health Care Staff - Logistics		70	75	343
Supervisory Skills	10	96	90	4
Computer Skills	12	9	9	9
Management Skills	10	3	3	3
ICDDR/B	20			
COMMUNICATIONS				
Communication Strategy	Completed			
Communications Programs		In Process	In Process	In Process
NCDDP Orientation (Egypt)	9	5	5	6

TABLE 1. Republic of Indonesia - Ministry of Health
 Program for the Control of Diarrheal Diseases
 Workplan Output Summary
 March 1988 - September 1989
 (continued)

<u>Activity Type</u>	<u>Output per Activity Location</u>			
	<u>Central Level</u>	<u>South Sulawesi</u>	<u>South Sumatra</u>	<u>West Java</u>
ORGANIZATIONAL DEVELOPMENT				
Decentralized Workplans	Done	Done	Done	Done
Decentralized Financial	Done	Done	Done	Done
Information Dissemination Warta Diare	3 issues			
Information Center Development	Established 3/89			
M.I.S. Development	General Guidelines Developed	Indicators Developed	Indicators Developed	Indicators Developed
Supervisory System Development	General Guidelines Developed	Forms Developed	Forms Developed	Forms Developed
Drug Supply Management				
Management Assessment Package	Done	Tested	Tested	Tested
M.I.S. Package	Done	Tested		
Outbreak Assessment Package	Done and tested in Central Java			
RESEARCH				
Operational Assessment				

TABLE 1. Republic of Indonesia - Ministry of Health
 Program for the Control of Diarrheal Diseases
 Workplan Output Summary
 March 1988 - September 1989
 (continued)

<u>Activity Type</u>	<u>Output per Activity Location</u>			
	<u>Central Level</u>	<u>South Sulawesi</u>	<u>South Sumatra</u>	<u>West Java</u>
Program Assessment (1988 & 1989)	Done	Done	Done	Done
Drug Supply Management Assessment	Done	Done	Done	Done
M.I.S. Drug Supply Assessment	Done	Done	Done	Done
Computer Training Assessment	Done	Done	Done	Done
Formative Research - Communications		Done	Done	Done
Design Research				
Logistics Assessment	Done	Done	Done	Done
M.I.S. Assessment	Done	Done		
Computer Training Assessment	Done	Done	Done	Done
Survey Research				
Morbidity/Mortality Study	Completed in 10 Provinces			
Communications Baseline		Done	Done	Done
Qualitative Research				

TABLE 1. Republic of Indonesia - Ministry of Health
 Program for the Control of Diarrheal Diseases
 Workplan Output Summary
 March 1988 - September 1989
 (continued)

<u>Activity Type</u>	<u>Output per Activity Location</u>			
	<u>Central Level</u>	<u>South Sulawesi</u>	<u>South Sumatra</u>	<u>West Java</u>
Breastfeeding and Diarrhea	Completed under the Direction of Central Level Staff			
Village Hygiene	Completed under the Direction of Central Level Staff			
Behavioral Determinants of Diarrhea	Completed under the Direction of Central Level Staff			

PRIVATE SECTOR DEVELOPMENT

Media Message Development		Done	Done	
Social Marketing	In Process under the Direction of Central Level Staff			

IV. LESSONS LEARNED

The CDD program's workplan focused on the importance of strengthening the program's managerial infrastructure. In the context of Indonesia's CDD program, managerial infrastructure refers both to the development of a strong administrative structure and to the growth of a strong base of technically

competent and committed health professionals capable of responding to public demand generated through the program's communications activities.

In reflecting on the CDD program's strengths and weaknesses, most CDD program staff acknowledged that they were breaking new ground in implementing many of the activities included in the program's 18-month workplan. Consequently, as discussed below, CDD program staff learned a number of important lessons to assist them as they direct their efforts toward addressing CDD program issues in the future.

- (1) **Significance of decentralization.** With the benefit of 18 months of systematic development, CDD program staff continue to indicate their strong support of the workplan's emphasis upon decentralization. Indeed, it is now difficult to imagine how the program could have attained its current high level of continued progress had central-level staff been reluctant to support a central-level province partnership in both planning and implementing the CDD program workplan. Thus, the key lesson is that decentralization can work if all parties responsible for program implementation are jointly involved in the planning process. In the context of the Indonesian CDD program, the staff's adherence to this relatively basic principle of good management has been repeatedly cited as the major reason for the program's dramatic growth in provincial interest in CDD national program goals and objectives.

It is also important to note that an additional reason for the program's success can be ascribed to USAID, UNICEF, and CDD program staff's willingness to work together toward the development of a program development consensus. The process leading toward consensus worked precisely because each participant in the process was willing to cede ground to other participants in the interest of reaching consensus. For example, while USAID moved from a relatively rigid support of activities in one single province to supporting activities in three provinces, the CDD program met USAID halfway by moving from its long-term interest in supporting a multitude of activities in the nation's 27 provinces to a more reasoned and realistic focus on the same three provinces.

While it is important to acknowledge the general success of the CDD program's approach to program management, most staff would concede that the CDD program's status as a subdirectoriate within the Directorate General for Communicable Diseases has made it difficult for the director of the CDD program to respond fully to the needs of provincial staff. For example, in transferring funds to the field or in establishing CDD-related policy, the director of the CDD program was required to defer many decisions to his director who was, in turn, responsible to the CDD director general.

While there may be no practical way for the MOH organogram to be altered, it might be useful to consider ways in which the turn-around time on policy decisions and funding might be streamlined. For example, while retaining the CDD program's emphasis upon central-provincial collaboration in planning and technical support, the CDD program might think about adopting a more liberal policy in terms of providing each of the provinces with larger

portions of their operating budgets. In other words, after the workplan and budget for a province is approved, funding to the provinces should follow. It is worthwhile to note that the approach of approval and immediate availability of funding was attempted under the USAID/MOH CHIPPS project with some success and could serve as a model for consideration.

- (2) **Importance of clarity of objectives.** Although the CDD program's managers were quite successful in restricting their scope of work to those targets which were realistic and feasible, CDD program staff were less than clear on their objectives for including social marketing and private sector participation in the workplan. In all frankness, the staff's lack of clarity may well have been their way of indicating either lack of understanding or lack of support for the potential contributions of both of these initiatives to an effective and innovative NCDDP. As a result of this lack of clarity and consensus, private sector involvement and social marketing did not receive the attention these issues deserve. Thus, it is important to recognize that, despite the potential value of a given initiative, clarity of objectives and consensus on the initiative's importance to program goals are essential to the initiative's acceptance and eventual success.
- (3) **Impact assessment.** In designing and implementing the CDD workplan, program staff were clearly interested in ensuring that their effort would contribute to the reduction of morbidity and mortality associated with the diarrheal diseases, to the expansion of ORS usage, to the development of effective communications messages, and to the strengthening of the CDD program's management structure. However, little attention was given to the collection and analysis of data which would assist the staff in substantiating their belief in the program's impact. Thus, it is strongly recommended that program staff at central and provincial levels work together in defining impact indicators and including these indicators in their management information systems.
- (4) **Importance of a narrow focus.** In October 1987, CDD program staff joined consultants from WHO, UNICEF, and USAID in a joint planning session. As noted earlier, the purpose of the planning session was to develop an 18-month workplan to begin in March 1988 and to terminate in September 1989. As a result of this planning exercise, the CDD staff reduced their program's focus from twenty-seven to three provinces and from ten to four principle objectives. In the process of narrowing their focus to more realistic objectives, central level program staff redefined their own role from being essentially "fire-fighting teams" ready to respond to every outbreak of diarrhea throughout the country to being a team of technical advisers responsible for establishing policy and guidelines in collaboration with provincial field staff.

In building upon this management approach designed to focus upon what was "do-able" and effective, CDD program staff extended their planning analysis to the: 1) development of focused, standard communications messages; 2) design of standard size packets of ORS; 3) formulation of a reduced list of program indicators to be used in future development of the

program's information system; and 4) a simplified but effective supervisory checklist for field workers. Once again, the emphasis in all of these initiatives was upon focused and realistic development.

Eighteen months later, it was possible to state that this "experiment" in narrow and concise focusing of program objectives appeared to have produced real and tangible results to the point where CDD program staff at both central and provincial levels had a high sense of accomplishment in their having professionally completed the large majority of tasks within their workplans. Moreover, CDD program staff were in an excellent position to more effectively move toward a slightly expanded, but consistently realistic program focus for the entire country.

- (5) **Build on success.** As outlined in this report's initial chapter, Indonesia's CDD program accomplished a great deal over 18 months. The program's expansion of trained providers, its development of communications initiatives in three provinces, its expansion of ORS usage, and its strengthening of its management structure are but a few examples of the program's measurable progress toward its goal of reducing morbidity and mortality related to diarrheal diseases. The following suggestions are offered as recommendations for ways in which the program might indeed build upon its success:
- (a) **Supervisory system development.** As noted earlier in this report, central and provincial CDD program staff developed prototype supervisory checklists. More importantly, on the basis of central-level staff's positive experience with decentralization of activities and consensus building, the traditional approach to supervision as an evaluative tool gave place to a growing appreciation of the support function of supervision. Thus, it is important that the perception of supervision as a positive tool for growth be reinforced in the process of refining the supervisory checklists and in their application.
 - (b) **Health center development.** Much of the CDD program's emphasis during the development stage was directed toward strengthening central and provincial management systems. However, it is important to recognize and to build upon progress achieved in strengthening service delivery at the health center level. For, quite obviously, this is the level at which the program could expect to see its major impact. More specifically, program managers need to devote considerable attention to ensuring the continued viability of health center ORT corners, to the continuing education of health center staff, and to the clarification and support of the role of the community health workers in assisting the program to meet its goals.
 - (c) **Consolidate specific initiatives.** In reflecting on the many activities initiated during the 18 months, most CDD program staff would agree that the following three major program initiatives would require continued support to ensure that they reach their initial objectives:

- **Medical curriculum development (MEDIAC).** As discussed in this report's first chapter, the MOH made it possible for a distinguished group of Indonesian medical practitioners to devote a considerable amount of their time to adaptation of the WHO/PRITECH curriculum. However, as foreseen in the initial CDD workplan, work on MEDIAC material was not complete and required additional support of at least 12 months to enable it to be fully integrated and tested in 16 of Indonesia's medical schools. Although CDD program staff indicated that they will continue to support this activity, it is important that the project ensure that the MEDIAC adaptation is fully accomplished and evaluated.
- **CDD information center (P.I.D.).** As with the MEDIAC activity, development of the P.I.D. kept pace with expectations. However, given the fact that the P.I.D. has only been functioning for six months, it is essential that continued support be provided for its activities so that the P.I.D. can develop to its full potential and so that there would be sufficient time for the P.I.D. to identify long-term institutional support.
- **Communications activities.** As one of the major initiatives undertaken through funding from USAID and from UNICEF, the CDD program's communications activities represented considerable investments in each of the three provinces. However, there had not been sufficient time for such issues as cost effectiveness, impact, and replicability to be adequately analyzed. Thus, this report strongly recommends that sufficient time and funding be made available for a comprehensive evaluation of communications activities to be undertaken in the three target provinces.

PRITECH INDONESIA PROGRAM (1991 - 1993) FINAL COUNTRY INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

In August 1991, PRITECH began a second country program intervention in Indonesia focusing on the commercialization of ORS. A two-year program was funded by RAD/Health in the amount of \$1,037,000. The program ended in July 1993.

The objective of the PRITECH country program was to complement the national control of diarrheal diseases (CDD) effort by developing the potential of Indonesia's commercial private sector to make oral rehydration salts (ORS) and oral rehydration therapy (ORT) more widely accessible and commonly used. An important aspect of this objective was to make the activities within the private sector as self-sufficient as possible, relying upon motivating commercial firms to invest the bulk of all capital required for the commercialization of ORS. A second objective was to understand more fully how the private sector could play appropriate roles in CDD or other public health programs in more advanced developing countries.

Chronology of PRITECH Involvement

In 1988, PRITECH embarked on an initiative in Pakistan designed to increase the availability of ORS in collaboration with commercial companies. The social marketing model applied in Pakistan produced impressive results; ORS sales increased dramatically, and companies were committing their resources to promotion of ORT. In 1991, PRITECH/Washington met with the assistant administrator of the Research and Development (RAD) Bureau to discuss application of the model developed in Pakistan in other developing countries. As a result of this meeting, the RAD Bureau encouraged USAID/Jakarta, as well as a number of other missions, to initiate a similar effort. Indonesia had the ingredients for adaptation of the Pakistan model, including a well-established national program, a vigorous private sector, and the lack of a price ceiling on ORS.

Because the USAID mission had no project mechanism to fund PRITECH's ORS commercialization program, RAD/Health agreed to fund the program for up to two years, with the understanding that as soon as possible, the mission would seek funds through a bilateral program.

Financing Levels

The Office of Health provided the funds to support a long-term advisor with three locally hired staff, an office, a vehicle, and up to \$200,000 annually for local program costs. The Program for Appropriate Technologies in Health (PATH) agreed to use its international loan fund if ORS producers needed additional capital. Various other donors and organizations, such as UNICEF, the World Health Organization (WHO), the Indonesian Advertising Council, and the Indonesian Medical Association supplemented PRITECH's funds for certain program activities.

Strengths and Constraints

Compared to the situation that prevailed in Pakistan when PRITECH began its commercialization program there, Indonesia had many strengths that contributed to the success of the program. First, Indonesia's commercial sector was more vibrant than was Pakistan's, probably due to Indonesia's more advanced stage of development and faster economic growth rate. Second, Indonesia had an estimated 22 companies licensed to produce ORS, as compared to just 14 in Pakistan. Third, Indonesia had enough production capacity in-country to meet requirements for ORS. In addition, in Indonesia ORS could be sold in all sales outlets, while in Pakistan, ORS sales were limited to pharmaceutical outlets. Finally, the regulatory environment in Indonesia was more supportive of private sector efforts than was the environment in Pakistan.

There were also constraints to making ORS more widely accessible in Indonesia. First, there was very little promotion by ORS producers. Second, most ORS packets lacked pictorial illustrations which would help low-literacy parents use ORS correctly. Most printed literature also focused only on ORS, lacking information on the importance of continued feeding and breastfeeding.

II. INPUTS AND MAJOR ACHIEVEMENTS

To expand the distribution of ORS and promote the case management of diarrhea, PRITECH developed a program to work with commercial companies to: 1) increase ORS production and sales by the commercial sector, broadening distribution of ORS from mostly pharmaceutical to consumer outlets; 2) motivate ORS producers and marketers to promote breastfeeding and food along with ORS; and 3) promote at least one preventive strategy, such as handwashing, through the commercial sector.

Coordination with Commercial Companies

PRITECH approached commercial companies with ORS survey research, to convince them of the opportunities and benefits offered by the ORS market. The project emphasized the substantial gap between awareness and use, which could be turned into demand. PRITECH also emphasized ORS distribution as one of the key areas in which to concentrate.

PRITECH acted as a catalyst for helping private companies begin promotion. Specific activities undertaken by PRITECH included:

- promoting interaction among private sector companies and groups, and between public and private sectors through meetings, seminars, workshops, and frequent informal contacts;
- maintaining a continual flow of information to keep all ORS producers updated on relevant technical and marketing information;

- disseminating results of market research to the private sector to provide information that enabled ORS marketers to refine, improve, or change marketing approaches;
- initiating and facilitating working relationships between professional associations, particularly the medical association and ORS and soap producers and marketers;
- working with interested companies to develop a generic plan for marketing ORS in Indonesia, including promotion of ORT;
- providing technical assistance to producers and marketers with brand-specific marketing plans and promotion of ORS and other products related to diarrhea, such as soaps for handwashing; and
- mobilizing private sector resources to support promotion of the government's key objectives for the CDD program, particularly ORT and preventive measures such as handwashing and breastfeeding. This effort built upon the existing collaborative effort between the Ministry of Health (MOH) and local or international non-governmental organizations (NGOs).

Although PRITECH's Indonesia program was only operational for two years, some short-term effects have emerged, such as increased ORS sales and development of a sustainable collaboration among local institutions. For the first time, the Indonesian CDD annual plan includes commercial sector activities. PRITECH successfully obtained support for private sector activities from three key departments within the MOH: the national CDD program, the drug regulatory agency, and the community health education unit. The MOH treated PRITECH as a valuable resource, requesting PRITECH collaboration in numerous activities.

Results of PRITECH's work with commercial companies have been encouraging. Several ORS producers have begun to increase or show willingness to allocate additional resources to ORS production, distribution, or promotion. Although PRITECH cannot claim that sales increases are solely due to the PRITECH effort, sales of ORS have increased. Unit sales have increased by 20 percent, from 6,926,300 packets in 1991 to 8,285,200 in 1992. Values increased by 26 percent, from 1,244,700 rupiahs to 1,565,900. The market share of ORS in the diarrheal drug market also increased from 9 percent in 1991 to 12 percent in 1992.

In addition, several ORS producers have agreed to promote ORS along with breast milk and food, and two have begun promotions with key messages developed by PRITECH. Also, PRITECH formed the private sector partnership to develop and sponsor the handwashing campaign.

Marketing Workshops

The first, and perhaps most important, activity of the project was a joint seminar with the Indonesian Drug Regulatory Agency and the MOH. A positive relationship with the drug regulatory agency is one of the highest priorities of the pharmaceutical industry. In addition, the national CDD program manager urged ORS producers to join the national effort.

In July 1992, PRITECH/Washington held a marketing conference for Asian ORS producers in Singapore, which several Indonesian firms attended. The conference, which was the first international

ORS marketing workshop of its kind, brought together senior executives from Asian pharmaceutical companies that produce ORS to discuss current issues and new developments in ORS marketing. It provided a forum for the cross-fertilization of marketing ideas among the participating companies. Several companies presented successful marketing strategies they had used for reaching rural populations, traditionally the hardest population to reach with ORS. Others displayed innovative ORS advertising materials aimed at physicians, pharmacists, shopkeepers, and consumers.

Participants learned from each other's experiences that ORS can be a profitable product, and that it is desirable to work in partnership with the government and nonprofit sectors to promote public health objectives.

Later that month, PRITECH/Indonesia conducted an advanced marketing workshop for ORS producers in Indonesia. The purpose of the workshop was to enhance the capabilities of ORS producers to increase ORS production, broaden distribution, and promote ORT. Participants included marketing directors of several ORS manufacturing firms, as well as representatives from the drug regulatory agency, the national CDD program, WHO, and UNICEF.

The workshop began with a series of presentations that updated the participating companies on current diarrhea treatment guidelines and the activities of the government and major donors in promoting ORT. The workshop's highlight, however, consisted of a participatory exercise in which the participants developed a strategic marketing plan for ORS in a simulated case study emulating the market situation in Indonesia. Samples of marketing materials from other countries were also available to provide examples of proven techniques that the Indonesians could try.

By the end of the workshops, participants appeared to agree that the ORS market held considerable promise for their companies and were motivated to increase ORS marketing activity. In addition, the workshops offered the companies the opportunity to network with each other, the government, and other agencies and to explore ways of complementing the government's CDD efforts.

Collaboration with the Indonesian Medical Association

Most doctors in Indonesia belong to the Indonesian Medical Association, which is, next to detailing, the only vehicle for reaching private practitioners nationwide in Indonesia. The association has chapters throughout Indonesia that meet once a month. It also sponsors seminars and training for its members for which participants are given credits. Early in the program, PRITECH obtained the commitment of the association to add management of diarrhea to its training programs. The association also agreed to collaborate with PRITECH and several other private sector groups on a generic handwashing campaign. Other planned activities include development of a training video and module on diarrheal disease treatment to be used by the association's chapters, circulation of posters and desk reference materials for physicians through the association's publication, and publication of *Dialogue on Diarrhoea* with partial funding by commercial firms and PRITECH.

Handwashing Campaign

PRITECH initiated a collaborative effort to promote handwashing with Unilever, Indonesia's major soap producer, Lintas Advertising Agency, the medical association, and the advertising council. To convince Unilever to promote soap for handwashing, the PRITECH field representative offered international studies and local market research demonstrating that washing hands with soap could reduce the incidence of diarrhea by as much as 30 percent. The local market research showed that 90 percent of those surveyed washed their hands with soap after eating, but fewer than 10 percent used soap before eating. With a 50 percent share of the soap market in Indonesia, Unilever had much to gain financially from sponsoring a generic handwashing campaign aimed at increasing the use of soap. PRITECH's role was to initiate the effort and to serve as a member of the team that developed the campaign.

The handwashing campaign, funded by Unilever, is underway. A corporate advertisement about Lifebuoy soap for handwashing is being telecast and paid for by Unilever. In addition, a public service announcement about handwashing to prevent diarrhea was telecast in May 1993. The advertising council obtained free media placement on the three television stations.

A handwashing poster for school children developed in collaboration with the medical association was distributed to schools throughout Indonesia and is being used as part of a health education effort in 1,000 schools in Jakarta by a local foundation, the Yayasan Kusuma Buana. A poster for physicians was distributed by the medical association through its chapters. Radio spots are expected to be broadcast in mid-1993.

Other Accomplishments

- (1) **Health messages for "Jalan Kita."** In Fall 1992, PRITECH began working with the North Australian Film Corporation and the public television network to add health messages to "Jalan Kita," a new program for children modeled after "Sesame Street." PRITECH assisted with message development and with recruitment of sponsors for the program.

The new program has the potential for changing health behaviors, as the morning and afternoon transmissions together reach an estimated 45 million mothers and children. So far, the scripts include messages about ORS, handwashing, vitamin A, and iodine. Sponsors include Pharos, an ORS producer, and Unilever.

- (2) **Development of materials for pharmacists.** In collaboration with WHO, UNICEF, the CDD program, and others, PRITECH developed a poster and point-of-sales (POS) materials for pharmacists on ORS. The purpose of the materials is to increase pharmacists' recommendations for ORS and to ensure that pharmacists provide correct case management advice to caretakers. The materials have been successfully pre-tested with pharmacists and

mothers. The next step is small group meetings with pharmacists to provide information on ORT and to do role plays that will modify behaviors.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Private/public sector collaboration.** The PRITECH strategy of enlisting the commercial sector to promote ORS was tested and implemented in Pakistan. PRITECH's experience in developing this approach in Pakistan and replicating it in Indonesia leads to the following conclusions.

It would be possible to replicate this model successfully in countries where the following conditions are met:

- existence of an active commercial sector;
- a competitive environment consisting of multiple ORS producers;
- presence of commercial soap producers;
- fairly high public awareness of ORS (at least 50 percent); and
- insufficient government supplies of ORS, leading to the need to find alternative methods of obtaining and distributing ORS.

For the model to work, the following groups must be involved from the beginning:

- (a) **The government.** The critical importance of government involvement cannot be overemphasized. Perhaps PRITECH's most important role has been that of liaison between the government and commercial sectors. The contribution PRITECH made was the linkage, coordination, and opening of dialogue between the government and commercial sectors. Commercial companies depend on the government to a large extent; the government can make or break a pharmaceutical company through regulations. The most important part of the government as far as the pharmaceutical industry is concerned is the Drug Regulatory Agency. It is critical to involve the Drug Regulatory Agency from the beginning of the effort.

Commercial firms are also interested in supporting the CDD and health education divisions of the government, which are in charge of policy and communication, including the mass media. The government must be highly involved initially and gradually decrease its involvement as the commercial sector interest and commitment increases. Government commitment to commercial sector involvement in ORS production, distribution, and promotion increases the support of the commercial sector and ensures supportive policies and regulations, including those that will ultimately reduce government involvement in ORS purchase and distribution.

- (b) **Medical and pediatric associations.** Pharmaceutical companies are usually willing to invest a lot of time, money, and effort to please these groups. If the medical association in the country emphatically endorses ORT, calls on producers to detail ORS to physicians, and collaborates in meetings and seminars, pharmaceutical companies will have a strong incentive to promote ORS.
- (c) **WHO and UNICEF.** WHO and UNICEF support is very important to the success of ORS commercial efforts. Strong support for ORS by highly respected organizations such as WHO and UNICEF motivate a company to produce and market ORS as well.
- (d) **Groups that can promote ORT.** Well-developed and appealing generic promotion of ORT by the communication or health education department of the government, UNICEF, advertising associations, or similar groups, particularly mass media, can motivate ORS producers to invest in ORS promotion efforts. It is easier to convert existing awareness into demand for the product than to start from scratch.
- (e) **Opinion leaders in the medical community.** Support and prescription by leading physicians are very important and should not be neglected. Often health promoters in the public sector miss an opportunity by bypassing the doctor and going directly to the community. All drugs that are household drugs, such as aspirin, were, and often still are, widely prescribed by physicians. It is through prescriptions that drugs acquire credibility with physicians, pharmacists, shopkeepers, and consumers.

The image of ORS must be improved. If ORS is to become attractive to the commercial sector and to consumers, its image needs to be changed. In most countries ORS has been positioned as sugar-salt-solution (SSS), a low-technological home medicine, most often used by poor village mothers to treat malnourished, dehydrated babies. ORS should be positioned as a modern, scientific, and doctor-recommended drug.

The work of the public and commercial sectors can be complementary. The best government-sponsored public health campaigns are developed by advertising and marketing agencies under contract with the government and by nonprofit groups such as advertising councils. ORS producers can be convinced that it is in their best interest to promote ORS correctly along with breastmilk and food. The advantage of the commercial sector is that it can reach segments that the government cannot reach.

As countries develop, the role of governments becomes one of managing resources to accomplish public health objectives in the most efficient manner. Most health care costs such as ORS, can be borne by members of society who can afford them and the government is then left with the task and obligation of dispensing free health care, including ORS, to the poorest segment of the population.

The goal of universal access to ORS and correct home case management could be accomplished through the pooling of government and private, including commercial, sector resources.

- (2) **Program sustainability.** Collaboration with the commercial sector has been incorporated into the national CDD plan. However, PRITECH generally initiated activities in which the CDD program participated. It is therefore doubtful whether commercial sector activities will be continued by the CDD program when PRITECH ends. To increase the chances of program sustainability, the PRITECH country representative worked closely with the PKM, the ministry charged with communications and information. PRITECH also worked with the medical association to institutionalize CDD activities within its plans and programs, including interaction with the commercial sector. The medical association has more clout with pharmaceutical companies than does the government.
- (3) **Broadening the distribution of ORS.** One of the program's objectives was to broaden ORS distribution from pharmaceutical to consumer outlets. For a number of reasons, this objective was difficult to meet. Companies with wide consumer distribution systems had two requirements for investing in ORS. First, there had to be sufficient consumer demand for ORS to warrant development of a new product. There is evidence that such demand is growing, due to increased generic and brand-specific promotion of ORS and the support of the food and drug administration and the medical association. Second, the companies needed an incentive to launch a new product. Originally, PRITECH had planned to provide loans to allow companies to test market new ORS products. However, delays in approval of the program plan and unanticipated budget reductions eliminated the loans to the companies. PRITECH was therefore unable to make progress in commercialization of ORS beyond the pharmacy, drug store, and large outlet levels.

PRITECH KENYA PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

In April 1987, as a component of the USAID/Nairobi child survival strategy, PRITECH/Kenya established a resident partnership with the Kenya national control of diarrheal diseases program (NCDDP) within the Ministry of Health (MOH). PRITECH's mandate was to strengthen specific program areas, and contribute to NCDDP's overall goal, the reduction of diarrheal disease morbidity and mortality. The MOH had specifically requested assistance in communications and operations research. PRITECH was also involved in overall CDD policy and program planning. PRITECH has had a country representative, communication specialist, and an administrative assistant in Kenya since 1987, and, during the first eighteen months, an operations research advisor.

Working with the MOH and other organizations in Kenya, PRITECH provided assistance from 1987 to 1993 to the NCDDP in:

- program planning;
- information, education and communication (IEC);
- operations research;
- diarrhea management training (for both MOH and non-governmental organizations [NGOs] staff);
- local commercialization of oral rehydration salts (ORS); and
- lactation management training.

In concert with UNICEF, PRITECH carried out audience research, such as focus group studies on attitudes towards diarrheal diseases, and then produced CDD health education materials (posters, pamphlets, radio programs, cassette tapes, stickers) on that research basis. PRITECH operations research, finding that 1/2-liter containers were more readily available in the home, led to the change-over from the standard 1-liter ORS packet to a 1/2-liter packet.

In 1990, the Food and Fluid Panel, with technical assistance from PRITECH through Johns Hopkins University (JHU), established guidelines for future operations research relating to the dietary management of diarrhea. Uji, a maize-based porridge and the traditional weaning food in Kenya, was recommended as the first home treatment for diarrhea. The panel recommended, pending further research, that uji should not be altered from traditional home-prepared consistency.

In 1991, PRITECH supported the first CDD clinical management and supervision training-of-trainers (TOT) workshop for the Coast, Western and Nyanza Provinces. PRITECH also supported

the assessment of the impact of CDD training which was completed October 1991 by Development Solutions for Africa, a local consulting firm.

In January 1992, PRITECH, while continuing to work in the project areas listed above, launched into three new areas: (1) a private-sector initiative (local commercialization of ORS); (2) diarrhea management training for NGO health staff; and (3) the lactation management training program and resource center at Kenyatta National Hospital (KNH). From 1991 through 1993, the PRITECH communication specialist developed a joint CDD curriculum project with the Kenya Institute of Education (KIE) and UNICEF. As a result, in 1993, primary schools throughout the country are receiving CDD pictorial charts and corresponding student booklets. This year too, mothers' flyers with home case management messages go out from the NCDDP to MOH/NGO health facilities and outreach programs.

Private Sector Initiative

When PRITECH began its work in Kenya, working with the private sector was not anticipated. Indeed, the very suggestion of such a direction met with skeptical replies. By the end of our time in Kenya, however, an alliance with the private sector, both commercial and voluntary private-sector groups, seemed like a natural next step. This evolution brackets the PRITECH experience in Kenya; we worked with the public sector at first, went with them as far as possible, and then allied with private groups to communicate with groups not being reached through public-sector channels, while maintaining support for public programs.

The accessibility and sustainability of ORS continues to be of utmost importance in Kenya. A strong partnership now exists among UNICEF/PRITECH/MOH to complement MOH ORS supply efforts, by expanding private commercialization of ORS. In August 1991, PRITECH's social marketing specialist conducted an assessment to identify the local market forces with a view to making ORS available throughout the country at an affordable price. From among twelve potential and interested private partners, Sterling Health, a leading pharmaceutical company in Kenya, ranked highest.

But, before Sterling Health would agree to re-enter the ORS market, they wanted to be sure that there was a viable market. As a first step, Sterling Health developed a business plan and UNICEF funded a market research study. The research was so encouraging that Sterling Health will launch an ORS product by mid-1993 with assistance from UNICEF and PRITECH to offset initial promotional expenditures.

CDD/NGO Initiative

Working with NGOs was PRITECH's second venture with the private sector. In Kenya, NGOs provide over 40 percent of health care, and NGOs have only indirectly benefitted from donor CDD assistance. The NGO health-care community needed updating on both the CDD prevention and management. In March 1992, PRITECH, in collaboration with CEDPA (Center for

Development and Population Activities), sponsored a regional CDD workshop in Nairobi, Kenya, for a number of NGOs in anglophone Africa. Kenyan NGOs participating were the Kenya Catholic Secretariat (KCS), Christian Health Association of Kenya (CHAK), and Aga Khan Health Services. Together, CHAK and KCS operate over 60 mission hospitals in Kenya; Aga Khan concentrates on the Coast Province.

Later in 1992, the NCDDP, in collaboration with PRITECH and UNICEF, trained 20 participants from 10 KCS hospitals in diarrhea management and CDD training methods. Each hospital received funds to establish an oral rehydration therapy (ORT) corner and to provide in-service training. The goal was to develop a cadre of NGOs trainers who would establish ORT corners, and be capable of training colleagues in good diarrhea management.

In 1993, a second KCS diarrhea management TOT covered another 10 hospitals. Both UNICEF and WHO have expressed interest in continuing the NGO/CDD initiative with CHAK and KCS. PRITECH also worked with the Aga Khan Mombasa Primary Health Care Project on a diarrhea home case management study. The goal of this study was to reduce diarrhea morbidity and mortality through a community-based health education program on the three messages of home case management - fluids, food, and referral.

Lactation Management Initiative

In Kenya, PRITECH has always emphasized breastfeeding promotion in its public education messages as an important preventive measure against diarrheal morbidity and mortality. PRITECH recognized that in order to promote breastfeeding effectively, hospital-based health workers needed to strengthen their knowledge of lactation management to improve hospital practices. So, in 1991, in concert with WELLSTART, the KNH Department of Pediatrics, and the MOH/nutrition unit, PRITECH sponsored a six-person, multi-disciplinary team from KNH to attend the WELLSTART lactation management education program in San Diego, California.

With their training behind them, the team carried out studies on the breastfeeding KAP (knowledge, attitudes, and practices) of mothers and health staff at KNH. On this basis, the KNH lactation team developed a training curriculum for the in-service training of KNH staff. A lactation information center, open to all hospital staff, was established in the maternity ward in December 1992. WELLSTART has voiced interest in continuing to support this important initiative.

CDD Communications/Kenya Institute of Education

To build upon the initial steps in public-health education, PRITECH saw the need to seek out new forums for the CDD message. The public schools, which are relatively well attended in Kenya, offered a target of opportunity. Not only did they contain the next generation of parents, but they were regularly served by a schools broadcast program that could be used to reach these students.

After the long process of inter-ministerial discussions, in 1992 the KIE, working with PRITECH, UNICEF, and the MOH, developed a CDD pictorial chart and student booklet for primary students throughout the country; short CDD messages have been designed for the schools broadcast program. These KIE/CDD materials for both teachers and students were jointly funded by PRITECH and UNICEF. The PRITECH communications specialist was largely responsible for coordinating this important initiative designed to educate school children on ways to prevent and treat diarrhea in the home.

CDD Curriculum/Kenya Medical Training Colleges

In 1992, the NCDDP established a Kenya Medical Training Colleges (KMTC) CDD Task Force to assess the diarrhea management practices and CDD curricula through a sampling of schools throughout the country. The team found that training colleges for nurses, clinical officers, and public health technicians were not teaching effective case management, nor did these schools have access to current WHO assessment charts and diarrhea management curricula. The KMTC Task Force will present their findings and recommendations to UNICEF in 1993 for funding.

II. SUMMARY OF PRITECH/KENYA CONTRIBUTIONS 1987-1992

Policy

With PRITECH assistance, the MOH/CDD unit revised the policy guidelines for case management recommending ORS for dehydration as the mainstay of clinical therapy and home-available fluids (uji) for home-management therapy. PRITECH sponsored a planning workshop for the NCDDP in July 1989.

Training

PRITECH supported a variety of CDD training workshops:

- October 11-17, 1992 diarrhea management TOT, MOH, Kakemega.
- October 25-31, 1992 diarrhea management TOT, NGOs, Kakemega.
- March 3-13, 1991 clinical management and supervision TOT, Kakemega.
- April 23-25, 1990, provincial health management team workshop, Division of Family Health.
- MOH/PRITECH assessment "A Rapid Assessment of the Impact of CDD Training," October 1991 by Development Solutions for Africa, jointly sponsored by DANIDA - Expanded Program for Immunization (EPI).
- MOH/PRITECH CDD training products: *Operational Manual for Health Care Workers and Curriculum Guidelines, Curriculum Guidelines for Undergraduate Medical Students and Post-Graduate Paediatric Residents.*

- Planning assistance for mid-level management courses, clinical management, operational, and a course for 21 pediatricians.
- PRITECH technical assistance from JHU.

Communication

- Primary school curriculum changes and CDD materials (pictorial chart/student booklet) in collaboration with KIE and UNICEF. Mothers' flyer on home case management. Both products distributed in 1993.
- Research-based technical assistance in the development and production of MOH/CDD posters, flyers, logos, cassettes, radio programs, flipcharts and a 1992 CDD calendar in collaboration with UNICEF. In 1989, PRITECH broadcast a series of thirteen 15-minute programs on CDD; the series used drama to communicate basic diarrhea home management, and was broadcast in seven languages regionally.
- Materials-in-use workshop, June 18-23 1990 in Taita Taveta for Coast Province health education to learn how to effectively use newly produced CDD educational materials.
- Creative communication strategy workshop, September 23-26, 1990 in Nakuru for district health management teams (DHMTs) to learn creative ways of communicating to primary targets (mothers). Products included the development of a communication plan-of-action based upon principal research findings from the WHO/MOH January 27-February 4, 1990 household survey for each represented district (Nyanza, Rift Valley, Coast and Western Provinces).

Evaluation/Operations Research

- 1992 health worker/mothers breastfeeding KAP study at Kenyatta National Hospital in collaboration with the KNH lactation management training Team, Department of Pediatrics, nutrition unit, and PRITECH consultant.
- 1988 KAP and container studies which revised ORS packet size from 1-liter to 500 ml. Sponsorship of CDD staff in 1989 to review MOH/Egypt ORS logistics/supply procedures.
- Food and Fluids Panel recommended in July 1990 that home fluids (uji, in particular) are preferred to packet ORS approach for home case management in their normal household form. The panel developed operations research priorities, including the acceptability of uji as a rehydration fluid by communities.
- PRITECH technical assistance from JHU.

Private Sector

- MOH/PRITECH/UNICEF collaborative efforts for the private commercialization of ORS and widespread national distribution to promote both the sustainability and accessibility of the product on the local market. PRITECH social marketing specialist provided technical assistance from 1991-1993.

- Sterling Health, a leading pharmaceutical company, will launch and widely distribute an ORS product in stores throughout the country by mid-1993 with initial assistance from UNICEF/PRITECH/MOH.

Lactation Management

- Development and pre-testing of a KNH lactation management training curricula based upon 1992 mothers and health workers KAP studies implemented at KNH, October 1992.
- Establishment of a lactation management resource center, and maternity ward at KNH, December 1992.
- Training of five participants and one fellow from KNH in lactation management at WELLSTART in San Diego, California November 18 - December 13, 1991 in order to establish a lactation management training center (LMTC) at KNH.

CDD Unit/MOH Staff Development

- Support of program development, communication and training skill development short courses in the United States for NCDDP staff.
- Sponsorship of NCDDP staff to visit the MOH/Egypt regarding the production and supply of ORS.

III. THE NATIONAL CDD PROGRAM

Diarrhea is the second leading killer of children in Kenya. On average, Kenyan children experience four episodes of diarrhea per year. In 1986, the MOH established the NCDDP in the Division of Family Health with the aim of reducing childhood morbidity and mortality rates from diarrhea. The 1992 goals of the NCDDP efforts in Kenya are: (1) reduction of mortality in children under the age of five by 35 percent in five years through extensive use of ORT which includes ORS, home fluids, feeding, breastfeeding, and proper weaning; (2) epidemiologic surveillance of diarrheal diseases; and (3) reduction of infant morbidity by 20 percent in five years.

To achieve these goals, the MOH adopted the five key strategies outlined below:

- (1) Effective case management at health facilities and in the community.
- (2) Adequate supply and use of safe, clean water.
- (3) Improved personal, domestic and environmental hygiene.
- (4) Improved nutrition through the promotion of breastfeeding and proper weaning practices.
- (5) Measles immunization.

The NCDDP developed a five-year plan of operations (1987-1992) outlining program targets, key strategies and corresponding activities. During this five-year period, the national program devoted varying degrees of resources to each of these following areas:

- training
- supervision-ORT centers
- ORS supply/logistics
- communications
- information systems
- operations research

From 1987 through 1992, the NCDDP emphasized both training and communications, but also addressed operations research, ORS supply/logistics, and health information systems. The NCDDP focused primarily on the promotion of effective case management at government health facilities and home case management in surrounding communities. Major communication efforts were piloted in the Nyanza and Western Provinces from 1987 to 1990 which helped to develop the national communications strategy. The NCDDP piloted CDD activities in the Nyanza and Western Provinces due to their high mortality and diarrheal prevalence rates.

To carry out the CDD activities since 1987, the MOH has collaborated with PRITECH, USAID, WHO, UNICEF, and DANIDA (a Danish donor). A large percentage of the national program budget is channeled through bilateral and multilateral donors, with USAID being the most significant donor. Regarding overall program collaboration, PRITECH has worked as a resident partner to the NCDDP. UNICEF has procured ORS packets for national distribution and the dissemination of communication materials. WHO has provided training materials, sponsored training workshops and provided technical assistance in program management. DANIDA has supplied health centers with essential drugs kits, which include ORS packets.

Current Status of the NCDDP

The NCDDP operates in 42 districts, serving 3.3 million children aged 0-5 years (approximately 70 percent of all children in Kenya). By 1992, the NCDDP had established 240 ORT centers in government hospitals, rural training centers, health centers, and dispensaries within 42 districts. Over 3,000 health workers have been trained in diarrhea case management with over 500 mid-level supervisors trained in supervisory skills by 1990. A computerized national training data base is operational within the central management unit.

- (1) **Training.** As discussed above, the national program has placed priority upon the training of managers, supervisors, and health-care providers in diarrhea management. Over 50 training courses for mid-level managers and health care providers have been conducted since 1989 on program supervision and case management. Beyond in-service training, the national program has worked towards the development of a CDD curricula for pre-service training of undergraduate medical students and post-graduate pediatric residents.

Considerable progress has been made towards the program targets which were highlighted in the 1992 WHO focused program review (FPR) of the NCDDP.

Both the PRITECH-sponsored 1991 CDD training assessment study and the 1992 WHO/FPR found that practical training in case management was insufficient, particularly three-day operational courses implemented on the district level. High facility staff turnover also reduced the impact of CDD case management. The 1992 WHO/FPR recommended that the NCDDP should expand the three-day operational course into a five-day clinical management course. It was also recommended that clinical management training should be held during diarrheal peak seasons when possible. As district health officers are responsible for coordinating CDD training activities, it was recommended that a clinical officer in each district be responsible for the technical content and practical training of the district-level courses. Existing diarrheal training units (DTUs) in Kakemega and elsewhere should be used more consistently as training venues, and further supported by the NCDDP. Also, during supervisory visits, the NCDDP should help the district health management teams (DHMT) establish and monitor ORT centers and identify potential trainees.

In 1992, the NCDDP responded to these concerns by inviting the WHO/Geneva training specialist to train facilitators from the NCDDP staff in preparation for diarrhea management TOTs for the MOH and NGOs. During the MOH diarrhea management TOT, a sample agenda for a five-day diarrhea management course was developed. In 1993, the sample agenda will be finalized by the central CDD unit and sent to all district trainers.

NGOs in Kenya provide approximately 40 percent of health care and have not benefitted directly by CDD donor assistance. Although a number of NGO health facility workers have participated in MOH/CDD training programs on diarrhea management, the majority of the NGO mission hospital staff have not been trained in good clinical case management. The NCDDP staff facilitated the 1992 NGO diarrhea management TOT for participants from ten Catholic mission hospitals in Western Kenya.

- (2) **Supervision and ORT centers.** The NCDDP identified the importance of supervision for the monitoring of case management, ORT center activities, and problem-solving at the onset of the program. To date, the NCDDP has trained 557 mid-level supervisors, which exceeds the 1992 target. In the national plan, the supervisory strategy recommends monthly supervisory visits by the district health officer to all health facilities in each district.

The district health education officer who coordinates all CDD district activities is supposed to monitor facilities with the assistance of a structured supervisory checklist, which was revised by the NCDDP in 1991. The recent studies have found that 63 percent of health workers have never received a supervisory visit by the CDD provincial- or district-level supervisors.

Although the central management unit stresses the decentralization of all CDD training, study findings argue that provinces and districts need further guidance on training design, delivery, and evaluation tools. Insufficient supervision of public health facilities and ORT centers on the central, provincial, and district levels continues to handicap the effectiveness of the national CDD program. Since 1989, 16 supervisory trips have been made by central management. The main factors contributing to insufficient supervision are the lack of designated supervisory personnel at the district level, unavailability of checklists, and lack of transport. Supervision is clearly an area that needs strengthening on all levels to improve CDD activities throughout Kenya.

- (3) **ORS supply and logistics.** The national policy on diarrhea case management recommends the use of ORS for the treatment of dehydration and for the prevention of dehydration in the home, when it is available. The national program promotes the use of home-available fluids for early use in diarrhea. According to the 1990 WHO/CDD household survey, the ORS rate is fairly low, ranging from 10.8 percent to 29.0 percent. However, the overall ORT use rate was higher, ranging from 69.4 percent to 93.0 percent, due to *ujii*, a local porridge widely used as a weaning food throughout Kenya. Consumer demand for ORS, however, has great potential to grow over the next five years as the population increases and communication efforts about ORS are strengthened.

In 1989, ORS packet size was changed from 1-liter to 1/2-liter. The NCDDP estimates that Kenya needs from 4-5 million 1/2-liter ORS sachets per year. To date, ORS has been largely supplied through imported UNICEF donations. Before 1988, ORS packets were imported by the donor agencies SIDA and DANIDA for the national essential drug program (EDP).

Distribution to the public sector is through two different channels: (1) EDP which distributes ORS in the health center drug kits; and (2) central medical stores (CMS) which distributes ORS to hospitals as a drug on request. The mission for the essential drugs system (MEDS) distributes ORS to the NGO health facilities in Kenya.

In recent years, local producers have begun to expand their local production of ORS. The NCDDP has always stated that there should be a national financial commitment for the local production of ORS to ensure the sustainability and affordability of ORS on the Kenyan market. There is great potential in the private sector in Kenya to reach large populations through their communication and distribution channels. In addition, the private sector is willing to support ORS educational campaigns, including mass media communication, and the education of private physicians, pharmacists and health workers.

In 1991, the joint MOH/UNICEF/PRITECH private sector initiative began involving the private commercial sector in the expansion of the commercialization of ORS in Kenya. PRITECH provided a social marketing specialist who directed this important private sector initiative. In 1992, a partnership was formed with Sterling Health, a leading

pharmaceutical company in Kenya to re-enter the ORS market with initial support from UNICEF and PRITECH. Sterling Health will re-launch and distribute an ORS product by mid-1993 in small shops throughout the country at an affordable price.

- (4) **Communications.** Communication and social mobilization are an important joint component of the CDD program strategy in Kenya. This program component has always represented a significant proportion of the national program budget and has received support from PRITECH and UNICEF. The goals of this component are the following: (1) to disseminate facts about diarrhea, danger signs, preventive measures, and effective case management; (2) to maximize community involvement in decision-making, planning, and the implementation of project activities; (3) to mobilize the health delivery system, the administration, the community, and local resources for accelerated program implementation; and (4) through mass media (i.e., radio programs, print material) and interpersonal channels, the NCDDP is striving to increase greater knowledge of prevention and the treatment of diarrhea in the community. Within the national program, there is a health education specialist who works closely with the PRITECH communications specialist. Together they have collaborated with UNICEF and the KIE in developing and distributing communication materials. Although significant progress have been achieved through mass media, caretaker knowledge regarding effective home case management remains relatively low and requires even more emphasis in the future.
- (5) **Information systems and operations research.** The NCDDP has played an active role in coordinating operations research carried out since 1986. Two household case management surveys have been conducted (1987 and 1990), a WHO health facility survey was field tested in Kenya in 1988, and a PRITECH-sponsored CDD training assessment was completed in 1991. Research studies have been carried out on information systems, home-available fluids, mixing containers, and other topics.

Results from past surveys and studies have led the NCDDP to improve communication strategies, change the ORS packet size from 1-liter to 1/2-liter and adopt uji as an important home-available fluid for the early treatment of diarrhea. Additional studies are currently underway, including the MOH/WHO drug retailers guide study to improve practices of pharmacists and licensed drug sellers.

1992-1997 National Program Plan-of-Action

The 1992 WHO/FPR confirmed that progress had been made towards the targets and subtargets from the 1987-1992 plan-of-action. Program achievements and areas for improvement were identified in the study. Program strategies, mortality reduction targets, subtargets and recommended activities were also identified and incorporated into the 1992-1997 NCDDP revised plan-of-action. Of greatest concern to the NCDDP is the reduction of donor assistance from USAID and PRITECH in 1993. Efforts are being made by the manager of the NCDDP to secure

future donor funding and increased Government of Kenya (GOK) annual contributions in order to sustain national CDD program activities.

IV. KEY ISSUES AND LESSONS LEARNED

- (1) **Program sustainability.** The NCDDP has been supported largely through the financial donations of donors which include USAID, PRITECH, UNICEF, WHO, and DANIDA. The financial contributions to the program by the GOK have been in-kind contributions such as salaries of CDD staff, office space, and the maintenance of vehicles. However, the recurrent costs to sustain the CDD program are not reflected in a budget line within the MOH's budget. Donor funding also appears to be diminishing. For example, in 1988 DANIDA suspended their support and PRITECH completed its work in March 1993. The substantial financial contributions of USAID are also scheduled to end in 1993/1994.

The NCDDP has largely depended upon donors to maintain its operational activities. Communication between the NCDDP and donors has suffered in recent years and needs increased attention to sustain the level of effort currently being achieved in the program. Intersectoral collaboration with other MOH programs such as nutrition and immunization, and NGOs also requires increased efforts. Funds for certain essential materials (ORS, equipment of ORT centers) to sustain the program is not guaranteed. The MOH should reconsider budget allocations to the NCDDP and develop a budget-line item for essential materials such as ORS and ORT equipment. The NCDDP should more actively communicate with present donors, seek out new donors, and serve as a catalyst between different donors. Diarrheal diseases continue to be a major childhood disease in Kenya. The momentum and accomplishments of the program must be sustained.

- (2) **Private sector activities.** First of all, it was very important to thoroughly assess companies to ensure the best possible selection based upon specified criteria, e.g., it was critical that companies have a strong distribution system capable of serving the consumer in the rural market. Second, when Sterling Health agreed to re-enter the ORS market, it was important that partners adapted to their in-house systems. Third, Sterling Health required ORS market research. The market research not only cemented the partnership, but also helped to develop the promotional campaign. Finally, to encourage the sustainability of the product, donor assistance should be in the form of seed money to help the partner(s) offset initial expenditures. Subsidizing the product may not set the stage for long-term product sustainability and is generally not necessary to develop a partnership.
- (3) **Integration of child survival activities.** The NCDDP has since its inception focused more attention on diarrhea case management for government health facilities than on prevention strategies. Now that good diarrhea case management is being practiced in government hospitals, the NCDDP plans to emphasize water and sanitation activities for the reduction of diarrhea morbidity. Breastfeeding promotion and measles immunization are also

important preventive measures which will be more fully integrated into activities as stated in the 1992-1997 NCDDP plan-of-action.

The NCDDP has benefitted from the efforts of the Kenya Expanded Program on Immunizations (KEPI), as measles vaccination coverage has dramatically increased throughout Kenya. A KEPI vaccination coverage survey in 1987 showed that measles vaccination rates were approximately 60 percent. The 1989 demographic and health survey (DHS) found that measles coverage rates had increased to 78 percent. At these current levels of immunization, diarrhea cases due to measles and diarrheal deaths are being averted. Although KEPI has significantly increased measles coverage levels in the children under-five population, if children are not vaccinated at all appropriate opportunities such as visits to ORT centers for diarrhea treatment, this will be a missed opportunity.

A second strategy adopted by the NCDDP is the provision of accessible and safe water, and the promotion of personal, domestic, and environmental hygiene practices. According to the 1989 DHS, 20-60 percent of Kenyans have access to safe water. The 1989 DHS showed that approximately 95 percent of the urban population have access to safe water, compared to 36 percent of rural households. Studies on household hygiene practices have consistently found that good hygiene is an important factor in diarrhea prevention. Weaning foods which are susceptible to contamination continue to be a significant problem in Kenya. Handwashing is another important hygiene practice which can prevent diarrheal diseases and is an important message stressed in all MOH/CDD communication materials on prevention.

In Kenya, 97 percent of women initiate breastfeeding with a median duration of approximately 18 months. However, many mothers do not practice exclusive breastfeeding for the first four to six months; fluids are introduced as early as the first month. Although impressive gains have been made in health worker knowledge and hospital practices in Kenya, much still remains to be accomplished.

The promotion of breastfeeding is one of the key strategies of the NCDDP in the prevention of diarrhea. The nutrition unit in the Division of Family Health has played an instrumental role in the development of a national policy on infant-feeding practices in Kenya and the widespread breastfeeding promotion efforts. PRITECH's efforts to improved lactation management at the Kenyatta National Hospital represented an important step in breastfeeding promotion.

- (4) **Decentralization.** Efforts have been made by the NCDDP to decentralize CDD activities and management to provincial and district levels. Responsibility is first diffused to the provincial health management teams (PHMT), and then to the district health management teams (DHMT). The 1992 WHO/FPR, however, cited inadequate monitoring and supervision which has handicapped the effectiveness of both PHMTs and DHMTs.

- (5) **Improving the health information system.** It is the NCDDP's goal to reduce diarrhea-associated morbidity and mortality. Morbidity evidence suggests that diarrhea prevalence has remained constant throughout the 1980s, at approximately four episodes per child per year. In 1987, the CDD program set a mortality reduction target of 35 percent for 1992 to be reached through the promotion of ORT and the epidemiological surveillance of diarrheal diseases. However, in the absence of reliable mortality data, there is insufficient data verifying that this projected target has been achieved.

The NCDDP believes that some progress has been made towards national mortality reduction targets due to decreased numbers of severe diarrhea cases admitted to the hospital and the achievements accomplished in diarrhea management in health facilities and communities. In the NCDDP 1992-1997 revised plan-of-action, a new target has been established for 1997. By the year 1997, mortality due to diarrhea in children under five should be reduced by 20 percent. The assumptions for this target are a current ORT use rate of 40 percent and an expected increase of ORT use of 20 percent over the next five years. A strong routine reporting system will lead to more a more accurate assessment of the importance of diarrhea and its impact on child health. The NCDDP recognizes the need to strengthen a routine reporting system which will allow the NCDDP to better monitor projected targets.

PRITECH MADAGASCAR PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

The delivery order between PRITECH and USAID/Antananarivo called for an intensive PRITECH effort over an eight-month period to support the Ministry of Health (MOH) in its efforts to reduce diarrheal disease morbidity and mortality through improved case management, increased access to and availability of oral rehydration salts (ORS), the development of information, education, and communication (IEC) materials for ORS promotion and home case management, and by strengthening the planning and management capacity of the national control of diarrheal diseases program (NCDDP). PRITECH/Madagascar was able to fulfill the many planned activities through careful planning, extensive consultant input, and close collaboration with the MOH, USAID/Antananarivo, and UNICEF.

The NCDDP in Madagascar has, with assistance from UNICEF and the World Health Organization (WHO), created eight diarrhea training units (DTUs) in each of the provinces throughout the country. One of PRITECH's primary objectives in Madagascar was to improve diarrhea case management skills of key provincial health workers in the most important provincial health facilities so that they could provide good CDD treatment and improve their training functions.

Activities which PRITECH sponsored in efforts to achieve the goal of improved diarrhea case management included a two-week DTU revitalization workshop in collaboration with the MOH, follow-up supervisory visits to the DTUs in the provinces, a training-of-trainers (TOT) workshop, the development of a training curriculum for paramedical workers, and assistance in finalizing the national policy for diarrhea treatment and prevention. In addition, CDD documentation centers were established at the eight DTUs with PRITECH assistance.

Related to case management of diarrhea are issues of access to and availability of ORS. The local ORS product, ODIVA, is produced by the central pharmacy, a MOH parastatal organization for distribution of drugs. Demand for ODIVA is low, both in public and private health facilities and pharmacies. Through a series of visits, PRITECH's social marketing specialist, Mr. Camille Saade, helped the MOH and UNICEF come to an agreement on strategies for long-term ORS supply, production, marketing, and distribution in both the public and private sectors.

PRITECH also helped the MOH/IEC task force develop an IEC strategy and plan to support the implementation of the national CDD policy. PRITECH sponsored an IEC workshop on communication skills, assisted in the development, pre-testing, production and distribution of ORS promotion materials, home case management, and case management educational materials.

Karen Blyth, the PRITECH representative, arrived in mid-April 1993 and established a PRITECH office located at the Division of Maternal and Child Health. Although minor delays occurred in project implementation, PRITECH project activities remained on schedule in Madagascar. The representative worked with counterparts to strengthen program planning and management, and worked with PRITECH/headquarters to provide United States of America and third country management training opportunities to her counterparts.

II. PROGRAM COMPONENTS/LESSONS LEARNED

Planning, Management, Policy Coordination, and Finance

Carrie O'Neill, PRITECH operations officer spent two weeks in Madagascar helping to establish the PRITECH office, procure necessary office equipment, arrange for workshops and to discuss the delivery order budget and workplan with the mission.

PRITECH/headquarters support was significant for the Madagascar program due to communication constraints, the short timeframe for implementation, and the heavy technical and administrative workload of the PRITECH representative. Headquarters support included budget development and monitoring, scope of work revisions for the delivery order, recruitment of consultants (15 consultant trips), procurement of supplies and equipment, coordinating external training opportunities for Malagasy counterparts, and routine communication with USAID/Antananarivo.

The representative developed strong collegial relationships with her principal counterparts and made effective use of the technical resources and inputs from PRITECH. In so doing, she laid the groundwork for the further development of the NCDDP in the post-PRITECH period.

In an effort to strengthen the management skills of the NCDDP staff, PRITECH sponsored the attendance of managers at two training courses. In April, PRITECH sent two Malagasy NCDDP staff to attend a WHO program managers' course in Cameroon. In July, PRITECH funded the attendance of the head of the Maternal/Child Health Division (MCH) to a leadership and organizational development course at the Centre for Development and Population Activities (CEDPA) in Washington, D.C. This trip also included a one week briefing and orientation visit at WHO/Geneva. These training activities, coupled with the daily support of the PRITECH country representative, contributed to the objective of strengthening the management of the NCDDP program in Madagascar.

Training, Education, and Supervision

The NCDDP in Madagascar created eight DTUs in each of the provinces throughout the country with assistance from UNICEF and WHO. They are not, however, meeting planned expectations as model provincial training facilities for health workers in diarrhea case management.

In April 1993, PRITECH sponsored a DTU workshop which provided a technical update for key provincial physicians (DTU directors, provincial health directors, and trainers) in clinical case management for diarrhea and helped the NCDDP address key DTU revitalization issues. All 18 participants gained updated CDD case management skills and new ideas on how to revitalize their provincial DTUs.

A significant outcome of the DTU workshop was the establishment of task forces to work with the NCDDP in the following areas: 1) creation of national guidelines for DTUs; 2) national guidelines for supervision and monitoring; and 3) the development of a national CDD training module for paramedical staff.

Improved capacity and performance level at the provincial DTUs was not limited to updated clinical skills. Core CDD provincial trainers also required training in pedagogical skills. In collaboration with the MOH, PRITECH sponsored a TOT workshop in June to complement the April DTU workshop, with many of the same participants attending. Building on the results of the DTU workshop, the TOT workshop provided participants with the pedagogical skills needed to serve as effective trainers at their DTUs. The PRITECH country representative participated in the TOT workshop and, with her CDD counterparts, will provide follow-up support.

The draft CDD training module for MOH paramedical staff was pre-tested by the workshop participants with nursing staff from the Children's Hospital in Antananarivo, which also allowed the participants to practice pedagogical skills.

As a follow-up to the DTU and TOT workshops, a WHO diarrhea management consultant, NCDDP staff, and the country representative visited the provincial DTUs. Using newly developed supervision instruments which covered both CDD and acute respiratory infections (ARI), the supervisory teams helped to reinforce earlier learning, assisted with problem solving, and helped to determine next steps for the further revitalization of the DTUs.

ORS Production, Distribution, and Availability

Earlier visits by PRITECH to Madagascar found that the national ORS product, ODIVA, was in low demand in public and private sector health facilities as well as in pharmacies. ODIVA is produced by a parastatal production unit within the central pharmacy. Production was at only 50 percent of plant capacity, but even at this level ODIVA was not fully absorbed into the national system due to low demand for the product, lack of promotion, and limited budgets for procurement of ODIVA by health facilities.

In December, 1992, PRITECH's social marketing expert analyzed the ORS market, reviewing opportunities and constraints facing the production and promotion of ORS, with particular emphasis on the potential of the ODIVA production unit. Good diarrhea case management has been hampered by the overall low demand for ORS and lack of government funds to purchase ODIVA for distribution in public and private health facilities.

The market analysis, which was discussed with the MOH and USAID/Antananarivo, included an assessment of the actual and potential market for ORS, options for (and alternatives to) local production, and the broad outlines of a strategy for increasing demand for ORS.

Follow-up discussions were held with the MOH, UNICEF, USAID, and the private pharmaceutical sector during a July 1993 visit by PRITECH's social marketing expert to help the MOH determine the best approach to improving the accessibility and affordability of ORS in Madagascar. Two events occurred which changed the picture for ORS production and marketing during this visit. First, UNICEF announced that it would be willing to purchase ODIVA for a period of two years as part of its commitment to provide essential drugs to the provinces. The provinces will authorize sales of the drugs in order to establish a revolving fund for drug supply. Secondly, the Swiss Cooperation donated 150 tons of glucose, the most expensive component of ORS, to ODIVA. If tests show that this donated glucose is sufficiently stable, ODIVA's needs for this product will be satisfied for years to come.

These two factors led to the recommendation, agreed to by all parties, that ODIVA continue the production of ORS for an additional two years, making every effort to increase production to near capacity (1 million sachets annually). During this period, the MOH will continue to discuss ORS production with interested private sector producers, OFAFA and FARMAD.

Other Commercial, Private, and NGO Activities

PRITECH's social marketing specialist was able to develop sound relationships with key executives of two private pharmaceutical companies in Madagascar (OFAFA and FARMAD). These companies are not currently in the ORS market, and do not have the capacity at present to produce and package an ORS product. The PRITECH social marketing specialist encouraged the MOH to continue dialogue with the pharmaceutical companies, and to keep them abreast of the impact of ORS promotional activities. If demand for ORS increases at the anticipated rate, sources for ORS beyond ODIVA will be needed in the space of a few years.

Information, Education, and Communication

The first phase of the PRITECH IEC/CDD objective was to develop an IEC strategy and plan to support the implementation of the national CDD policy statement. A PRITECH/IEC consultant and the social marketing specialist worked with the MOH in March in a workshop setting to facilitate these plans. The communication process and the concept of pre-testing was also presented in this workshop.

In June 1993, the IEC consultant returned to Madagascar to participate in the second-phase of the PRITECH/MOH IEC activity in collaboration with the NCDDP and selected headquarters and provincial staff. The IEC consultant led the IEC task force in the development and pre-testing of print materials for home case management and ORS promotion for pharmacies and drug retailers. Both phases were highly participatory, and included headquarters and provincial MOH staff with

previous IEC skills and experiences. The PRITECH consultants worked closely with the NCDDP and a MOH graphic artist in the design of IEC materials.

In August, the IEC consultant returned once again to finalize the promotional materials and to present the materials to UNICEF after approval from the MOH. She assisted the IEC task force in developing a training and distribution plan for the ORS promotional posters to ensure correct and timely use in anticipation of the October/November onset of the diarrhea season.

The materials developed include posters on home case management, assessment of dehydration, diarrhea treatment chart, diarrhea prevention poster, and a poster promoting ORS/ODIVA. In addition, a flyer explaining the preparation and administering of ORS was produced, as was a sticker/decal for ODIVA. PRITECH funds were used to print and distribute these materials.

PRITECH's country representative coordinated the IEC task force developing the CDD module for paramedical health workers, which will be used in conjunction with the IEC print materials during the October/November 1993 CDD training of paramedical staff sponsored by UNICEF throughout the country.

The PRITECH Information Center assembled a wide variety of materials, including reports, articles, monographs, texts, and training materials and shipped them to Madagascar to help establish multiple documentation centers for the NCDDP. These centers will be housed at the MOH and in leading DTUs to help overcome the acute lack of current information and materials about CDD available to providers, planners, and students in Madagascar.

PRITECH MALI PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

From its start in Mali in 1985, PRITECH provided the principle source of funding for the national CDD program (NCDDP). Through financial, technical and administrative assistance, PRITECH worked closely with the NCDDP to develop a successful and sustainable effort in the control of diarrheal diseases (CDD). PRITECH activities therefore followed the NCDDP's annual workplan. These workplans were developed with PRITECH's input and reflected the various stages of program development. This teamwork resulted in significant strides, especially in the areas of oral rehydration salts (ORS) production, IEC (information, education, and communication), case management, and health worker training. Due to the problematic presence of the CDD coordinator over most of the project's life in Mali, PRITECH's role in Mali needed to be managerial as well. However, after a break of almost two years, the naming of a new CDD coordinator in the last year improved the prospect of project sustainability.

Chronology of PRITECH Involvement

PRITECH's involvement in Mali commenced in February 1985 with a visit from an assessment team. This was followed by visits by the PRITECH senior program manager (SPM) for the Sahel region. In August of 1985, the first of four full-time country representative was placed in Mali. Since then, PRITECH has had a full time technical advisor working with the CDD program. Since 1990, PRITECH/Mali has had a full-time driver and vehicle.

At the commencement of the NCDDP, PRITECH assistance emphasized programming, training, a media campaign to introduce the program, and the development of educational materials. In 1988-1989, efforts were oriented towards evaluation of these initial activities. From 1990-1992, local production and marketing of ORS was undertaken, as well as the establishment and supervision of regional sentinel oral rehydration units (ORUs).

Despite only sporadic contributions from UNICEF and the World Health Organization (WHO), PRITECH's consistent broad based support enabled the CDD program to make strides toward the common goals. The Ministry of Health (MOH) provided office space and telephone service for the country representative. This interaction, as well as the thrust of PRITECH's assistance, were formalized through a letter of agreement between PRITECH and the MOH in April of 1985.

Financing levels

The PRITECH/Mali activities were completely financed through buy-in funds from the USAID mission. This funding provided for a full-time country representative, part-time regional supervision, and operational activities. In light of the technical, administrative, and financial

support it received through PRITECH, the CDD program's success is largely due to the support from USAID/Bamako.

Strengths and Constraints

The competence transfer achieved resulted from the close working rapport emphasized throughout PRITECH's involvement in Mali. The country representative shared an office in the Division of Family Health (DSF) and was considered a member of the CDD team. With the naming of a national CDD coordinator, the representative's role became less of a manager, and more of one of a counterpart. Being based in the DSF enabled the PRITECH country representative to participate in the programmatic integration which is emphasized throughout the MOH. This cooperation facilitated interaction with the IEC, training, and nutrition programs of the DSF.

Progress was demonstrated in the achievement of the CDD program objectives, particularly through PRITECH's involvement in the areas of manager training courses, supervision, case management, program managers courses, sentinel ORUs, and program planning.

For both personal and operational factors, PRITECH encountered few hindrances in carrying out activities in Mali. The directors of the national public health program and of the DSF were very supportive of PRITECH's involvement in the CDD program. The PRITECH regional and local staffs maintained excellent working relationships with the personnel in the MOH.

Overall progress of the CDD program was impeded until well into 1992 when a new national coordinator finally was named. Although a CDD team was in place in the DSF, the lack of coordination was a source of concern. In 1990-1991, the country was embroiled in political turmoil which impacted most areas of life here. Because of the integration of all the programs in the DSF, the timeliness of the execution of CDD workplan activities sometimes were hampered. The integration of activities also resulted in the CDD team members' increase in responsibilities in other sectors, thus the time they have to spend on CDD activities has been limited.

II. THE NATIONAL CDD PROGRAM

In 1985, Dr. Sidibé became the first national coordinator of the CDD program. Oumar Traoré, a public health nurse, was assigned to work full-time with the CDD program in early 1986. From early on in the program's life Dr. Sidibé's workload often impeded her from devoting enough time to the CDD activities. As a result, progress was often slow. In October of 1986, Mme Tony, an experienced midwife from the DSF, was added to the CDD team. Having worked with the program as a medical student collecting data from the sentinel posts in Bamako, Dr. Touré was then brought on to the team in August of 1988. Her role was to develop the information system and to set up and supervise the sentinel posts to be established in each region. In addition to this increase in personnel, PRITECH's presence continued to be needed to provide stability in a sometimes uncertain atmosphere. Until mid-1987, the program was loosely affiliated with the

Division of Epidemiology. However, by some higher MOH officials the CDD program was viewed as too autonomous and perhaps too successful compared to other programs and was housed under the DSF to curb its independence.

In March of 1991, the military government was overthrown and a transitional government took its place. The CDD program coordinator was appointed to another responsible position and was not replaced. Mme Touré was assigned responsibility for the family planning section of the MOH's Division of Family Health, thus limiting her time spent with the CDD program.

Policy

The statement of the national CDD policy exists, but not in a written form per se. The principles, however, are applied in each activity with the health personnel. They include facility based case management, home case management, nutrition, diarrhea prevention, and advice to mothers. A written statement will be developed for the next five-year program overview.

Program Planning

Plans of operation for the CDD program are composed annually and are integrated in those of the DSF. Since PRITECH began in Mali, regional and local staff have been consulted in the development of the CDD program's plan of operation.

Program Inputs and Activities

The CDD program activities have been supported by the MOH, PRITECH, UNICEF, and WHO. Due to budgetary constraints, UNICEF halted its support for most of 1991-1992. UNICEF was heavily involved in ORS production and distribution. WHO provided some financial and technical assistance.

Description of Activities, Achievements and Constraints by Program Area

- (1) **Training.** From the beginning of PRITECH in Mali, training was a primary focus. In early 1986, training of health personnel began in the communes of Bamako, followed by cercle-level training in two of the regions. These sessions were based upon the WHO modules. In mid-1986, training and supervision activities were thwarted due to a lack of funding from WHO. Due to a cholera outbreak along the Mauritanian border, the MOH and WHO were anxious for training in those areas.

Regional coordinators were appointed in all regions of Mali in June of 1987. Three of the seven regional coordinators attended the WHO regional CDD seminar. Later that year, a national meeting of the regional coordinators was held to discuss progress, difficulties, and the establishment of sentinel ORUs. This was a step to emphasize to the regions that they were responsible for the training and programming at the regional level and below. By late

1990, sentinel ORUs were set up in the regions and in the District of Bamako. With ORUs in the regions in place (except in Gao and Timbuktu due to the political unrest), systematic training of the personnel began in case management and the use of naso-gastric tubes. In keeping with the DSF's program integration, 19 members of the DSF staff were trained in case management techniques and the supervision thereof.

In 1990, pre-service training got under way in the nursing schools in Bamako and Sikasso. PRITECH initially visited regional nursing schools to discuss what existed in terms of CDD training in their curricula. In collaboration with WHO, CDD training modules were developed for the nursing schools. These modules were then incorporated in the training curriculum. Follow-up on their implementation has been accomplished with some difficulty as not all those in charge of teaching the modules were familiar with the methodology to be used. Based on this, the modules were reviewed, and the training was reorganized incorporating other methodologies. Fifty-five instructors have since been trained.

In 1991, trial training sessions with community leaders were conducted by DSF and regional PRITECH staff. After revisions to the content were made, a training strategy was formalized. Sixty-eight community leaders have been trained in CDD issues including home case management, prevention, and techniques in working with communities and mothers. The communities have been educated in the new role of those trained. Acquiring the needed MOH approval was somewhat hindered due to the integration of activities at the DSF. Future plans include follow-up of the sessions carried out.

Since the revision of the case management strategy, 110 health personnel in four regions and the District of Bamako were trained in diarrhea case management and the use of naso-gastric tubes, thus 40 percent of the doctors and nurses in the country have been trained. (This figure reflects those personnel who currently work in diarrhea case management since their training.) Following the establishment of the sentinel ORUs in the regions, personnel also participated in refresher courses organized with the WHO supervisory skills module. From the health facilities survey (HFS) conducted, it was determined that the case management training needed to be less theoretical. The training was altered to allow 50 percent of the time to be spent on practical work. Another difficulty encountered was that trained personnel frequently are moved to new places and to different positions within the health system. In the future, the training sessions will be expanded to include other pertinent issues such as nutrition and rational drug use.

- (2) **Supervision.** Integrated into the other supervision activities of the DSF, supervision of the sentinel ORUs has been carried out by central-level and PRITECH regional staff. It was originally designed to be conducted immediately after the establishment of the sentinel ORU, after three months, and then on an annual basis. However, due to conflicting schedules of other programs in the DSF, this schedule often could not be adhered to. Although the central staff have been trained in ORU supervision, combined with their other tasks, they have not had sufficient time to make in-depth evaluations and to offer the

necessary feedback. Under this system, three weeks are required to make one supervisory visit. Each visit includes evaluation of all maternal and child health activities and family planning, as well as CDD activities. This is costly both in terms of time and money. Future plans include better evaluation of the forms used in supervision to indicate the effectiveness of the system.

In 1993, following up on the training conducted in 1992, approximately 50 community leaders's activities were supervised in Kadialo and Keniéba.

Also in 1993, contact was made with each of the nursing schools in Bamako and in Sikasso to supervise the utilization of the training modules in their curriculum. The schools are using the modules to the best of their ability. Repercussions of the political upheavals of 1991 are still felt in the educational systems, thus making full incorporation of the modules in the curriculum sometimes difficult. Further training of instructors in methodology and case management, and follow-up activities are included in plans for the future.

- (3) **ORS supply and distribution.** In August of 1986, modifications in the local drug manufacturing company were begun to accommodate the production of ORS packets. In 1987, UNICEF donated 1,200,000 packets to be distributed throughout the country until production was underway. Procurement of ORS also came from non-governmental organizations (NGOs) which supplied their areas in the country. A price sensitivity study was carried out by the DSF and PRITECH the following year. Training in commercialization and marketing was conducted by PRITECH staff with the drug manufacturer and the government's drug distributor. Private pharmacists were also encouraged to sell the ORS packets. The name to be used and the packet design were developed by the DSF. Production of the locally produced packets began in 1990. Distribution was well established in early 1991 until the general disorder created by the overthrow of the previous government. Pharmacies and depots were looted throughout the country. This stock-out prompted UNICEF to donate another 150,000 ORS packets for distribution through the public sector until regular mechanisms could be re-established. ORS production and distribution is closely linked to decisions taken on the "Bamako Initiative" and the privatization of the Pharmacies Populaires au Mali.

In 1992, UNICEF funded a study examining the availability of ORS packets in the various health and drug facilities in the country. It was discovered that only one of the five regions surveyed had sufficient stocks of ORS packets available. In examining the health facility registers, it was reported that the percentage of diarrhea cases treated with ORS of the total registered ranged from 21 percent to 78 percent. These figures may be deceptively low as the study did not differentiate between first and subsequent visits. While the packets are free at government facilities, there are plans to develop a cost recovery system for the packets. Planning meetings are scheduled for 1993 to determine appropriate actions to rectify the problems of packet availability.

The total ORS packets sold by the drug manufacturer has reached 570,000 (20,000 beyond production estimates). In 1993, with the acquisition of a new production machine, the projection is 1,000,000 packets of ORS.

- (4) **Information, education and communication (IEC).** Since the beginning of PRITECH's involvement with the CDD program, there have been coordinated attempts to communicate the philosophies of the program using a variety of media. IEC activities began in October 1985 with a PRITECH-sponsored consultant working with the education unit of the DSF on educational materials. In 1986, studies were made to determine common key messages on how to present diarrhea and dehydration to the different ethnic groups in the country. These messages were then incorporated in a booklet, fliers, and radio and television spots. In mid-1987, printed materials (oral rehydration therapy [ORT] and song contest posters) were distributed to the regions. It was found that printed matter is sometimes not distributed far beyond the central and regional levels. In the areas the materials do reach, the staff are not trained to use them and the instructions for utilization are marginally effective. The airing of three radio spots in 12 languages was also undertaken. CDD Sensitization Days took place in January 1988. Activities included a song contest to determine the program's theme and theatrical sketches for television. In 1989, Mme Tony participated in an IEC training course in Santa Cruz under PRITECH sponsorship. In 1990, the CDD program and PRITECH collaborated with the Peace Corps in the development of an audio cassette featuring ORT for distribution to private voluntary organizations (PVOs) and government services. The future will entail staff training in IEC and the addition of more information on prevention and feeding during diarrheal illness to the messages.
- (5) **Case management.** The sentinel ORU staff is trained to work effectively in facility and home case management, and in the appropriate use of drugs. Organization of the facilities has improved in terms of case management, even where sentinel ORUs have not yet been established. Reorganization of the health facilities included the establishment of ORUs. The first case management course included personnel from both the sentinel ORUs as well as the other ORUs. Staff have been educated to train and advise mothers in home case management. With the refresher courses in 1992, in which this latter issue was further addressed, mothers' ability to prepare and administer ORS are expected to improve.

In the UNICEF ORS availability study in 1992, providers' use of antibiotics was seen to have increased from earlier observations. The appropriateness of their use cannot be evaluated as the diagnosis was not recorded in the study. The use of anti-diarrheals was shown to have increased as well. The home use of these substances is difficult to determine. The 1993 HFS should provide valuable information on the effectiveness of the program's efforts in case management.

- (6) **Nutrition.** A qualitative study on infant feeding during illness was conducted in 1991 and advice to mothers on nutrition has been improved. Also, other data showed that 3 percent

of the children diagnosed with diarrhea were evaluated and diagnosed as malnourished. This feeding study was not finalized, thus limiting its usefulness. The cost and time required to conduct quantitative follow-up has hampered progress in this area. It has been proposed for the coming year.

In case management training, messages have been improved and elaborated to counsel mothers on appropriate feeding and continued breastfeeding during and after diarrheal illness. The program developed new ORU registers that included nutritional evaluation. Utilization of the growth chart in the child's health record was also emphasized during training.

(7) **Private sector.** Training for representatives of the private sector was carried out in 1993. One hundred and twenty pharmacists and drug distributors in the District of Bamako and in Sikasso were trained in case management with emphasis on anti-diarrheals and the appropriate use of antibiotics. The drug manufacturer has detailmen who have been instructed on how to introduce ORS packets to pharmacists. Training will be directed toward some NGOs as well. Future plans include training private physicians and follow-up with the detailmen already trained.

(8) **Evaluation and research.** The primary activities include:

- Program review - 1988
- Health facility survey - 1988
- KAP (knowledge, attitude, and practices) study - 1989
- Quantitative study on infant feeding - 1991
- Study on persistent diarrhea - 1991

The DSF activities were based on the outcomes of the research conducted. As a result, health personnel were trained in communication skills with mothers and in giving instructions for home case management. Most of the activities in evaluation and research were conducted with outside funding. This could prove to be a restraint when similar activities are considered in the future. Future activities include:

- KAP study
- Health facilities survey
- Quantitative study on infant feeding
- Study on traditional remedies

III. KEY ISSUES AND LESSONS LEARNED

(1) **Program sustainability.** The achievements of the Mali CDD program are commendable in light of its short history and the impediments it has had to overcome. However,

maintaining the momentum of change in the health system and in the behavior of health personnel and mothers may be a challenge difficult to overcome. The reorganization of the MOH in activity planning, coupled with the lack of sustained financing, has left the future of the CDD program unclear.

- (a) **Funding.** When PRITECH came into Mali in 1985, it found the CDD program (like the rest of the MOH) working with an extremely low budget. This was even more of a problem at the regional and periphery levels where primary health care (PHC) activities rarely could be carried out without an externally-funded project. PRITECH provided a majority of the funding for the program's activities. Dependable and consistent financial support from UNICEF and WHO has not materialized. As the PRITECH project nears its completion, the NCDDP will encounter serious funding challenges, which will probably reduce the number of activities as well as the viability of the program.
- (b) **Integration and decentralization.** With the advent of integration in the MOH and the DSF came a slowing of the progress of CDD activities. The acting CDD coordinator had several other responsibilities as well, limiting her time directing the progress of the program. At the same time, specific tasks were not assigned to the CDD team members which also curtailed their potential effectiveness. The DSF undertook integration of activities from training to supervision and the CDD program was no longer allowed to conduct its own. Supervision visits to those trained under the integration system showed that the quality of instruction was not what it once had been. Additionally, since the supervision team (visiting each locale only once a year) evaluated several programs at once, the time allotted to CDD specific supervision was limited. Unless a member of the CDD team was on a supervision team, the quality of the CDD evaluation was even lower. Clearly, the system of integration needs to be fine tuned to be most effective. Instead of arbitrarily combining the activities of all the programs, the later should be evaluated to determine with which other programs activities should be integrated.

Decentralization has begun to take hold in the MOH in Mali. PRITECH staff enabled the central-level CDD personnel to conduct training and supervision activities with less and less outside guidance. In turn, the CDD staff consistently has been incorporating regional-level staff in teaching and supervision methodology. Subsequently, staff at the regional-levels have taken more and more responsibility in training and supervision. The transference is not complete, and assistance is still needed from the central level to assure high quality training and supervision. The CDD central-level staff continues to require assistance in managing the various components of their IEC endeavors.

- (2) **ORS distribution.** The issues of distribution and availability of ORS in Mali have made positive strides, but as PRITECH comes to a close, challenges remain. Since 1991, when

difficulties in production of ORS packets were resolved, the local drug manufacturer has made ORS available for distribution. Problems existed early on with high prices demanded by various ORS outlets. PRITECH intervened with the MOH to set imposed standards for fair pricing. Discrepancies continue, however, and prices range in the marketplace from the approved 55 CFA to well over 100 CFA.

Availability and distribution in the public and private sector remain issues to be resolved. The problem was clarified in a UNICEF-sponsored packet availability study. Some areas (though few) proved to be overstocked with ORS, while many facilities suffer from stock-outs. Implementation of the Bamako Initiative is underway, although many challenges remain. As was demonstrated in the study, the management of funds and renewing of stocks is far from integrated into the health sector.

- (3) **CDD policy.** Although CDD training in Mali has been based on WHO guidelines, the lack of a national and regional policy limits the overall potential effectiveness of the NCDDP.
 - (a) **Sugar-salt-solution (SSS).** Formerly, utilization of SSS was a supported practice in Mali. However, in recent years, packaged ORS has received the exclusive attention of the NCDDP. The question of the appropriateness of promoting SSS as a home fluid has yet to be examined and determined in Mali. A formal national CDD policy should examine this issue.
 - (b) **Inappropriate drug use.** Preliminary results from the 1993 HFS indicate that the prescribing of anti-diarrheals continues to be a problem in the health system. Since health personnel are aware that such practices are informally unapproved, under-reporting of incidence is somewhat expected as well.
- (4) **Cholera.** Although there were no cases of cholera reported in the 1991-1992 period the national cholera preparedness plan has been completed, outlining the measures to be taken in the event of an cholera epidemic. However, persistent diarrhea and dysentery do exist in Mali. The rational use of drugs in case management training addresses the use of antibiotics in cases of dysentery. The 1993 HFS will examine health personnel's ability to correctly diagnose and treat dysentery and persistent diarrhea.

PRITECH MEXICO PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

With Brazil and eight other non-American countries, Mexico accounts for 60 percent of all diarrheal deaths in children under the age of five years. According to UNICEF, Mexico's diarrheal disease mortality rate is higher than its socio-economic indicators suggest that it should be. Diarrheal disease is the second leading cause of death among children, accounting for 15.4 percent of all deaths among children under the age of five years.

PRITECH has been active in Mexico since 1985. PRITECH I conducted a country assessment in 1985 and then financed a training program designed to train trainers in all 32 Mexican states and to assist with in-state training in six priority states (Chiapas, Tabasco, Oaxaca, Guanajuato, Estado de Mexico and Tlaxcala) in 1987-1988. State-level training of trainer teams were trained at the Children's Hospital in Mexico City. These trainers then trained others at their state-level facilities.

The initial PRITECH II proposal was prepared in June 1988 and identified four specific areas of intervention: 1) training of pediatrics professors; 2) expansion of the PRITECH model of state-level training to four additional priority states; 3) ongoing supervision of persons trained in the six PRITECH I states; and 4) support for communications activities to be directed by HealthCom. The initial proposed budget for the PRITECH II activity was \$500,000 for the four-year, 1989-1992 period.

The PRITECH II intervention which began in 1990 was three-pronged. The principal activity, a follow-on to PRITECH I, was training health workers in appropriate case management. This activity was implemented through the Pan American Health and Education Foundation (PAHEF), a non-profit subsidiary of the Pan American Health Organization (PAHO), and had the national CDD program (NCDDP) as its direct counterpart. The second prong was the health education effort carried out through the private social science consulting firm, CICLOPE. The final prong, aimed at increasing the availability of oral rehydration salts (ORS) in the commercial market, is still being implemented through a technical advisor working independently of the Ministry of Health (MOH) or any other national institution.

Elements of the PRITECH Country Plan

There is no one document titled "PRITECH Country Intervention Plan." The PRITECH country plan is reflected in a series of documents including the MSH/PAHEF agreement, the CICLOPE sub-contract, the sub-contract with the marketing expert, and the MOH's own annual planning documents. PRITECH's objectives included improved case management through case management, in-service training in priority states, training of medical and nursing school pediatrics professors, and ongoing supervision. A second objective was to expand knowledge

about oral rehydration therapy (ORT) and access to ORS through social marketing directed to small rural communities. A final objective was to stimulate private sector ORS production and marketing.

PRITECH's activities did not duplicate or overlap those of other donors or the MOH, but rather were completely complementary because of the way annual country plans were developed and because of the highly effective work of the Inter-Agency Coordinating Committee. The annual plans are developed at the end of the year preceding their implementation. The consolidated plan is presented at an Inter-Agency Coordination Committee meeting at the beginning of the year.

The principal reason for the effectiveness of PRITECH's activities is the effective leadership of the national program directors. This factor alone clearly distinguishes the Mexican program in relation to donors. This is not a donor-driven program, but rather one which responds completely to government direction. PRITECH's objectives were the government's objectives.

Summary of PRITECH Activities

- (1) **Case management training.** The case management training activity is the direct continuation of the efforts begun under PRITECH I. PRITECH I ended in September 1988 and PRITECH II activities began eighteen months later. The PRITECH I advisor, Dr. Marta Montero, who had been very effective, was changed at the request of the new minister, who wished for a Mexican national to occupy the advisor spot. Project activities did not really hit full implementation pace until 1991. Thus, what in 1988 had been conceived as a four year project became, in effect, a two-year project.

The PRITECH/PAHEF agreement was signed in 1990 and concluded in 1992. As mentioned above, the training component under this agreement focused on six second-priority states, the six top-priority states having been addressed under PRITECH I. The total PRITECH contribution in 1992 amounted to about 1.5 percent of the total CDD budget for that year. In addition to providing technical assistance, and travel and per diem for courses, PRITECH assisted in the financing of a study of household management of diarrhea conducted in 1991, assisted with technical assistance in the health facility survey (HFS) in 1992, and participated, when possible, in the meetings of the Inter-Agency Coordinating Committee.

- (2) **Health education for the dispersed rural population.** During 1991, PRITECH financed a health education activity with CICLOPE. CICLOPE had previously developed an innovative and effective methodology for the promotion of ORT with financing from the International Center for Development Studies. The methodology used a combination of radio messages and face-to-face communication, but its centerpiece was the adoption of a popular Mexican lottery game for use in rural markets to teach diarrhea prevention and treatment concepts. The existence of tens of thousands of small villages in Mexico impedes the widespread use of ORT. Nevertheless, women typically leave their villages on market

days to both buy and sell. CICLOPE's methodology took advantage of this rural Mexican custom to use the markets as a means of reaching mothers. This project was aimed at the States of Hidalgo and Veracruz, both PRITECH II priority states.

- (3) **Commercialization.** In 1991, PRITECH social marketing specialists initiated a private sector effort aimed at increasing the use of ORS among the population not covered by the public health structure, thus complementing the efforts made by the CDD program. A thorough assessment of the market situation revealed a limited distribution of ORS beyond the urban pharmacies. When available in pharmacies, ORS presence was overwhelmingly in the form of the high-priced liquid presentation. On the other hand, the powder form was associated with the government's product and suffered from a poor image among consumers, being a free product and thus of perceived low value.

PRITECH explored the marketing potential of all ORS manufacturers. The market leaders are all producers of the liquid form of ORS. The actual producers of ORS powder are small "contract" manufacturers who usually produce only enough ORS to satisfy the government tender. None have the capacity to market the product in the commercial sector in any significant manner.

Before approaching leading companies to enlist their resources for potentially marketing ORS, PRITECH conducted three studies through a local market research agency. These addressed consumers' usage and attitudes, retailers' usage and attitudes, and price sensitivity of both liquid and powder forms. The results of these studies were packaged by the local PRITECH marketing consultant for a series of presentations to pharmaceutical companies with rural distribution networks. Screening of the companies based on common interest led to a short list of three potential marketers. Discussions with the companies are ongoing to address key regulatory, financial, and technical issues before a final commitment to marketing ORS will be made.

Major Achievements of PRITECH

- (1) **Mortality data.** Mexico has experienced impressive declines in mortality from diarrheal diseases over the last ten years. The diarrhea-specific mortality rate in the general population has declined from 59.4 deaths per 100,000 population in 1980 to 22.0 in 1991. As a percentage of all deaths, diarrhea has declined from 9.5 percent to 4.6 percent in the same time period. In children under the age of five, the same phenomena are evident. The diarrhea mortality rate in this age group has declined from 280/100,000 to 103.7 and the percentage from 24.2 percent of all deaths in the age group to 15.4 percent. The largest declines in mortality occurred in 1984 with the birth of the NCDDP, in 1987 with the beginning of PRITECH I and clinical training, and in 1991 with the onset of cholera.
- (2) **PRITECH clinical training and related achievements.** In qualitative terms, PRITECH I completed the original training of state level training teams in all 32 states, having picked

up where HealthCom ended. This resulted, eventually, in the spread throughout the country of clinical training. Concomitant with, and part of the scope of clinical training, has been the spread of diarrheal training units (DTUs) throughout the country. PRITECH support in the priority states has been a major contributor to the decline in diarrheal mortality and has helped lay the basis for further attacking the problem in these states.

Diarrhea will be the focal point of the development of local health systems. Dr. Felipe Mota, the national technical coordinator, attributes this effort to PRITECH. The local health system is a concept propagated by PAHO which proposes to decentralize decision-making from central levels to lower levels of the health care system.

The following table provides a quantitative summary of PRITECH's accomplishments in the areas of training and clinical services:

Activity	Number
Training courses	170
Doctors trained	692
Nurses trained	839
Others trained	26
Health centers with trained personnel	602
Hospitals with trained personnel	30
Diarrhea training units	21
Central level supervision visits	49
State level supervision visits	108
Medical and nursing school seminars	9
Medical and nursing school professors trained	340
National Children's Hospital training courses	10
Trainers trained	64

- (3) **CICLOPE achievements.** The following is a summary of PRITECH II financed CICLOPE program achievements:

Activity	Hidalgo	Veracruz	Total
Number of health workers trained	221	247	468
Health worker training courses	11	10	21
Mothers participating in mothers groups formed	935	795	1,730
Photo story books distributed			14,957
Market events	47	46	93
Number of times lottery played	520	731	1,251
Persons playing lottery	5,972	5,709	11,681
Persons listening to lottery	4,730	4,554	9,284

Evaluation of the program demonstrated significant positive gains in regard to knowledge of mothers taught in mothers' groups, both immediately after training and two days later. Levels of knowledge were equally high in evaluations completed during the market day lottery events. Nevertheless, the mothers' groups methodology proved to be more effective in knowledge gains.

- (4) **Commercialization.** The market assessment developed by PRITECH helped provide much needed data about ORS in the private sector. PRITECH formally presented the results of its market analysis to the Inter-Agency Coordinating Committee in the presence of the secretary of health in September 1991. PRITECH raised the key issues facing ORS supply, distribution, promotion and use in the private sector, and the need to enlist stronger partners in order to address the needs of the half of the Mexican population which is not covered by public health institutions.

To attract large companies, PRITECH conducted through a professional agency three market research studies to identify the market opportunities and the potential for ORS. The results were communicated in presentations made to target companies, generating a great deal of interest in ORS. This led to further feasibility assessments on the companies' part. So far, three leading companies have proceeded with in-depth assessments before making final decisions about whether to market ORS.

Major Constraints Encountered

- (1) **Start-up delay.** PRITECH II got off to an uneven start resulting in an eighteen month break between PRITECH I and PRITECH II. Additionally, the final project-approved budget was about \$50,000 less than the budget which initially had been developed by PRITECH with the MOH. The MOH believes that this reduction was one of the principal reasons that the follow-up supervision in the PRITECH I states was not carried out, threatening the gains made in training in the PRITECH I states.

USAID and MOH authorities expressed the opinion that communication and implementation improved when the PRITECH management of the project moved from Washington to the PRITECH Central American Regional Office in late 1991. This also corresponded to the resolution of the advisor problem which is discussed in greater detail below. USAID sensed that PRITECH was more aware of what was happening due to the shift in responsibility to the regional office and could give greater attention to implementation.

- (2) **Lack of political support at the state level and in collaborating institutions.** Political support of state-level authorities in Mexico plays a relatively greater role in program implementation than in most other Latin American countries. The states which have lagged behind in PRITECH II have generally been states where the health authorities have not given active support to the CDD program. During the last two years CDD has had to compete with the immunization program for time and resources, often coming out on the losing end of the competition because immunizations were the clearly established national priority. Similarly, certain states, such as Puebla, do not have a major MOH hospital. The MOH has had to depend on winning the support of the university and/or private hospitals in order to establish a DTU. Without a state-level DTU, clinical training in the state could not move forward. This took more time than would have been the case if these institutions responded directly to MOH directives.

Impact of PRITECH on National CDD Efforts

Despite contributing a relatively small amount of money, PRITECH had a significant impact on the NCDDP. First, PRITECH focused on priority states, those states with the greatest diarrhea problem (the south and southeast parts of the country). PRITECH I and II basically financed the training of teams from all 32 states, permitting the establishment of DTU's throughout the country. Furthermore, PRITECH financed the personnel at the health-center level in the PRITECH priority states. MOH authorities reported that training funds are especially difficult to get from the national budget, therefore, these funds were particularly important in launching the national program. The seminars for medical school professors are also especially important in setting the basis for appropriate pre-service training.

PRITECH has been involved in two major studies, the household management study and the facility case management study. Both of these have been important in regard to policy development.

II. ACTIVITIES OF THE NATIONAL CDD PROGRAM

- (1) **Program planning.** The MOH prepares an annual CDD operational plan using the methodology developed for the immunization program. Most of the funds for the Mexican CDD program come from national budgetary funds. USAID, UNICEF, WHO/PAHO, and PRITECH all contributed in specific areas.
- (2) **Training.** The principal training activities were those financed by PRITECH. Those activities have been summarized above.
- (3) **Supervision.** The August 1992 health facility case management survey was effective less for what it revealed in regard to case management than as an effective model for supervision. That model is gradually being implemented throughout the country. In all, 31 supervision visits were made with PRITECH sponsorship in 1992; this was one-third of all national level supervision visits made that year.

One of the problems has been availability of funds for the national-level and state-level supervision of the PRITECH I states. This has, according to program directors, resulted in an erosion of the gains made in PRITECH I in terms of the quality of the DTU's and the number of health workers trained in these states.

- (4) **ORS supply and distribution.** Mexico currently produces 30 million ORS packets per year, 10 percent of all ORS packets produced in the world. In 1992, the MOH purchased 22 million of these packets; an additional 2 million were donated by UNICEF. The MOH and PRITECH have been working in parallel and complementary fashion in stimulating private sector production and marketing of ORS. There are currently six national producers of ORS packets.

Current constraints include a government price limit on powder ORS packets. The price is set at one thousand pesos, or about \$0.33. ORS is seen as a poor person's medication which makes it less attractive to producers. Finally, the fact that producers would have to compete against a free MOH product is a disincentive. Both PRITECH and the MOH have plans to continue to encourage marketing of ORS packets. PRITECH is conducting a number of market studies for that purpose.

- (5) **Information, education, and communications (IEC).** As mentioned above, PRITECH supported a program with the national consulting group, CICLOPE, to explore new ways of reaching the population with information about diarrhea prevention and treatment. The

appearance of cholera in 1991 has had a major impact on the knowledge of people about hygiene and diarrhea; much of this information has not been through a well thought-out communication program, but reflects the response of the news media to an interesting and important national issue.

During 1992, the MOH produced over 200,000 posters of approximately ten different types. Seven radio spots were aired by the MOH and others were aired by CICLOPE. The "Talking with Caretakers" module is being used in the case management training course.

The principal constraint faced by Mexico in its health education is the large number of remote, rural villages with little accessibility to the MOH health infrastructure. The large number of indigenous languages further complicates the situation. Both the household management of diarrhea survey and the health facility survey identified major knowledge gaps with regard to the danger signs that mothers should be able to recognize which would indicate that they should take their children to a health professional.

The MOH proposes to make a major effort over the next two years directed at improving the communication skills of health care workers based on a model developed and tested at the National Children's Hospital.

(6) **Case Management.**

(a) **Health facility.** The 1991 health facility survey revealed the following:

Action	Correct Knowledge	Correct Practice
Evaluation (duration, blood, hydration)	42%	39%
Treatment deflection	89%	83%
Non-use of antibiotics	28%	78%
Non-use of anti-diarrheal	83%	82%
Advice to the caretaker in regard to:		
- Prevention of diarrhea	93%	86%
- Preparation of ORS	89%	83%
- Continue feeding	66%	67%
- Signs of alarm	43%	35%

- (b) **Household management.** The 1991 household management of diarrhea survey found that 63 percent of diarrhea cases had been given appropriate oral rehydration therapy. Sixty per cent of mothers could properly prepare ORS. Fifty-three percent of child were given medications inappropriately. Sixty percent continued feeding. Only 13 percent, however, knew when they should seek medical attention because of the presence of danger signs.
- (c) **Rational use of drugs.** As can be seen in the above tables, 72 percent of physicians still identify situations in which they would use antibiotics that are not in accord with current MOH norms. The case facility survey, however, suggests that these cases are not very frequent since 78 percent of cases were properly treated with regard to the use of antibiotics.

The major deficiencies identified in the case management survey were the inappropriate use of antibiotics and the caretaker's recognition of danger signs. These issues will need to be addressed in future training sessions.

- (7) **Nutrition.** PRITECH's and the NCDDP's focus has been on ORT and proper case management. According to program data, 37 percent of children under five demonstrate some degree of stunting (<90 percent of height for age) and 30 percent present some degree of wasting (<80 percent of weight for height).
- (8) **Private sector.** There appears to be little communication between the public sector and private sector providers. There are no training programs by the MOH for the non-government organizations (NGOs) community or the for-profit health community. In addition, professional associations do not provide training for their affiliates. The commercial pharmaceutical sector, however, is fairly active. As mentioned previously, Mexico produces 10 percent of all ORS produced world-wide.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Program sustainability.** The Mexican NCDDP is sustainable, barring a major economic or political crisis. The country is relatively well off financially so there are sufficient resources. The program directors are among recognized world-wide experts in CDD programs. The national director is a member of the WHO/CDD Technical Advisory Group. President Carlos Salinas Gotari has just made CDD a national priority and is putting the weight of his office behind the program in order to meet Mexico's commitments under the World Children's Summit. Those commitments require Mexico to decrease diarrheal mortality rates by 50 percent by 1994. They are using a program model similar to that used by the Mexican government in dramatically raising its immunization rates. Mexico has become a model for addressing CDD problems.

- (2) **Private sector activities.** PRITECH's work with the commercial pharmaceutical sector is very germane, and that work should be continued if circumstances permit. The MOH is also attempting to stimulate private sector production of ORS, but given a tradition of distrust between the private sector and the government, it is probably just as well that parallel processes are continuing. There is a need for some professional education activities for private physicians; well over 50 percent of children who die of diarrheal disease in two Mexican states studied do so after having been treated by private physicians.
- (3) **Integration with other child survival programs.** The Mexican health system is very complex compared with the Central American countries, and probably with most developing countries. It is complex because of the size of the country (one-third the size of the United States), of the size of the population (almost 84 million, the third largest in the American continent), and the complex administrative structure. Each state has a relatively autonomous health office with a health director appointed by the state governor, thus state officials do not respond directly to central-level authorities. Also, many of the states have their own discretionary income.

All of this makes the process of integration difficult to identify. At the national level, there is a separate CDD program office. The CDD program director has resisted efforts to integrate the CDD and ARI programs. He believes that they are essentially different and attempts to integrate them can only result in the decreased effectiveness of both. Nevertheless, the development of local health systems is being done around ARI, EPI, CDD and family planning. So while there is not much integration at the national level, there is increasing integration at the local level. One example of this is the recent CDD training of the state-level supervisors of the family planning program. Mexico has an active family planning program with over 12,000 promoters at the local level. The MOH is currently training those workers to educate mothers in CDD and to distribute ORS.

- (4) **The changing epidemiology of diarrheal diseases in Mexico.** Declines in diarrheal disease mortality in Mexico have been impressive. In 1991, 63 percent of all childhood diarrheal deaths occurred in just six of the 32 Mexican states - Mexico, Chiapas, Puebla, Oaxaca, Veracruz and Guanajuato. Four of these were PRITECH I states, and the other two were PRITECH II states. Fifty-three municipalities in 20 jurisdictions had the highest mortality rates. These jurisdictions are where the MOH and other government health institutions will concentrate their efforts in the coming years.

Although the percentage of all diarrheas that become persistent is not known, dysentery was identified in 8 percent of all cases in the 1992 health facility survey. Recent studies done in the Mexican states of Tlaxcala and Veracruz found that just over half of the children who died of diarrhea did so in the home and that over 90 percent had received medical care for the diarrheal episode prior to death. In Tlaxcala, 86 percent of the medical care had been provided by private physicians, and in Veracruz, just over half had been provided by private physicians.

This information should assist the MOH in directing its efforts geographically; it points to the importance of reaching the private health care provider sector. It also underlines the findings of both of the major surveys referred to in this evaluation; that mothers do not know the danger signs that indicate that their children should be seen for medical attention.

- (5) **Key elements for a successful national CDD program.** The most important element for any program is the commitment of the national authorities to that program. Concomitant with that expression of political will is the availability of financial resources to back the political decision. Without these two elements, no sustainable program can be put into place. Once these are in place, and presuming that personnel have been trained and ORS is available, the most important element is ongoing supervision. Many different programs in many different countries have demonstrated the importance of supervision, yet it continues to be one of the most elusive of all activities. This may be because effective supervision at the local level presumes that the priorities established at the highest levels have so permeated and infused the system from top to bottom that they are beginning to reflect in the daily, operational consciousness of the institution.
- (6) **Lessons learned.** Although management of the country program on PRITECH's part was switched from the Washington office to the Central American Regional Office only at the end of 1990, USAID and MOH officials believe that the pace of implementation picked up and problems were fewer once that switch occurred. This may be entirely coincidental to the hiring of a new advisor, but may also reflect the validity of PRITECH's highly praised regional field office model.

Mexico's planning model, drawn on the immunization model, practiced since the mid-1980's by PAHO, proved to be very effective. This model involved the formation of the Inter-Agency Coordination Committee. It involved doing very careful and systematic annual programming in ten different functional areas and then obtaining the agency's financing commitment(s). This planning process also established the criteria for evaluation at the end of the year.

In Latin America it makes sense to channel activities through PAHO and PAHO related institutions, especially in those countries where USAID has a relatively limited presence. The PRITECH/PAHEF/PAHO relationship worked fairly well, although it did cause a certain degree of confusion regarding whether it was PRITECH or PAHO who gave technical direction to the advisor.

- (7) **Other key issues for the future of CDD.** Diarrheal disease morbidity and mortality cannot be separated from nutrition and environmental sanitation. Malnutrition is basically a problem that affects children from six months to two or three years of age. The capacity exists to provide clean water at low cost without major infrastructure investment. This is one of the lessons of cholera. In Mexico, there is a very successful program of chlorinating wells and water systems using the health resources and infrastructure that already exists.

Finally, the Mexico program suggests that mothers are still not effective at recognizing dangers signs and physicians and other health workers are not very effective at educating them about those signs.

Mexico is increasingly being looked upon as an "USAID graduate". Its gross national product (GNP) and health statistics would suggest that this is an appropriate statement. Nevertheless, it would be wise for a future PRITECH project to stay involved in Mexico, for what it can contribute and for what it can learn.

PRITECH NIGER PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

The objective of PRITECH's Niger country program has been, since its start in January 1985, to provide technical assistance and management support to the Ministry of Health's (MOH) national CDD program (NCDDP).

PRITECH proposed both in the first and the second five-year plan to provide management assistance through a country representative and technical assistance in the areas of planning, training, IEC (information, education and communication), oral rehydration salts (ORS) supply issues, and research and evaluation through a combination of inputs from the country representative, regional staff in Dakar, and outside consultants.

Because PRITECH's Niger country program is inseparable from the NCDDP, no special workplan addresses how PRITECH influences control of diarrheal diseases (CDD) in Niger. PRITECH collaborated with the MOH during each planning period to design the annual program priorities and their technical and financial feasibility. The evaluations of the NCDDP — PRITECH country reviews, the World Health Organization (WHO) joint reviews, health facility surveys (HFS), supervisory visits, and community studies — have all contributed to identifying key problems and issues to be included in program planning.

The outputs against which PRITECH's performance can be assessed are the same as the NCDDP outputs. The quality of the PRITECH management and technical assistance, and the timeliness of the project's support have been key, but cannot be easily reflected in this review. PRITECH annual reports provide a review of the implementation of activities planned, although delays are part of the general situation at the NCDDP and not due to variables that PRITECH can control.

Country representative Elizabeth Hall stayed in Niger following the PRITECH I project, allowing uninterrupted support to the national team. In October 1989, Dr. Colette Geslin became the country representative. During the tenures of both representatives, PRITECH took the lead in providing technical assistance to the MOH in CDD program priority areas which were typically developed through supervisory and evaluation exercises. PRITECH's assistance has been most visible in the areas of program management and implementation.

From 1988 to 1992, priority was given to in-service training, teaching in nursing schools, establishing oral rehydration units (ORUs), promoting ORS, defining nutrition messages, and evaluating CDD-related services. Heavy workloads and funding delays in some areas prevented some activities from being carried out in the order originally conceived.

In the final years of PRITECH II, the national CDD team had been somewhat weak, and relied too extensively on PRITECH and its representative. MOH authorities are aware of the situation, but the political situation, as well as other factors, has not yet allowed a strengthening of the national CDD team. There is a real appreciation for the role of the PRITECH representative in pushing forward on priority areas.

Financing Levels

PRITECH's activities have been completely supported by USAID mission buy-in funds. In the early stages of PRITECH, USAID planned to support local costs for CDD activities through the health sector grant called SDS (Subvention au Développement Sanitaire). Local cost expenditures were therefore not included in the initial PRITECH II budget. Severe difficulties encountered by USAID in the administration of the health sector grant prompted the request that PRITECH fund local costs directly in order to facilitate the implementation of CDD program activities.

PRITECH General Achievements

PRITECH was instrumental in setting up the NCDDP in 1984. At the time, the MOH had plans for activities in only some regions of the country. With PRITECH's technical input in developing a five-year operational plan for the whole country, other donors came forward to support a national initiative, including support from the USAID bilateral program in the form of the health sector grant (SDS). SDS has served as an important source of funds for local program costs.

The stability of PRITECH technical and management support over the years, through a resident representative, regional staff visits, and consultant interventions, has been instrumental in helping to institutionalize the CDD program's activities through government reorganizations and MOH staff changes. The program has served as a model for other national programs.

PRITECH played an important role in curriculum development for CDD during the initial round of training during PRITECH I, during revised training following the 1989 health facility survey (HFS), and for pre-service training in two nursing schools. PRITECH has contributed heavily to attempts to maintain quality control over in-service and pre-service training. This contribution included training-of-trainers (TOT) courses and participation in the supervision of trainers at work in their respective regions.

PRITECH helped to coordinate the different divisions of the MOH to ensure collaboration in the development of printed and mass media materials. MOH staff have been trained in the methodologies for carrying out background surveys and pre-testing educational materials by PRITECH colleagues.

II. THE NATIONAL CDD PROGRAM

Structure

The NCDDP is located in the Ministry of Public Health in the Directorate of Health Facilities (DES). The program is governed by the National CDD Committee, made up of staff from various MOH offices and other persons with knowledge that would be beneficial to the program. It is managed by a national program manager who is assisted by a deputy, a technical advisor (the PRITECH country representative), and a multi-disciplinary national committee.

There are eight health regions in Niger. Each region (department) has a CDD coordinator who manages the program's activities, supported by a local committee. Within each department, there is a maternal and child health program (PMI). Departments are further divided into districts, led by the district head (CM). Within the districts are medical posts (PMs) and rural dispensaries (DRs). Village health workers (ESVs) work under the direction of the PM and DR. There are approximately 12,000 village health workers in Niger.

Decentralization of the program's activities is limited to the level of divisional (regional) health directorates; little autonomy exists below the regional level, a structural problem highlighted by the WHO-sponsored December 1992 CDD focused program review (FPR).

In terms of access to, and use of, public health facilities and ORS, the CDD program review and 1992 HFS noted that 32 percent of the population had access to public health facilities, and that 19 percent of this group actually used a health center. Access to ORS was 79 percent; 19 percent of this group actually used ORS.

Funding Sources

The NCDDP activities have been funded by three principal donors — the World Bank, UNICEF, and USAID/SDS. Through the PRITECH project, USAID has also contributed to the program financially, and especially technically since 1986 — two years since the effective start-up of the program.

The NCDDP's annual plans since 1989 have included some contributions to local costs from PRITECH (approximately \$30,000 per year). PRITECH has received much recognition from the MOH authorities for its importance in the functioning of the CDD program.

PRITECH is the only donor to provide ongoing technical and managerial assistance to the program. This cost is approximately \$120,000 per year. Local costs have averaged approximately \$30,000 per year. Total local costs for the CDD program, not counting the salaries and equipment provided by the MOH, run at approximately \$200,000 per year. This does not include the cost of the WHO consultants who have assisted with particular activities, for example, the program review and program managers course in 1992.

The financing provided by the World Bank has progressively been reduced since 1990. There has also been considerable delays in the release of SDS financing due to failure of the government to deposit its share of funds. However, during this period of flux, UNICEF has been a consistent partner (\$78,000 per year). Additionally, PRITECH has contributed a great deal to the accomplishment of key activities such as: 1) the coordination of and participation in bi-annual meetings of coordinators; 2) operations research studies; 3) supervision of the CSMI (Centre de Santé Maternel et Infantile) in Niamey; and 4) the installation of ORUs in the departments.

Although overall, Niger's public health programs remain dependent upon outside financial assistance, PRITECH has made some progress toward increasing the institutional and technical sustainability of the CDD program.

Policy and Program Planning

Responsibility for the development of a national CDD policy lies with the National CDD Committee, which, due to irregular meetings, has had difficulties functioning. The current CDD policy is limited to the supervision of diarrhea case management in health centers. The document developed for case management includes quantities of liquid to administer according to the treatment plan and guidance on how to treat complications related to diarrhea. No mention is made of the non-effectiveness of anti-diarrheal drugs. The document also fails to discuss the importance of nutrition, but the program is currently working to identify types of food to recommend for children with diarrhea.

The need to develop a national policy containing statements on case management at home and in health facilities, and on prevention of diarrheal diseases, including cholera, was stressed at the first meeting of francophone Africa CDD program managers, held in Niamey from November 23-26, 1992. The issue was taken up at the April 1993 CDD departmental managers meeting in Tahoua. During this meeting, a draft national CDD policy was prepared. Since April, the amended CDD policy has been circulated to different divisions of the MOH involved in CDD.

Despite the lack of a comprehensive CDD policy, national ORS and cholera control policies were adopted in 1991.

The CDD program plans are developed by the CDD coordinator and the National CDD Committee, assisted by the PRITECH representative. Preliminary discussions are held with each of the donors involved in the program (principally UNICEF, WHO, the World Bank, and USAID) to present activities planned and avoid duplication of activities, and to gauge the level of support likely from each donor. Each regional CDD coordinator is required to present a plan for CDD activities in his region. After discussion with regional colleagues and partners (PVOs, etc.), attempts are made to ensure that regional needs are included in the national annual plans. However, delays in the submission of regional plans have often meant that only general provisions could be included in the national plan. A benefit of the coordination amongst donors and the MOH

is that in cases where one donor has difficulty making funds available, another donor may be able to step in at short notice to finance the activity.

A five-year plan for 1989 to 1993 was developed as a follow-up to a 1988 overall evaluation of the CDD program. From 1989 to 1992, annual action plans were developed, taking into account activities already planned and the needs of the regions as expressed by representatives during bi-annual meetings. In addition to devising new plans and reviewing the progress of previous plans, the bi-annual CDD departmental coordinators meetings are used as a forum for the discussion of specific topics such as supervision, ORS supply and distribution, and integration of health interventions.

Constraints

An important observation of central-level planning is that the CDD program workplans are often unrealistic, resulting in the inability to reach activity goals. On the other hand, overly ambitious workplans have allowed for flexibility when planned activities are unexpectedly blocked. Workplan objectives may not be met, in part due to insufficient manpower in the CDD program office as well as in cooperating MOH departments, and because of delays in obtaining and dispersing CDD program and USAID/SDS funds. For example, the position of deputy CDD program manager remained unfilled throughout 1988, demonstrating the lack of importance placed on CDD by the MOH. Furthermore, in 1989 the MOH removed the CDD program manager from the CDD program and used him to fill the position of another MOH official for several months. Throughout this period, the PRITECH representative worked closely with the other program staff members to promote efficiency in the program office, and more efficient teamwork began in 1991. The dispersion of funds was delayed while the MOH attempted to provide USAID with the identification numbers of health personnel to be trained, information required prior to USAID's disbursement of funds.

Despite efforts to ensure good program planning, planning remains a problem, primarily due to a lack of coordination between the different levels of implementation. Exclusion of the operational level from the planning process has hindered effective implementation. In addition, departmental coordinators are supposed to meet monthly, but actually meet only about six times a year. It is also difficult for the departmental coordinators to integrate CDD into their programs due to demands stemming from other vertical programs such as family planning, maternal/child health, and immunization. These problems are less pronounced in departments with special funding, usually from UNICEF, which allows funds to be disbursed and activities to begin without passing through the central level.

III. SPECIFIC ACTIVITIES

(1) Case management and training.

- (a) Initial CDD training of health workers and allied workers was done in 1986 and 1987 with three- and six-day seminars. Supervisory visits and the 1989 HFS demonstrated that further training was needed.
- (b) From 1988 to 1989, technical forms were developed to help health workers assess and treat diarrhea according to WHO guidelines. In addition, in 1989, PRITECH worked with the Quality Assurance Project (formerly PRICOR) in developing diarrhea-related questions to assess village health worker practices and to develop protocols for correct case management.
- (c) In 1990, a second round of training targeted health workers and centered on correct case management and health education. To ensure the best training possible, PRITECH held two TOT courses in 1989. The national program then attempted to send at least one person to each department to observe the training courses.
- (d) From 1989 to 1992, the CDD program led training courses targeting health personnel, social action personnel, supervisors, teachers in public health schools, and program managers from different levels. After two TOT courses (Niamey and Zinder), nearly 800 personnel from different ministries have received training in diarrhea case management. This figure represents 43 percent of the training target group.
- (e) In 1991, PRITECH helped develop a complete case management checklist to help health workers diagnose diarrhea; however, workers were not convinced of its usefulness and the checklist often went unused.
- (f) In 1993, PRITECH funded a week of CDD/ARI (acute respiratory infections) case management training for a small group of health workers employed by privately-owned companies, workers who are typically excluded from the continuing education provided by the government. This group was targeted for training because they provide health care to company employees and their families. Objectives of the training were to increase the number of health care providers practicing correct case management according to WHO modules and to decrease the number of unnecessary prescriptions of anti-diarrheal drugs.
- (g) PRITECH has worked for several years on the establishment of ORUs in the eight health regions. To date, ORUs have been established in the regions of Niamey, Zinder, Diffa, Dosso, Tahoua, Tillabéry, and Maradi. Only the region of Agadez

lacks ORUs, primarily due to civil strife which has prevented travel to the region by the CDD program team.

(h) The PRITECH representative has helped train Peace Corps volunteers in CDD.

Achievements/Status. Forty-five percent of supervisors have received supervisory skills training through a course held in Dosso in 1989. A CDD program managers' training course, in 1992, reached 18 of the 49 regional program managers.

Since 1989, two nursing schools have been using CDD training modules developed by the Sahel Regional Office.

Nearly 95 percent of the teachers at the two schools of public health have participated in a training course to improve the quality of CDD education and also to help integrate the teaching of CDD into pre-service training institutions.

The process of integrating CDD education into the schools has been underway since 1989 with the development of training materials and training in the use of these materials. CDD has been introduced into the medical school by a pediatrician who is a member of the National CDD Committee, using WHO diarrhea training unit (DTU) materials. Forms for the assessment and follow-up of patients have been used in training courses and have been distributed to all health facilities. The program has also distributed the diarrhea treatment policy covering acute diarrhea, dysentery, and diarrheas due to other pathologies in the form of laminated cards.

Overall, 817 health workers have been trained in seven departments between 1989 and 1992, corresponding to a 43 percent training coverage rate.

In terms of overall status, the impact of the training courses for health personnel was evaluated during the May 1992 HFS financed by PRITECH, which revealed several important points:

- 41 percent of health personnel interviewed had been trained in CDD.
- 25 percent of trained health personnel had treated a child diarrhea case during their training.
- 69 percent of personnel correctly evaluate diarrhea.
- 25 percent of trained health workers report that they have had the opportunity to practice what they were taught during the training course.
- 77 percent of health facilities have health personnel trained in diarrhea case management.
- 69 percent of health personnel perform correct assessment of diarrhea cases.
- 76 percent of cases are correctly rehydrated.
- Only 32 percent of cases of dysentery are correctly treated.

- 32 percent of mothers receive appropriate advice from health workers.
- 59 percent of health facilities have received a supervisory visit in the past 12 months.
- Only 41 percent of health personnel interviewed or observed correctly evaluate dehydration.
- 19 percent of patients receive anti-diarrheals.
- 32 percent of dysentery cases are correctly treated.
- 35 percent of mothers receive appropriate counseling.
- 27 percent of mothers were capable of correctly using oral rehydration therapy (ORT) at home.

Constraints. One of the main constraints was the delayed disbursement of funding promised for training. For example, training held in 1990 had been postponed for two years due to delays in the disbursing of the health sector grant.

There are several other constraints encountered in training activities including:

- insufficient supervision of training courses;
- planning of training courses for periods during which there are few diarrhea cases, limiting case management practice for participants;
- an absence of factors encouraging health workers to pass on knowledge and practices learned;
- a lack of follow-up on personnel trained;
- training which is too theoretical;
- weak training of village health workers (ESV);
- little transfer of skills by trained health workers to other health personnel;
- a lack of criteria for choosing health personnel to train; and
- difficulties in following the frequent transfers of health personnel from one post to another; personnel often move to jobs where CDD is not the focus.

Toward the end of PRITECH II, a CDD program team conducted supervisory visits to the ORUs in four health regions and determined that 50 percent of the ORUs visited were nonfunctional. The team used the following three criteria to determine whether an ORU could be considered functional: 1) personnel working in the ORU had been trained in appropriate case management; 2) personnel were following national CDD policy and used educational materials provided to them by the CDD program; and 3) there was an adequate supply of ORS in the ORU. An ORU was considered functional if it fulfilled two of the three criteria.

Future plans. The organization of training courses is to be revised, taking into account the recommendations of the CDD focused program review in the following ways:

- increase the number of training days allocated to practical work.

- plan training courses during the peak diarrhea season.
- revise the contents of the training to address existing shortfalls.
- encourage follow-up of personnel trained through a supervisory visit within three months of the training course.
- ensure better planning and organizing of training courses with clearly defined objectives.
- ensure that at least 50 percent of health workers have the opportunity to practice case management during training courses.
- train health workers to teach mothers appropriate home case management of diarrhea and preventive measures, according to the national CDD policy. Training priority needs to be given to chief pediatricians and head nurses at the DTUs and pediatric wards.
- emphasize the importance of training and supervision techniques to medical students.
- address the deficiencies of the ORUs in order to make them functional.

In addition, the CDD program plans to computerize and annually up-date all data concerning the training of health personnel by category and region.

- (2) **Supervision.** Each year the NCDDP schedules one supervisory visit to each department for a one to two-week period. The supervision team is made up of two members of the National CDD Committee and the department coordinator. The team visits the director of the health department, the regional health center, and two rural health centers in each arrondissement. Whenever possible, village health workers and mothers are interviewed to evaluate their knowledge about ORT. Due to funding shortages, these supervisory visits are sometimes blocked.

Frequently, the PRITECH representative would be the program staff member participating on these supervisory visits. These visits were important for assessing the program's progress at the health center level. The teams observed case management, ORS stock, and use of drugs.

The organization and the objectives of supervision were revised following the 1988 WHO/CDD program evaluation. Supervision of the CDD program has been highly centralized and since 1990, supervision has been carried out mainly by the central level. This is mainly because the resources needed for supervision have not been made available for decentralized supervision at the regional level. Regional staff have had little involvement in the follow-up of the program's activities in the field, outside their participation in visits initiated by the central level.

Achievements/status.

- A supervisory checklist was developed, tested and used by supervisors at the regional and central levels.
- Central-level supervision has been achieved from one year to the next as planned. Since 1990, regional-level supervision has not been carried out due to funding constraints.
- Supervision reports have generally been completed. Feedback has been given to health personnel immediately; however, there has not been a structure of follow-up for recommended short and mid-term actions.
- A supervisory skills training course covered 45 percent of national and regional supervisors.
- A plan to decentralize supervision was launched at the most recent bi-annual meeting of regional coordinators at Tillabéry in September 1992.

Constraints. The most significant constraint to supervision at both the regional and village health worker levels has been the lack of funding. The impact of the supervisory skills training is difficult to evaluate considering the small quantity of supervision taking place.

Future plans. Following the recommendations of the francophone CDD program managers meeting held in November 1992 and the FPR of December 1992, supervision will need to be decentralized and progressively integrated with other child survival programs. By the end of 1993, the program is to develop a supervisory checklist which integrates CDD with the ARI and malaria programs. The checklist is also to serve as a planning and management evaluation tool for all levels of the health structure.

- (3) **ORS supply and distribution, and the role of the private sector.** With the exception of four private pharmacies in Niamey which have a license to import drugs, all pharmaceutical products in Niger are channeled through the Office National des Produits Pharmaceutiques et Chimiques (ONPPC), a parastatal reporting to the MOH. The ONPPC imports and distributes pharmaceutical products and produces a few essential drugs such as metronidazole, IV solution, aspirin, chloroquine, and ORS. The NCDDP policy does not include a strategy for the private sector, as there are few health-related commercial sector companies. PRITECH has worked with the ONPPC to convince it to distribute and market ORS as though it were a private company, appealing to ONPPC's desire to increase sales and improve distribution.

ONPPC has produced ORS packets locally since 1987. Currently, packets are sold for 35 CFA to the MOH, to the national pharmacies, and to private drug sellers. Between 1987 and 1992, packets cost 25 CFA apiece. The price was increased in 1992 after the packets were redesigned and citrate bicarbonate in the ORS formulate. Packets are distributed free of charge at health centers; national pharmacies sell ORS for the same 35 CFA, but private drug sellers determine their own price.

The ONPPC has a history of running out of raw materials and of equipment breakdowns. In 1990, production was down for two months due to lack of raw materials, and for a third month due to equipment breakdown. In 1991, the equipment broke down again for two months forcing the ONPPC to import 100,000 packets from France to ensure an adequate emergency stock during the cholera epidemic which hit Niger in 1991. In 1991, the average daily production of ORS by ONPPC was 8,000 packets a day.

At the time of PRITECH social marketing specialist's first visit to Niger in 1989 to discuss the idea of a marketing strategy for ORS packets, ORS was packaged in sachets too large for the amount of powder, and with generic labelling. In the same year, the PRITECH-funded HFS results revealed the presence of ORS packets whose contents had been ruined by improper sealing. Following acceptance by the National CDD Committee, the ORS packets were reduced in size to fit the powdered salts necessary to make 1-liter of solution, thus saving up to 25 percent on the cost of aluminum foil. The label was redesigned with assistance from the Program for Appropriate Technologies in Health (PATH), and pictorial instructions added. The recommendation of switching from bicarbonate to citrate formula was also accepted and production began in March 1991. The social marketing specialist returned in 1990 and assisted the national program, the Health Education Division, and the ONPPC with the development of a marketing campaign.

PRITECH's social marketing specialist continued to work with ONPPC, developing a marketing plan to take advantage of available opportunities, especially in the rapidly increasing private sector. He also undertook the training of an ONPPC detailer. USAID/PRITECH purchased a motorcycle to assist the ONPPC detailer's ORS promotional efforts; however, rather than promote ORS exclusively, the ONPPC detailer was using the motorcycle to promote other ONPPC products as well. According to the PRITECH representative, the detailer did not have the necessary printed materials to promote ORS (the printer of the materials lost the originals and the work had to be redone, taking approximately one year). The PRITECH representative observed that additional training of the detailer is needed in order to promote ORS effectively.

PRITECH also conducted an informal study of the supply problems between the ONPPC and the health centers. The study revealed that health facilities have inadequate budgets for medicines and that ONPPC does not deliver all the packets ordered. For example, in 1989, ONPPC only distributed 89 percent of packets ordered by health facilities.

Since 1989, by maintaining contact with ONPPC, the CDD program has successfully assured a regular production of ORS packets as well as a permanent reserve stock in order to cope with future needs. However, distribution continues to be problematic, especially at the periphery of the health system where stock-outs occur most often. In addition, ONPPC has internal distribution problems which make delivery to the public health system problematic. This is compounded by the fact that, as a distributor to both the private and

public sectors, ONPPC appears to favor distribution to private organizations that pay for goods in cash upon delivery, whereas payment by the MOH is not immediate.

Achievements. The PRITECH representative initiated monitoring of ORS supply and delivery data to evaluate supply activities. Regular monitoring visits by the national program are scheduled three times a year. ORS production has steadily increased; from January to November, 1992, ONPPC produced more than 900,000 packets. A reserve stock, varying from 300,000 to 500,000 packets, currently exists. The CDD program has promoted the rational supply and use of ORS packets by proposing methods to calculate stocks, standards for using ORS and for maintaining a reserve stock.

The May 1992 PRITECH-funded HFS showed that 42 percent of health facilities have a sufficient stock of ORS; 35 percent have some ORS but the stock is insufficient; and 23 percent were experiencing complete stock-outs of ORS. Although the insufficiencies are significant, these figures represent an improvement over the 31 percent stock-out rate being experienced by health facilities at the time of the 1989 HFS.

Constraints. A regular supply of anti-diarrheal drugs (imported by ONPPC) continues, fueled by a high level of prescriptions. Niamey and Tillabéry are the two areas where anti-diarrheals are most commonly prescribed.

The distribution network for ORS from the health districts to the rural dispensaries is non-functional and depends to a great extent on the resolve of the chief of the health district to ensure distribution. For example, during the CDD program evaluation, it was discovered that some heads of rural dispensaries had never received ORS packets.

During the 1991 cholera epidemic, donors imported large quantities of ORS instead of buying them locally from ONPPC. In the event that there is an excess supply of packets available after the epidemic, demand for ONPPC packets may decrease.

Future plans. It will be necessary to continue to monitor the production and the distribution of ORS by ONPPC, and to promote ORS while establishing a clear policy concerning anti-diarrheals. One option is to work with the Pharmacy Directorate in the MOH to revise the list of importable drugs to eliminate some of the anti-diarrheal drugs currently imported and used in Niger.

(4) **Information, education, and communication.**

- (a) From 1985 to 1986, the CDD program developed and distributed educational materials and aired radio and television spots on sugar-salt-solution (SSS). New ORS promotional materials and a marketing strategy were developed in 1988 which included radio and four television spots (one on SSS and one on ORS, each in Hausa and Djerma languages). After pre-testing and minor revisions, the spots

were ready for broadcast in 1989. However, due to the exorbitant costs of air time set by the government, the World Bank and UNICEF refused to fund this activity. Approximately two years later, a more acceptable price was negotiated and new television spots were developed and aired from October 1992 until the cooler season in January and February when diarrhea cases are fewer. Another broadcast of the television spots has been scheduled for the fall of 1993.

- (b) The CDD program, with PRITECH assistance, has strengthened the communication section of training courses for health personnel following the recommendations of the 1989 HFS and a study on the use of health education materials carried out by PRITECH in 1990. Since that time, materials have been consistently distributed in order to assist health personnel in the important task of interpersonal education. In addition, in the regions of Maradi, Tahoua, and Tillabéry, ORS awareness campaigns have been launched in the form of tours and plays.
- (c) In 1993, PRITECH collaborated with UNICEF in the development of an animation guide to assist health workers in their discussions with mothers regarding correct nutritional case management of children with diarrhea. The guide was pre-tested with the assistance of village health workers in charge of nutritional education.
- (d) PRITECH had planned to undertake a handwashing campaign in Niger. Although PRITECH was ready to provide technical assistance, a non-governmental organization (NGO) willing to undertake this activity could not be found.

Achievements. PRITECH has been successful in the development, distribution, and broadcast of educational materials and the evaluation of these efforts, which led to the revision of radio and television spots by the CDD program. However, as mentioned above, the high cost of air time has been an impediment to the dissemination of these important messages.

Constraints. IEC activities deserve particular attention as they must address statistics such as the following, highlighted in the 1992 HFS:

- The ORT use rate at the community level is only 17 percent.
- 43 percent of mothers give an increased amount of liquid.
- The rate for continued feeding is 38 percent.
- 35 percent of mothers were correctly advised by health personnel.
- The combined infant and child mortality rate is one of the highest in the world, higher than 300 deaths per 1,000 live births.
- Access to effective case management is only 19 percent despite a relatively high number of health facilities.

- ORT is still not well accepted, especially in rural areas where traditional medicine is more popular (only 13 percent of mother in rural areas use ORT versus 41 percent in urban areas).
- Only 6.9 percent of women are literate in Niger according to the 1988 census.

The following additional constraints are noted, based on PRITECH's experience with IEC activities in Niger:

- Training at the beginning of the program preceded the development of educational materials and participants therefore did not learn how to use the materials.
- The instructions which accompany the educational materials have not proved to be strong enough to assure correct use; health personnel were not trained in the proper use of educational materials.
- Collaboration with the Health Education Service has at times been difficult.

Future plans.

- Messages should be revised with the goal of promoting correct home case management.
 - The active promotion of SSS should cease and increased administration of liquids, continued feeding, and caretakers' knowledge of danger signs should be emphasized. (Recommendation drawn from the 1992 WHO/CDD program review.)
 - Messages to prevent diarrhea should emphasize the promotion of breastfeeding, correct nutrition for the child, and immunization, particularly the measles vaccination.
 - Educational material should be based on the above key messages; responsibility for developing this material will be with the national Health Education Service.
 - The CDD program will encourage the implementation of regional IEC plans based on analysis of local realities.
- (5) **Nutrition.** The PRITECH representative has worked in collaboration with the MOH nutrition division to develop an educational strategy. In 1991, a nutrition expert was added to the National CDD Committee.

The low feeding rate during diarrhea in Niger has been an area of concern for PRITECH. During the 1991-1992 period, PRITECH hired consultants to conduct research in Niger in order to evaluate the nutritional value of three traditional weaning foods (koko, fura, and tuwo), to collect recipes and examine them for their nutritional value, and to develop four new recipes to fortify these traditional foods. The recipes developed were found to be nutritionally adequate for children ages six months to two years, and a follow-up survey found that mothers accepted the new recipes.

The studies have prompted the development of an animation guide to assist health personnel in their communication with mothers regarding appropriate case and nutritional management of a child with diarrhea.

Constraints.

- To date, the continued feeding rate is a very low 38 percent.
- As part of interpersonal education between health worker and mother, health education for feeding and nutrition is still far from adequate.
- A national policy for feeding and nutrition for children has not yet been well defined.
- Coordination with the Nutrition Division is still strained.

Future plans. IEC activities should be supported by education materials targeting mothers and health workers. Communication aids will take account of the different recommendations resulting from studies carried out in Niger and also from the Conference on Infant Feeding held in Lomé, Togo in September 1991. The IEC and nutrition sections in training should be strengthened and include training in the use of the new educational materials.

- (6) **Cholera control.** The department coordinators have been responsible for cholera control activities. A cholera epidemic hit in March 1991, with 3,000 cases over the course of that year and a case fatality rate of 11 percent. In response to the epidemic, a National Cholera Control Committee was established which developed a policy and a two-year workplan. Supervisory visits to departments experiencing cholera were given priority. Other initiatives include PRITECH's January 1992 support for the attendance of several Niger CDD departmental coordinators at the WHO intercountry cholera coordinating meeting in Cotonou, Benin, and PRITECH's work with donor agencies such as UNICEF and WHO to ensure a sufficient stock of medicines and ORS, and to encourage water purification.
- (7) **Evaluation and research.** PRITECH has undertaken, or participated in, several evaluation and research activities:
- (a) The PRITECH representative worked with the designers of the national health information system beginning in 1988. However, this system took years to become functional.
 - (b) The PRITECH representative assisted the Quality Assurance Project in developing diarrhea-related questions for interviewing village health workers.
 - (c) In 1992, the NCDDP was evaluated for the second time, using the focused program review methodology of WHO. The comprehensive review described the

status of various aspects of the CDD program (planning and management, supervision, IEC, training, etc.) and underlined the CDD program's need to: 1) draft a CDD plan of operation for 1993 to 1997, incorporating recommendations from phase I; and 2) assure the collective operationalization of the policy of decentralization.

- (d) In 1989 and 1992, health facility surveys were carried out, permitting an evaluation of the impact of case management training.
- (e) In collaboration with the Tufts University Epidemiology Project, in 1991 PRITECH funded a comparative study of persistent and acute diarrhea. The only study of its type done in Africa to date, the study examined 200 children under age five seen at maternal and child health centers in Niamey in order to assess the importance of persistent diarrhea, identify the types of treatment administered by mothers and health workers, and identify risk factors. The study found that an estimated 6 percent of diarrheal episodes in Niger are persistent. Persistent diarrhea was more common in malnourished children and infants aged 7-24 months. No differences were observed in treatment, but mothers tended to give more food to children with persistent diarrhea.
- (f) PRITECH carried out an ethnographic study of Hausa practices and beliefs in the areas of feeding, weaning, and diarrheal disease. The qualitative study concerning possibilities of enriching traditional weaning foods was followed by a nutritional analysis of the indicated recipes.

Achievements/status. The results of the demographic and health survey (DHS) and the HFS show that the combined infant and child mortality rate in Niger is among the highest — one in three children in Niger die before reaching the age of five. Other health indicators evaluated are extremely low, including the ORT use rate (17 percent), despite widespread knowledge about ORT. This rate is particularly low in rural areas. The case management survey determined that only 27 percent of mothers are capable of correctly administering ORT at home. The persistent diarrhea study represents the first completed study on this subject in Niger and provides important groundwork for future actions in this area.

Constraints. Difficulties encountered by the program are related to a low ORS access rate for the population, the often incorrect preparation of SSS, and the non-functioning of the village health teams. Available information is not always appropriately used to make decisions and revise strategies for training and supervision of health personnel or for health education directed at mothers.

Future plans. Future plans in this area include:

- testing of the recipes decided upon for the improvement of the nutritional status of children with diarrhea.
- a research project concerning integrated supervision (CDD-malaria-MCH programs) of the village health teams has not yet been completed. The next step is to train the health personnel working at the periphery in the use of the supervision checklist and guide.
- undertake a study concerning liquids traditionally given for rehydration in the home.
- undertake a feasibility study for the widespread sale of ORS.
- initiate a study on the possibility of improving the taste of the ORS solution produced.
- adapt and perform a clinical test of the treatment algorithm for case management of persistent diarrhea.

IV. LESSONS LEARNED

- (1) **Diarrhea epidemiology.** Diarrheal diseases represent the third principal cause of morbidity, and the fourth leading cause of deaths registered at public health facilities for children under five years of age.

The prevalence of persistent diarrhea has not yet been evaluated except in the CSMI in Niamey (the thesis on persistent diarrhea) and this rate was 6.1 percent. The DHS survey should provide incidence rates at the community level. The prevalence of dysentery, according to the 1992 HFS, seems worrisome since 37 percent of diarrhea are described as "bloody," and more so since only 32 percent of dysentery cases are correctly treated. Dysentery should be an area for consideration for future activities, including the development of a persistent diarrhea/dysentery treatment algorithm.

The last cholera epidemic (1991) resulted in 3,000 cases with a particularly high fatality rate of 11 percent. Cholera has become endemic in two arrondissements of Maradi, neighboring Nigeria.

Taking into account these factors, the CDD program should prioritize and strengthen the following areas:

- correct diarrhea case management at home and in health centers, with an emphasis on the correct treatment of dysentery, and the assessment and case management of the nutritional status of children with diarrhea; and
- the reduction of the transmission of infectious organisms by the availability of drinkable water, hand washing with soap, and the promotion of exclusive

breastfeeding at least to the age of 4 months. Measles vaccination should be considered as a useful method to help prevent diarrhea and acute respiratory infections.

- (2) **Program sustainability.** The sustainability of the Niger CDD program is not possible at this time given the level of both financial and technical support provided by PRITECH and its representative. Due to the weakness of the MOH's CDD program team mentioned earlier, the PRITECH representative's managerial skills have also been crucial to the implementation of activities. Dependence upon outside financial assistance, combined with the verticality of interventions, work against the success of the program. Furthermore, the effectiveness of PRITECH's assistance has depended upon the determination of the head of the program to make use of this assistance within the scope of work intended.

Efforts at decentralization undertaken by the program since 1987 have been limited to the installation of regional CDD coordinators, supported at times by committees which have not functioned well. At the most recent meeting of regional coordinators, the decision was made to assign more decision-making power to the level of the arrondissement (sub-division) for planning, implementation, and evaluation of activities. With this goal in mind, the chiefs of the health districts have been trained in management, and the supervision of the rural dispensaries by the chiefs of the health districts should be supported technically and financially.

Elements which are key to the success of the CDD program in Niger include:

- a well-defined national policy, with universal distribution.
- realistic planning of activities, taking into account the needs expressed by the different levels of the system, and available resources.
- practical training and follow-up of health personnel.
- sustained IEC activities using the most appropriate channels and means.

Although the 1992 WHO/CDD FPR underlined a number of major difficulties, continued support for the CDD program remains critical. The following points argue for continued support for the program.

- A national health development plan is currently being finalized and could serve as the ideal vehicle for supporting the integration of CDD activities within a standardized "minimal health care" package together with ARI and malaria. This plan could also help to strengthen the decentralization of the program's activities.
- A collaborative workplan has been developed with the public health schools focusing on the organization and the content of courses, and is waiting for implementation.

- There is a need to establish and distribute a national policy which includes all the aspects of diarrhea case management and cholera, both in health facilities and in the home.
- Work has begun to target other health care providers, particularly pharmacy and drug depot managers.

Finally, an additional factor related to program sustainability which should be reviewed is the level at which USAID assistance should be provided in the future. Currently, the PRITECH representative works with the national-level program, covering a wide range of topics within CDD for eight health regions. The experience of other projects has demonstrated the benefits obtained by working at, and supporting the operational levels of the health system. The PRITECH representative has observed that the impact of interventions in CDD could be greater if efforts were concentrated in one or two regions rather than nationwide.

- (3) **ORS supply and distribution.** Given the significant number of health facilities, particularly at the periphery of the health system, which are experiencing shortages and stock-outs, additional efforts should address ORS distribution problems. In addition, given the low usage rate of ORS and ORT despite an overall 79 percent access rate to ORS through the public and private sectors, additional research is needed to determine the reasons behind the low rates, and IEC efforts should be implemented to address them.
- (4) **Integration with other child survival programs.** A "minimal health care" package has been defined and will be implemented on an experimental basis with support from UNICEF; the malaria and ARI programs are involved. Programs using this approach will work to integrate training manuals and will develop an integrated supervisory checklist.
- (5) **PRITECH management issues.** The role of supervision from the PRITECH regional office could be clarified for the MOH. Although it is perceived as helpful, there appears to be a lack of understanding as to how the system works.

The sharing of experiences of the Sahel country representatives has primarily taken place through the staff of the Sahel Regional Office in Dakar. More frequent contact between PRITECH representatives within the same region would permit the firsthand exchange of experiences and foster greater collaboration in areas of mutual need.

PRITECH PAKISTAN PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

The PRITECH project started working in Pakistan in 1985. In 1988, PRITECH established an office and stationed a long-term resident representative in Pakistan. PRITECH's activities in Pakistan evolved gradually in response to demands and needs as an interim measure until the activities could be handled by the Pakistan Child Survival Project (PCSP).

Initially, the National Institutes of Health (NIH), which has the federal responsibility for the immunization (EPI) and diarrheal disease (CDD) programs, requested PRITECH to provide short-term, technical assistance to develop a curriculum for training health workers, and a mass media campaign to promote oral rehydration salts (ORS). Following ICORT II, which highlighted the progress of Egypt's national CDD program (NCDDP), the national coordinator for the CDD program and the director of NIH, Major General Burney, decided to give a "big push" to the CDD program. The World Health Organization (WHO) CDD director from Geneva, Dr. Michael Merson, was asked to design a program. Working with PRITECH's technical director, Dr. Robert Northrup, he established a broadened program concept which encompassed the elements of a comprehensive national strategy. As part of the USAID effort, PRITECH was asked to collaborate with WHO and UNICEF in helping to organize Pakistan's national program. PRITECH recruited a country representative, Dr. Lucia Ferraz-Tabor, to work with the national program manager, Colonel Akram.

The country representative's initial activities were focused on mass communications. However, the PRITECH representative was soon asked to play a broader role, assisting the program manager with program planning and collaborating with Pakistan's well-organized EPI program in teaching case management to families. Two years later, Management Sciences for Health (MSH) experts Jon Rohde and Rob Northrup developed the objectives and basic principles for a more intensive CDD effort focused on the medical establishment, the national diarrhea training unit (DTU) program.

Training

PRITECH's main foci were to assist the national program and the provinces to set up DTUs for training health personnel from hospitals and major rural health centers (RHCs) and to assist the provinces with follow-up and on-the-job training. In addition, PRITECH sponsored a number of breastfeeding workshops and seminars. PRITECH also sponsored a number of oral rehydration therapy (ORT) workshops for the commercial sector.

Communications

PRITECH was asked to assist the national program with the development of an ORT leaflet for mothers, focusing on the preparation of ORS with four glasses of water instead of the two glasses used previously. Other communications work followed, including leaflets and posters to be used by health workers to teach parents about ORT. Television and radio spots were also developed for this subject.

Management Information Systems and Computerization

PRITECH collaborated with the NCDDP and WHO in the development of forms, registers, and checklists to be used during training. These forms were also used by the DTUs and other health facilities to collect information. A database was created to keep track of the individuals trained by the DTUs and health facilities assisted by the project. Additionally, PRITECH assisted USAID with the installation of computers in the ten DTUs. PRITECH's computer experts trained staff from the NIH and the DTUs in the use of the computers.

Breastfeeding

As a member of the National Breastfeeding Steering Committee (NBSC), PRITECH collaborated in the development of the national breastfeeding policy. PRITECH assisted the NBSC by conducting breastfeeding seminars for hospital administrators and holding meetings for federal and provincial health officials. PRITECH sponsored and conducted qualitative research on breastfeeding in collaboration with the NBSC and the Manoff Group.

Commercial Sector

PRITECH's newest area of activity, formally added to the project in early 1989, was to work with the commercial sector. PRITECH acted as a facilitator and a catalyst to motivate existing ORS producers to increase production, widen distribution, and to promote ORT was defined as ORS together with breastfeeding and feeding. PRITECH facilitated interaction between the commercial and government sectors. Most recently, PRITECH concentrated on convincing companies with wide consumer distribution networks to join the ORS marketing effort because pharmaceutical companies are limited to medical store distribution systems.

PRITECH had a strong impact on CDD program activities in each of the above areas. Perhaps the most noteworthy result of PRITECH's efforts in Pakistan was in the commercial sector; ORS sales dramatically increased by over 50 percent in 1990. PRITECH was a major organizational and financial force supporting the national DTU and training effort, and the principal contributor to the CDD program's educational campaign.

II. THE NATIONAL CDD PROGRAM

Training and Support for Diarrhea Training Units (DTUs)

At the time of PRITECH's intervention, it was found that health facilities and physicians in Pakistan often unnecessarily used intravenous rehydration for patients who were not severely dehydrated, and a number of physicians prescribed anti-diarrheal and anti-motility drugs which were either useless or harmful to children. Physicians often prescribed antibiotics for diarrhea patients who did not need them; the indiscriminate use of antibiotics has led to widespread drug resistance. Physicians and health workers often failed to spend time educating parents about ORT. As a result, the same children kept returning to health facilities with diarrhea and dehydration which could easily have been prevented in the home.

To respond to these challenges, in March of 1989 the Government of Pakistan launched a nation-wide DTU project. The initial phase of this project was funded by USAID's Primary Health Care (PHC) Project. Pakistan's DTU approach represented a pioneer effort; a nation-wide integrated program which combined assistance to health facilities in terms of facility and treatment assessment, supply of equipment, hands-on training of medical personnel, education of mothers, follow-up assistance, and on-the-job training in the health facilities. This strategy also formalized the cooperation between medical teaching colleagues and the provincial health departments.

During the initial phase of the DTU project the following ten major hospitals affiliated with medical schools were selected to become DTU:

- Sandeman Hospital, Quetta
- Mayo and Lahore General Hospital, Lahore
- Rawalpindi General Hospital, Rawalpindi
- Nishtar Hospital, Multan
- Children's Hospital, Islamabad
- Lady Reading and Hayat Shaheed Hospitals, Peshawar
- Civil Hospital and Jinnah Postgraduate Medical Center, Karachi

Each DTU assisted approximately five hospitals or major referral centers every six weeks in establishing DTUs or ORT corners. This assistance involved a pre-training assessment of the health facility selected, training of one physician from each health facility at the DTU, provision of basic ORT equipment and minor repairs to the health facility, follow-up assistance with implementation, and on-the-job training of staff in the health facility.

PRITECH's role was to collaborate with the federal and provincial health officials and the DTUs to plan and implement this effort. PRITECH also coordinated training, equipment procurement, and delivery with the USAID/Pakistani logistics contractor. Collaborating with the NCDDP, WHO, and UNICEF, PRITECH provided technical assistance and training materials to the DTU effort. PRITECH worked with the DTU effort from March 1989 through June 1990.

In collaboration with NIH and the officials within the four provinces, PRITECH assisted with the establishment of the DTUs in medical schools through which the following categories of health workers were trained:

- 610 physicians from government health facilities
- 381 private practitioners
- 96 paramedic tutors
- 40 paramedics

As part of PRITECH's assistance, 191 hospitals and 188 rural health centers were supported. This effort included the training of one physician from each health facility selected, provision of basic ORT equipment, and follow-up visits from the DTU physician and provincial supervisor.

PRITECH also collaborated in the development of training materials to be used by the DTUs, including:

- curriculum and materials for training physicians in the DTUs;
- follow-up training module used by physicians to conduct on-the-job training of medical and paramedical personnel in their health facilities; and
- clinical forms, checklists, and guidelines used for training, as well as for routine use in some DTUs.

PRITECH videotaped training presentations and sessions that were considered to be of particular interest to workshop participants. Some DTUs have used these videos to supplement the core training materials.

- Video on the problem of diarrheal diseases and approaches such as ORT, with particular focus on feeding (Jon Rohde)
- Video on nutrition during diarrhea (Dr. Fehmida Jalil)
- Video on community visit (Dr. Fehmida Jalil)
- Video on use and misuse of drugs for diarrhea (Dr. Ghaffar Billoo)

IEC and Print Materials

Before PRITECH began collaborating with NIH, a great deal had already been done in the communications effort, particularly at the interpersonal level, by EPI outreach teams. However, there was a need to develop a more coordinated communications approach to increase the probability that the target audience would understand and appreciate these media.

PRITECH supplemented the audience research already available with relevant qualitative research, including tape-recordings of in-depth interviews and focus group discussions. These tapes were used for two purposes: 1) as part of the research itself, to provide greater understanding of the reasons for peoples' actions and beliefs; and 2) to use the rationale, expressions, and words of the

target audience in materials developed for similar groups. Materials were extensively pre-tested and revised according to pre-test results.

PRITECH provided assistance to the NCDDP in the production of following television spots:

- Two spots concerning ORS preparation and administration, and feeding during diarrhea. One spot uses puppets and the other uses people; the dialogue and action in both spots is the same. Pre-test results showed that low-literacy mothers preferred the spots using real people, although understanding was the same for both.
- Four spots on dehydration and rehydration, breastfeeding and feeding during and after diarrhea, signs and symptoms of dehydration, and the magnitude of the problem of diarrhea and what to do about it.
- Although the production of additional spots was not in PRITECH's scope of work, in response to a request from NIH and USAID, PRITECH worked with a well-known Pakistani producer to develop five new spots concerning ORS availability in shops other than medical stores; administration of ORS; feeding during diarrhea, breastfeeding, and handwashing.

Programs produced for the radio included eight short radio spots in Urdu and indigenous languages, and 18 five-minute question and answer radio programs for the "Ask the Doctor" series. Topics for the "Ask the Doctor" programs included dehydration and rehydration, feeding during and after diarrhea, prevention of diarrhea, breastfeeding, and the dangers of using drugs to stop diarrhea.

Print materials produced with PRITECH technical assistance and funding have included:

- development and testing of ORS packet design for the NCDDP.
- development of a leaflet for low-literacy mothers; posters and fold-out leaflets to be used by health workers to explain the messages contained in the mothers' leaflet.
- poster for health facilities on ORT. These posters are used by health workers to explain ORT and diarrhea prevention to mothers.
- growth chart poster.
- wall calendar for physicians with messages on the magnitude of the problem of diarrhea and what to do about it, rehydration, and feeding during diarrhea.
- pamphlet for physicians emphasizing that ORS is one of the most important medical advances of the century. This pamphlet also highlights scientific research which shows that breastmilk and food are needed to speed up the recovery time from diarrhea episode.
- pencil holder for physicians containing the three key messages: breastfeeding, continued feeding, and fluids (including ORS).
- desk reference blotter and booklet for physicians.

- collage poster containing the prescription for diarrhea defined as ORS/fluids, breastfeeding, and continued feeding.

PRITECH also assisted with the development of materials for ORT centers, including:

- calibrated 1-liter plastic container with the ORS logo to be used in health facilities to measure water for ORS. An ORS cup with the logo and pictorial description of ORS preparation was also produced.
- mother's ORT chair with a place for the ORS cup described above. The idea for the mother's chair came from the Egyptian national ORS program.
- design of signs with ORT logo to be placed in the front of health facilities which offer ORT services.
- signs with arrows used as stickers to direct illiterate parents to the ORT centers.
- design of a clock with the ORS logo to be used in ORT rooms.
- ORT prescription pads for physicians and for DTUs.
- case management registers.
- poster of Pakistan's national diarrhea treatment policy.
- guidelines for the assessment and treatment of diarrhea in booklet and poster form.

PRITECH also collaborated in the development of the following point-of-sale (POS) materials to be used in pharmacies and shops:

- mobile for pharmacies and shops stating that top physicians prescribe ORS and containing a photo of all ORS packets available in the market.
- sticker for pharmacies and shops to be placed outside the shop to catch the attention of passers-by. Sticker says, "ORS is available here!"
- leaflet holder to be hung on the walls of sales outlets that carry ORS.

Private Sector ORS Production and Promotion

Efforts by the NCDDP to bring wider coverage of ORT use through government agencies were successful in raising awareness about ORS. In addition, the NCDDP distributed free ORS packets to parents in government health facilities and through its outreach and mobil immunization teams, to parents in villages throughout Pakistan. However, due to budgetary cuts, procurement of ORS by the CDD program went down from over 21 million packets in 1987 to 6 million in 1988, 3.4 million in 1989 and 10 million in 1990. Although some provinces began purchasing ORS, the quantity of ORS the government could make available to the public at no cost was not enough to meet the need. Furthermore, the reach of government services is very limited - only 26-30 percent of Pakistanis who seek health care go to government health facilities; the other 70 percent go to the private sector, which includes physicians, traditional healers, chemists, and others who prescribe or provide health services.

Based on the analysis of the existing situation and in close collaboration with USAID and the NCDDP, PRITECH developed four main objectives for working with the commercial sector: 1) the first and foremost objective was to develop a model which was largely self-sustaining from the very beginning rather than a model dependent on donor or government support; 2) PRITECH wanted to increase the demand for ORS; 3) PRITECH wished to convince companies to market ORS within the context of Pakistan's national diarrhea treatment policy which defines ORT as ORS/fluids plus breastfeeding plus feeding; and 4) PRITECH aspired to increase the awareness, availability, prescription and correct use of ORS for children through the private sector.

Although PRITECH willingly worked with any company requesting its technical assistance, the project targeted certain companies whose profiles promised the highest payoff, such as those having a detail or sales force making at least 5,000 detail or sales visits per month to doctors, pharmacists, and shops. The company had to agree not to position ORS with harmful products such as infant formulas and anti-diarrheals. Companies also agreed to a review of their promotional materials by the NCDDP, the Ministry of Health (MOH), top Pakistani pediatricians, and collaborating international agencies.

A broad spectrum of national and international companies participated in the ORT and related efforts, including pharmaceutical companies such as Searle, Wilson's, Woodward, Abbott, and Wellcome, and consumer goods companies including Lever, and four dairies.

PRITECH's role was to initiate this effort and to act as a catalyst, a "go-between," for the commercial sector and the government, and among commercial firms to try to start new partnerships. The project provided motivation and assistance with marketing plans, development and testing of promotional materials, and technical information to the collaborating companies. To keep companies up-to-date on the latest advances, PRITECH sent relevant journal articles, WHO updates, and the bi-monthly Technical Literature Update produced by PRITECH/Washington. The project also made available samples of ORS packets and promotional materials from other countries.

PRITECH assisted companies with marketing efforts in a number of ways:

- (1) **Market research.** PRITECH commissioned trade audits and consumer market indices, and made the data available to all interested companies. This information enabled ORS producers to modify and refine their marketing strategies.
- (2) **Workshops.** The NCDDP and PRITECH held workshops for ORS producers and consumer companies during which participants, using simulated data, developed marketing plans for ORS and identified problems which were later discussed with government health officials. Marketing plans developed during these workshops were generic; however, since the data used was very close to Pakistan's, these plans provided companies with blueprints which they could later use to develop company-specific plans.

- (3) **Technical assistance.** PRITECH collaborated with companies interested in conducting market research of their own. This collaboration was technical and did not involve funding.
- (4) **Matching funds for promotion.** If needed, PRITECH could make matching grants of up to \$10,000 per company for detailing and publicity materials for up to one year.

PRITECH encouraged companies to consider new and innovative approaches to supplying ORS:

- (1) **Liquid ORS.** Recognizing that several commercial dairies had more production capacity than needed, PRITECH and USAID contracted the Land O'Lakes Company to assist four Pakistani dairies in developing and testing a pre-mixed ORS that could be packaged and distributed by producers and marketers of milk products. The dairies received no financial assistance; the only funding requirement in this instance was the technical assistance provided by Land O'Lakes through a sub-contract with PRITECH, and later with USAID's Private Enterprise Office.
- (2) **Alternative ORS.** USAID'S Private Enterprise Office contracted Land O'Lakes, with PRITECH's collaboration, to develop innovative and lower cost packaging for powder and liquid ORS. Land O'Lakes developed the initial prototypes and, in collaboration with PRITECH, conducted consumer research to test the concepts. Initial findings suggested that Pakistani consumers were satisfied with the existing ORS product, thus the focus shifted to identification of lower cost packaging for powdered ORS.

The most noteworthy result of PRITECH's efforts in the commercial sector has been the dramatic increase in sales of ORS. Commercial sales of ORS increased by over 50 percent in 1990. The striking increase in ORS sales was not typical of the overall market of diarrhea medicines, nor did it happen in the case of any other drug used for diarrhea. On the contrary, from 1989 to 1990, sales of antibacterial drugs declined slightly. Motility inhibitors declined by almost 100 percent, but this was due to a government ban on anti-motility drugs in liquid form. Sales of intestinal absorbent increased very slightly. The market share of ORS in the diarrhea drug market went from 18 percent in 1989 to 29.2 percent in 1990, and the ORS share in value went from 9.7 percent in 1989 to 15.5 percent in 1990.

Commercial firms made a commitment to ORS and ORT in increasing and/or utilizing ORS production capacity and promoting ORT. PRITECH was involved in the following activities with commercial firms:

- ORS marketing project with Searle;
- collaboration with Woodward to develop a variety of ORS instructional and mixing materials, as well as promotional materials and activities;
- Searle and Woodward formed a partnership -- Searle to produce ORS for Woodward to market in both pharmaceutical and consumer markets; and

- six consumer goods companies conducted feasibility studies on marketing ORS.

The proactive and supportive role of Pakistan's NCDDP and the joint action by ORS producers were critical to the success achieved in regulatory matters. PRITECH'S role was to facilitate interaction among the private sector, government, and international agencies to change regulations that inhibited the production of ORS. As a result, sales of ORS, previously restricted to pharmacies, are now allowed on an over-the-counter (OTC) basis in all commercial outlets; and the import tax on printed foil is refunded when this foil is used for ORS.

Promotion of Breastfeeding

During the past two years, the Government of Pakistan has been working to address existing infant feeding practices that contribute to poor infant nutritional status and high infant morbidity and mortality rates. The root of the infant feeding problem appears to be that from birth, mothers supplement breastmilk with other liquids. Health care providers condone and often recommend this practice.

In 1988, seminars were held across the country to update health professionals on breastfeeding, particularly the need for early and exclusive breastfeeding from birth up to four to six months. As part of this activity, a literature review was conducted of all the Pakistan research related to early infant feeding. This review revealed a trend away from breastfeeding and a prevalence of certain practices that discouraged breastfeeding, but did not provide information on how mothers and others make decisions about child feeding.

PRITECH was a member of the National Breastfeeding Steering Committee (NBSC), participating with representatives of the Government of Pakistan, medical associations, and donor agencies in planning at the national level for the promotion of breastfeeding. PRITECH sponsored a number of seminars and workshops on issues related to breastfeeding. As a member of the NBSC, PRITECH collaborated in the development of the following:

- breastfeeding policies for hospitals and health facilities. These policies were approved by the MOH.
- design and printing of a poster (in Urdu) to promote breastfeeding.
- workshops and seminars to develop a national breastfeeding strategy for senior health educators, researchers, policy makers and municipal officials.
- breastfeeding seminars in four provinces (Punjab, Sindh, NWFP, and Baluchistan).

PRITECH sponsored and conducted a series of qualitative research projects concerning breastfeeding attitudes and practices with technical assistance from the Manoff Group, and in collaboration with a number of Pakistani organizations and universities which volunteered staff to participate. The results of this research were disseminated through workshops and in a series of reports.

Management Information Systems and Computerization.

PRITECH collaborated with the National CDD Cell, NIH, the WHO advisor to NIH, and the DTUs in the development of an information system for sentinel surveillance and ORS reporting. All work related to surveillance and ORS reporting was conducted under the leadership of the WHO advisor. Activities under this initiative included:

- development of a CDD register and forms used by DTUs and peripheral units;
- computerization of information about training programs conducted by DTUs, later transferred to NIH and to the USAID child survival team;
- computerization of sentinel surveillance and CDD activity reporting;
- training of clerical staff from NIH and DTUs in word processing and database software, with emphasis on data entry from registers and surveillance reports;
- on-the-job refresher training to DTU clerical staff to enable staff to enter data from registers into computers.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Monitoring and supportive supervision.** The monitoring and supportive supervision of facilities assisted by DTUs has been a problem. The design of the DTU effort assumed that provincial supervisors would initially join the DTU physician in pre-training and follow-up visits, and later would assume the monitoring and supervision roles. In many cases, provincial supervisory staff which should be monitoring diarrhea case management in health facilities have not been doing so. Supervisory staff are overburdened and/or not trained well enough in case management to feel comfortable monitoring these activities.
- (2) **Interaction between medical schools and provincial government.** DTUs are within medical schools which are directly under the provincial secretary of the federal government, while the rest of health facilities are under the director of health services (DHS). Thus, the physician working in the DTU may be viewed as an outsider because he works with the medical school, making cooperation between the DTU and the province more difficult. An effective approach for integrating the DTUs within the provincial health system still has not been found, although Punjab and NWFP have made progress in this direction.
- (3) **Training of health facility staff.** Training of all health facility staff by the physicians trained by the DTUs has not taken place in many cases. This potential problem was considered in the design of the DTU approach. DTU physicians and Lady Home Visitors (LHVs) were assigned the task of assisting their trainees to train others during their follow-up visits. This has worked to some extent; however, much work is still needed. This effort is extremely important because until all the physicians and paramedics in each health

facility are trained and follow the national diarrhea treatment policy, patients will not be assured correct case management and/or referral.

- (4) **Feeding at ORT corners.** The ten DTUs provide food to diarrhea patients in the ORT corners. However, aside from breastfeeding, feeding in ORT corners in health facilities assisted by DTUs, is not taking place. The major reason for this problem is that health facilities in Pakistan do not provide food for in-patient children. This weakens the program considerably as feeding during diarrhea is crucial to the correct case management of diarrhea in health facilities and to the education of parents about the importance of feeding.
- (5) **Use of anti-diarrheal drugs.** Although there seems to have been a decrease in the availability and prescriptions of anti-diarrheals in provincial health facilities, the practice still remains. Some health facilities still receive anti-diarrheals from provincial or local government sources. As long as these drugs are available in health facilities and in the marketplace, there is perceived incentive for prescribing them, i.e., "the mother asks for it." Training alone is not likely to be sufficient in halting this practice.
- (6) **Private sector.** The most important aspect of the Pakistan model is that it has been sustainable because it utilized a social marketing model which does not require public sector or donor financing for the product. Furthermore, a number of ORS producers and marketers were involved; no one company had a monopoly. Companies made a commitment to ORS through increased investment in machinery, facilities, and promotion; thus it is reasonable to assume that they will continue to produce and promote ORS.

The strategies derived from this effort can be applied to other countries that already have existing ORS production capacity, with more than one producer in the market. These strategies can also be applied to other beneficial products. Commercial companies respond positively to requests to collaborate with the national effort to save the lives of children. When approaching a company it is very important to point out that the company's contribution may enhance its image in the eyes of the government, prominent physicians, and consumers. Although most ORS producers state that ORS is not a profitable product, it is possible to show companies the potential market for ORS which could result in profits from the sale of ORS.

It is also possible to achieve a partnership between government and the private sector when they have common goals. The government wants to promote ORT; ORS producers want to respond to consumer demand that ORS should reduce stool output. Once ORS producers realize that ORS given along with foods will reduce stool output, they position ORS with food.

Through working with the four dairies and Land O'Lakes on the development of liquid ORS, PRITECH learned that it is possible to collaborate on ORS production and

promotion with commercial companies outside the pharmaceutical industry. Partnerships with these companies broadens the distribution network for ORS.

A standard national case management policy for diarrhea, such as Pakistan's, is very important and provides a strong endorsement for ORS. Public sector generic promotion of ORT can be supplemented very effectively by brand promotion by the commercial sector.

PRITECH PHILIPPINES PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

The PRITECH/Philippines project ended on December 31, 1990 after two years of work. The Philippines project during this period was funded mainly by a USAID/Manila buy-in under its Primary Health Care Financing Project (PHCF). USAID/Washington provided considerable support to the Philippines national control of diarrheal diseases program (NCDDP) prior to this period, with a reduced level of centrally-funded support continuing into the two year project period. This report covers the period from mid-November 1988 through December 1990.

Summary of PRITECH Activities

- (1) **Program planning.** The program initiated a system of semi-annual NCDDP consultative workshops involving all regional CDD coordinators and staff from the national CDD office. The focus of the first workshop held each year was to assess the current status of CDD program implementation in the regions. The second workshop held each year was used to plan the coming year's activities. These national consultative workshops were then followed by regional consultative workshops involving the regional CDD staff and all provincial and district CDD coordinators. The national-level workshops proved an effective tool for planning program activities and monitoring progress in implementing those plans.

The program operated under the general direction of a five-year program plan. In addition, each year the program prepared an annual operating plan and budget which was reviewed and approved by the Department of Health (DOH) Executive Committee.

- (2) **Organization and management.** At the national level, a CDD program management team (PMT) was activated during the project period and met an average of two to three times a month. Regular members of the PMT were the chief of the CDD/breastfeeding division, the CDD medical coordinator, the CDD nursing coordinator, the World Health Organization (WHO) resident advisor, and the PRITECH country representative. Other support staff were included in PMT meetings as necessary. The CDD/PMT now functions as, and is recognized as, the body responsible for the day-to-day operations of the NCDDP. Only policy issues and major operations issues are referred to the National CDD Committee or the DOH Executive Committee.

Most of the 14 regional health offices had three designated CDD coordinators - a CDD medical coordinator, a CDD nursing coordinator, and a CDD training coordinator. All of these regional CDD coordinators also had one or more areas of technical responsibility in addition to CDD. This "team" approach allowed for reasonable continuity in CDD leadership

in the regions in spite of a high turnover in CDD personnel and occasional absences from CDD workshops on the part of individual coordinators.

At the end of 1990, the central office CDD unit suffered a significant reduction in staff. In addition to the departure of the full-time PRITECH resident advisor, four of six full time CDD contract positions were removed from the budget. One of these positions was that of the administrative officer, the PRITECH representative's main counterpart for oral rehydration salts (ORS) logistics.

- (3) **Policy.** In January 1989, the CDD medical coordinator prepared a draft department circular stating policy guidelines on supplying ORS to private sector health care providers and to trained barangay health workers, and on the use of cereal-based home fluids as the recommended home fluid for diarrhea. This draft served as a "working" policy guideline.
- (4) **Supervisory skills and CDD program managers' training.** The NCDDP began in 1987 to train all rural health physicians, public health nurses, rural health midwives, and rural sanitary inspectors using the WHO supervisory skills course (SSC) modules. Physicians and nurses were trained in a five-day course using all of the modules; midwives were given a three-day course using the prevention, treatment, and community involvement modules; sanitary inspectors were given a one-day training using the prevention and community involvement modules.

In addition, all provincial health officers and their deputies, other key provincial-level health officials, and selected physicians and nurses from provincial and district hospitals participated in the five-day course. Funding for the printing of the SSC modules and for conducting most of the SSC courses was provided by the PHCF project.

The program learned early on that participants were not able to go back to their assignments at the regional, provincial and district levels and successfully "echo" the SSC training without significant losses in both content and quality of training. The program then trained a cadre of trainers at the regional, provincial, and district levels, a number of whom participated in training courses at the next lower level to ensure that the quality of the training was maintained.

The participation of provincial health officers, assistant provincial health officers, and other provincial-level staff in the five-day SSC course was a key factor in building the political and administrative support necessary to implement the CDD program in the provinces.

By the end of 1990, the regions had trained all or nearly all of the persons targeted for SSC training. The rapid turnover of personnel however, particularly nurses, creates a need for continuing SSC training. An evaluation by WHO expert Dr. Ronald Waldman found that the SSC training was "extremely effective in improving the CDD program in the Philippines."

In March 1989, the CDD staff, with assistance from three external WHO consultants, implemented a CDD program managers' course. Participants in the course were regional health directors, regional chiefs of technical services, regional CDD coordinators, and key central-office DOH personnel. The program managers' course went very well, and as a result the regional health leadership became much more aware of and supportive of CDD activities in their regions.

- (5) **Medical education.** PRITECH and WHO staff developed a set of training materials on oral rehydration therapy (ORT) for use in medical schools which were introduced in a workshop in Manila in August 1988. Under USAID/PHCF project funding, the DOH entered into a contract with the Association of Philippine Medical Colleges Foundation (APMCF) to further refine these materials and promote their use in the training of medical students in six of the Philippines' most well established medical schools during 1989. In addition to the content of the materials which reflected the latest technology in ORT, the materials also promoted the use of modern, participatory teaching methodologies. The DOH/APMCF project was titled: "Enhancing the Teaching of Diarrheal Diseases in Medical Schools" (MED ED).

At the end of November 1988, deans from 18 of the Philippines 26 medical schools were represented at a workshop designed to make them aware of the effectiveness of ORT in improving diarrheal morbidity and mortality, and to secure their commitment to implement and support the CDD plans which were to be developed by their respective faculties.

Dr. Rob Northrup of PRITECH and Dr. Nate Pierce of WHO assessed the MED ED activity in October 1989 and recommended its expansion to the remaining 20 medical schools. Ten additional schools were included in the project in 1990.

The APMCF reported that the teaching methodologies introduced under the MED ED project positively influenced teaching in the participating schools in areas of the curriculum other than the teaching of diarrheal diseases. This is similar to the experience within the DOH whereby the CDD/SSC modular training became the model and standard for many other types of DOH training.

To reach medical professionals already in practice, the DOH entered into a USAID-funded contract with the Philippine Pediatric Society (PPS) to enlist its chapters in conducting scientific sessions on ORT for members and interested family practitioners. These were one day sessions devoted exclusively to CDD/ORT. The contract also provided for PPS to produce a quarterly ORT newsletter, to develop and conduct a correspondence study course on diarrheal diseases for physicians, and to develop a diarrhea clinical management training video. All of these activities, except the training video, were completed by the end of 1990. The PPS also set a requirement that all hospitals (private and public) which offer PPS-accredited pediatric residencies must have a functioning ORT unit in order to be accredited. To assist the hospitals in meeting this requirement, the PPS conducted diarrhea clinical

management training courses for training officers and senior pediatric residents from the affected hospitals.

The PPS and the APMCF were able to have ten questions related to CDD/ORT included on the Philippine medical board examinations. This action influenced the 10 medical schools not yet covered by the MED ED project as these schools believed that their graduates would be at a disadvantage when sitting for the exams.

- (6) **Clinical management training (CMT).** Through a series of field monitoring visits, facility surveys, and program reviews, the diarrhea case management in government hospitals was found, in general, to be very poor. The main problems discovered in case management were the indiscriminate use of antibiotics and other drugs, the use of intravenous therapy for patients with only "some" dehydration, and the lack of or poor quality of health education and advice to mothers.

The PMT prepared a plan for improving case management in hospitals which addressed the identified causes of inadequate case management. Among other things, this plan called for the establishment of more CMT sites for training the number of hospital doctors and nurses necessary to improve case management in hospitals throughout the country. The program then prepared guidelines for establishing regional diarrhea training units (DTUs). These regional DTUs would have a strong emphasis on hands-on training, and very few formal lectures. They would have only three to six participants per training session, and the training would be conducted in a manner which would cause minimum disruption of regular ward routines.

- (7) **ORS supply, production and procurement.** Historically, the Philippines DOH produced its own ORS requirement at its Bureau of Research and Laboratories, and more recently at its Biological Production Service (BPS). However, by late 1987, the equipment at the BPS had deteriorated to the point where it could not meet program needs.

At that time the DOH awarded a contract to a Philippine drug manufacturer to produce 2 million sachets of ORS, most of which was delivered in 1988. In 1988, UNICEF imported 1 million sachets of ORS for the program. USAID then funded the procurement of 3.9 million sachets of ORS (through UNICEF) which was received in 1989. It was discovered that all of the USAID/UNICEF ORS had been improperly labelled. The European supplier had placed the manufacture date in the place marked for the expiration date, making it appear that the product was already expired. After much delay, it was decided that the sachets would be re-labelled. In the meantime, UNICEF airfreighted two emergency shipments of 500,000 sachets each to keep the program going while it relabelled the 3.9 million sachets. All of the shipments of imported ORS, including the emergency air shipments, suffered long delays in Customs, and as a result incurred large storage charges.

The reduced production capacity at the BPS and the many problems encountered in importing ORS combined to create serious shortages of ORS in the program in 1987, 1988, and 1989.

In late 1989, the DOH awarded a contract for 6 million sachets of ORS to a Philippine drug manufacturer. These sachets were delivered on a quarterly basis in 1990 as scheduled. In late 1990, an award for 1.8 million sachets was given to another Philippine firm. During 1990, the Philippines experienced a major earthquake and typhoon, prompting UNICEF to import nearly 1 million sachets of ORS in the event they might be needed. There was a sufficient supply of ORS throughout 1990.

On the issue of DOH production of ORS, a PRITECH process evaluation of the Philippines CDD program in September 1988 found that the BPS-produced ORS did not meet WHO specifications. The PRITECH representative recommended that the DOH continue to purchase ORS from Filipino manufacturers and not invest in upgrading the BPS production facility unless there was clear evidence that the private sector providers are colluding to charge non-competitive prices.

- (8) **ORS distribution.** A major problem faced by the Philippines CDD program was that of maintaining adequate ORS supply and distribution at all levels in the health care system. The PRITECH process evaluation of September 1988 observed that there was an under-supply and stock-outs of ORS in some areas and in some facilities, and an over-supply in other areas. The systematic field monitoring visits made by the CDD program staff in November and December 1988 also found an insufficient and irregular supply.

A number of problems which adversely affected ORS supply, such as inadequate warehousing, lack of transport, and lack of a logistics information system, applied to the whole DOH drug supply system. It was beyond the authority of the CDD program to resolve these issues. However, it was agreed that under World Bank funding the DOH would study and resolve the problems with the overall DOH drug and medical supply logistics system. The CDD program, for its part, undertook activities to quantify the extent of the ORS supply and distribution problem and to install a rational system for ordering ORS for facilities at all levels. The PRITECH representative played a lead role in these activities.

The first activity was to define the extent of the problem by conducting a nationwide ORS supply survey. The survey was conducted in February 1989 and covered 1,203 health facilities in 60 of the 75 provinces of the Philippines. Forty percent, or 486 of the 1,203 facilities surveyed, were found to be "at risk." In some provinces as many as 88 percent of the surveyed facilities were "at risk." The overriding problem revealed by the survey was a shortage of ORS supply in many facilities.

The exception to this general finding was the city health offices (CHOs). Forty percent of the CHOs surveyed had more than a six-month supply of ORS, and only 11 percent had less than a one-month supply.

At the same time that the ORS survey was launched, the CDD program introduced to its regional coordinators a simple system for calculating the authorized ORS stock level for each health facility based on the facility's diarrhea case load. The second part of this system was an equally simple method of periodically re-ordering ORS so that the facility would never run out of ORS. It was agreed that each region would test this new system for three to six months in one district and report the results to the CDD central office. In-depth field visits were made to four of the test districts during the trial.

Based on the written reports and field observations, a number of changes were made in the system. These changes included decreasing the amount of ORS to be held at the central, regional, and provincial levels and increasing the authorized ORS stock levels at district, rural health unit and barangay (village)-level facilities. The calculation for determining the ORS authorized stock levels (ASL) was simplified, and the forms for the ASL and for re-ordering were combined into a single form which could be used for the whole year.

The revised ORS ordering system was introduced to the regional CDD coordinators in October 1989. Some main features of the ordering system are listed below.

- It clearly defines the ORS "pipeline", or the amount of ORS to be held at facilities in each level of the health care system, from the village level to the national level.
- The largest amounts of ORS (in terms of months of supply) are kept at the district level rather than at provincial or regional levels.
- The authorized stock level (ASL) for each facility is based on that facility's diarrhea case load, not on some arbitrary allocation for a certain type of facility or on a theoretical calculation based on population of the catchment area.
- It is a "pull" type of system, with each facility ordering the amount of ORS it requires on a monthly or quarterly basis.
- The calculation of the ASL allows the facility to account for projected increases or decreases in diarrhea case load. It also allows the facility to provide for ORS supplies to private voluntary organizations, and other government health projects.
- To re-order ORS, a facility counts the ORS sachets on-hand at the time of ordering and subtracts this from the ASL. The result is the amount to order.
- The calculation of the ASL and the calculations for the monthly or quarterly ordering are all completed on one sheet of paper which is retained by the health facility. This form lasts for a one-year period and provides a running record of the ORS supply situation in the facility which can be easily monitored by supervisors.

Field monitoring visits to 11 of the 14 regions during 1990 revealed that implementation of the system was going very slowly and that it was not being implemented as extensively or as well as had been expected. The main reason was that district, provincial, and regional staff were preoccupied with a host of initiatives mandated by the central office. These initiatives included training in and implementation of the new field health service information system (FHSIS), follow-up on the new generic law implementation, and training in a new planning system. In some cases, the training and orientation to the new system was not done until near the end of the second quarter of 1990.

In July 1990, a second nationwide ORS supply survey of 1,200 health facilities was undertaken. In spite of the slow start in implementing the system, the survey showed that in those regions and provinces where the CDD coordinators were able to introduce the new ORS ordering system and closely supervise its implementation, there were marked improvements in the ORS supply situation.

In the 1990 survey, only 6 percent of the facilities were out of ORS on the day of the survey, compared to 14 percent in 1989. In the 1990 survey, an additional 19 percent of the facilities were "at risk" (low stock levels), compared to 26 percent "at risk" in the 1989 survey. All regions except two showed declines in the percentage of "at risk" facilities found in the 1990 survey compared to the February 1989 survey. Additional minor changes were made in the ORS ordering forms as a result of the 1990 field visits.

- (9) **ORS commercialization.** The anticipated commercialization of ORS was one of the major reasons for USAID/Manila's inclusion of a CDD/ORT component under its PHCF project. By the time of the arrival of the PRITECH country representative, the mission had become concerned at the apparent lack of progress in this area. Beginning in January 1989, USAID initiated a series of meetings involving the DOH, USAID, HealthCom, and PRITECH to review the state of ORS commercialization and the commercialization strategy.

USAID and DOH reached agreement with the chief of staff that the DOH would hire a person reporting to the chief of staff who would be responsible for ORS commercialization. The HealthCom resident advisor had been coordinating ORS commercialization up to this time by default since there had not been a DOH person responsible for the activity. The commercialization of ORS was an integral part of the HealthCom communications strategy. It was agreed that the HealthCom advisor would continue to take the lead in ORS commercialization until the DOH person had been hired.

In the meantime, the HealthCom advisor continued the activity on a time-available basis. A large number of drug companies were contacted to determine their interest in a joint commercialization effort with the DOH. After a series of communications and meetings, one company, Pascual Laboratories, was willing to launch a commercial version of the DOH's "Oresol" brand ORS. Unfortunately the Letter of Agreement which would have allowed Pascual to proceed was never signed by the DOH.

This situation was further complicated in late 1990 with the declaration of a name other than "Oresol" as the generic name for ORS. The new generic name "oral rehydration salts replacement" applied to all ORS formulas, even those which did not meet the WHO recommended formula.

- (10) **Private sector involvement.** Under a contract with the DOH, the Philippine Pharmaceutical Association (PPhA) included ORT in its continuing professional education (CPE) series for community pharmacists. Under this activity, the PPhA reproduced 8,000 copies of a WHO/FIP CDD/ORT "primer" for pharmacists; developed and produced 50,000 copies of a pamphlet for pharmacists to use when discussing diarrhea with mothers; and reproduced several thousand copies of the CDD/ORT lecture notes. The CDD/ORT lecture and discussion was presented to 30 PPhA chapters during 1989 and 1990.

The timing of the DOH/PPhA effort coincided with the consolidation of the pharmacy curriculum in the Philippines from a five-year to a four-year curriculum. During this process the CDD/ORT lecturers from PPhA were able to integrate CDD/ORT into the appropriate places in the pharmacy curriculum. All 16 schools of pharmacy were given a set of CDD/ORT slides and the CPE lecture notes.

In August 1990, the Philippine Jaycees and the DOH signed an agreement which provided for Jaycee chapters throughout the Philippines to become involved in ORT promotion, with special emphasis on the early use of appropriate home fluids.

- (11) **Communications.** Under a USAID/Manila PHCF project buy-in, the HealthCom project assisted the DOH Public Information and Health Education Service (PIHES) in planning and implementing major communication campaigns for the CDD and EPI (Expanded Program for Immunization) programs.

The strategy for the CDD campaign called for a two "module," multi-media approach. Module A was designed to educate mothers about diarrhea and the fact that the real danger in diarrhea is dehydration. Module B was designed to give very specific information to mothers on what to do about dehydration and diarrhea.

Because of a lengthy approval process on the communications materials and various other problems, the launch of these modules was delayed. Module A was launched, tested, and found to be effective. The module B launch took place late in 1990, after the peak diarrhea season had ended.

In a meeting between the PMT and PIHES in December, it was agreed that module B would be "relaunched" in regions six and seven during the 1991 peak diarrhea season, this time with all the print materials in place and the advertising materials running for the intended length of time. It was also agreed that module A would be run nationwide in 1991, with a strengthened tag-line on what mothers should do about dehydration. The comics and other print materials

originally intended to be used with module B would be reproduced in sufficient quantities to be used on a nationwide basis in conjunction with the module A nationwide launch.

- (12) **Evaluation.** In August and September 1988, a PRITECH/DOH team conducted an in-depth evaluation of the NCDDP. The team's findings in the areas of diarrhea case management in hospitals, ORS supply and distribution, and CDD communications activities served as a catalyst for actions over the next two years which led to improved performance in all three of these areas.

Systematic monitoring visits to the regions by central-office CDD staff began in November/December 1988. The program had not had sufficient staff to regularly monitor the regions prior to this time.

The visits which dealt with assessing case management in hospitals were stressful for both the monitoring staff and the hospital staff being monitored. The approach taken in these visits was improved upon over time, and this combined with persistence led to significant improvements in case management in the hospitals assessed. The implementation of the ORS ordering scheme was likewise lagging until the monitoring visits.

In December 1990, a joint DOH/WHO/USAID/UNICEF team conducted a comprehensive program desk review of the NCDDP. PRITECH consultant Dr. Richard Arnold represented USAID on the team. As with the 1988 PRITECH process evaluation, it is expected that the recommendations of this program review will influence program priorities for the next several years.

- (13) **Child survival information center (CSIC).** The need for an information center which could acquire and disseminate the most up-to-date articles, video tapes, audio tapes, films, slides, and IEC materials relevant to child survival activities in the Philippines was established early in the PHCF project.

PRITECH consultant Judy Brace, building on the experience of the PRITECH Information Center in Washington, D.C., assisted the DOH in assessing its child survival information needs, designing an information center, and preparing a workplan to make the center operational. PRITECH consultant Bill Amt trained the CSIC coordinator on the use of the PROCITE bibliographic software package to be used in the center. The CSIC coordinator established a collaborative relationship with the PRITECH/Washington Information Center. The CSIC is fulfilling an important role in providing CDD and other child survival information to field personnel on request.

- (14) **Breastfeeding.** Rooming-in and breastfeeding in regional hospitals improved dramatically as a result of lactation management training (LMT) courses being offered at Jose Fabena Hospital. The success of this training seems to be linked to the fact that each hospital sends a team for training which includes the chief of hospital, chief nurse, chief pediatrician, and

chief obstetrician head. Upon return to the hospital, the support of the technical and administrative bosses is thus in place for any changes which are required. There is a good lesson in this strategy for the CDD and acute respiratory infections (ARI) training programs.

PRITECH purchased from the APMC Foundation, Inc. 135 sets of four, mounted breastfeeding posters to be placed in the maternity wards and delivery areas of large government hospitals. The posters deal with correct positioning, immediate initiation to breastfeeding, and expressing breastmilk. They will be used by staff and volunteers as talking points for encouraging mothers to breastfeed. Both the Philippines Obstetric and Gynecological Society (POGS) and the PPhA have expressed an interest in including information on breastfeeding in their 1991 CPE programs.

- (15) **Administration.** The USAID mission initiated a series of meetings of USAID-funded health contractors. During these meetings, resident advisors and short-term consultants reported on their project activities, and matters of mutual concern to the contractors and USAID were discussed. These meetings served a useful coordinating purpose. The PRITECH representative visited the PRITECH home office three times during the life of the project.

The vehicle originally planned and budgeted for under the project was denied by the USAID director. The PRITECH representative used his personal vehicle for project purposes and was reimbursed on the basis of miles driven.

II. KEY ISSUES AND LESSONS LEARNED

- (1) **Workshops as a planning tool.** The system of holding semi-annual national CDD consultative workshops involving all regional CDD coordinators and staff from the national CDD office was an effective tool for planning program activities and monitoring progress in implementing those plans. This model could have applicability in other large country programs. It would probably be most helpful in the early stages of very active programs.
- (2) **Management.** A body such as a CDD program management team (PMT) can provide effective day-to-day management of a complex CDD program such as the Philippine program. For a PMT-type body to function successfully, it must be given the necessary decision-making authority by the next higher administrative level.
- (3) **Sustainability factors.** The ability of the NCDDP to initiate and sustain a large number and variety of program initiatives was directly related to the adequacy of the staffing of the CDD unit. The fact that this staffing was significantly reduced at the end of 1990 places in doubt the program's ability to successfully implement scheduled future activities.
- (4) **Including key participants in training activities.** The inclusion of regional health directors and chiefs of technical services in the CDD program managers' course, and provincial health

officers and assistant provincial health officers in the one-week CDD SSCs, was a key factor in building the political and administrative support necessary to implement the CDD program in the regions and provinces.

- (5) **Motivational technique.** The inclusion of questions related to CDD/ORT on the Philippine medical board examination was instrumental in motivating some medical schools to include effective teaching of CDD/ORT in their curricula.
- (6) **Teaching/learning methodologies.** Introduction into medical schools of participatory teaching/learning methodologies in a single program area such as was done in CDD can have the hidden benefit of improving teaching methodology in other areas of a medical school curriculum. Similarly, the investment made in implementation of a high quality modular SSC training within a department of health can pay the additional dividend of raising the overall standards of training in the department. These lessons could possibly be used by USAID in encouraging DOHs and medical schools to embark on CDD/ORT training and education activities.
- (7) **Program continuity.** Having multiple CDD coordinators at the regional health-office level was essential to maintaining continuity in the program. In DOHs with high staff turnover, and with the frequent absence from the CDD program of key field managers to attend to other duties, the model of "co-coordinators" for CDD will minimize the damage to the program caused by the turnovers and absences.
- (8) **Echo training.** "Echo" training of a course by participants when they return to their places of assignment often is not effective because of lack of quality in teaching/facilitating and because some of the content of the course is often lost. It is usually necessary to select from among the participants those who have some of the qualities of good trainers, give them some amount of training as trainers, provide standardized learning materials, and assist with the first of the "echo" courses to ensure that the training is conducted properly.
- (9) **Demographics of training.** In conducting diarrhea clinical management training for hospital personnel in a national CDD program, the target should be the number of hospitals which have changed to proper diarrhea case management. Setting targets on total numbers of individual physicians and nurses trained tends to gloss over the issue of whether or not the institutions have changed their management. Training one or two individuals from many hospitals is less likely to change case management than training a larger number of individuals from fewer hospitals.
- (10) **Effective training skills.** For diarrhea case management training to be effective in changing how diarrhea cases are managed in hospitals, those staff (chief of hospital, pediatrics department head, chief nurse) with the political and administrative clout to effect change must be among the first to be trained. The Philippine experience shows clearly that junior level medical staff are usually not effective agents for changing case management in hospitals. The

success of the Philippine lactation management training courses in changing rooming-in and breastfeeding practices in hospitals seems to be due in large part to the strategy of training a team consisting of the hospital chief, chief nurse, and heads of the obstetrics/gynecology and pediatric departments.

- (11) **Necessity of follow-up activities.** Training in case management will not by itself result in hospitals changing to proper diarrhea case management. Close follow-up of trainees and monitoring of case management in the hospitals is required if there is to be a true change in practice. The quality of this follow-up is as important as the quality of the training.

Health ministry central-office staff and advisors often operate on the mistaken assumption that because an action has been decreed or directed by the central office, it is actually taking place at the periphery. In fact, very few significant changes can be implemented in the field without well focused follow-up visits by central and regional-level staff.

- (12) **Commercialization.** The lack of ORS commercialization is depriving many Filipinos of the benefit of this technology. In many countries the government health services reach only a small portion of the population. To make a product such as ORS widely available, it must be distributed through the same outlets (drug stores, markets, sari-sari stores, etc.) as are other home remedies.
- (13) **Hidden imported ORS costs.** ORS imported by donors for country CDD programs is rarely "free". The lack of control over delivery schedules, the time and energy spent in customs clearance, and the significant storage charges paid are "costs" which should be considered when making a decision on whether to purchase ORS locally or to have it imported by a donor.
- (14) **Management information systems.** National supply surveys are a resource-intensive undertaking which should eventually be replaced by information routinely collected through the health information system. If data on diarrhea case loads and ORS stock balances were collected routinely, these could be periodically analyzed to identify facilities and areas which were overstocked or under-stocked.

PRITECH SAHEL REGIONAL OFFICE FINAL INTERVENTION REPORT

I. OVERVIEW OF THE SAHEL REGIONAL MANAGEMENT MODEL

The PRITECH/Sahel management model, consisting of a regional technical support office (Sahel Regional Office) and field representatives in several countries, is often cited among the PRITECH project's successes. PRITECH's ability to enhance national CDD program (NCDDP) growth, develop educational and training materials, support information dissemination, and solve implementation problems from a regional base has resulted in considerable cost savings and high quality technical inputs for the six national programs receiving PRITECH support in the Sahel region.

Background

In 1984, the Sahel/West Africa Regional Office of the U.S. Agency for International Development (USAID) approved and supported PRITECH's strategy for promoting oral rehydration therapy (ORT) in the Sahel countries. By this strategy, PRITECH established the Sahel Regional Office in Dakar, Senegal to provide technical and management supervision for up to six country programs.

Creation of the Sahel Regional Office represented a departure from PRITECH's original intent to provide only short-term technical assistance to countries. Instead, the Sahel strategy to provide senior technical and managerial support from a base within the region responded well to the particular needs of this relatively homogeneous region. The several small countries in the region presented many similarities: highly centralized government administrations, very small commercial sectors, French-influenced educational systems, and extreme climatic and economic problems, as well as similar needs for program design and expansion. Likewise, their small size meant that individual budgets for health assistance would not allow for the placement of a high-level technical advisor for CDD within each country. Since travel among the countries is relatively easy and inexpensive, PRITECH was able to place high-level technical advisors within easy access at the regional office and position less-experienced (and less costly) mid-level field representatives within the countries. This proved to be a successful approach as the six countries served by the regional office have, for the most part, developed active and lasting CDD programs.

PRITECH/Sahel initially began with sustained country programs in the three countries of Niger, Mali, and Chad, and intermittent support for Senegal and Mauritania, and eventually for Burkina Faso and The Gambia. With the hiring of a in-country representative for Burkina Faso in 1988 and for The Gambia in 1991, those country programs joined Niger and Mali as sustained country interventions.

After six months of preliminary work in the region, Dr. Suzanne Prysor-Jones, the Sahel regional senior program manager (SPM), established the regional office in Dakar in early 1985 and remained there as director of regional operations through 1992. The PRITECH staff for the Sahel region, which initially consisted of the SPM and one administrative assistant, eventually grew to include three full-time regional technical advisors, two regional administrative/ secretarial staff, several regular consultants, and four country representatives.

Within 18 months of the SPM's arrival, demand for technical assistance in case management had burgeoned well beyond what one technical advisor could handle. When several of the countries expressed reluctance to receive short-term consultants, a second full-time advisor was added to the regional office staff, a public health-trained physician from the region. As the need for assistance grew, and with the realization that national governments welcomed Sahel Regional Office staff as being part of the local network, other regional technical advisors were added, some as full-time staff and others as regular consultants. The resulting Sahel regional team of staff and consultants was an impressive array of talent and expertise. The large number of staff and consultants recruited from within the region greatly enhanced the Sahel office's credibility and ability to build positive relationships with host country officials.

By working with several countries on similar initiatives, regular PRITECH technical consultants gained regional expertise, helping with cross-fertilization of ideas when appropriate, but remaining sensitive to individual country needs. Through their steady relationship with PRITECH, these consultants were able to develop good working relationships with government officials who are frequently skeptical of outsiders.

Unlike programs served from Washington headquarters, the Sahel country programs benefitted from frequent contact with senior technical staff of the regional office who visited each country an average of once every three months. Visits ranged from a two-day, trouble-shooting mission stopover to a one-month visit for a training course. Most visits, however, lasted one to two weeks.

Since 1985, PRITECH also supported ORANA, a regional institution specializing in nutrition and diarrheal disease research, to assure dissemination of diarrheal disease-related information. By sub-contract, PRITECH/Sahel provided technical assistance to ORANA for the translation and dissemination of important documents to 850 decision-makers in the region, as well as technical materials for regional health workers.

Funding of the Sahel Regional Office

Initial funding of \$2.2 million for the period of 1984 to 1988 was provided by the Sahel Geographic Office in the Africa Bureau/Washington. This initial funding for the PRITECH regional office in Dakar gave valuable impetus to the program. Beginning in 1988, USAID/Washington asked local USAID missions to finance the regional office entirely through their own budgets through "buy-ins". USAID directors in all of the affiliated countries reacted strongly to what they perceived as a threat to the survival of the regional office, since their own

budgets were insufficient to support the office. In a tangible endorsement of PRITECH's approach, the missions cabled Washington with expressions of strong support for the work of the regional office and in the end a compromise was reached for cost-sharing between the Africa Bureau and the USAID mission in each country. The Africa Bureau agreed to fully fund one more year (1989) to assist with the transition.

Since 1989, buy-ins from individual countries covered country-specific technical support activities (including part of salaries for regional technical advisors and travel costs) as well as the cost of maintaining the country representative(s) and local costs. The Africa Bureau funded other regional costs of approximately \$225,000 per year, including 60 percent of the salaries, office/administrative support, and some region-wide technical initiatives. The Africa Bureau also provided, through PRITECH, \$100,000/year in support to ORANA which includes salary support for one full-time documentalist and 50 percent of the salary for an assistant.

The regional officer and deputy spent about 40 percent of their time visiting countries to provide technical and managerial supervision; this time was charged to the PRITECH country programs. The remainder of their time in Dakar was split between administration of PRITECH activities, supervision of technical support activities, and work on the Senegal program, as well as technical guidance for ORANA's information functions.

Communications with PRITECH/Headquarters, USAID, and International Organizations

Field-headquarters communications and the ability to respond quickly to needs for assistance was considerably enhanced by the presence on-continent of SPMs. PRITECH headquarters, in addition to regular reports from its country representatives in the Sahel, received detailed information on progress and issues in each country as well as region-wide through quarterly reports, telephone communication, and semi-annual visits to headquarters of the regional program manager.

The presence of technical support staff in the region as well as at headquarters had obvious benefits for the country programs (frequent and timely visits) and dramatically reduced the need for more costly visits by Washington-based technical staff. Nevertheless, the existence of two distinct technical staffs - one at headquarters, one in the field - required additional coordination to ensure agreement about objectives and sometimes to resolve conflicting priorities. Despite periods of difficulty, this had largely been achieved by the project.

The proximity of the regional office and frequent visits to each national program and field representative meant that PRITECH/Washington and USAID were able to obtain sufficient detail about the status of each program with little costly travel from Washington. The Sahel management model of field representatives and regional staff also resulted in the need for very little administrative oversight by USAID of the CDD programs it funds and of consultant visits to those programs.

Country programs also benefitted from close ties maintained by regional technical advisors with major international donors to CDD, including the World Health Organization (WHO), UNICEF, and the World Bank. With their seniority and experience, regional office staff worked with the international agencies' regional offices and with WHO/Geneva to plan and coordinate a number of region-wide initiatives including nursing school curricula and the launching of an acute respiratory infection (ARI) program focus. PRITECH field representatives benefitted from increased project credibility as a result of the Sahel office's excellent collaboration with the organizations.

II. TECHNICAL SUPPORT ACTIVITIES/MAJOR ACHIEVEMENT OF THE SAHEL REGIONAL OFFICE

Each of the six countries assisted by the regional office had its own national CDD priorities and particular activities. Nevertheless, key to its success, the Sahel Regional Office successfully provided technical assistance on similar initiatives to several of the countries and, as appropriate, facilitated the sharing of experiences across countries in the region.

Regional office support stressed the following key components, with attention being given to different components in individual countries and over time, as needed. This flexibility also contributed to the success of the regional office's support.

Program Planning and Management

During almost ten years of assistance, the Sahel regional management model (regional office plus field representatives) spurred the establishment of CDD as a priority program within the Ministry of Health (MOH) in all six long-term assistance countries. PRITECH helped to assure the development of concrete program plans and to strengthen program management capability. By the time of the 1992 meeting of the Technical Advisory Group (TAG), five countries had a combined total of 13 full-time staff for CDD (Senegal had part-time staff allocation), and three countries had a functional CDD committee. Five of the countries had developed national CDD plans and four had begun planning at the regional level as well.

The CDD program, with much encouragement from the Sahel office, was the first in most countries to apply a multi-focus approach to a priority health program. CDD personnel coordinated with related programs such as nutrition and ARI, and addressed systems critical to program success, such as communication, pharmaceutical management/logistics, training, and supervision.

With the appointment of a regional technical advisor for ARI, the Sahel office also engaged in an active role of helping ministries to expand upon lessons learned in CDD to another program of national interest and need. WHO requested PRITECH assistance with bringing ARI into focus in the Sahel. When Sahel Regional Office contacts with MOHs indicated sufficient local interest, Dr.

Vincent Joret joined the office as the ARI coordinator. Within nine months, three countries produced detailed national ARI plans and named technical committees for ARI. Though the ARI coordinator left the regional office, the experience provided an example of excellent collaboration among donors (PRITECH and WHO) and MOHs to move planning and program organization ahead rapidly.

Changing Health Workers: Behavior: In-service and Pre-service Training

- (1) **In-service training.** The regional office assisted with the development of a series of problem-based continuing education modules (pathophysiology, patient assessment and diarrhea case management, medicines for diarrhea, feeding, procurement and supply management, supervision, communications, organization of oral rehydration units, information systems, training, and training of village health workers). These were adapted for the individual countries. In-service training was further enhanced through an emphasis on the training-of-trainers (TOTs) in several of the countries and by the development and production of technical support materials at the regional level. In addition to the continuing education modules, materials produced include posters on the assessment of dehydration and on the pathophysiology of diarrhea. Indicative of their usefulness, several country programs outside of the Sahel region requested copies of the posters and/or incorporated them into their own training. Over 1,000 health workers were trained in most of the countries in the region (Mali, Niger, Senegal, Mauritania, and Burkina Faso).
- (2) **Pre-service training.** Once widespread in-service training was underway, the program began to look toward sustaining a steady supply of health professionals trained in good case management and reducing the need for costly in-service training. Nursing school curricula in the mid-1980s did not cover information on oral rehydration therapy (ORT). In light of the fact that professional schools in the region have a similar pedagogic base, in 1986 PRITECH/Sahel and the WHO/Africa Region CDD Office (AFRO/CDD) co-funded and developed a plan for revising nursing school curricula in the region's 21 nursing schools.

With extensive input from national CDD program staffs and nursing school professors, an initial series in French of four modules plus a teacher's guide and field training workbook was designed, tested, and produced. The significant input solicited from the eventual users of these modules assured both better acceptance and appropriateness. To cover the remaining countries in the region, an Arabic version of the modules was produced in 1988 and an English version was produced the following year.

When the French modules were complete, the PRITECH/Sahel office launched an initiative to assure implementation of the curriculum in all schools in the region. These efforts included visits to the schools, case management training for instructors, workshops for supervisors, and significant work with the field sites for practicums. This continuous effort by the regional staff resulted in 16 of the 21 nursing schools in the six countries employing the new CDD curriculum.

In medical schools, PRITECH worked individually with each of the four medical schools in the region to incorporate teaching of ORT and to make maximum use of PRITECH and WHO materials.

Supervision

The regional staff emphasized improved supervision, both for CDD-specific activities and with the integrated supervisory teams created in some of the countries. Assistance included facilitation of the training of national and regional supervisors, design of a continuing education module for supervision, and travel with integrated supervision teams to advise on supervision of good case management and CDD-related activities such as nutrition monitoring and counseling.

Organization of Health Facilities for Case Management: Oral Rehydration Units (ORUs)

Recognizing that the successful promotion of good diarrhea case management requires appropriate practicum sites in key health facilities, the Sahel regional staff assisted all six CDD programs with the organization of oral rehydration units (ORUs). As part of the continuing effort to implement curriculum improvements, priority was given to establishing ORUs in sites receiving students for practicums using the new nursing school curriculum. Also, in the late 1980s, some countries sought to decentralize service delivery and supervision. PRITECH's aid in establishing regional ORUs added support to this process.

Drug Supply: Production, Distribution, Sales, and Marketing

From the beginning, the regional office assisted the Sahel countries to plan for a steady and sustainable supply of ORS. In Niger, where local production was initiated with Belgian assistance, PRITECH assistance and studies led to the liberalization of pricing policies and declassifying ORS to allow for its sale outside of regular pharmaceutical distribution channels. Niger was also able to export some of its ORS to Burkina Faso for sale. With PRITECH assistance (feasibility study) and joint PRITECH/UNICEF collaboration, Mali was able to actualize production of ORS. In Senegal, PRITECH funded consultancies to help improve the overall drug monitoring and supply network.

In both Mali and Niger, PRITECH supported the training of detailmen for the state ORS producer.

ORS is now on the essential drug lists of all of the PRITECH-assisted countries and is thus becoming part of evolving cost recovery schemes throughout the region.

Information, Education and Communications (IEC)

The Sahel Regional Office assisted CDD program and health education staff in each country to identify culturally appropriate strategies and messages to promote recommended practices at the

household level (focus group research), to develop and test appropriate materials, and to evaluate their IEC efforts. PRITECH/Sahel was instrumental in bringing together the efforts of CDD and health education staff, which in many instances are groups within the same ministry unused to working in collaboration.

Many of the print materials produced with regional office assistance (home care flyers, booklets for health workers and teachers, ORT posters) have been shared throughout the region and integrated into training sessions. Four of the countries combined print materials with large media efforts, benefitting from technical expertise available through PRITECH. The Sahel office also produced a compendium of all available health education materials related to CDD efforts in the region.

Among the Sahel office's most important contributions to IEC efforts in the region were periodic evaluations. Knowledge, attitude, and practice (KAP) studies demonstrated considerable impact on mothers' awareness and use of ORT, but also pointed out a need to increase awareness of nutritional management. Most countries completed background research for nutrition/weaning educational efforts and are now planning interventions.

The Sahel office also contributed to efforts for conducting social marketing of locally produced ORS in Mali and Niger, offering assistance in strategy development, packet design, detailing brochures, and mass media campaigns.

Health facility studies and a study by PRITECH on the use of health education materials pointed out the low health worker utilization of print materials and underlined the importance of improving health education aspects of professional training and continuing education. The regional office helped all PRITECH-assisted countries greatly strengthen this part of their training programs in recent years.

Monitoring, Evaluation, and Research: Multi-center Studies

The regional office played a major role in assisting countries with program operational studies. Most were conducted in several countries (multi-center studies), allowing comparisons and lessons learned to be shared across programs. Studies supported by the Sahel office include:

- dysentery studies (2 countries)
- persistent diarrhea studies (2)
- feeding practices studies and trials (4)
- breastfeeding KAP study (1)
- health facility surveys (5)
- household surveys (3)
- community surveillance system (1)
- study on the use of educational materials (4)

Health facility studies, household surveys, and studies on the use of educational materials, as well as a community surveillance system set up in The Gambia have produced information on the program progress for program managers to use for evaluation and planning purposes. Dysentery and persistent diarrhea studies provided additional insight for policy formulation. In all of these, the Sahel Regional Office staff helped design the studies, locate consultants, train researchers, and analyze data.

The feeding practices studies in Mali, Niger, Senegal, and The Gambia, though not completed by the end of PRITECH project assistance, provided important lessons. The studies were designed in three phases: 1) ethnographic research; 2) household trials of messages and recipes; and 3) focused interventions. Mali has completed only phase I, while Niger and The Gambia have completed phase II, and Senegal has begun a pilot to test different approaches for introducing an intervention. These studies, involving extensive coordination among CDD, nutrition, and health education services, sometimes proved more time-consuming than country program staff anticipated. Nevertheless, this Sahel office initiative influenced changes in the way programmers approach nutrition problems which should outlast the end of the PRITECH project. Staff came to understand the field research process and the complexity of finding and implementing suitable modifications to familiar eating patterns.

Information Dissemination: Support for ORANA

In 1985, PRITECH signed a sub-contract with ORANA to establish a regional information center for CDD. ORANA, based in Dakar, already collaborated with AHRTAG to translate and distribute *Dialogue on Diarrhea* in French, but its relationship with PRITECH's Sahel office resulted in a greatly expanded information outreach for Africa on CDD and the related areas of nutrition and vitamin A. Distribution of *Diarrhee Dialogue* alone grew from approximately 6,000 copies to over 15,000 copies and now includes an important Africa supplement.

The Sahel office provided technical guidance and financial support for the translation and diffusion of selected technical materials and the distribution of the French version of the *Technical Literature Update* to senior health professionals, as well as some salary support. ORANA and the regional office built a mutually beneficial relationship and together produced many documents of exceeding usefulness to senior health decision-makers and outreach workers across Africa. Many of those on ORANA's mailing list have little or no other access to current literature for their work.

Documents produced include:

- statistical manual on the epidemiology of diarrheal diseases and the impact of CDD programs in the Sahel;
- annotated bibliography of documents written by Africans or about Africa on diarrheal diseases, nutrition, and vitamin A;

- compilation of theses on diarrhea and nutrition from universities and schools of health in francophone Africa;
- guide to CDD health education materials from Africa;
- Africa Supplement to quarterly issues of Dialogue on Diarrhea;
- poster on the assessment of dehydration;
- wall chart on the pathophysiology of diarrhea;
- French translation of numerous key technical articles; and
- continuing education modules and nursing school modules.

III. DIFFICULTIES ENCOUNTERED IN ASSISTING NATIONAL CDD PROGRAMS IN THE REGION

The institutionalization and sustainability of CDD programs in the Sahel encountered significant political and systemic hurdles over the life of the PRITECH project. The PRITECH/Sahel office targeted interventions at many of the systemic problems (weak health education practices, inadequate drug supply systems, lack of decentralized planning systems, poor supervision), as explained above.

Politically, the region encountered numerous difficulties during the project period which jeopardized efforts to establish sustainable CDD programs. Civil unrest, changes in regime, changes among upper MOH officials, changes in CDD coordinators or periods with no CDD coordinator all had the potential to set back years of effort. The presence in the region of a technical advisory team of the high caliber found in the Sahel office, most of whom have years of continuous service to the region, has provided an important buffer to these periods in each country. Sahel office staff and regular consultants were broadly recognized and accepted, often able to support continuity of program direction in the midst of extreme personnel changes.

IV. LESSONS LEARNED

- (1) **Flexibility.** The Sahel management model was the appropriate model for the Sahel region. The location of highly qualified technical advisors within the region allowed for close oversight of country representatives and national CDD programs. This proximity to the countries and ability to supervise more closely permitted the hiring of less-experienced resident advisors, thus freeing up limited budgets for important local costs. Frequent contact with six countries that share similar issues and priorities has allowed maximum cross-fertilization. The Sahel office has built on similarities among countries to develop approaches to CDD as lessons have been applied from one country to another while maintaining the flexibility and ingenuity to meet country-specific needs as well.
- (2) **Use of regional health professionals.** The use of professionals from the region, both on staff and as regular and familiar consultants, has greatly enhanced the countries'

willingness to accept outside technical assistance. The location of SPMs in the region with the authority to identify both full-time and short-term project employees has resulted in the recruitment of a high percentage of technical staff from the region. This provides an outstanding example of a project's capacity to build on the human resources and technical expertise of the countries it serves.

- (3) **Decentralization of project operations.** Decentralization of project operations from headquarters to a regional base can have important positive implications for country programs. These include the ability to provide senior technical guidance quickly and at less cost, more frequent close contact with the MOH, USAID missions, and regional offices of WHO, UNICEF, etc. However, in order to facilitate coordination with technical staff at headquarters, lines of authority and communication should be well defined.
- (4) **Strengthening health systems.** System constraints such as drug supply, supervision, and centralized administration pose an important barrier to successful implementation of CDD programs in all countries in the region. The regional office's dedication to a multi-focus approach has yielded positive benefits that should outlive the project, as well as set standards for MOH handling of other key programs. In many instances, PRITECH/Sahel regional staff have helped bring disparate services of the MOH and other government agencies together on CDD-related systems. To do justice to all of these areas and to meet the expanding technical needs and interests of the country programs, the regional office would have needed more full-time specialists such as an IEC specialist, a drug management expert, and someone with expertise in nutrition/breastfeeding issues. Indicative of the advantages that could have been gained by adding technical staff once the regional office had established its credibility with MOHs are the rapid results produced within a short time of appointing an ARI specialist.
- (5) **Pre-service training.** Design and implementation of the Sahel nursing school modules provides an excellent example of the advantages derived from a regional technical support office that can oversee and provide rigorous follow-up to a region-wide initiative. These modules, well-suited to all of the schools in the region, have been adopted for use in three-quarters of the schools. The success of this effort hinges on several factors:
 - active involvement of national CDD programs in the design and implementation efforts;
 - participation of the schools themselves in the development of the modules;
 - incorporation of educational materials and drawings from the region in the modules;
 - and finally, several years of continued effort by the regional office staff, including numerous visits to schools and practicum sites, training sessions for teachers, sharing of experiences from other countries and schools, and extensive follow-up and support.

- (6) **Regional information center.** Support to ORANA to provide region and Africa-specific CDD information and materials has assured thousands of health workers of an invaluable information resource. As such, it has enhanced the credibility of the regional office. Additionally, ORANA has greatly facilitated the region's ability to produce program support materials.

- (7) **Need for regional conferences.** There needs to be more formal opportunities for regional sharing of experiences. A regional conference in 1988 brought together CDD, health education, nutrition, and sanitation representatives from all six countries, including Chad, with PRITECH staff and set the base for long-term nutrition efforts. Regular conferences of this type could prove beneficial for shared discussion of issues and design of long-term solutions.

PRITECH SENEGAL PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Elements of PRITECH Country Plan

PRITECH's intervention in Senegal began in 1984, working with the Service for Feeding and Applied Nutrition (SANAS), with the objective of assisting the Ministries of Health (MOH) and Social Affairs (MSAS) in the launching of a national control of diarrheal diseases (CDD) program. At that time, PRITECH had the same objectives as those developed by SANAS. In addition to objectives for reducing mortality and morbidity, these included objectives related to oral rehydration salts (ORS) use, and, from the second year, an objective for the start-up of an ORS production unit in Senegal.

PRITECH supported training for health personnel and the start-up of case management activities in health facilities; the development of educational messages and materials on CDD and nutrition issues, as well as evaluations of their utilization; feasibility studies for the local production of ORS; development of national and regional CDD and nutrition plans; and research on infant feeding practices, breastfeeding, and the issues of persistent diarrhea and dysentery. In addition, PRITECH supported management assistance to the national pharmacy (PNA) and knowledge, attitude, and practice (KAP) studies concerning mothers.

Background

In 1985, PRITECH was asked by the USAID mission to give only short-term assistance to the CDD program. A full-time technical assistant was assigned to the program through a USAID bilateral project. This short-term technical assistance was at first limited to working with MSAS to develop operational program plans, communications activities for sugar-salt-solution (SSS) promotion, and in-service and pre-service training for CDD case management.

In 1987, PRITECH was asked by the MSAS to provide assistance in nutrition. This involved developing a demonstration community growth monitoring and recuperation project in Gniby. After a general hiatus of activities from 1988 to 1990, PRITECH continued its involvement in nutrition, developing a national plan and training-of-trainers (TOT) activities with the MSAS. PRITECH also took the lead in promoting breastfeeding issues, initially by carrying out a KAP study which generated some momentum in this area and then coordinating inputs from the WELLSTART/EPB Project. Central to the nutrition area was a qualitative study on infant feeding practices that PRITECH carried out in 1990 through 1992. These were being completed by an intervention research activity, funded mainly by PRITECH, which is studying alternative methods of transmitting nutrition messages identified through the initial research.

In 1992, USAID decided to offer more intensive assistance to three of the ten regions in the country; becoming much more involved in the implementation of activities in the regions and districts concerned. Also in early 1992, USAID authorized PRITECH to provide financial support to SANAS' CDD and nutrition activities, over and above the funds available through the bilateral project. These funds allowed flexibility and responsiveness to program needs and were used mainly for TOT activities and supervision of the regions and districts by the central SANAS team and PRITECH staff. This arrangement worked quite well since coupling technical assistance with some financial support makes the former more effective and certainly more legitimate in the eyes of MSAS counterparts.

PRITECH was also involved in addressing some systems issues in the MSAS. This task included working with the PNA to help it prepare managerially for its recently attributed autonomous status. The objective of this activity was to enable the PNA to deal adequately with an integrated supply system for essential drugs, including ORS and contraceptives.

Major Achievements of PRITECH

PRITECH's intervention broadly benefitted and supported the CDD program, including each of the major program areas. PRITECH also played a key role in assisting the MSAS concerning the choice of strategies and policies for the national CDD program (NCDDP).

Working together with UNICEF, who financed supplies of ORS, USAID through PRITECH financed the materials for oral rehydration units (ORUs) and the travel and per diem costs related to training and supervision activities. This division of responsibility minimized the overlap and duplication of support for the NCDDP.

PRITECH's support, like that of other donors, covered all of Senegal's regions although since early 1992, it has been concentrated on the three USAID intervention regions. Overall, PRITECH's financing and support of important activities such as the training of health personnel, baseline studies, and communication activities significantly increased the CDD program's effectiveness.

Major Constraints Encountered

A major constraint encountered was the start-up of the Expanded Program for Immunization (EPI) in 1987, which relegated all other activities at health facilities to secondary importance. The EPI program similarly dominated access to air time for health programming on the radio and television.

Another major constraint was the installation of regional programs for health development (PRDS). The activities of these regional programs occupied health officials at the regional and health district levels.

The absence of a national CDD manager and of a director for SANAS, during the years of 1988 to 1991 was an additional problem.

Impact of PRITECH on National CDD Effort

PRITECH was a key element in renewing and maintaining the momentum in CDD and nutrition activities following two to three years of hiatus and subsequent periods of low-levels of activity due to strikes, personnel problems, etc. In addition, PRITECH made positive contributions to the implementation and follow-up of the following activities for CDD and nutrition in Senegal:

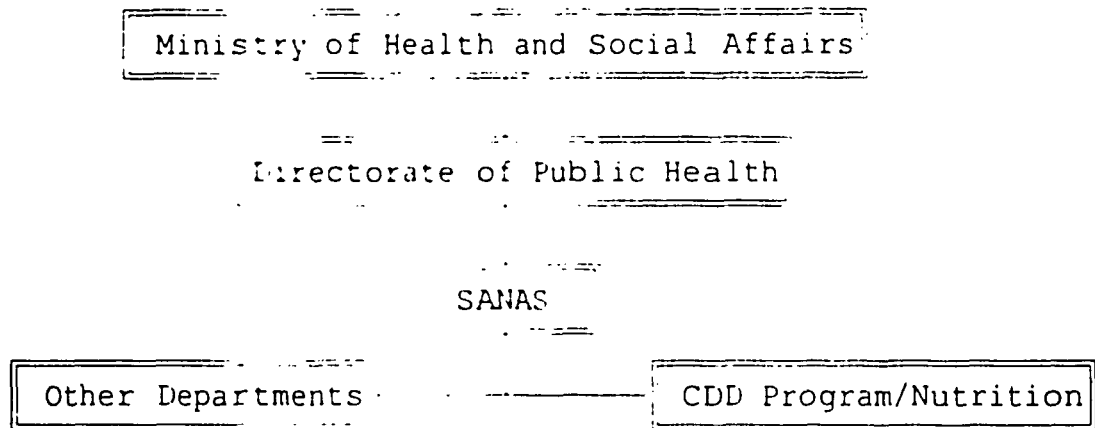
- transfer of CDD and nutrition training skills to the regional level through the training of regional and district level teams;
- development of in-service CDD training materials and educational materials for communication activities; and
- research activities, including KAP and case management studies, a study of nutritional case management at the community level in Gniby, feasibility studies for local ORS production, and studies concerning persistent diarrhea, SSS, feeding practices during diarrheal episodes, and the use of communication materials by health workers.

II. ACTIVITIES OF THE NATIONAL CDD PROGRAM

Organization of the National CDD Program (NCDDP)

The NCDDP is under the SANAS, which is itself located in the Directorate of Public Health in the MSAS. SANAS is responsible for overall implementation and coordination of CDD activities.

ORGANIZATIONAL CHART



Statement of National CDD Policy

The national policy for oral rehydration has not yet been sufficiently defined. One of the strategies included in the 1990-1995 Senegal CDD action plan is the development of a national policy which should provide clear guidelines for the following issues:

- correct measures for SSS, and the place of this solution in diarrhea case management (following the results of PRITECH supported research);
- case management at home;
- production versus importation of ORS;
- policy for and status of ORS commercialization;
- use of ORS packets by community health workers; and
- rational use of drugs.

A study was carried out on SSS and the feasibility study update on ORS production laid out the issues for decision-makers on production and commercialization. These studies provided guidance for the technical committee and should allow the NCDDP to produce a clear policy for diarrheal disease control in Senegal.

Program Planning

The first planning workshop for the NCDDP took place in 1984. PRITECH has participated in the annual planning sessions since 1985. There is currently an activity plan and budget in the five-year plan (1990-1995) which was developed with the support of PRITECH. An action plan for the first year of the five-year plan was developed. This action plan included activities related to the national policy; a feasibility study update for ORS production; revision of training materials; training of health workers at different levels; the purchase and distribution of materials for ORUs; the revision, testing and printing of educational materials; and studies concerning feeding of children during diarrheal episodes. These activities were supported by USAID through PRITECH. UNICEF has financed supplies of ORS.

SANAS, in collaboration with PRITECH, organized CDD planning meetings. There was a program management unit (UGP) in the MSAS, which had planning responsibility for the three regions financed by USAID. The UGP organized meetings every four months with the regional teams, SANAS, and PRITECH in order to plan CDD and nutrition activities. These planning sessions tried to coordinate the CDD program with other programs and activities financed by USAID, including health education, health information systems, and essential drugs.

Sources of financing for the CDD program include the World Health Organization (WHO) for some training materials, and UNICEF for ORS. Technical assistance and financing for training and diarrhea case management were financed by USAID/PRITECH in the three regions of Kaolack, Fatick, and Louga.

In the remaining eight regions there are non-governmental organizations (NGOs) and other donor organizations which support CDD activities. An organization of French volunteers (AFVP) works in the Tambacounda region. There is Italian bilateral assistance in the Louga region; World Vision works in the Thiès region, and the World Bank is active in several regions.

Training

Training has been divided into two categories, pre-service training and in-service training. Pre-service training includes the training of students in the nursing schools and midwife schools, the training of teachers at these schools in the use of the CDD manuals, and the training of teachers in diarrhea case management. In-service training has been aimed at health workers who treat diarrhea cases, as well as those who manage and supervise CDD case management.

In pre-service training, the nursing and midwife schools received CDD training modules developed by PRITECH. Two teachers at each school were trained in the use of the modules. Despite some initial difficulties, the nursing and midwife schools used these CDD modules in their programs. A case management guide was integrated into practice work sessions for nursing students in rural areas. The CDD program intends to improve this training through additional training of nursing school teachers in diarrhea case management and greater involvement by the CDD program in following the schools in question.

In the in-service training category, since 1988, 2,698 health workers from a wide variety of settings have received CDD training. Additionally, 1,035 support workers (hygiene and social action workers) and 230 community health workers have been trained. This training has involved all regions of Senegal.

Once the new USAID program became operational in early 1992, the regional training teams (six trainers per region) and district teams (four individuals per district) were trained in diarrhea case management in each of the three regions supported by USAID through PRITECH. These supervisory teams have since trained, with the support of SANAS, all of the chief of post nurses and the health workers treating child diarrhea cases in the pediatric wards of regional hospitals and in maternal-child health facilities. In addition, 1,500 training manuals have been produced and distributed.

In 1990, in addition to in-service training for government health workers, the directors of private (Catholic) health posts were sensitized concerning diarrhea case management at a two-day session with the support of PRITECH and SANAS. As a follow-up, health workers at these private Catholic health posts are being trained in diarrhea case management.

Given the case management training which has taken place in the three USAID regions and the start-up of ORUs in the same regions, the quality of care for child diarrhea cases is likely to improve considerably, provided a reasonable level of follow-up is maintained.

Unfortunately, some of the nursing and midwife school teachers who were trained in the use of the CDD modules are no longer at the schools. In addition, with the changes that have been made to training programs, there are currently some problems with the curriculum, and CDD module training has been suspended at the midwife school. Also, a strike by health personnel from August to October 1992 disturbed the planning of training for dispensary head nurses at the health district level in the Fatick region. The training of ICPs has completely stopped in one health district of the Fatick region because of problems related to per diem.

Future plans for the NCDDP include the following activities in training:

- training of teachers at the nursing schools and the midwife schools in clinical case management of diarrhea in 1993;
- supervision, with an emphasis on continuing education and improvement of the case management practices in the ORUs (ongoing); and
- CDD program managers' training for the chief medical officers of the regions and for the BRAN.

Supervision

Supervision has been a weak point in the CDD program due to funding and manpower constraints that have limited supervisory visits. On average, SANAS has supervised one training course for the regional training teams per year, one training course for health personnel at the district level in a region per year, and one supervisory visit upon the start-up of an ORU. Periodic follow-up supervisory visits from the central level to the regional level and from the regional level to the district level have been few. The major impediment to supervision has been insufficient access to vehicles, both at the central level and in the field. In addition, the development of effective supervisory skills, tools, and feedback mechanisms has not been a priority.

Areas that have received supervision are CDD and nutrition training courses, start-up activities in the ORUs, and the revision of the supervision guide. In addition, the central level was able to evaluate the quality of the training of personnel in health facilities. Teams from SANAS assisted in the organization of these training courses at the regional level.

Future plans for the NCDDP are aimed at increasing the number of supervisory visits at all levels and improving supervisory techniques. More specifically, supervision from the central level will be increased to two visits per year for each region; supervision from the regional level will be increased to four visits per year for each district; supervision from the district level will be increased to one visit per month to each health post; and a supervisory checklist and supervision guide will be developed.

ORS Supply and Distribution

ORS has been supplied to the MSAS by UNICEF and USAID. PRITECH provided assistance in feasibility studies concerning local production and/or importation of ORS. PRITECH was a strong advocate for the inclusion of ORS on the list of essential drugs.

From the 500,000 sachets received in 1985, 177,700 were distributed to the ten regions. In the 1986 to 1987 time period, the CDD program distributed 277,700 sachets and received 250,000 sachets. Figures for the time period of 1988 to 1991 have not yet been clearly established.

In 1992, 195,000 sachets were ordered and delivered, and 98,000 distributed. At the end of the year, 132,000 1-liter packets remained in stock.

A feasibility study for local production of ORS was carried out in 1985 and re-evaluated in 1991. Park-Davis, a private pharmaceutical company active in Senegal, withdrew from negotiations concerning local production. Accordingly, a decision was made that the PNA will assure importation and distribution of ORS. Import of ORS as part of the essential drugs program will be financed by the World Bank as part of the Bamako Initiative.

A major constraint to local production is the fact that ORS is given out at no-cost in health facilities. Another major constraint has been logistical difficulties for the PNA in distributing ORS to health centers.

In the future, as part of the implementation of the Bamako Initiative, ORS, as with other drugs, will be sold to beneficiaries of the system at a price to be determined by a study. In addition, the installation of pharmacy depots for essential drugs at the health district level will increase the availability of ORS in health facilities. Other future plans include renewed efforts in commercialization and the inclusion of ORS in the system of sale of essential drugs.

Information, Education, and Communication

Educational activities carried out by health workers in health facilities and by the mass media appeared to have had an effect on the mothers' awareness. According to the KAP study of 1989, 93 percent of mothers had heard of SSS, and 64 percent had heard of ORS (n = 656). Sources of information for ORS are: health workers [52 percent in urban areas (n = 274) and 54 percent in rural areas (n = 352)] and radio [46 percent in urban areas and 35 percent in rural areas].

PRITECH worked closely with the NCDDP in the development and implementation of communication activities. Communication activities included the design, production and distribution of large educational posters directed at the general public, a brochure for health workers and community health workers, workers in health-related sectors, and a handout for mothers translated into local languages.

The following communication materials were produced:

Large posters	5,000
Mother's handout	200,000
Brochures	20,000
Cartoons for students	5,000
Flyers for teachers	3,000

The NCDDP, with assistance from PRITECH, also developed two radio and television spots in six local languages. In addition, studies carried out by PRITECH, including KAP studies concerning mothers, a study of the use of educational materials by health workers, and a study on SSS, assisted the CDD program in defining their educational messages. This also had an impact on the identification and development of communication strategies such as the training of health personnel in interpersonal communication techniques.

Constraints to the CDD program's communication efforts have been few but significant. Following the start-up of the accelerated phase of the EPI program, radio and television activities in CDD education were suspended as attention shifted to EPI. Another constraint has been the non-use of education materials by health personnel during interaction with patients. In addition, the lack of coordination between SANAS and the Health Education Service has been a constraint.

Future plans are aimed at improving these constraints by promoting better interpersonal communication in the health facilities and revising educational materials (posters, guides, and flipcharts) to be more useful to health personnel. In addition, the promotion of appropriate feeding practices during diarrheal episodes is going to be emphasized.

Case Management

Case management activities have focused on promoting correct case management in the health facilities and in the homes. In the health facilities, promoting proper case management included the establishment of reference diarrhea training units (DTUs) in the two national hospitals, the establishment of an ORU in each regional hospital and each district health center, diarrhea case management activities in all health posts, and equipping ORUs and health posts with case management materials.

In total, the program has established five reference ORUs for national and international training courses. These ORUs are used for the practical working sessions during national CDD training courses, and for practicals for students at the nursing and midwife schools. In July 1986, WHO organized a course for 25 doctors from ten francophone African countries based on the ORUs. In addition to training activities, the reference ORUs are responsible for the case management of many of the diarrhea cases in the Dakar and Pikine areas.

An evaluation of the ORU at the maternal-child health care clinic in Médina in 1986 showed that from January to December 1986 the ORU took in 3,140 cases of diarrhea, 85 percent of which were plan A, 14 percent were plan B, and 21 percent were plan C.

At the moment, 15 ORUs are functioning in the three USAID-supported regions in health centers and maternal-child health care clinics. Material for equipping the ORUs has been distributed to all health facilities in these regions. Training activities held at ORUs and the ongoing case management of diarrhea cases at these units contribute to a higher ORS access rate and the reduction of diarrhea-related child mortality in health centers (to be confirmed by a study).

In the home, case management activities focussed on the promotion of SSS or other home-available fluids, the importance of feeding children with diarrhea, and training mothers in the correct preparation and administration of ORS and SSS for children following identification of signs of dehydration.

The promotion of ORS and SSS by the media and by health workers, and the distribution of guides concerning preparation and administration of both ORS and SSS has been the primary route of educating women in their homes regarding the importance of case management during diarrheal episodes.

The 1989 KAP study of mothers showed a use rate of 13 percent for SSS. Twenty-five percent of mothers judged oral rehydration therapy (ORT) to be useful for the reason that it replaces water lost due to the diarrhea.

The rational use of drugs has also been emphasized. Health workers are trained in the rational use of drugs, follow-up trainings emphasize rational drug use, and flyers concerning the physiopathology of diarrhea and related etiologies are distributed to trained health workers. In addition, diarrhea treatment charts published by WHO and ORANA have been distributed to all the health centers.

Due largely to the CDD program's efforts, the anti-diarrheal drugs guanidine and charcoal are no longer distributed in public health centers. These drugs, however, are still available in private pharmacies and pharmacy depots. The use rate for anti-diarrheals by health personnel is 4 percent according to the 1988 health facilities survey (HFS).

The constraints faced in improving case management are the ones commonly shared in the developing countries: lack of supervision of the ORUs and other health facilities, ORS stock-outs in health facilities, mothers' beliefs concerning diarrhea, an absence of clear national policies for the prescription of drugs, and a lack of ORS marketing.

Future plans for the program include the following activities:

- establishment of ORUs in the regional hospitals and in the health centers of the three regions covered by USAID;
- promotion of improved feeding of children with diarrhea;
- decentralized supervision of CDD activities in health facilities;
- promotion of home-available fluids, including SSS; and
- establishment of a clearly defined national policy concerning the use of drugs.

Nutrition

In 1973, the MOH created a national program for the nutritional protection of vulnerable groups, including children aged 0 to 5 years. Under this program, 415 centers were created and more than 100,000 children were reached. The withdrawal of the financing organization in 1988, however, upset these nutrition activities.

A new national nutrition program was established in 1991 with the assistance of PRITECH. Its principal activities have focused on:

- training of health personnel for growth monitoring activities;
- development of educational materials;
- provision of demonstration materials as well as equipment related to nutritional recuperation and education; and
- case management of malnourished children.

The achievements and outputs of the national nutrition program are as follows:

- development and production of cards for monitoring the growth and nutritional status of children (10,000 copies);
- development, production and distribution of a flyer concerning the feeding of children aged from 0 to 36 months (5,000 copies);
- development and production of a guide on the feeding of children suffering from diarrhea (500 copies);
- a pilot project for growth monitoring and case management of malnourished children by community health workers in a rural setting (in Gniby);
- training of the regional teams and of the SANAS personnel (32 people) in the three regions covered by USAID;
- distribution of kits for the case management of children with nutritional deficiencies;
- distribution of diagrams for growth monitoring activities;
- supervision of ongoing training courses for the health district teams (one session per region);
- supervision of training courses for district health workers (planned for February 1993);

- sensitization of the directors of private Catholic health posts concerning nutrition (planned for February 13-14);
- a workshop on the development and testing of educational materials related to nutrition; and
- a new strategy for activities related to nutrition to be integrated into maternal/child health (MCH) activities and based on community participation through local economic interest groups.

A constraint of the program, however, is that growth monitoring activities are currently being combined with vaccinations in a large number of health facilities. While the EPI program targets children in the 0 to 11 month age bracket, growth monitoring is actually more effective for children older than one year. These children are more vulnerable to malnutrition. A related problem is that mothers might think that the value of growth monitoring is limited to its relationship with vaccinations. There are also, of course, problems related to families' access to food.

In the future, the nutrition program plans to promote the growth monitoring of children aged 0 to 3 years through an extensive information and sensitization campaign aimed at the overall population. The program will also target improving nutrition education in health facilities to ensure the correct identification and case management of malnourished children.

In addition, the campaign will include educational messages concerning correct nutrition for pregnant mothers, breastfeeding mothers, and children aged 0 to 3.

Private Sector

The NCDDP has had limited relations with private sector groups, mainly NGOs in Senegal. For example, the NCDDP was involved in the training of 16 Peace Corps volunteers in February 1987. More significantly, the NCDDP, with PRITECH assistance, continuously brought health workers from private Catholic health posts into training activities, and provided their health centers with ORS and education materials concerning diarrhea and nutrition.

In 1991, PRITECH organized an "information weekend" on CDD for approximately 80 nurses from the Association of Private Catholic Health Posts (APSPC). PRITECH organized a similar session on acute respiratory infections (ARI) at the end of 1992. PRITECH has also assisted with the introduction of teaching CDD in the APSPC training center.

Private clinics and private pharmacies have not yet been reached by the CDD program. The Bamako Initiative and the sale of essential drugs, including ORS, present an opportunity to sensitize pharmacists and salespersons in pharmaceutical depots.

Future plans with the private sector include making ORS available in private distribution networks and sensitizing and training drug prescribers and sellers in the private sector.

Evaluation and Research

The following is a list of the activities conducted with the assistance of PRITECH in evaluation and research:

Surveys:

- HFS in 1988; and
- KAP study of mothers concerning child diarrhea, in 1989.

Operations research:

- KAP study of mothers on childhood diseases in the regions of Diourbel, Saint-Louis, Louga, Ziguinchor, and Tambacounda in 1989;
- research concerning the use of educational materials by health personnel in 1990;
- feasibility study for local production of ORS in 1985, with an update in 1991;
- KAP study of health personnel concerning breastfeeding in 1991;
- research on mothers' feeding practices of children suffering from diarrhea (1991-1993);
- research on persistent diarrhea (1991-1992) and dysentery (1992-1993);
- research on SSS following measurement problems discovered by the 1989 KAP study (1992).

According to the 1988 HFS, "correct evaluation" of dehydration was accomplished by health workers in only 46 percent of observed cases. Appropriate advice was given to mothers in 53 percent of cases. Thirty-nine percent of health facilities visited were experiencing an ORS stock-out at the moment of the visit.

The 1989 KAP study showed an ORT use rate of 24 percent. The rate of correct SSS preparation by those that used it was 25 percent. The guide intended for mothers had been seen by 55 percent of mothers.

Research carried out by the NCDDP has helped to guide policy decisions and strategies employed by the program.

Constraints in the program are for the most part, logistic in nature.

Delays in implementation of research activities, lack of financing for studies and research, and difficulties in involving the various organizations working with the MOH in research activities have been the major problems.

The inefficient use of information has also been a constraint to the program. Difficulties in coordinating a response to information coming from completed research and studies decreased the

usefulness of the information. Likewise, the excessive length of time taken to analyze data and information available for revising strategies and activities was a constraint.

Future plans in research include carrying out two case management studies during the next five years of the program and completing two KAP studies during the same time period.

III. KEY ISSUES AND LESSONS LEARNED FOR NATIONAL CDD EFFORTS

- (1) **Collaborative activities.** The Senegal NCDDP has collaborated with the non-profit private sector (APSPC, Peace Corps, World Vision, Italian Cooperation) and this successful collaboration has been mutually beneficial. The CDD program has offered training for CDD and nutrition, distribution of documents and supplies of ORS to this sector, which by its size and reach has been able to contribute significantly to the program's efforts to improve case management of children suffering from diarrhea and malnutrition.

The Bamako Initiative, which is working to extend the essential drugs program, could help to increase collaboration with the commercial private sector (pharmacy depots).

- (2) **ORS access.** The non-profit sector, by reinforcing the activities of the public health system and, in some cases, creating health posts, improves access to ORS for the population. The sale of essential drugs through private pharmacy depots under the Bamako Initiative would further increase the access of the population to ORS.
- (3) **Integration of child survival programs.** The integration of MCH and family planning activities with other child survival programs is currently being studied in Senegal. Already at the regional and district levels, supervision teams are responsible for training and supervision for all of these programs.

SANAS has an advantage in that it manages both the CDD and nutrition programs, which are therefore integrated for planning and for follow-up activities. However, a format for integration with other programs such as ORT, nutrition, ARI, malaria, and family planning at the central level remains to be developed.

- (4) **Decentralization of programs.** The national policy for decentralization initiated by the MOH has led to the implementation of regional health development programs. In this system, the regions develop their own action plans, taking into account their local realities and health patterns; a program at the national level serves as a reference for the regions.

At the regional level, there is a BRAN which oversees CDD and nutrition activities in coordination with other members of the regional team.

- (5) **Epidemiological patterns and needs.** Both dysentery and persistent diarrhea are present in Senegal in proportions meriting special attention. Studies carried out with assistance from PRITECH have provided information on epidemiological patterns, incidence rates, and case management methods.

Senegal suffered a cholera epidemic in 1987, focused in the Fatick region. Future directions for the CDD program will take into account these epidemiological patterns.

- (6) **Management needs.** The absence of a program manager during a relatively long time period (three years) has been a negative experience for the development of the CDD program. Additionally, it has at times been difficult for SANAS to play the role of coordinator of CDD and nutrition activities in relations with the Health Education Service and with the regions. In the future, it would be desirable to ensure much more thorough planning and sufficient delegation of decision-making power in order to permit a positive continuation of activities.
- (7) **Future program activity.** The program should be much more active at the region and health district levels of the health system which are the most operational.

PRITECH UGANDA PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Elements of the PRITECH Uganda Country Program

The PRITECH/Uganda program consisted of the following elements:

- technical assistance in the area of general program planning and management;
- technical and operational assistance in the development of the central diarrheal training unit (DTU) at Mulago Hospital, Kampala;
- technical and operational assistance for the development of cooperation between biomedical health workers and traditional healers;
- technical assistance for curriculum development of health inspectorate staff;
- technical assistance through the Program for Appropriate Technology in Health (PATH) sub-contract in production and promotion of private sector oral rehydration salts (ORS); and
- technical and operational assistance through the Centre for Development and Population Activities (CEDPA) sub-contract to the Uganda Red Cross for control of diarrheal diseases (CDD) activities.

Furthermore, PRITECH was involved in other public-health-related activities designed to significantly reduce morbidity and mortality caused by diarrheal diseases and health problems in general, dehydration in particular. Examples are: involvement in the cholera task force, breastfeeding activities, health information systems (HIS), and district health management strengthening.

Chronology of PRITECH Activities in Uganda

PRITECH has assisted the Uganda national CDD program (NCDDP) with short-term technical assistance since 1989. During visits, discussions were held with the Ministry of Health (MOH), the NCDDP, USAID, and UNICEF. It was the latter who initially requested PRITECH to provide technical assistance to the NCDDP. Various consultants have assisted the NCDDP with the conceptualization, planning, design organization, and analysis of a number of activities aimed at improving case management practices in health units and at both community and household levels.

Approval was sought and received in late summer 1991 for a sustained country program in Uganda. Since October 1991, the NCDDP has been assisted by a full-time PRITECH country representative and that action brought an additional set of activities concerning the planning and management of the program.

PATH assistance for commercial ORS production and promotion was continued under the PRITECH project. Under the CEDPA sub-contract, local non-government organizations (NGOs) were assisted with the development of their CDD activities. Health system strengthening (HSS) technical assistance was provided to USAID/Kampala from PRITECH/Washington.

II. MAJOR ACHIEVEMENTS OF PRITECH

Development of the Diarrheal Training Unit (DTU)

PRITECH assisted the NCDDP and the staff of the pediatric department of the Makerere Medical School at Mulago National Referral Hospital with the development of a national CDD case management training center. Results of a health facility survey (HFS), identified deficiencies in clinical skills that needed an intensified practical case training effort. Apart from the 'traditional' clinical case management, other deficiencies were recognized, such as poor or lacking communication and supervision skills.

An outline for comprehensive training was subsequently developed, incorporating those needed skill elements. Through further technical assistance from the PRITECH technical unit, a curriculum consisting of five modules was developed for CDD case management training at the DTU. UNICEF assisted with the rehabilitation of a ward at Old Mulago Hospital to become the DTU. WELLSTART/San Diego assisted the national lactation management unit team who were trained previously under PRITECH funding with the development of two additional modules on breastfeeding. The modules have been used in three training courses and are undergoing final revisions. Table 1 presents an overview of the DTU/LMU modules.

Table 1: DTU/LMU Modules.

Module 1:	An Introduction to Diarrhea
Module 2:	Diarrhea Case Management
Module 3:	Communication Skills
Module 4:	Supervision Skills
Module 5:	Training Skills
Module 6:	An Introduction to Breastfeeding
Module 7:	Lactation Management

It is envisaged that in the not too distant future, the DTU will become a national case management training center and include training for acute respiratory infection (ARI) and malaria cases. Additional disease-specific modules will be developed for these objectives.

In addition to the curriculum development assistance, support was provided for the physical start-up of the DTU. While UNICEF assisted with development of the physical structure, PRITECH assisted the training/nutrition part of the DTU by providing computer equipment, material

development equipment, and minor kitchen facilities. As a result, the DTU has now become fully operational with an average of 30 patients seen daily. Of these cases, many are complicated with ARI, malnutrition, and AIDS causing a greater number of moderate and severe dehydration cases.

Development of the Uganda Traditional Healers Initiative (UTHI)

In 1989, the NCDDP requested PRITECH's assistance with the training of traditional healers (THs) in appropriate diarrhea case management. The CDD program, supported by UNICEF, had already conducted several one-day courses for traditional healers. Informal follow-up interviews with a number of THs who participated in the courses revealed that while the stated objective of raising awareness about CDD issues had been met, the training had done little to improve diarrhea treatment practices.

As a first step toward the development of a revised training strategy, PRITECH conducted an intensive literature review of collaboration between the traditional and biomedical sectors in Africa as well as a multi-country fact finding survey. The review provided a wealth of information concerning traditional beliefs and practices related to diarrheal diseases in Africa; information on the nature, numbers and diversity of THs and healers organizations; and information on seemingly successful, although poorly documented, projects with THs in several African countries. Based on this preliminary research, PRITECH worked with the CDD staff to develop a new strategy for the training of Ugandan THs in diarrheal case management and prevention.

During the preparatory phase (phase I) of the UTHI, an ethnographic study of Ugandan THs' beliefs and practices was carried out in November 1990 by a Ugandan team with technical assistance from a PRITECH medical anthropologist. The study was analyzed and the results were presented to senior MOH officials and other interested parties in February 1991. At the same time, a training/health education consultant worked with a team consisting of representatives from the MOH, the Ministry of Culture, and the university to develop a six-phase strategy for the entire UTHI.

This strategy development workshop resulted in a series of decisions and achievements including:

- establishment of a national level team (referred to as the CFT: central facilitating team) responsible for the overall development and oversight of the UTHI;
- identification of the target area for the UTHIVP as two sub-counties in Gomba County of Mpigi District;
- formation of a Mpigi District facilitating team to plan and manage district-level activities;
- development of a proposal for a six-phase strategy for the UTHI;
- design of a preliminary needs assessment to be completed in the two pilot areas; and
- a preliminary definition of key workshop topics for future UTHI healer workshops.

The CFT conducted a needs assessment during November 1991 in the designated pilot areas, Mpenja and Kanoni, sub-counties in Mpigi. They identified the healers and the perception of

community groups, THs, and biomedical workers with regard to diarrhea treatment and possibilities of cooperation.

With PRITECH technical assistance, another workshop with participants from the NCDDP, CFT, the Mpigi District team, and traditional healers was organized to plan for the implementation of the training and social mobilization strategy in Gomba County, Mpigi District, using the needs assessment study results. The outcome of this workshop was the UTHI Vanguard Project (VP) proposal. The proposal included a strategy to evaluate the VP to determine whether the initiative was worthwhile continuing or expanding.

One of the key decisions made during the planning workshop was to enlarge the VP target area to cover all of Gomba County. This decision was made when it was realized that the total number of healers in the previously selected pilot areas was too small to meet the needs of the VP. Specifically, since the VP strategy should provide a model for the entire UTHI, and since it was not practically possible to train all estimated 60,000+ THs in Uganda, it was decided that no more than 10 percent of all healers in a given area should be trained. In the earlier designated pilot areas, such a sub-sample would have meant that a total of only eight THs would have been trained. Gomba County is estimated to contain between 500-800 healers, giving a reasonable sub-sample of between 50 and 80 healers to be trained.

Another key decision made during this last workshop was to include a sub-sample of lower-level health staff in the THs' training workshops. These nursing aides and dressers are often responsible for much of the actual case management in health facilities, but have generally not been the target of health worker training programs. Training the health workers together with the healers will serve the dual purpose of enhancing healer-health worker collaboration while simultaneously enhancing the counseling of the caretaker and case management skills of first-line health personnel in the health facilities. Ultimately, the total number of participants in the workshops should number between 60 and 115.

The VP has been accepted by the MOH and has begun to be implemented. PRITECH assisted by providing two health learning materials specialists to develop the training material necessary for the training courses. As the trainees will be mostly illiterate, great emphasis is being put on illustrative training material. Most of the material is currently in the field testing stage.

An intensive baseline survey was carried out in Gomba County, Mpigi District, to determine in detail local THs' perceptions on diarrhea, its treatment and prevention. Of the 437 healers surveyed, approximately 50 healers were selected as possible candidates for the training courses, using criteria such as sex, age, diarrhea treatment methods, and number of years in practice.

In summary, the UTHI has been supported by PRITECH as an additional, but alternative approach to improve case management in the community and at the home. The UTHI consists of six phases and is currently in the second phase. An overview of the phases is given in Table 2.

Table 2 Overview of UTHI Phases.

Phase 1:	Ethnographic study on traditional healers' beliefs and practices in diarrhea treatment
Phase 2:	Vanguard Project in one sub-county of Mpigi District
Phase 3:	Expansion to the rest of the district
Phase 4:	Expansion to two other districts
Phase 5:	Expansion to other primary health care (PHC) areas
Phase 6:	Expansion to the rest of the country

Planning and Management Assistance to the NCDDP

The country representative assisted the NCDDP with day-to-day planning and management issues, if and when necessary.

Two plan-of-action development workshops were facilitated with the help of a visual planning technique to address the 130 recommendations of the November 1991 evaluation. The year 1991 was the first time that a single NCDDP plan-of-action (for 1992) was developed to which every donor ascribed. In earlier years there had been a plan for each donor. The 1992 plan-of-action was closely followed during the year.

A program management procedure manual is being developed with guidelines for the organization of training courses, transport maintenance and management, an internal information system, and (possibly) accounting procedures. Also, all job descriptions will be reviewed and adjusted to reflect actual work done.

A study is underway to determine the ORS requirements of the country based on actual consumption and morbidity patterns.

Before the project ends in June 1993, the PRITECH representative will have facilitated the drafting of a NCDDP three-year plan.

PRITECH Studies in Uganda

Through PRITECH assistance, various studies and/or evaluations were carried out, including:

- (1) **Health inspectorate needs assessment study.** This study was carried out as a background study for the CDD program review in November 1991. In the study, PRITECH collaborated with a Ugandan team to analyze the performance and assess the training needs of the health inspectorate staff. The results are being scrutinized to guide the planning of in-service training. Some infrastructural and training activities have begun with the help of AMREF and UNICEF.

As a result of the evaluation, the health inspectorate has been undergoing the process of redefining its role. It was suggested that the inspectorate should be strengthened as an individual unit and it is envisaged that eventually the inspectorate staff that are based in the CDD program will move back and conduct CDD-preventive activities from the health inspectorate unit.

- (2) **Orphans study.** Due to the civil strife of the last twenty years and the AIDS epidemic in Uganda, many children under the age of 18 years have lost one or both parents. A rough estimation puts the number of orphans between 400,000 and 1,100,000. It is estimated that this number will increase five-fold within the next five years.

As a follow-up to the child survival mission of the U.S. Department of HSS, in early 1991 USAID/Kampala requested PRITECH to assess the current orphan crisis and suggest strategies and policies to deal with it. The study's main recommendation addressed the need for the Ugandan government to strengthen the families' and communities' capacities through economic and social interventions to improve local conditions rather than institutionalize orphans. Also recommended was that the Ministry of Labor and Social Welfare be strengthened to cope with the impending crisis. The last recommendation stated the need for the highest levels of government to articulate a national policy on orphans that will serve as a guide for the government, NGOs, and donors for implementation and serve as a standard of evaluation of orphan activities.

- (3) **Orthopedic project evaluation.** USAID/Kampala requested that PRITECH evaluate the mission's contributions to three international, but locally-based NGOs. These contributions included training sessions and prosthetics production aid. All three groups had experienced delays and requested extensions. All three groups were favorably reviewed by the evaluation team. A strong recommendation was made to the mission to integrate the three activities more by spending more management time on the project rather than have an NGO lead the project.

IV. MAJOR CONSTRAINTS ENCOUNTERED BY PRITECH

General Economic Constraints of the Country

In general, planning and management of the whole public sector, not just the health or CDD program, is hampered by the unavailability of government funding for activities and salaries. This situation tends to lead to incremental, ad-hoc and donor-led initiatives that set aside any existing annual plans. Actual activity implementation depends on the degree of salary supplementation rather than on any ministry-developed plans or priorities. This problem is becoming increasingly worse, putting an uncomfortable strain on local donor representatives.

Late Appointment of Full Country Program and Representatives

A full sustained country program was only started 10 months before the originally envisaged ending date of phase two of the PRITECH project (August 31, 1992). Despite the earlier consultations and preparations, a full program of activities was to be either begun or continued in a much sped-up fashion to achieve some results.

Despite the contract extension of another 10 months, until June 30, 1993, a country program that has to go through start-up and closure in a less than two-year period, especially a program having a high level of activities consisting of mainly external assistance, is an enormous administrative burden for a country representative. With the establishment of a project in the country, host government expectations are naturally raised in regard to ongoing and future involvement. These expectations could not possibly be fulfilled due to the given time period of operation and the budget limitations of the project. Future sustainability of CDD activities is therefore in doubt.

The shortfall of central funding, contrary to what was obligated in the negotiations with USAID/Kampala, resulted in not executing a possible administrative assistant post, as it was decided that local mission funds should be geared as much as possible toward actual activities. This lack of administrative assistance resulted in the country representative having limited time to provide technical assistance.

On the whole, however, it was found that the country representative's presence in-country had a positive impact, especially by being there to help out on-the-spot with budget reviews, management meetings, proposal development, standing-in in meetings, and solving computer problems, among other things.

Lack of Central Funding

With the high level of activities trying to achieve certain objectives, it was anticipated and negotiated that the mission buy-in funds were to be complemented with central funds, especially once the project was extended ten months. This did not happen.

As evaluation activities are a major component of the PRITECH project requirements, evaluation activities should, in principle, be largely covered by central funds and not met by buy-in funds from participating missions. The latter are usually more interested in implementing activities.

Bureaucratic Procedures Hinder Timely Implementation of PRITECH Activities

It took over a year to get a signed Memorandum of Understanding that legalized the activities of the PRITECH project in Uganda. Without this memorandum, one can not legally begin working in the country; no work permits are issued and no tax exemptions will be given for project equipment. A bank account or post office box cannot be opened. As the country representative was recruited from within Uganda, he had experience and contacts in the health and other

departments and managed to deal with most issues before the official Memorandum got signed, but it took a lot of effort and time that could have been spent otherwise. This time delay was equally shared by bureaucratic delays in both USAID/mission and Ugandan government departments. Later in the project, there was a delay of several months in the implementation of the UTHI activities because, for various reasons, task assignments were not signed or contracts approved.

Submission of proposals to the MOH are scrutinized in detail, especially with regard to management and sovereignty of the project. This scrutiny takes time, especially since the health system of Uganda is a conglomerate of donor-led activities that all, at some point in time, need attention from the higher officials.

V. IMPACT OF PRITECH ON NATIONAL CDD EFFORTS

Strengthened Case Management Training with Important Hands-on Curriculum

From its initial involvement with the NCDDP, PRITECH has been at the forefront in the development of the DTU curriculum, with a strong emphasis on practical case management training. Without the regular visits from members of the PRITECH technical unit to develop a practical case management training program, the development of the DTU itself would have died a natural death.

A spin-off effect of the establishment of the DTU is that the staff can now make stronger cases for facilities and equipment to be provided by Mulago Hospital, such as a hostel for trainees, drugs, and food from the central kitchen. In addition to this internal recognition, the DTU is now also regarded by the main donor, UNICEF, as an ideal site for general case management training.

Diversification and Expansion of NCDDP Activities

The local funding base and capacities for health activities is very meager. With an external project such as PRITECH, having its own funds and expertise attached to the NCDDP, it has been possible for the CDD program to strengthen and/or expand some of its activity areas to include activities such as health-unit-based home visiting as well as to diversify into areas such as the UTHI that would never been possible otherwise due to lack of funds.

VI. NATIONAL PROGRAM ACTIVITIES

Program Planning

The Uganda CDD program was initiated in 1984; however, until 1987, the national CDD office was staffed solely by a Ugandan program officer. Since that time, the program has grown to

include a large number of full-time staff, including a national program manager, two regional supervisors, and eight training officers. As of 1993, the NCDDP will also spearhead the ARI activities in the country. Despite interest in this initiative from the donors, as yet no staff or funding has been identified for the ARI program.

The 1991 evaluation concluded that the NCDDP was a highly centralized program. With PRITECH assistance, an action plan was developed for 1992 that addressed the recommendations of the evaluation. Through various efforts such as more regular supervision and activity financing through the Ministry of Local Government to the districts, the NCDDP has slowly embarked on a process of decentralization and integration with other maternal/child health (MCH) efforts such as the Expanded Program for Immunization (EPI) activities. However, the management of the program is still very much centered around the program manager, with other central technical staff being delegated administrative duties. Unfortunately, the program lost the deputy program manager who was transferred to the EPI program.

A NCDDP plan-of-action is normally developed during December, prior to the new year. Budgets are attached and presented to donors for negotiations to determine which activities will be funded, and by whom. During the implementation year, activities are carried out roughly according to schedule. In 1992, approximately 70 percent of the anticipated activities were implemented, which was a valiant effort considering that this was the first attempt in a donor-integrated plan. For every activity budgets are calculated and submitted to the donor involved, including the government, and after budget approval, the money is released and the activity implemented.

Through regular management and staff meetings, the action plan is regularly addressed and reviewed. It has not yet been possible to translate the annual plan in quarterly plans but an effort to do so will be addressed in the future.

In July (mid year) and just before a new plan is drawn up, the action plan is reviewed in-depth and possible action undertaken, either implementation of the activities still left undone or incomplete, or deferral of the activity is made to the next year's program.

Monthly, quarterly, and annual reports, as well as individual activity reports are prepared for the MOH. An annual report is prepared for the UNICEF/Uganda country program review.

Training

- (1) **Pre-service.** Pre-service training takes place in various schools throughout the country. Despite the reasonable number of training schools, the output is low. For example, it will take 20 years to train enough midwives to meet the personnel shortage. Few trained people remain in public service; only 35 percent of the graduated doctors remain in the country and even fewer join public service organizations.

TABLE 3
Health Training Schools in Uganda

Category	No. of Schools	No. of Annual Intake
Medical doctor	1	50
Medical assistant	3	90
Registered nurse	4	110
Registered midwife	3	85
Enrolled nurse	12	150
Enrolled midwife	12	180
Health inspector	1	30
Health assistant	2	40
Dispenser	1	15
Health visitor	1	4

The quality of the training also leaves a lot to be desired; usually there is no equipment nor stationary. Practical case management training is rare or limited.

- (2) **In-service.** In-service training is provided by some schools attached to up-country hospitals. Religion-based NGO hospitals are actively involved in this type of training; however, their output is mainly to maintain or boost their own staff requirements.

Personnel is also trained on-the-job, especially in rural areas where staff shortages are enormous. Interested people are employed as nursing aids or dressers and given instruction on basic treatment schedules. More often than not these people are the only service providers in the unit so an attempt is made to train them through operational level courses (OPL).

- (3) **Post-basic.** As a result of the turmoil of the last twenty years, very little post-basic training or supervision has taken place. The initial response, after peace had returned, was a series of vertical training courses, leaving the rural units without staff for weeks at a time. In 1988, the MOH decided to integrate the post-basic training under two training programs:

- (a) **Operational level courses (OPL).** These are two-week courses for unit staff and address all health issues from immunization to water and sanitation, from family planning to health information systems. Trainers from the individual programs come to teach their module. Approximately 4,000 staff have undergone OPL training in the last five years. Every district has at least one course per year with approximately 30 participants.
- (b) **Mid-level management courses (MLM).** These are one-week courses for district health staff and usually include four districts in each course. The course addresses managerial, supervision, and training issues. MLM-graduated staff usually organize the OPL courses in their respective districts.

As the vertical programs are no longer sponsored for individual courses, funds for training courses are channelled to the OPL and MLM courses. The organization of these courses is on a rotating basis and coordinated by various health programs, i.e., CDD, EPI, and the essential drugs unit.

A recent evaluation of the OPL/MLM courses recommended that the courses focus on particular topics selected by district staff, addressing district needs. More hands-on practice was requested, especially in the case of CDD and water and sanitation. This change is now being addressed by the training division of the MOH through curriculum revisions and development.

Highly specialized courses, such as training of cold chain technicians, vaccinators, and family planning service providers continue to be conducted occasionally.

- (3) **CDD case management training.** The DTU started functioning in 1992 as the central CDD case management training center. Three courses with a total 50 participants have been trained, most participants being central staff of the Mulago and Mbarara hospitals. The DTU staff do not envisage more than four courses per year. They also conduct follow-up supervision tours of their trainees.

Although oral rehydration therapy (ORT) kits have been widely distributed to rural hospitals, most of them have not been unpacked or used for training purposes. However, various religion-based NGO hospitals have started ORT corners and train their staff in case management.

In 1992, the NCDDP embarked on a new strategy to improve case management: health unit based home visiting. In 23 districts, units have been selected to function as pilot units. The staff in these units are being trained in the practical skills of visiting homes in the catchment areas of their respective units. This effort is intended to follow-up on cases and improve proper case management in the homes.

- (4) **CDD program managers training.** The World Health Organization (WHO) assisted the NCDDP with a CDD program managers course and a supervisory skills course. Using these courses, almost all district health staff in the country have been trained in CDD program management issues. To date, this training effort has not been translated into comprehensive CDD district plans despite several requests by the NCDDP to do so.

The CDD program manager is a regional facilitator for CDD program managers courses. Several NCDDP or related staff have attended the ICDDR,B courses in Bangladesh or DTU courses in other parts of Africa.

PRITECH sponsored the logistical officers of Medipharm, Armtrades, and the NCDDP to attend a training course in inventory control management. PATH had found that through appropriate inventory control, unit costs of their production and distribution could be improved.

Supervision

Among the NCDDP staff are two regional supervisors whose responsibilities cover half the country of Uganda. Supervision responsibilities of the remainder of Uganda is covered by the training officers. This method, although regular visits are attempted every 3-4 months, has not proven very effective. The country is too vast with too many health units to be visited by the CDD staff. Another concern is NCDDP staff become supervisors/trainers because of their seniority in the civil service rather than their skill level, and some have not had exposure to proper case management training or supervisory skills courses. Because of this, the PRITECH representative suggested that all NCDDP staff be trained through the DTU. A third issue in the supervision difficulty is that the precise supervisory role of the national (or central) programs has not been defined: should central staff go to individual units or should they train district staff to do so? As there is no clarity, they intend to do a bit of both.

Once a year there is an integrated supervision tour with staff from the various departments visiting districts together. Discussions are held with the district administration and district health teams, and one or two health units are visited in each district. This supervision is more of a managerial nature and, in reality, is not very effective. It is rather a joint supervision, whereby every program still looks at its own activities. The same managerial problems (lack of funds, equipment, transport, drugs) are present in each the district due to the general socio-economic circumstances of the country. The central-level supervisors that participate in the integrated supervision visits cannot do more than observe and note the problems.

ORS Supply and Distribution

- (1) **Public sector.** The annual consumption of ORS has been estimated at 3 million sachets consistently over the past several years but the actual use is not really known. The supply in the public sector is approximately 3.5 million sachets, of which 2.1 million sachets are

supplied through the essential drugs program (EDP) as part of the kits sent out to the health centers, including NGO facilities. Of the rest, the government of Uganda is financially projected to buy 30 percent. The remaining ORS sachets are donated either through UNICEF or with PL480 money and purchased by USAID. Public ORS is distributed through the EDP, the CDD program or collected by individuals/institution from central medical stores with CDD clearance.

- (2) **Private sector.** With the help of PATH, a commercial ORS product, ORADEX, was launched by Medipharm, a local pharmaceutical company. ORADEX was distributed in the country, mainly in the urban areas, by the distributing firm Armtrades, and by Medipharm itself. This commercial ORS product is also being promoted on national radio and through advertising spots in newspapers.

Before 1991, PATH assistance was provided under project support and was concerned mainly in elevating technical capacity and equipment to produce ORS at the Medipharm plant. Four visits from PATH staff during the years of 1991 and 1992 assisted in establishing and promoting quality assurance, product promotion, and production forecasting. Due to inflation and the high cost of production, the sachet is currently being marketed at a cost of USh 350 - approximately US\$ 0.17, and that cost is beyond the buying power of most Ugandans.

A further infiltration of free UEDMP- or UNICEF-donated ORS sachets in the market makes it at the moment very difficult for the commercial product to become a viable product.

USAID/Kampala recently rescued Medipharm from bankruptcy by providing PL480 funds totaling US\$ 130,000 to the MOH to buy ORS from the Medipharm factory. Another US\$ 500,000 will be provided through a PIO/T to engage PATH's further assistance in the next two years. Previous assistance has already amounted to the amount of US\$ 1,000,000.

Information, Education and Communication

In general, there is very little documented information available in Uganda. Most books either disappear completely or for fear of theft, end up in home libraries. The CDD program has most of the WHO literature, but is not up to date in regard to technical journal literature. The PRITECH Information Center provided the PRITECH office with many relevant books, technical documents, reports, and copies of abstracts. Additionally, the Monthly Acquisitions List is circulated to NCDDP management and USAID staff, who select abstracts to be copied. Selections are also made for the DTU and breastfeeding program staffs so that they will benefit as well. The copies are stored in a box file, a "reading file", for the benefit of all NCDDP and other interested staff. Also, a small reference library has been set up in the PRITECH office that contains the more valuable books, manuals, and reports.

Considerable health education material has been developed for the NCDDP. Some of the material has been translated into the four main languages. A major product was the basic health messages kit which was developed in collaboration with UNICEF and is being widely distributed to health units, schools, and other social gathering places. The kit includes plates with basic messages on water and sanitation, immunization, family planning, CDD, and others. Explanatory instructions have been provided on the back of the plate for training purposes.

Training materials developed include a health inspector training book, UNEPI/CDD handbook, community leaders handbook, and the OPL/MLM manuals with all the health modules. Health learning materials for the UTHI are in the process of development and field testing.

WHO provided copies of the revised 1991 wall chart on diarrhea case management to the NCDDP. These charts have been distributed to approximately 50 percent of the health units; however, more copies are needed to provide all the health units with the wall chart. The chart is in the process of being locally adapted to include nutrition information after which it will be distributed to all health units and other training places where it may be useful.

Health messages are regularly aired over the local radio station which broadcasts 17 hours a day in 22 languages. Radio audience is limited to radio ownership and access to batteries, which are expensive when available. Approximately 40 percent of the population owns a radio, but there is a tendency to gather round radios in public places or at individuals' homes.

Through the national radio and television broadcasts, the public was made aware of the existing cholera epidemic in Kasese and ways to prevent the epidemic's spread. In Kasese itself, house-to-house mobilization activities were carried out addressing domestic hygiene and water storage. Also, preventive measure posters were developed and distributed to all districts in the country.

The commercial ORS product, ORADEX has been promoted through radio broadcasts and advertisements in local newspapers; however, the latter reaches mainly urban areas.

Diarrhea Case Management

- (1) **Case management in the health unit.** Both the HFS and the evaluation of 1991 have shown that the impact of the CDD program has been far from ideal. The following table shows some of the main indicators of case management in the health facilities.

Table 4: Health Unit Case Management Indicators

Diarrhea cases correctly assessed	5% ('91)
Diarrhea cases correctly rehydrated	8% ('91)
Average in-patient diarrhea case fatality rate in regional hospital	15% ('91)
Diarrhea cases given anti-diarrheal drugs	5% ('91)
ORS access rate	27% ('89)

The data above is provided by the health facility survey of 1991, the national health information services center (1991), and the demographic and health survey (1989). It is important to note that the low rate of anti-diarrheal drugs given is due to the low or non-availability of drugs rather than to the rational use of drugs.

- (2) **Case management in the community or at home.** The NCDDP has not yet carried out a household survey so household data only exists from a few area-specific studies. These, however, show that as in the health unit, case management in the community and at home is very poor. ORS, when used, is not used or prepared correctly. An example of this incorrect use was found during a study in the Masindi District where mothers were reported to use ORS as a medicine, giving it dry, two teaspoons a day!

The CDD program has embarked on a strategy for appropriate home case management, encouraging caretakers to use home-available fluids. A study is currently being done to determine the various foods and fluids used in diarrhea case management so that regional recommendations can be formulated in the national nutrition and diarrhea policies.

Indicators found during the HFS included the finding that the ORS use rate was 18 percent while the proportion of caretakers with correct knowledge of when to seek treatment outside of the home (according to national policy) was a quite high 55 percent. THs studies have found that 70 percent of the caretakers seeking care would first visit the TH rather than the biomedical health workers, hence the development of activities as addressed by the UTHI.

Nutrition

Malnutrition is reported as being the cause of between 2 to 5 percent of mortality for children under the age of five; in addition, it is a strong contributor to all the leading causes of death, including diarrhea. In the DTU, many diarrhea cases which are being treated are complicated by the fact that the patients are malnourished. In a quick random sampling during one of the DTU trainings, it was found that 80 percent of the DTU cases were malnourished.

The Uganda demographic and health survey (UDHS) of 1989 reported high stunting levels with 45 percent of children aged 0-60 months chronically undernourished or stunted as measured by the height-for-age score. Even among infants under five months, 6 percent of male and 10 percent of female infants were reported to be stunted. Higher rates of stunting are found in the rural areas, among lower socio-economic groups, and among less educated mothers.

Chronic under-nutrition (measured by weight-for-age) is a serious problem in Uganda; over half the Ugandan children are moderately or severely undernourished. However, the rate of severe wasting is quite low, only 1.9 percent.

During a follow-up study by WINS and WELLSTART in September 1992, several possible causes for the high stunting levels despite the abundance of food at the markets and in the gardens were identified. First, major illnesses such as measles, malaria, pneumonia, and dysentery were main precipitating factors. Second, regional food unavailability, lack of access to quality health care, inadequate child care, and social and family problems were mentioned as situational factors. Finally, key underlying factors were identified as year-round food insecurity, poor sanitation, conflictive husband-wife decision-making on household resource allocation, and maternal malnutrition.

As concerns feeding practices, it was found that the types of supplemental foods fed during the weaning period did not vary much among children with poor or adequate growth. Better self-perception of the quality and quantity of breastfeeding was associated with good growth and the average age of introduction of supplementary foods was between four and six months. If introduction to foods took place earlier than this, it was related to the common belief of having the child become accustomed to other foods just in case the mother is unable to breastfeed due to illness, separation, pregnancy, etc., and to the perception of inadequate milk production by the mother; however, in some cases a few impoverished women were observed to lack the time, energy, or maternal competence to better utilize available traditional foods for child feeding.

Within the health system there is little or no growth monitoring carried out. When monitoring does happen, it is usually done during EPI clinics which only cover the children up to five months. This leaves the older, more nutritionally vulnerable infants and toddlers with little or no growth monitoring. CDD home visits by health inspectorate staff are infrequent and unplanned, and often nutrition-related observations are missed due to inexperience or lack of knowledge. Little maternal nutrition surveillance is carried out as part of the regular health services.

Of recent, these problems are being addressed by the MOH. The nutrition unit in the MCH department was revitalized. The main activities to-date have been the drafting of a nutrition policy and several studies on regional foods and fluids.

Meanwhile the Uganda lactation management education team (ULMET) has embarked on the implementation of the WHO/UNICEF Baby Friendly Hospital Initiative. So far they have selected and trained the staff in the five main hospitals and six health centers, using the training facilities

of the DTU. In addition, a breastfeeding policy has been drafted which will be part of the nutrition policy.

Private Sector

Three main groups can be identified in the private health sector: 1) health practitioners; 2) pharmacists; and 3) traditional healers. The practitioners provide medical services for a fee and usually also dispense the drugs they prescribe. As the ultimate aim is monetary gain, there seems to be no rational use of drugs. Multiple prescription is normal; use of anti-diarrheals and antibiotics is high but they use very little ORS.

Private pharmacies are a growing and possibly lucrative industry. Studies show that people in Uganda often do not seek medical attention but go to the pharmacy, as they go to the TH, looking for instant and nearby treatment. Most dispensers in the private pharmacies are not trained. There is no system of government control of these pharmacies. Occasional police raids close the pharmacies down for a period of time or the pharmacies move to another location. They inflate the ORADEX suggested retail price and sell for a profit donated ORS sachets provided by health workers looking for additional income. Private pharmacy staff training is planned in 11 major towns during 1993.

The NGO health sector has had few activities developed for their integration into the CDD program. A local consultant assisted the Uganda Red Cross (URC) with project formulation and implementation of a home-available fluids study in the Masindi District, and together with another NGO, The Action for Development (ACFODE), URC participated in a regional NGO seminar in Nairobi organized by CEDPA where the initial CDD projects were drafted. CEDPA availed some start-up funds for the URC project.

There is potential for local hand washing campaigns since one of the major local industries (Mukwano) produces soap but nothing has yet been done or any interest shown in this initiative.

Evaluation and Research

A major CDD program review was conducted in November 1991 by WHO, UNICEF, USAID, and the Ugandan Ministry of Planning and Economic Development. The main conclusions were:

- program was too centralized;
- need for strengthening the health inspectorate unit so that it deals with the preventive aspects of diarrheal diseases; and
- lack of procedures and guidelines for logistics, accounting, and other aspects of program management.

As mentioned above, the recommendation of the evaluation have been addressed in the subsequent 1992 and 1993 plans-of-action. Other issues will be addressed at various levels in the ministry and/or in the CDD three-year plan, which will be drafted during 1993 with PRITECH assistance.

Fourteen studies have been conducted over the last ten years that addressed CDD issues. Some were situational analyses such as knowledge, attitude, and practice (KAP) studies, while others were more clinically oriented, such as vector studies. In addition, two major surveys have taken place: the UDHS (1989) and the HFS (1991).

A diarrheal disease morbidity and mortality survey, possibly through the household survey; a foods and fluids study; an ORS requirements study; and a rational use of drugs in diarrheal diseases study are all projected to be implemented or completed during 1993.

VII. KEY ISSUES AND LESSONS LEARNED

- (1) **Sustainability.** In Uganda as in many African countries, programs only become sustainable if assistance is provided for a long period of time. Various donors such as DANIDA, GTZ, and UNICEF are more and more prepared to consider and provide this type of extended support. In USAID missions, however, no sustainable, comprehensive health programs are being developed. It is the prerogative of the mission director to determine the aid to various sectors, according to his priorities and health generally loses out to agricultural and industrial development, despite U.S. Congress recommendations. Second, health program officers in missions have their own biases and priorities they wish to pursue. Third, both mission director and health program officers rotate between missions fairly regularly and the new officers come in with program ideas and focuses of their own; hence the lack of continuity and sustainability of assistance. For the foreseeable future in Uganda, the mission has chosen to focus on AIDS, sexually transmitted diseases (STDs), and the provision of family planning services. Child survival activities will be downsized in the coming years.

This results in national programs looking for further funding from donors. Donors may be willing to assist country programs, but again, they come with their own agendas of priorities. National governments lack, unfortunately, the power and the financial base to say no to any assistance offered and provided.

Furthermore, sustainability should also take into account the possibility of governments to finance their own health programs. This has proven very difficult in Uganda as the planning and management of the whole public sector, not just the CDD program, is hampered by the unavailability of government funding for activities and salaries. This lack of funds tends to lead to incremental, ad-hoc, and donor-led initiatives that may set aside possible existing annual plans of the ministry. Actual activity implementation depends on the degree of salary supplementation rather than on health plans or priorities.

Despite the concentration on the social sectors in Uganda, only 6-8 percent of the national budget is allocated to health. Of that, 25 percent is allocated to the national referral hospital Mulago; the rest is used for recurrent costs, mainly personnel salary costs. Capital costs and recurrent costs, such as drugs and fuel, are mainly provided by donors.

In 1992, a preliminary budget breakdown of the CDD program was as described in Table 5 below.

Table 5: CDD Program Budget Breakdown

GOVT/MOH	US\$	15,000	1.5%
GOVT/MOH	US\$	100,000	10.3%
USAID/UNICEF	US\$	500,000	51.5%
USAID/PRITECH	US\$	200,000	20.6%
USAID/PL480	US\$	180,000	18.5%
WHO	US\$	75,000	7.7%

The resources for the program (USAID through UNICEF, PRITECH, and PL480) are terminating at the end of 1993. Resources have not yet been identified for the ARI program. It is not sure whether USAID will again make funds available through UNICEF. Considering the low local-funding base as shown above, it would be difficult to predict whether the Ugandan government would be able to take control, or at minimum finance a major part of the activities in the near future. The addition of the ARI program may complicate the situation further. So far no funding, manpower, or space has been identified for the program.

In conclusion, donor funding will still be necessary if the momentum of strengthening, integrating, and decentralizing the CDD program is not to be lost. The extent of this donor funding, however, is dependent on the whole socio-economic status of the country and the donors' attitudes towards the country.

- (2) **Private sector activities.** The viability and feasibility of the whole Medipharm project should be questioned. Several reasons for this statement are that the production costs are likely to rise since the fixed costs as well as the major component costs are rising continuously, and ORS-landed costs are currently US\$ 0.08. Although support for local industry is important for the likely spin-off effects of self-sufficiency and employment, ORS should not become a subsidized product. One might as well then import the ORS. Only a few pharmaceutical companies are currently working effectively and efficiently in Central and Southern Africa, but they have diversified enormously. This diversification capacity is far beyond the capacity of Medipharm at this moment in time.

Diarrheal diseases are on the decrease in Uganda so less ORS will be required in the future. Moreover, the standard case management of diarrhea in Uganda is provision of

home-available fluids rather than the ORS solution. ORS is only recommended for use in health units in Uganda.

The viability of the commercial ORS production project needs to be considered in regard to the possibility of a diversification of its product-line to other pharmaceutical products. Heavy reliance on the ORS product and the connected donor assistance makes it very vulnerable.

- (3) **Integration of child survival activities.** There is a general donor-driven campaign to integrate programs under the department of MCH and family planning; programs such as nutrition, CDD, and immunization may be integrated in the not too distant future. However, actual integrated activities as such have not been developed. Occasionally, activities will be ventured in a collaborative manner and that may lead to eventual integration. Examples of these joint ventures include: social mobilization activities for CDD together with the Health Education Division; identification of at-risk families by health inspectorate staff; and CDD messages inclusion in school health education programs in collaboration with the Ministry of Education.

In a new development proposed in the CDD plan-of-action for 1993, strengthening the health visitor's role at district level will be the focal point for MCH activities in the district. This effort will include administrative and clinical supervision. Using this technique, it is hoped that activities will be integrated at service delivery levels.

Integration activities will eventually have to address issues that fall outside the traditionally clinical realm of the CDD program, thereby shifting from treatment to prevention issues including water and sanitation, food hygiene, and environmental cleanliness.

- (4) **Decentralization.** Prevailing informal governmental policy is geared toward decentralization; however, the decentralization bill has not yet been passed by parliament. Meanwhile, the ministries have been advised to keep a skeleton of staff at the central headquarters. These central headquarters staff members are supposed to be carrying out duties managerial in nature while technical staff is being sent out into the field to strengthen activity planning and management at local level.

Through various efforts, such as regular supervision and activity financing through the Ministry of Local Government to the districts, the NCDDP has slowly embarked on the process of decentralization and integration with other MCH efforts such as immunization activities.

Despite all these developments, there are still some unresolved issues.

- The degree of decentralization is not yet clear as to whether it will be delegation of duties or merely a de-concentration of government departments. This will

ultimately depend on the internal resource generation by the districts and possible block allocations by the central government.

- Decentralization needs a strengthening of managerial and planning capacities at district levels which, in turn, need to be supported and supervised by well-trained managerial technical staff from headquarters. This could be a very costly operation.
- Most donor assistance is still concentrated in central agencies. The argument that with strengthening the center, the power will eventually trickle down to the district is a common fallacy in Uganda. For activities to work, the presence of staff, including technical assistance, is necessary at the district level.
- Roles in the decentralization process have not been defined as yet.

Even if the parliament approves the decentralization policy and starts implementation activities in the 13 pilot districts, the above-listed issues will need to be addressed in the early stages of the effort.

- (5) **Changing diarrhea epidemiology.** The DTU caseload has already shown that the presenting diarrhea cases are much more complicated than in the past. Most children suffer from multiple infections or diseases which have diarrhea as a symptom. Diarrhea-associated mortality rates are almost non-existent due to the many complications found among the diarrhea cases and the difficulties of determining the cause of death in many patients. This would be another valid argument for an integrated approach to child survival, addressing childhood diseases as a whole, with diarrhea as just one of the symptoms.

Due to the AIDS epidemic, there is also a change in epidemiology to more bacterial infections, such as dysentery (bloody diarrhea) and common gastro-enteritis. Prevention of AIDS-related diarrheal cases falls outside the scope of the NCDDP, since in Uganda, this type of medical problem has to do with sexual behavior.

A gradual shift of the diarrhea treatment case load from children to adults is likely to happen in the not too distant future. More investigations and studies will be necessary to determine what the exact impact will be of AIDS/HIV on diarrhea case management.

PRITECH ZAMBIA PROGRAM FINAL INTERVENTION REPORT

I. HISTORY OF PRITECH COUNTRY ACTIVITIES

Since 1986, PRITECH and Zambia's Ministry of Health (MOH) have worked closely together to implement a strong and successful national control of diarrheal diseases program (NCDDP). Indications of the program's success come from comparisons of household surveys conducted in 1986 and 1992 which show significant improvements in oral rehydration salts (ORS) use and home case management indicators. The increasingly high profile of the control of diarrheal diseases (CDD) program and increased support from a wide variety of donors is due to the program's ability to implement training and other activities and to PRITECH's continued support.

The CDD program has coped with a variety of constraints, including Zambia's limited infrastructure and low literacy rates. Epidemics of cholera and dysentery have challenged the program, which has effectively responded and capitalized on increased attention to cholera to improve overall diarrhea case management practices. The program has also been strongly supported by the ministry, which has allocated significant funding for CDD.

Background

In February 1986, the MOH of Zambia developed a plan of operations for the CDD program. The main objectives of the plan were to reduce the morbidity and mortality from diarrheal diseases with emphasis on children aged 0-5 years. The specific objectives were to improve the environmental sanitation at the community level and to provide a safe water supply, to make ORS available, and to increase community participation in CDD through the training of community health workers (CHWs) and traditional birth attendants (TBAs).

PRITECH consultants participated in the development and refining of this plan of operations. The intervention strategy proposed by PRITECH emphasized strengthening program management and existing service delivery systems. PRITECH also recommended that a decision as to a standard ORS sachet size be made early in the evolution of the program and that detailed health education and training plans be further developed. PRITECH and the MOH decided together to implement activities nationwide rather than concentrate on certain provinces.

In August 1986, a full-time PRITECH country representative for Zambia was appointed and a local PRITECH office established. The PRITECH representative had the advantage of being very familiar with donor activity in Zambia, having served on numerous donor/non-governmental organization (NGO) committees and planning committees in the MOH for five years prior to his appointment with PRITECH. One of the initial tasks of the PRITECH representative was to assist the national CDD program manager and newly appointed CDD secretariat in the development of a detailed joint CDD/PRITECH implementation plan, established in collaboration with the World

Health Organization (WHO) and other MOH units. This plan covered all major program components, leaving open the possibility for amendments to be made by the subcommittees of the CDD Coordinating Committee (health education, ORS, training).

Chronology of PRITECH Activities In-Country

The key areas of PRITECH support in the initial stages of the country program included assistance in the following areas: planning; ORS production and distribution; baseline surveys and other operations research; creation of a diarrheal training unit (DTU); and the design and production of appropriate health education materials.

The decision by PRITECH and the NCDDP to implement interventions at a national level rather than in a phased provincial approach was, in retrospect, a correct decision. The sequence of activities as planned by PRITECH/MOH was effective. In spite of serious economic, personnel, and managerial constraints, all of the planned activities were accomplished within a short time frame.

PRITECH played a key role in coordinating and mobilizing donor support for the NCDDP. Currently, ten different donors are supporting CDD and this number is likely to increase as new bilateral donors and private volunteer organizations (PVOs) indicate an interest in supporting CDD training, water/sanitation, and hygiene education. The support of a wide range of donors has been a major factor in the rapid success of the Zambian CDD program.

PRITECH/Zambia financing has been through PRITECH/Washington central funds. The amount expended annually by PRITECH is roughly equal to that of the other major donors, UNICEF and WHO combined, for CDD activities. The CDD program did not have a line item budget in the MOH budget until 1989. The funds allocated at that time were utilized by the CDD program for oral rehydration therapy (ORT) corner equipment and training materials.

Major Achievements of PRITECH

The success of PRITECH's support of the NCDDP is evidenced by both the program's wide support and performance as measured by key indicators. Support for the program by multiple donors and recognition within the MOH that CDD is a priority is recognized by the allocation of a budget line to CDD in 1989. These are important achievements closely related to PRITECH's intervention.

In addition, the program has the advantage of two national CDD surveys (1986 and 1992) which allow an objective measure of progress and impact over a six-year period. The majority of key program indicators improved significantly during this time period. For example, the two-week ORS use rate increased from 32 percent in 1986 to 53 percent in 1992, and the rate of continued breastfeeding from 81 percent to 97 percent, and the rate of continued feeding from 50 percent

to 72 percent. The use of anti-diarrheals declined considerably during the period, from 42 percent to 5.7 percent in urban areas.

Impact of PRITECH on National CDD Efforts

The impact of PRITECH and activities initiated by PRITECH has been very significant for the Zambian CDD program. The 1990 midterm evaluation of PRITECH noted: "acknowledged by other donors and the government, PRITECH has played the critical catalytic role in the country. Enormous progress has been made in the NCDDP, and prospects are excellent for additional gains in the next three years."

PRITECH strongly supported every key operational area of the CDD program in Zambia. Many of the activities of the program have been primarily due to PRITECH's technical assistance and financial support. These activities include: an extensive research program; the establishment of the health education subcommittee; the use of popular theater; the design and production of health education materials; the mobilization of donor support; and policy initiatives in traditional medicine and breastfeeding. A number of other important activities received PRITECH support and benefitted from the persistence of the PRITECH country representative, including the construction of the diarrheal training unit (DTU), the national CDD policy planning workshop, and development of CDD policy guidelines.

II. THE NATIONAL CDD PROGRAM

MOH appointed a CDD program manager in August 1986 and organized a CDD secretariat. The program manager, who is also responsible for a number of other programs, is directly responsible to the assistant director of Medical Services in the ministry. The CDD program also benefitted from the contributions of a National CDD Coordinating Committee which has several subcommittees, including health education, ORS production and distribution, and training.

The major activities of PRITECH and the NCDDP since 1986 are summarized as follows:

Activities	Dates
Review of MOH/CDD plan of operations by PRITECH.	March 1986
National program manager appointed; CDD secretariat and National CDD Coordinating Committee established.	July 1986
PRITECH representative begins work.	August 1986
Decision to produce 1-liter sachet ORS (local production by GPL).	September 1986
CDD implementation plan completed.	1987

Activities	Dates
Preparations for construction of national DTU.	1987
National baseline survey conducted.	November 1986
Health Education Materials Committee formed.	November 1986
Anti-diarrheals banned in public sector.	December 1986
Construction of DTU begun.	July 1987
Radio programs, popular theater, production of poster and leaflets.	1987
Research activities begin, including ORS distribution and private pharmacists.	March 1987
First PRITECH evaluation.	1987
Second PRITECH evaluation.	1988
DTU becomes operational; first national course held.	October 1989
Health facilities survey (HFS).	1988-1989
First international course held at DTU.	1989
DTU officially opened.	October 1990
National CDD policy planning workshop.	1990
International program managers' course held in Lusaka.	1990
National CDD policy guidelines developed and approved.	1990
Establishment of ORT corners and units begun.	1990
Beginning of collaboration with Centers for Disease Control and Prevention (CDC) in Atlanta.	1990
WELLSTART participants trained in San Diego.	August 1991
First national program managers' training course.	1992
Start of intensive decentralized training.	1991
Environmental health staff training.	1992
Traditional healers and breastfeeding policies developed.	1992
Production of guidelines for health workers on cholera and dysentery case management.	1992

Activities	Dates
District CDD coordinators orientation workshops.	1992
Follow-up of 1986 baseline survey conducted.	1992
Donors meeting for cholera held.	January 1993
Review of district action plans.	1993
Medical education international workshop held at DTU.	1993

As indicated above, CDD activities in each major program component demonstrate considerable accomplishments. The profile and the importance of the CDD program within the MOH and in the donor community also increased during this time period as a result of successful implementation of priority activities and promotion of the program by CDD staff, PRITECH, and WHO.

Support for the program was an important factor in the face of cholera epidemics which disrupted CDD activities, draining personnel and resources. The CDD program capitalized on the cholera opportunity by mobilizing new resources and donors to support ongoing case management training efforts with emphasis on cholera and dysentery.

A more detailed description of program activities by component area follows below:

- (1) **Program planning.** One of the initial tasks of the PRITECH representative was to assist the CDD secretariat and program manager in the development of a detailed CDD implementation plan. The completed plan was circulated for comments to WHO and UNICEF and presented for discussion at a CDD national coordinating meeting.

A planning workshop organized by PRITECH in 1989 brought together representatives from NGOs, various MOH departments, the National Food and Nutrition Commission and the Churches Medical Association to discuss progress and future directions for the CDD program. Following the recommendations of this workshop, the CDD program redefined program priorities to place more emphasis on the establishment of ORT corners, practical hands-on clinical training, and community level health education.

The CDD program developed a cholera rapid response plan and a national epidemic preparedness plan in collaboration with the MOH planning unit. Additionally, PRITECH, WHO, and CDD program staff assisted district staff in the development of action plans to deal more effectively with cholera preparedness and prevention. Training workshops were held for planning teams from nine cholera-prone districts in a manner consistent with the MOH decentralization policy. The action plans were summarized and presented at a donors meeting held in January 1993.

A national program managers' course was held in January 1992 to improve the planning capacity of provincial medical officers and provincial CDD coordinators appointed in the nine provinces.

The CDD program staff and PRITECH representative participated in annual planning and budget meetings with UNICEF and WHO. In general, the program planning capacity of the CDD secretariat is now sufficiently developed to allow the CDD program staff to formulate annual and long-term plans with minimal assistance.

- (2) **Training.** CDD training activities in Zambia began in 1984, preceding the official establishment of a program by two years. The training included annual mid-level supervisory skills courses for provincial-level personnel using WHO modules. Additionally, two physicians and a nurse attended clinical case management courses in Thailand, Bangladesh, and Ethiopia.

In September 1986, a training plan was developed and planning for the construction of a DTU begun. In August 1988, the DTU, which had been designated as a WHO sub-region III facility, began receiving patients. The first national course was held in October 1989. The DTU was officially opened by the Prime Minister in October 1990. Since that time, ten national case management courses have been held at the DTU with more than 170 health personnel trained.

In addition to ongoing training conducted at the DTU, district and provincial staff conducted three to four-day courses for district hospital and rural health center staff. The national CDD secretariat provided financial and administrative support for these courses.

In 1990, the CDD program developed an intensive training plan which emphasized the establishment of ORT corners and the role of practical, hands-on work during training courses. The 1990 training plan also incorporated training for cholera and dysentery case management. The first phase of activities under this plan was a training-of-trainers (TOT) led in September 1991 by the CDD secretariat in collaboration with WHO.

Phase two involved practical case management courses in all nine provinces in Zambia. A total of 167 health workers were trained, some later serving as facilitators in the district training in phase three. Under phase three, 27 districts were covered from November 1991 to March 1992. The remaining 30 districts are planned for 1993 and 1994. The program was able to mobilize eight different donors to support the provincial and district training. As a result of the intensive training, there is now a sufficient number of facilitators to continue courses in at the provincial and district level.

In order to improve diarrheal disease surveillance and investigations of cholera and dysentery, the CDD program organized three workshops for environmental health staff.

More than 60 health inspectors and health assistants from four provinces were trained. Two of the courses were supported by WHO and one by PRITECH.

Zambia was selected and participated as a field test site for the newly developed WHO distance learning training course "Clinical Skills -- A Self Instructional Course." The course is designed for health workers in small health facilities who are unable to attend training courses away from their work site. The field test started in December 1991 with an evaluation conducted in March 1992. The test was successful; the 20 participants gained theoretical knowledge and 80 percent of them set up ORT corners in their health facility. This training method seems to have great potential and is very cost effective; however, it does require high quality supervision.

The Zambian program has made significant progress in the revision of nursing school curricula. The CDD secretariat and PRITECH representative worked closely with the General Nursing Council following a review of their existing diarrhea training materials. A series of workshops were held to train nursing tutors in the proposed new curriculum which includes practical work at the DTU. The new curriculum will officially be implemented in 1993.

Progress in changing the medical school curricula has been much slower. However, it is likely that some important steps will be taken following the recent training of an international task force of medical school educators facilitated by WHO and held in Lusaka in January 1993. The Lusaka DTU has been selected for the next WHO training course for anglophone medical schools in the Southern African region during October and November 1993.

Zambia sent five participants to the WELLSTART lactation management training in San Diego in August 1991. The WELLSTART team has since organized three lactation management seminars in Lusaka with support from UNICEF. A total of 42 health personnel have been trained. The PRITECH representative and CDD secretariat staff presented lectures and material on breastfeeding, nutrition, and diarrhea.

The intensive decentralized training plan outlined in 1990 has been largely completed. The CDD program will continue training at the national, provincial, and district levels with a focus on practical training. Additionally, the CDD program has developed plans for on-the-job-training of CHWs when functional ORT corners are established at health centers.

- (3) **Supervision.** In 1987, CDD program staff and PRITECH conducted an assessment of supervision at the provincial and district level in seven districts as part of an ORS effective use survey. The results indicated that supervision at both levels was inadequate, often haphazard, and usually carried out without checklists. This assessment was confirmed by subsequent supervisory visits by the CDD secretariat.

In order to improve the situation the secretariat, in collaboration with PRITECH and WHO, conducted two orientation courses for provincial and district CDD coordinators in 1992. Participants at these courses reviewed their supervisory roles and responsibilities, deciding on appropriate checklists and discussing annual reporting requirements.

Experience has shown that supervisory visits should be integrated at all levels and that checklists should be used for all visits. Options for the MOH include continued orientation courses for provincial and district supervisory staff as a forum for exchange of experiences and information, and the implementation of a practical supervisory training program.

- (4) **ORS supply and distribution.** The provision of an adequate supply of ORS and effective distribution have been problematic. Constraints include inefficient parastatal production, high local costs and a shortage of foreign exchange, inadequate transport, and a widely dispersed health facility network. As a result, Zambia has relied heavily on donor support to supply essential drugs, including ORS.

In 1986, anti-diarrheal mixtures were supplied to public sector health facilities along with 50 sachets of ORS as part of the essential drug kit system. A local ORS production facility, General Pharmaceuticals Limited (GPL), a parastatal company, had begun producing 750 ml. packets in 1985 for the MOH, most of which remained in their warehouse. Partly due to PRITECH's intervention, decisions were made to create an ORS production subcommittee, to direct GPL to change the ORS packet size to 1-liter to be consistent with UNICEF and other imported ORS, and to delete anti-diarrheals from the national formulary by December 1986.

ORS demand in Zambia is approximately 6 million packets annually. The CDD program has been successful in convincing the national essential drugs program (EDP) to increase ORS supplied in drug kits to 200 packets, based on results from ORS returns and increasing demand. Additionally, kits for CHWs include ORS.

The major sources of ORS has been and will probably continue to be outside donors. UNICEF supplies approximately 800,000 packets annually, while the EDP drug kits supply 3.5 million per year. Smaller amounts come from Red Cross and other mission donations. The local production facility (GPL) has experienced numerous production problems and in spite of the free provision of raw materials as well as packaging and advertising costs covered by UNICEF and PRITECH, has been unable to supply significant quantities of a cost effective product.

The potential for private sector production is good, particularly with the removal of restrictive legislation and the creation of an environment supportive of private sector initiatives under the new government. There are currently two private pharmaceutical companies which have already purchased ORS production equipment.

Even with adequate supplies available, the problem of effective distribution remains. As ORS demand increases, it is important that all health facilities have ORS available without stock-outs. There are also particular problems in supplying the district hospitals and high-use clinics in Lusaka and the Copperbelt. Various attempts have been made, without success, to deliver ORS with vaccines to urban clinics. Improved ORS distribution is a priority for 1993; plans include a computerized system to monitor ORS received from donors and distributed from central stores.

- (5) **Information.** The current routine reporting system for monitoring diarrhea cases, use of ORS, use of antibiotics, and deaths by age group relies on monthly reporting forms from health centers. The coverage rate of this system is about 20 percent. The CDD program also designed and distributed an ORT corner registry book to record cases treated; however, this information is not returned to CDD program staff.

Initiatives to improve the MOH information reporting system included a proposal by PRITECH and WHO modeled on the Malawi/CDD sentinel surveillance system. This proposal will be considered under planned cooperation between the MOH and a team from CDC/Atlanta, with the goal of strengthening the capacity for epidemiological surveillance at national and district levels.

- (6) **Information, education, communication (IEC).** When PRITECH began activities in 1986, there were few CDD health education materials available in the country. The PRITECH representative organized the formation of a health education/social mobilization subcommittee of the National CDD Coordinating Committee with wide participation from inside the MOH and the donor community. This subcommittee has taken the lead in planning health education initiatives for CDD.

A successful tactic early in the development of IEC activities was a poster contest soliciting themes for ORS promotion, prevention of diarrhea and breastfeeding. This contest proved a cost effective approach to obtain graphic material and also produced a roster of artists available to develop print materials.

Another effective health education strategy was the use of popular theater groups to dramatize health education messages. Collaboration between the CDD program and two popular theater groups who performed plays concerning diarrhea and ORS were very successful. The plays were performed for over 100,000 people in and around Lusaka in a trial period. Other MOH programs have adopted the idea, and the two theater groups initially involved have led a series of training workshops for other theater groups, leading to the dramatization of health education messages in several provinces.

The popular theater approach proved to be a culturally appropriate, cost effective, and entertaining way to disseminate ORS awareness and will continue to be used by the CDD program. Popular theater groups also performed before national leaders and key MOH

officials during such occasions as world health day, suggesting that the groups can be an effective way to sensitize policy makers on health issues.

A media specialist was hired by PRITECH for a two-year period to develop a series of weekly radio programs on diarrhea and related issues. The radio programs, in English, featured interviews with doctors, nurses, researchers, and NGO representatives. The 20-minute programs were translated into four Zambian languages and aired several times per week. Anecdotal evidence indicated that the radio programs were very popular.

The CDD program also developed health education print materials, including posters (20,000), leaflets (200,000), a manual for health workers, materials for CHWs, and a CDD policy poster (5,000). The program also collaborated with the health education unit to design materials for cholera and dysentery, including case management guidelines.

The combination of an intensive CDD training program and social mobilization campaign has undoubtedly yielded positive results as reflected in current ORS and ORT use rates. However, HFSSs and the recent 1992 household survey identified several aspects of home care which need to be addressed. For example, the correct preparation of ORS is low, largely due to the fact that caretakers mix 1-liter packets in 750 ml. Mazoe bottles. Correct knowledge of referral still needs to be improved through a more intensive health education campaign.

- (7) **Case management.** There is a generally high acceptance among mothers and health workers of ORS and ORT and all health facilities are using ORS. However, evaluations of case management practices revealed a need to improve case management in health facilities. A major deficiency shown was the level of communication with caretakers regarding the purpose, preparation, and use of ORS.

The CDD program's emphasis on the establishment of ORT corners seems to have paid off, as the quality of case management in health facilities having a corner is significantly better than in facilities without a corner. By the end of 1992, 500 ORT corners had been established, covering 50 percent of the health centers in the country. The Canadian High Commission and UNICEF provided equipment for ORT corners. In the future, ORT corners will serve as training sites for on-the-job training for CHWs and other health personnel.

The 1992 household survey results also underscored the importance of rational drug use. While the use of anti-diarrheals was much reduced, there is still evidence of their use in urban areas. The survey also included questions related to breastfeeding, and the analysis of the results indicated a very low exclusive breastfeeding rate, less than 2 percent.

The CDD program developed a manual for the case management of diarrhea which was distributed to health workers throughout the country. The manual included guidelines on

assessment, treatment, and prevention of diarrhea, as well as information on growth monitoring, cholera, and dysentery. In addition, detailed case management and antibiotic use guidelines for cholera and dysentery were produced and distributed to health workers.

- (8) **Nutrition.** Malnutrition is the leading cause of death in children between the ages of 1 and 5 years of age in Zambia, accounting for over 31 percent of total deaths in this age group. Malnutrition is also the underlying cause of deaths from diarrhea, malaria, acute respiratory infection (ARI), and measles. Data from the national nutrition surveillance system indicated that 33 percent of the children under five were below the 80 percent weight/age standard, and economic conditions in Zambia continue to deteriorate.

The recent results of the 1992 national CDD household survey revealed a high rate of persistent diarrhea (23.2 percent of diarrhea cases in urban areas and 15.2 percent in rural areas), probably a reflection of rising malnutrition rates, although the possible contribution of HIV has not been determined. The CDD program focused health education messages on breastfeeding and continued feeding during diarrhea episodes. Emphasis was also placed on correct nutritional assessment of children in ORT corners. One thousand weighing scales, provided by UNICEF, were included in ORT corner kits. The CDD secretariat held regular meetings with the nutrition unit and world food program to ensure that increased supplies of HEPS (high energy protein supplement) was available to health centers for children remaining three or more hours for rehydration. PRITECH was actively involved in these efforts.

- (8) **Private sector.** The NCDDP has explored the possibility of ORS production within the with commercial sector. Cadbury Schweppes, a soft drink manufacturer, began production of a 250 ml., orange-flavored ORS for sale to retail pharmacists, mines, and private clinics. Unfortunately, this product failed quality control tests, and serious questions have been raised as to the suitability of a food manufacturer to produce a pharmaceutical product like ORS. Nevertheless, contact with Cadbury Schweppes continues and the possibility still exists that these problems may be resolved.

Two commercial pharmaceutical firms have likewise expressed an interest in producing ORS and have purchased the necessary equipment. It is likely that they will begin production in 1993. The CDD program will continue collaborating with the private sector, particularly for ORS production and distribution. Additionally, contact has been made with commercial soap manufacturers to enlist their cooperation in a handwashing campaign.

- (9) **Evaluation.** The Zambian CDD program has been the subject of two reviews by PRITECH (1987, 1990) and was included in a USAID evaluation in November 1990. The results of the 1988 review were discussed extensively in a CDD policy planning workshop in 1990. The workshop recommendations were then incorporated in a three-year CDD implementation plan. The 1990 PRITECH review included a health facility case

management evaluation and led to the development of a revised CDD plan for training and supervision.

The USAID evaluation made recommendations for improvements in health education and communication, case management, ORS production and marketing, supervision, and training. The team also recommended the continuation of many activities, including research and support for the DTU. Overall, the team noted the remarkable success and wide range of CDD activities and PRITECH's key role in these activities.

The CDD program has been particularly concerned with the growing need to evaluate the impact of training activities at the DTU and at district and provincial levels. To date, two evaluations have been conducted of ORT corners in urban Lusaka. The findings emphasize the importance of on the job training and continued supervision to ensure that ORT corners function effectively. Additional follow-up evaluations are planned for ORT corners in Lusaka and other areas.

- (10) **Research.** The CDD program has been engaged in a very active research agenda since 1986. Soon after PRITECH began involvement in Zambia, a nation-wide CDD baseline survey was carried out in collaboration with WHO and UNICEF. The results indicated a relatively high annual incidence rate (5.2 episodes/child) and a high diarrhea-associated mortality rate. The results were discussed in a wide variety of fora, including the Zambia Pediatric Association, primary health care seminars, the National CDD Coordinating Committee, and district medical Officers meetings. The report with recommendations served as a key planning document for the CDD program for the six-year period until a follow-up survey was conducted in 1992.

The PRITECH representative developed an ambitious research plan with the CDD staff, focusing on operational and planning issues. CDD research projects have included: a mail survey of ORS availability and use in health centers throughout the country; an ORS and salt-sugar-solution (SSS) effective-use survey in seven districts; a survey of ORS use by private physicians and chemists; a nursing school curricula review; and a health facility case management survey.

Operations research results enabled the CDD program to identify program needs and priorities in the areas of ORS supply and distribution, training, and health education. It is significant that the CDD program staff changed its training strategy to emphasize the importance of "hands-on" practical experience on the basis of the results of the health facility survey. Dysentery and cholera were also the focus of several research projects, leading to the development of an intensive hand washing campaign in collaboration with commercial soap manufacturers.

A breastfeeding knowledge, attitude and practice (KAP) study was instrumental in the formation of a National Breastfeeding Policy Committee which has recently submitted a

draft document for consideration to the MOH. The results of the study, which included interviews with doctors, nurses, and clinical officers were presented during maternal and child health (MCH) and family planning seminars.

JICA (Japanese International Cooperation Agency) has been supporting a long-term study of the etiology of diarrheal diseases at the DTU. The first phase of this study is now complete and JICA indicated a desire to begin active involvement and support for the CDD program.

Finally, the recent follow up of the 1986 baseline survey has revealed that there was significant improvement in most of the major indicators, including ORS use, ORT use, continued feeding, and use of anti-diarrheals. While these results are very encouraging and show that the CDD program has had a significant impact, some of the survey results point to areas of emphasis for the future. These results include high rates of persistent diarrhea (related to high malnutrition in Zambia) and dysentery, relatively low ORS correct preparation rate (related to use of 750 ml. bottles), and low correct knowledge of referral rate. Plans to address each of these questions have been included in future CDD plans.

Major Constraints Encountered by the CDD Program

Many of the constraints affecting the CDD program are the consequence of Zambia's deteriorating economic conditions, resulting in high levels of malnutrition, marked increases in morbidity and mortality from diarrhea, malaria, ARI, and measles. Also, in Lusaka an estimated 50 percent or more of women presenting for antenatal care are HIV positive. The 1992 demographic and health survey (DHS) found an infant mortality rate of 108 and an under-five mortality rate of 190+ per 1,000. In addition to a serious AIDS epidemic, Zambia has also suffered from epidemics of cholera and dysentery since 1990 and a devastating drought.

Impediments to the implementation of public health programs in Zambia include a sparsely settled population in rural areas, a rapidly growing population, a low literacy rate, and a poor road infrastructure. One of the most serious constraints affecting implementation of CDD activities has been a chronic shortage of trained personnel. Zambia currently has less than a fourth of the doctors needed to staff public sector hospitals.

The CDD program has made efforts to deal with constraints such as low literacy levels by using appropriate health education and social mobilization tactics, including extensive use of popular theater, local language radio programs, and community-based public broadcasting. The Zambian CDD program has shown a remarkable ability to adapt to and overcome the constraints facing it. While it is likely that Zambia will continue to face serious economic problems, the CDD program is currently strong and able to meet these challenges.

III. KEY ISSUES AND LESSONS LEARNED

- (1) **Program sustainability.** It is unlikely that the Zambian CDD program will achieve financial sustainability for some time to come. Like most programs in the MOH, CDD is currently 65 percent donor funded. Lack of personnel is also a serious challenge to program sustainability. However, there is a firm policy commitment by the MOH to CDD which augers well for program sustainability. This commitment was demonstrated by the support shown during the 1988 CDD policy planning workshop and confirmed through the assignment of personnel to the CDD secretariat and inclusion of a CDD budget line in 1990. The new government has reaffirmed its support of CDD as a priority in the "New Health Policy Reforms" and this is reflected in the substantially increased levels of financial support allocated in 1993.

The issue of sustainability for drug supply, including ORS, is a real area of concern. Currently the donor supported essential drug program (EDP) supplies more than 55 percent of total Zambian drug requirements. The EDP annually imports 12,000 drug kits at a cost of \$330 per kit; these kits are distributed to all of Zambia's 45 rural districts. The urban areas and central hospital are supplied by medical stores Limited, a parastatal company. The loss of the EDP would be devastating, but the program is already past its intended seven-year life span. The MOH has liberalized drug tender procedures, encouraging private sector pharmaceutical companies to expand production.

An area holding strong potential for the future is collaboration with parallel institutions and indigenous NGOs to provide health service delivery. New government policies are encouraging such collaboration, including the removal of a ban on the establishment of private hospitals and nursing homes. Moreover, better working relationships exist between the government and the Churches Medical Association which coordinates 82 hospital and regional health centers throughout the country. The recognition and use of traditional healers as potential providers of primary health care (PHC) is also underway. These proposals in a changed, favorable political environment provide hope for a sustainable CDD program despite financial and personnel constraints.

The recent departure of the WHO assistant project officer and the termination of PRITECH activities raises serious concerns about continuing the momentum achieved by the CDD program over the past six years. Other donors may fill part of this void; JICA has recently indicated a willingness to shift from pure research to broader support for the NCDDP. It is vital that the CDD program be given continued technical and financial support from donors to ensure that the successes achieved are maintained, strengthened and expanded.

- (2) **Integration with other child survival programs.** The CDD program has always been aware of the need for program integration and has endeavored to achieve this goal. The program has been successful in incorporating CDD messages in growth monitoring and

nutrition into IEC materials, in providing integrated services at the DTU, and in working within the MOH for breastfeeding promotion. While efforts to date have been fairly limited, the present health policy reform and restructuring process with its district level focus and "basic PHC package" concept should improve program integration.

In December 1991, two Zambian pediatricians attended a training workshop on ARI in Washington, D.C. After their return, the MOH determined that ARI would be integrated with the CDD program and that the CDD secretariat would provide administrative support for ARI activities. The development of a detailed implementation plan and national policy guidelines for ARI began in early 1993.

The CDD program has had two experiences so far with integrated training; neither was satisfactory. The first was an integrated immunization and CDD supervisory skills course, and the second was a course recently held in a drought-affected district which combined immunization, CDD, nutrition, and family planning. The major problems encountered included time constraints on time devoted to each program, as well as logistical and administrative difficulties.

- (3) **Decentralization of public sector CDD activities.** Decentralization is a key aspect of the new government's health policy which places responsibility for financial management and health service delivery with districts. The PRITECH representative was active in assisting the MOH in developing the health reforms and in formulating a detailed plan to implement the proposals at the district level. Districts will be responsible for providing a basic PHC package which includes diarrhea, malaria, ARI, nutrition, and immunization. Initially, decentralization will be tested in the 12 districts which have already received budgetary allocations directly from the Ministry of Finance. The World Bank and the Danish organization DANIDA will be focusing a portion of their assistance to support the MOH's decentralization efforts in 1993. The major constraint to successful decentralization will be the current limited administrative capacity of the district.

The CDD program has already undertaken several successful efforts to decentralize training and planning. The decentralized training involved clinical courses with emphasis on cholera and dysentery for health workers in all nine provinces and 22 districts. As a result of the intensive training program, the CDD program has a sufficient number of trained facilities to ensure that additional training takes place in the remaining districts. District teams were also trained in planning, focusing on seven components related to cholera control and prevention. The CDD program will become more and more decentralized as district and provincial CDD coordinators (trained in 1992) assume more responsibility for CDD activities in their areas, and as the MOH decentralization policies become operational.

- (4) **Changing diarrhea epidemiology.** Cholera epidemics which have affected all but one province have seriously disrupted CDD activities and drained personnel and resources.

However, the CDD program has effectively dealt with the threat posed by cholera by integrating cholera into ongoing CDD case management training and has capitalised on the new donor opportunities presented by cholera to strengthen the CDD program.

Dysentery, which first appeared in 1990 and has spread throughout the country, has also presented a challenge to the CDD program. The program responded effectively through the National Cholera Surveillance Committee by urging that a team of investigators from CDC/Atlanta visit Zambia to assist in identifying the focus of the epidemic. The collaboration established with CDC has continued up to the present and serves to illustrate why it is important to have a strong CDD program in place in order to respond effectively to such epidemics.

Cholera and dysentery have higher attack rates in the young adult (21-25 years) age group than for other age groups. Among children, the major factor accounting for high cholera and dysentery case fatality rates is underlying malnutrition. Results from the recent 1992 national household survey revealed high rates for persistent diarrhea which is most likely a reflection of rising malnutrition in Zambia. It is also true that almost half of the cases of diarrhea seeking treatment at the DTU suffer from other problems, including ARI, malaria, parasitic infections, malnutrition, anemia, and possibly, AIDS. It is therefore important that case management includes a holistic assessment of the child.

A related issue is the heavy urban concentration (49 percent) of Zambia's population. Most donors have until recently focused on rural health care at the expense of urban areas, and particularly the high density peri-urban compounds. There is a need to begin to seriously consider urban areas, especially given increasing problems related to cholera, dysentery, water and sanitation, rising malnutrition, and ineffective service delivery.

PRITECH RESEARCH AND DEVELOPMENT PROGRAM

I. HISTORY AND BACKGROUND OF PRITECH ACTIVITIES

This section will address the research and development activities undertaken during PRITECH II as carried out by the technical unit (TU) staff in Washington working closely with the PRITECH country representatives, researchers from other USAID-funded projects, international organizations such as the World Health Organization in Geneva, and private consultants.

The rationale for these activities was derived from the recognition that there were many questions regarding the application of oral rehydration therapy (ORT) as a public health intervention or program that needed answers. This was unlike the situation under PRITECH I which began with the simplistic assumption that ORT was a known technology that merely needed to be applied; the PRITECH I contract clearly prohibited doing research using project funds. Under PRITECH II, however, it was understood that even when there were answers and the technology seemed clear, individual programs faced multiple problems in implementation of the technology. These problems were often related to specific local conditions, resources, culture, and so forth that demanded organized data collection to solve them. Thus PRITECH II was designed both to disseminate and to make operational the results of research on the technology of ORT, case management, and other methods of diarrhea diseases control (CDD) and to carry out operational research - called program problem solving studies or PPSS - to deal with the problems of implementation faced by individual CDD programs in specific country situations.

II. EXPERIENCE WITH PPSS

During project year one (PY1), the TU focused much of its effort on defining the mechanism(s) to initiate the implementation of its PPSS activities. This was the first item of business discussed during the first task force meeting held in April 1988. Unlike the research activities undertaken by the Applied Diarrheal Disease Research Project (ADDR) and WHO, PRITECH's PPSS studies would directly relate to improving the effectiveness of national diarrheal disease control programs by applying the following objectives: 1) the study must be relevant to a specific country's program; 2) there should be a direct linkage to an important program decision; and 3) the research design must be adequate to provide an answer to the question raised.

It was uncertain, however, whether the country program officers would decide what studies they wanted to do or if PRITECH should be more directive in designing the topics as well as developing protocols for country programs to follow. There were questions about which countries to select and what should be the review mechanism(s) for proposals. Also, since the PRITECH field staff were generalists for the most part, the question of how to monitor the studies was a concern. Finally, there

was the issue of how to ensure that the research results would be produced in a timely fashion for dissemination and use in the program.

In the end, it was agreed that the likely approach to PPSS would be a combination of strategies. In countries that were relatively researcher-poor, it would be useful to use pre-determined protocols and adapt them to the country situation. In countries where research capabilities were more abundant, it would be important to bring together the program managers with the researchers to decide on the relevant topics for research. In either case, the country representatives would administratively monitor the progress of the studies and in some cases, technically as well. While it was recognized that the quality of the efforts might vary country-to-country, PPSS had the added effect of encouraging relatively inexperienced program managers to use data for decision making.

As a first effort to provide sample protocols for studies to be used in country programs, PRITECH prepared a guide for conducting feeding practice studies as a practical means to incorporate nutrition activities into CDD programs and a protocol for conducting studies of sugar-salt-solutions (SSS) mixing by mothers.

III. DEVELOPMENT OF THE RESEARCH AND DEVELOPMENT (RAD) PORTFOLIO

Early on, PRITECH's assessment of CDD activities in its country programs revealed that a number of programs were conducting problem-solving studies, particularly Zambia, Indonesia, and Pakistan. Meanwhile at the program level, country programs, WHO, UNICEF, and USAID were all coming to terms with the fact that ORT was not a "simple solution." The complexities of effective ORT use for both mothers and providers and the inter-relationships between feeding, breastfeeding, persistent diarrhea, and dysentery were more apparent. Furthermore, working exclusively or primarily with the public sector meant that CDD programs were not reaching a large segment of the target populations; but resources were limited to support efforts in these areas of emerging importance to CDD.

The impetus for the development of the new activities came from the February 1990 meeting of PRITECH's Technical Advisory Group (TAG), which recommended that PRITECH move beyond its traditional emphasis on working with ministries of health (MOHs) and its traditional focus on ORT into other areas related to CDD in order to reach a greater portion of the population in PRITECH-assisted countries. The TAG also encouraged PRITECH to evaluate its efforts. In addition to the TAG, other organizations such as WHO and USAID encouraged PRITECH to explore these new opportunities.

More specifically, the TAG recommended that PRITECH devote more attention to evaluation and breastfeeding. WHO also recommended that PRITECH actively support breastfeeding, and further suggested focusing on nutrition and traditional healers activities. At the same time, USAID's Office of Health developed a breastfeeding strategy which encouraged existing USAID-supported projects to actively incorporate breastfeeding activities into their efforts. Additional incentive to explore the

"new" areas came from PRITECH field staff, who were informing the TU of the dilemmas they were facing regarding the lack of programmatic approaches to feeding a child during diarrhea, malnutrition, and persistent diarrhea. The result was the development of a plan to support these "new activities."

PRITECH planned to support these activities using primarily a portion of the unexpended central PPSS funds. Preliminary review of the status of PPSS activities revealed that much program-related research was being carried out (over 50 studies) but that most of the support was provided either from PRITECH-country funds or by other donors. Only 13 percent or approximately \$200,000 of PRITECH/RAD funds had been used for these studies. Therefore, PRITECH proposed to carefully document the low use of central funds for research and to use some of the remaining funds for support of the new research and development activities.

The country program review focused on three general categories of activities: case management of acute watery diarrhea and persistent diarrhea, prevention activities, and private sector involvement. Evaluation activities were added at a later date. Within the overall area of prevention of diarrhea, those activities which have been shown to have a significant impact on diarrhea were included, namely, breastfeeding, feeding during weaning, and hygiene. A review of private sector activities focused on two principal areas: 1) those groups who either delivered a significant portion of care to children or influenced children significantly; and 2) those approaches with the private sector which in public health experience seemed to have had the most payoff.

The steps PRITECH took to plan its approach to the "new" initiatives included: 1) more careful review of the status of PPSS; 2) review of the overall status of each country program for opportunity/feasibility for any of the new activities; 3) technical capability of PRITECH to carry out any individual activity; and 4) PRITECH management capability to support the activities. These steps were essential for defining the proposed areas for action and the level of effort for each.

For each country, needs, gaps, potential areas for action, and feasibility within each country program were identified together with the feasibility of PRITECH's technical and managerial resources to assist field programs with specific activities. Washington-based and field staff discussed these issues over the course of several months. While the review showed that programs were carrying out activities in a number of the areas identified, it was PRITECH's belief that more systematic support of these activities from the central level might serve to strengthen and move them forward in the time remaining in the project.

The result of this exercise was the development of an overall plan to support country programs where it was relevant and to carry out these activities using reprogrammed RAD funds. PRITECH staff presented an overall plan to USAID in April 1990 that proposed reprogramming a major portion of the RAD funds to develop and carry out the activities. A smaller portion of the funds were reserved to continue support of PPSS activities and other technical support to field programs. USAID approved PRITECH's plan for "new initiatives" and determined that a project amendment was not needed. PRITECH and USAID agreed that while USAID had approved the overall plan in principle, the details and focus of the plans might be changed in the course of the more detailed design effort.

The plan broadly addressed the following areas:

(1) **Health related.**

- strengthening case management
 - acute watery diarrhea
 - persistent diarrhea
- prevention
 - breast-feeding
 - feeding during weaning/nutrition
 - hygiene
- acute respiratory infections (ARI) (integration into CDD)

(2) **Private sector - expanding access.**

- target groups
 - private sector physicians
 - traditional healers
 - pharmacists
 - non-governmental organizations (NGOs), other organized providers of health services
 - other public sector (ministry of education, etc.)
- "successful" approaches
 - commercialization/social marketing
 - ORSMAP

(3) **Evaluation.**

- country program evaluation activities
- sustainability study
- selective evaluations

For each of the above areas, the plan sent to USAID included:

- PRITECH's specific objective;
- proposed countries for the activities;
- proposed task force or working group members;
- principal activities selected;
- estimated budget and sources of funding;
- timing/implementation schedule; and
- activity manager and other PRITECH staff.

The outcome of the planning effort resulted in a level of effort which varied for each of the activities. For example, the overall plan did not propose to do all activities in all country programs, nor did it imply the same emphasis for each activity in the various country programs. For example, very few resources were put into acute respiratory infections (ARI) activities. Rather, the goal was to match

need, opportunity, and feasibility - feasibility in terms of available "successful" programmatic interventions as well as PRITECH's and the country's capability to carry out the activities. Finally, where relevant, the plan sought to link programmatically with other organizations having more expertise than PRITECH in implementing portions of the activities. It was anticipated that experience with these activities on a small scale would help to define their broader applicability. At this point, country programs would pick up these activities and incorporate them into their regular activities.

Overall responsibility for planning and management of the activities came from the TU staff with budget resources from RAD and other funds. Each activity had an activity manager whose responsibility was to develop and manage implementation of the more detailed plan. Activity managers came from throughout the project, including the field personnel. Plan development and implementation took place after further consultation with field staff and outside reviewers. Each individual detailed activity plan was presented formally to USAID for approval in the same fashion that country program plans were presented.

This process of planning and developing action plans proved to be very enriching for all those who participated, including the central and field staffs, the outside collaborators, and the country program managers. It produced plans that were more thoughtful, feasible, and more quickly moved into implementation. This was especially true for the initiatives involving case management, breastfeeding, nutrition and feeding, and the private sector.

IV. SUMMARY OF ACCOMPLISHMENTS IN RAD AREAS

The main technical challenge for PRITECH was to continue to effectively support country programs in ongoing training, communication, and management activities while encouraging and supporting new program initiatives in prevention, case management, and private sector involvement.

Throughout the course of the project, PRITECH continued its support of PPSS as an important component of its technical activities. This support included partial or complete funding of studies and technical input into study design and reporting. Some of these studies initiated through PY3 included:

- studies on the use of communication materials in the Sahel;
- five studies on feeding practices/nutrition in the Sahel;
- studies on the etiology of dysentery in Burkina Faso and Senegal; and
- health facility surveys (HFS) in Burkina Faso and Niger.

During PY4 and PY5, the implementation of the activities described in the new initiatives received the major emphasis of technical support. These activities included the following:

- (1) **Commercialization.** Commercialization included promotion of the private sector, commercial ORS production and distribution networks, training in marketing strategies, and

collaboration with multinational firms in dissemination of preventive information through their marketing efforts (details on commercialization covered separately in the report).

- (2) **Breastfeeding.** Breastfeeding included lactation management training and infant feeding studies, several of which served as a basis for papers presented at the West African Infant Feeding Conference in Lome, September 1991.
 - (a) The Zambian, Kenyan and Ugandan teams completed lactation management training at WELLSTART/San Diego. Each team returned home to conduct knowledge, attitude, and practice (KAP) studies for health workers and mothers and based on study results, to develop training curricula for lactation management courses to be conducted locally; in Uganda and Zambia, this training was integrated into CDD training
 - (b) Infant Feeding Conference: African researchers presented the results of recent studies on improved weaning foods, the relationship of infant feeding to diarrhea, and the unnecessary use of supplementary water during exclusive breastfeeding.
 - (c) In Zambia, the WELLSTART-trained staff were selected to participate on a National Breastfeeding Policy Committee.

- (3) **Case management or quality of care.** This activity included clinical case management training and program manager training conducted jointly with WHO, use of health facilities survey results to improve the equality and relevance of training, and development of an evaluation methodology for assessing training programs and health worker performance.
 - (a) WHO-organized courses were held in the Sahel and Zambia for clinical case managers and program managers.
 - (b) HFSs were completed in Kenya and Uganda and the results then used to improve the quality of CDD training.
 - (c) A methodology for performance-based testing of health worker competence was field-tested in Zambia and the Philippines in collaboration with the Quality Assurance Project (QA) and WHO.
 - (d) Case management training materials were developed and pre-tested in Uganda for use in the new diarrheal training unit (DTU) at Mulago Hospital; training-of-trainer (TOT) courses for faculty were conducted with case management training for health workers, and evaluation methods were developed for the training and subsequent performance evaluation of the trainees.

- (4) **Cholera.** Cholera activities included strengthening country plans for cholera preparedness, developing and implementing cholera case management training, and encouraging the incorporation of CDD experience into cholera control efforts.
- (a) A cholera checklist was developed to provide guidance when formulating and reviewing national and regional cholera control plans. Beyond being made available to USAID, other agency and national ministry personnel, this instrument was applied directly by PRITECH consultants working with National Cholera Committees in Belize, Bolivia, Paraguay, Nicaragua, and Zambia.
 - (b) The PRITECH country representative in Zambia was especially active in the development of both national and provincial cholera action plans, while the country representative for Bolivia played a significant role in country-wide training for cholera.
 - (c) A significant part of PRITECH's overall effort in cholera was dedicated to training at a variety of levels. This involved developing training materials for both village-level rehydration unit volunteers and regional ministry staff in Bolivia, village health workers and private volunteer organization(s) (PVO) staff in Guatemala, and country-wide training to implement a new cholera protocol for the MOH of Jamaica, among others
 - (d) PRITECH, in a joint effort with the Pan American Health Organization (PAHO), developed and tested a method to broaden the scope of the health facilities survey to incorporate cholera treatment and cost elements.
- (5) **Drug management.** Drug management activities included the development of prescription analysis software, field application of the RXDD software program (a computer software for describing prescriptions used for treatment of diarrheal diseases), and interventions to improve drug prescriber practices; this activity was drastically curtailed in the last quarter of PY5 due to budget constraints.
- (a) The RXDD computer program was completed and made available in the languages of English, French, and Spanish.
 - (b) A strategy was developed focusing on the use of disease-specific indicators for monitoring and evaluating drug use.
- (6) **Program problem-solving and evaluation.** These activities included operations research, collaboration with WHO on country program review protocols, development of a country profile evaluation instrument and guidelines, incorporation of sustainability indicators into country profile instruments, and evaluations of sustained country programs.

- (a) PRITECH and WHO collaborated to revise the CDD comprehensive country review protocol which was field-tested in Kenya and implemented in Cameroon.
 - (b) A country profile evaluation instrument and manual (INFOMAN) was finalized to assess periodically the progress of specific program activities, including sustainability status, and to identify deficiencies and information gaps.
- (7) **Nutrition and household management of diarrhea.** Activities included the development of a nutrition checklist, operations research studies on feeding practices, trials to implement recommendations of feeding practices studies, development of policies for household management of diarrhea, and initial work on the development of a nutrition field implementation aid.

Feeding practices research in the Sahel included studies in The Gambia, Mali and Niger conducted in three phases:

- documentation of current feeding practices and the cultural context in which they occur;
 - assessing which dietary practices and content changes mothers are likely to adopt; and
 - testing interventions that promote the recommended improvements.
- (8) **Persistent diarrhea and dysentery.** Activities for persistent diarrheal and dysentery included the collection of information on prevalence and treatment, studies of the etiologic agents of dysentery, and preparation for testing of the WHO persistent diarrhea treatment algorithm.
- (a) Completion of a year-long study of persistent diarrhea in Bolivia. The study examined the magnitude of the problem of persistent diarrhea and dysentery, the risk factors for progression from acute to persistent diarrhea, and the etiologic factors associated with persistent diarrhea and dysentery.
 - (b) Inclusion of questions on persistent diarrhea/dysentery in a routine data collection system of the Andean Rural Health Project in Bolivia.
 - (c) Completion of studies of the prevalence of persistent diarrhea, potential risk factors and care-seeking behavior in Niger and Senegal.
 - (d) Testing of the WHO persistent diarrhea algorithm in sub-Saharan Africa. Diets developed for WHO multi-center persistent diarrhea trials were distributed to Sahel, Zambia, and Bolivia field staff.
 - (e) The hospital-based epidemiologic study to determine dysentery prevalence in Burkina Faso was completed and analyzed. The community-based dysentery study, in collaboration with the Pasteur Institute in Dakar, Senegal, continues to collect data.

- (f) A dysentery outbreak in Zambia with over 25,000 cases was reported by the PRITECH country representative. Through the intercession of PRITECH staff, a Centers for Disease Control and Prevention (CDC) team was invited to investigate the outbreak which confirmed *Shigella dysenteriae*, type 1, as the causative organism. Antibiotic sensitivities were also identified, as well as recommendations made to limit the potential for emerging drug resistance.
- (9) **Traditional healers.** Activities included development of a strategy in Uganda for enlisting help of traditional healers in promoting appropriate diarrhea case management;
 - (a) PRITECH completed the literature and background research on working with traditional healers.
 - (b) At a planning workshop attended by members of the Uganda MOH and local health facilities as well as traditional healers, PRITECH representatives and PRITECH consultants, a detailed final proposal for the next (implementation) phase of the initiative was completed. After extensive discussion it was decided to proceed with the initiative as a function of the Uganda country program and not as an RAD project. Currently training materials are being developed to be used in the initial TOT sessions.
- (10) **Acute respiratory infections (ARI).** ARI activities included a strategy to apply pertinent aspects of the CDD experience to ARI within selected West African countries working with MOHs to develop strategies and plans for ARI programs.
 - (a) An ARI strategy was developed for the Sahel which states the importance of institutional learning. PRITECH technical officers worked with the Sahel regional staff to develop a framework that defines in advance the questions to be answered. The questions are focused on the application of "lessons learned" from the CDD experience to ARI program planning, development, and implementation.
 - (b) In The Gambia, the results of a focused ethnographic study on ARI were incorporated into communication and training materials. Subsequently the findings were reported at an international meeting sponsored by WHO in Geneva.

V. PROVISION OF TECHNICAL SUPPORT TO USAID AND OTHER ORGANIZATIONS INVOLVED IN CDD

Along with technical support to the country programs and the development and implementation of RAD activities, the TU had the additional responsibility of providing technical review, input and updates to USAID and other organizations involved in CDD. This task usually took the form of support to USAID as requested and participation in joint meetings/annual exchanges with other organizations throughout the course of the project.

Throughout the project period, these inputs were listed in detail in the annual reports; therefore only some of activities will be highlighted here. In summary, the flow of information and the opportunities for collaboration that came about as a result of these efforts contributed to the quality of the programs and the mutual interests of the other agencies involved in CDD.

- Review and comment on multiple draft documents from USAID such as its annual report to Congress, the list of supplies needed for the cholera outbreak in Peru, and a summary of the status of CDD worldwide and USAID's role in the future.
- Active collaboration with WHO, UNICEF, PAHO, CCCD, ADDR, Prigor (later the Quality Assurance project), HEALTHCOM, DHS/Macrosystems, and the DMD project.
- Five task force meetings; the first considered approaches to supporting problem solving studies, the second and third addressed the topics of home- available fluids and breastfeeding interventions for CDD respectively, the fourth developed recommendations for the position PRITECH should take in regard to commercial cereal-based ORS products, and the fifth considered the role of multinational corporations in promoting ORT worldwide.
- Attendance and multiple presentations of PRITECH/Washington and field staff at the annual National Council for International Health (NCIH) and American Public Health Association (APHA) meetings.
- In PY2, PRITECH played a major role in production, translation, and technical review of issues papers presented at the ICORT III Conference.

VI. LESSONS LEARNED

As a result of the experience drawn from the various RAD and program support activities in the course of the project, PRITECH has extrapolated certain "lessons learned" from this involvement in the respective activity areas. Many of these can be found in the PRITECH occasional operations papers. Some of the lessons are outlined below.

- (1) **Acute respiratory infections (ARI).** ARI training requires considerable hands-on practice to develop skills competency. As a result of experience in The Gambia, it is apparent that the practical hands-on portion of ARI training is critical to the transfer of skills to health workers. This has been documented for CDD training and holds true for ARI training as well. It is difficult to get training programs to move beyond a didactic approach in training and to focus on adequate practical training that will be followed-up by supervision of the training afterwards.

ARI program strategies must undergo careful programmatic adaptation for implementation. As national ARI programs are developing their central strategies, many of these countries

now are attempting to decentralize and to integrate their primary health care programs to the district level. To accommodate this complex process and at the same time to introduce a new initiative is difficult and requires more coordination than if it was introduced as a vertical program.

- (2) **Case management and quality of care.** Health worker performance is influenced considerably by internal supervision. The study on CDD training in the Philippines documented that the internal training and support activities of health facilities — in contrast to facility supplies and external activities, such as supervision — make a difference in the quality of performance. Internal supervision in this context consists of the presence of an immediate supervisor who occasionally observes the worker treat cases and is a knowledgeable resource person available for consultation on a complicated case. The development of distance learning materials and a training curriculum for small health facilities could improve this in-house learning.

The methodology developed for this strategy has potential future application for training, evaluation and supervision. The potential future applications for the methodology developed for this study can be applied both to evaluation of the training courses per se and to the evaluation of the performance of the health workers after they have returned to their respective clinic facilities. It can also be used to evaluate training programs and then improve components in which deficiencies are found. With some modification, some forms can be used for monitoring and evaluating the performance of workers during supervision, periodic health facility surveys, and focused program reviews.

- (3) **Dysentery.** Epidemic surveillance is needed in countries to alert program managers of outbreaks in a timely fashion. The dysentery outbreak in Zambia had first appeared several months earlier in Western Zambia before cases surfaced in Lusaka, the capital. The Cholera Surveillance Committee was aware of the dysentery outbreak, but it was difficult to acquire reliable epidemiological and laboratory data on the outbreak. With technical assistance from CDC/Atlanta, the causative agent and its drug sensitivities were confirmed. A permanent epidemic surveillance system is needed to monitor for new outbreaks and changing patterns of drug resistance.

The Zambian outbreak highlights the need for rational drug policies. Those who are responsible for developing appropriate drug use recommendations for the case management of individuals presenting with probable SdI infection should take into consideration the likelihood that the outbreak is due to SdI. This is done after investigating the clinical picture and ruling out the other possible local causes of dysentery. Then rectal swabs from suspect cases should be collected and transported on an appropriate medium, preferably refrigerated, for culture under appropriate circumstances to confirm the diagnosis. Next, disc diffusion tests can be performed to define the potentially effective antibiotics and these results circulated to clinicians as soon as possible. Only then can the potentially effective antimicrobials be made available for appropriate case management.

- (4) **Training.** Training should be linked with a supervision and support system to be effective. A major challenge to health training efforts is to develop courses that are relevant to the needs of the workers and the clients that they serve. As more emphasis is given to assessing the quality of these training efforts, the measure of success hinges on the measurement of competency developed in carrying out new skills and changed behavior in both the health workers and the caretakers. The behavioral change measurements become the focus for the monitoring and evaluation of the training efforts. Thus, the follow-up of the trainees and the clients they serve can be an informational source for the entire program. Through a support and supervisory role assigned to the trainers, other elements in addition to current CDD training practices can be identified as obstacles to implementation of the training received. This follow-up step provides feedback to those involved with logistics, administration, and eventually planning for the overall project.

Curriculum development is a key activity around which "national ownership" of a CDD training program can be established. Through the steps involved in the process of developing a curriculum, the DTU faculty can become intimately familiar with the needs of the health workers and the clinical conditions they treat. In the case of Uganda, this process began with a "needs assessment" accomplished with a health facility survey. The actual curriculum preparation phase followed, which required inter-disciplinary collaboration to address the technical content as well as the methodological issues. Most importantly, it included a supervisory and support activity that ties the training component into the overall strategic planning and evaluation activities of the program once the training becomes decentralized.

A specific case management protocol provides a core for a clinical service delivery program. WHO deserves much credit for the development and promotion of its case management protocol for diarrheal disease. Lending its name to the protocol gives it credibility among clinical experts in the medical field globally; but more important, the protocol provides the needed technical guidance for specific diagnostic, treatment, and counselling activities essential to handling patients presenting with the illness. For cases of diarrheal disease, the diagnostic and treatment procedures that the protocol advocates are more simple and cost effective than the practices currently in place.

In Uganda, the curriculum embraced all the assessment, treatment, and counselling principles of the protocol while giving it the specificity needed to make it nationally appropriate. Furthermore, it sets standards of care that can be translated into indicators for measuring not only the quality of care given by the health workers but the training they received as well. As WHO develops new protocols for use in management of the sick child, the experience gained by DTU staff and faculty can be expanded to address these clinical situations as well.

- (5) **Cholera.** Missions have had difficulty in formulating requests for technical assistance for cholera case management. National authorities have felt competent in handling cholera cases, and together with the printed documents available from PAHO and WHO, they have generally not expressed needs through USAID missions for additional case management training. In

those few cases where requests have come in, however, deficiencies continue in case management in the sense that care is often excessively costly and cumbersome, and does not necessarily follow guidelines for promoting oral rehydration and for avoiding unnecessary isolation and hospitalization. Therefore, technical assistance is often better received in the context of cost containment, rather than case management training.

Development of comprehensive national plans for cholera control was one of the strategies for cholera control in Latin America. PRITECH expected to assist countries in the development of plans and in their evaluation, and in fact the cholera checklist was developed with this in mind. Several countries have developed draft plans; however, several constraints have prevented implementation of the comprehensive plans and more specific and decentralized strategies have usually taken precedence.

In comparison with Latin America, cholera control activities in Africa and Asia have been underfunded and underemphasized in view of the high fatality indicators in these continents. While a "cholera budget" for the Africa Bureau may not be needed, an additional cholera effort will be needed within CDD programs.

The initial urgency of the epidemic (with an accompanying high profile) has now been succeeded by the need for more longer-term planning and preparation. Epidemics will continue to occur, and the disease will continue to infect new populations, requiring preparation of new facilities and medical personnel; still, the major effort will need to be toward integrating cholera control efforts into ongoing CDD programs.

- (6) **Breastfeeding.** A KAP survey can raise awareness as well as provide a research basis for action. The breastfeeding practices survey proved to be a good entry point to raise awareness about breastfeeding issues among MOH officials, hospital staff, and health workers. The dissemination of the results in various ways also helped to emphasize the need for a specific policy. Moreover, the problems identified regarding health workers' knowledge and practices helped to reinforce the need for clear guidelines and lactation management training courses.

CDD program staff must be included in breastfeeding policymaking to ensure successful integration into diarrheal disease activities. The fact that there was no representative from the national CDD program in the WELLSTART training course seriously hindered integration of breastfeeding activities into the CDD program. The CDD secretariat did not participate in the breastfeeding policy formulation committees nor in the breastfeeding lactation seminars organized by the WELLSTART team. Consequently, CDD interests were represented by the PRITECH country representative. It is essential that CDD program staff are included in WELLSTART training courses to ensure that integration takes place. Because all of the WELLSTART team were selected by and based at the teaching hospital, many of the activities tend to be hospital-based without CDD program involvement.

Training trainers in participatory methodology is important. During the 10-day pretest of the lactation management training curriculum, trainers tended to revert back to didactic classroom instruction, despite earlier efforts to incorporate a more participatory approach to learning. Counseling and lactation management could have been taught largely through demonstrations in the hospital wards. The trainees felt they had not gained competency skills due to insufficient practical experience. This experience confirms the importance of training trainers in participatory methodology. Too often, trainers are only given technical updates that do not include important participatory pedagogical skills. The next step in this program is to develop a TOT course that focuses on participatory methodological skills. In the future, the evaluation of training effectiveness will be based on changes in improved hospital practices and counseling of mothers, as well as changes in health workers' knowledge and attitudes.

- (7) **Operational research.** Decision-making in operational research areas is administratively and technically complicated to plan and execute. While the rationale for operational research activities in PRITECH II was well established, the actual decision-making process needed to select the relevant questions, to reframe them into a research format and to monitor the progress of their execution proved difficult. In those countries where the problems were most acute, often the resources were most limited. Also PRITECH was new to this activity and there were many expectations and questions of assignment of responsibilities that needed to be articulated clearly to the country programs, to the other donors, and to those other agencies already involved in CDD research. In addition, the clarification of USAID's role in gaining their approval for the respective activities was another administrative step in the process. All this took time to articulate.

On the technical level, there was some difficulty sorting out the role of the Washington-based technical officers in relation to the country and regional representatives. Frequently the technical question to be researched was a broad-reaching one that had relevance to many other country programs, such as the delineation of which home- available fluids are appropriate to recommend in a program. In those cases it was considered that the quality of the research required should be high so as to avoid any erroneous decisions and to allow for broader application of the results, but this was difficult to accomplish in those countries where the research resources were limited and the country program was looking for an answer within a short time.

INFORMATION DISSEMINATION COMPONENT

The PRITECH II contract required the project to include an information dissemination component to collect technical and programmatic information on CDD and disseminate it to CDD program planners, implementors, and evaluators. This component included maintenance of an information center, dissemination of a *Technical Literature Update*, and conferences/workshops.

Over the past six years, the Center has far exceeded the contract requirements by:

- responding to 6,500 requests from developing country health professionals, AID health officers at missions and bureaus, child survival PVOs, PRITECH field staff, other donors, and R&D/Health contractors;
- acquiring more than 6,000 articles on CDD and related child survival interventions;
- distributing 60 issues of the *Technical Literature Update on Diarrhea* to a mailing list now numbering more than 17,000;
- documenting country program experiences by producing the PRITECH occasional paper series, quarterly highlights reports, country program profiles, and *Implementing Diarrheal Disease Control Programs: The PRITECH Experience*, a lessons learned volume; and
- helping to establish child survival information centers in the Sahel region, the Philippines, Madagascar, and Pakistan.

At the beginning of PRITECH II, the Information Center expanded its services and the range of documents it collected to respond to project needs and increasing demand by clients. First, the Center revised the thesaurus used in document cataloging and developed a formal, hierarchical thesaurus of terms in the control of diarrheal diseases (CDD) field. Development of the thesaurus clarified relationships between terms and facilitated both cataloging and handling of information requests.

Second, the Center broadened the scope of the collection by including documents on other child survival interventions such as breastfeeding promotion, growth monitoring, acute respiratory infections, vitamin A deficiency, and nutrition. The Center also conducted literature searches and acquired substantial collection on private sector activities and the inclusion of traditional healers in primary health care programs.

In project year 2 (PY2), the Information Center assumed a number of new responsibilities as the result of an external evaluation. The evaluation pointed out that while the Center was collecting and disseminating technical information, it was not collecting and disseminating information about the project itself. The evaluation suggested that the Information Center establish central files that would pull together all of the materials generated by the project at headquarters, as well as the materials that came in from PRITECH field offices. Accordingly, the Center established and maintained a system of central files. The files drew from existing administrative files, as well as

the personal files of staff members. They were divided into four categories: country program files, project-wide files, files on the development areas of research and development (RAD), and files on other health-related organizations and projects.

The Information Center also began writing weekly activity reports to A.I.D. and arranging for the translation, production, and distribution of key PRITECH reports. These activities helped to involve the Center more fully in the daily activities of the project as a whole. The most important result of the evaluation: the integration of the Center's staff into other project activities, which benefitted both the staff and the project.

Another unanticipated task that the Center assumed was the development and implementation of a project publicity program. In PY4, the Center produced an array of project publicity materials, including portfolios, report covers, stationery, and a new project brochure in French, English, and Spanish. These materials gave the project a more attractive, professional image.

Response to Information Requests

Through its database and access to on-line data bases, the Information Center responded to approximately 1,500 requests a year, primarily from health professionals in the developing world. The database, consisting of more than 6,000 documents, could be searched by author, title, subject, source, language, and country. The Center provided computer print-outs of citations on a particular topic or copies of the documents themselves. The Center also produced an annotated bibliography each year which listed the entire collection; copies of the collection's documents could be requested at no cost.

Monthly Acquisitions List

The Information Center produced several current awareness tools — mechanisms for keeping people up-to-date on the most current literature in their field. The first of these was the Monthly Acquisitions List, an annotated list of key child survival articles that readers could order at no cost. The Center sent the list to more than 350 policymakers and project implementers. Readers included the overseas offices of private voluntary organizations (PVOs), CDD program managers, overseas information centers, and health officers at USAID missions. Another current awareness tool was the *Technical Literature Update on Diarrhea*.

Technical Literature Update on Diarrhea (TLU)

Beginning in 1985, PRITECH distributed the TLU, a bimonthly publication that reviewed articles on CDD and related interventions, such as breastfeeding promotion and nutrition programs. Each issue featured abstracts of published articles on a particular topic or issue, such as sustainability of health projects or the role of traditional healers in CDD programs. PRITECH's technical editor provided expert commentary on the articles, explaining how they were relevant to health practitioners and policymakers involved with child survival programs. Readers could ask for

copies of the articles reviewed, or for bound copies of TLU back issues. The TLU was available in English, French, and Spanish to more than 17,000 readers throughout the world. The PRITECH Information Center distributed the English and Spanish versions, while the Office de Recherches sur l'Alimentation et la Nutrition Africaines (ORANA) distributed the French version. The most popular TLU issue was a special issue on cholera, produced in response to the Latin American cholera epidemic of Spring 1991.

Documenting PRITECH's Country Program Experiences

In addition to disseminating technical information, the Center served as the institutional memory of PRITECH. This was accomplished through two mechanisms: maintaining the project's central files, and producing reports on PRITECH program experiences in developing countries. Without a documentation effort, PRITECH's experiences in helping to manage CDD programs would be lost to the broader international health community. The Information Center published a quarterly highlights report, which documented the project's progress on a quarterly basis; a series of country program profiles, which described PRITECH activities in country programs; and a series of occasional papers, which provided useful "lessons learned" in CDD program implementation.

In the final months of the project, the Information Center edited and produced a final "lessons learned" volume entitled, *Implementing Diarrheal Disease Control Programs: The PRITECH Experience*. The volume consisted of a collection of occasional papers and an essay on overall lessons learned by the project.

Development of Information Packages

To make responding to information requests easier, the Information Center developed information packages on such topics as cholera, cereal-based oral rehydration therapy (ORT), and general CDD. Soon after the cholera epidemic broke out in South America, the Center started receiving requests for information on cholera treatment and prevention strategies. After handling several of these requests, the Center developed a cholera package, consisting of practical, "how-to" documents and the latest technical guidelines. The Center distributed the cholera package at an A.I.D. cholera workshop in June 1991, and sent copies to the A.I.D. health, population, and nutrition (HPN) officers in the Latin American and African countries affected by cholera. The Center also developed an information package including general information on the various components of CDD programs, which was sent mainly to developing country health professionals with general queries.

Evaluation

The Information Center conducted two readers' surveys of the TLU over the course of the project. The first, in Fall 1988, was completed by 16 percent of the recipients. Thirty-five percent reported that the TLU was their main source of information on CDD issues. Three-quarters found the TLU very relevant to their professional responsibilities. Eighty-seven percent indicated that they share

the TLU with colleagues. Readers suggested that the TLU present more information on CDD programs, the dietary management of diarrhea, and social and environmental aspects of control and prevention. Several readers requested French and Spanish versions.

As a result of the first survey, the Center featured more articles on the social and preventive aspects of CDD. PRITECH also decided to produce French and Spanish versions of the TLU. The Center also added 95 libraries and 180 individuals to the mailing list.

In 1992, PRITECH conducted a survey to determine how readers use the TLU. Eight percent (or 822) of those contacted by mail returned the survey. Forty-six percent of the respondents reported that reading the TLU has changed the way they teach by keeping them updated with the latest scientific information. Many reported using the TLU as a reference for preparation of lectures and as reading material for students. Similarly, 43 percent of respondents stated that the TLU has changed the way they manage diarrheal disease cases. In general, respondents reported that their use of anti-diarrheal drugs, unnecessary antibiotics and intravenous therapy had decreased, while their commitment to oral rehydration salts (ORS) and promotion of breastfeeding and feeding during diarrhea increased.

That same year, the Information Center conducted a survey to determine how readers use the Monthly Acquisitions List and with whom they share it. Twenty percent of those contacted by mail returned the survey. Virtually all of the respondents, which include USAID health officers, CDD program managers, PVOs working on child survival, and overseas information centers, reported that the Monthly Acquisitions List was effective in keeping them current on CDD topics. For example, the director of the Office of Population and Family Health of USAID/Amman commented that "the PRITECH acquisitions list is excellent and keeps me up to date on CDD."

The majority found the list to be well-formatted and easy to use. Two-thirds reported that they share the list with colleagues and national counterparts; of these, one-third share the list with seven or more people. The field offices of private voluntary organizations were particularly enthusiastic about the service, since they have limited access to child survival articles. A program officer at Project Concern International commented that "the PRITECH acquisitions list has been a fabulous, efficient resource and has improved the technical quality of our work."

PRITECH HEALTH SYSTEMS SUPPORT

I. THE ROLE OF HSS IN PRITECH

Health systems support (HSS) is the component of PRITECH set forth in the project contract as the mechanism for responding to health priorities of USAID missions as they relate to child survival. Its focus differs from that of other activity areas in that it provides for assistance in areas which lie outside the scope of PRITECH's country program diarrheal disease control (CDD)/oral rehydration therapy (ORT) focus. Because USAID missions making requests on behalf of host country institutions define the tasks, PRITECH's responsibility is to provide experts who fulfill the needs stated in the scope of work. Achievement of the objectives has been measured according to the following criteria: 1) were the experts capable of fulfilling the scope of work?; and 2) did the experts fulfill the scope of work and submit a satisfactory and timely report? Due to the ad hoc and responsive nature of HSS assignments, the anticipated outputs of HSS assignments are concrete, beneficial results in response to a particular problem.

II. GEOGRAPHICAL AND TOPICAL AREAS OF ACTIVITY

PRITECH financed 162 HSS assignments to a total of 42 countries, utilizing 177 consultants. The table below reflects the number of countries assisted in each region, and the distribution of assignments by region.

REGION	NUMBER OF COUNTRIES ASSISTED IN REGION	NUMBER OF ASSIGNMENTS PER REGION
Africa	16	34
Asia/Near East	12	35
Latin America	12	57
Eastern Europe	2	2
Interregional	--	34
TOTAL	42	162

Areas in which HSS has been utilized include:

- program development, evaluation, and health sector assessments (74 assignments);
- prosthetics/orthotics project design/evaluation (24 assignments);
- rational drug use/management (16 assignments);
- private sector commercialization (10 assignments);
- urban environmental health/water and sanitation (8 assignments); and
- miscellaneous maternal and child health (MCH) issues (30 assignments).

The following examples indicate what PRITECH's experts have accomplished:

(1) Program development, evaluation, and health sector assessments

- conducted a health sector assessment for Niger;
- advised the Ministry of Health of Nicaragua on decentralization of their health care system;
- assisted USAID/Guatemala with a high risk mortality strategy;
- evaluated the status of AIDs orphans to assist the Ugandan government in the development of related strategies and policies; and
- designed a plan for a health management information system in Ecuador.

(2) For prosthetics/orthotics project design/evaluation, with buy-ins of \$585,000 from the U.S. Congress' War Victims Fund, PRITECH fielded consultants to evaluate USAID-funded private volunteer organizations (PVOs) projects for the prosthetic and orthotic needs of victims of civil strife in countries such as Vietnam, Sri Lanka, Mozambique, Nicaragua, Honduras, Ethiopia, Armenia, and Croatia. This has been a major focus of HSS activities, with 24 assignments undertaken in this area.

(3) Rational drug use/management

- installed the drug estimation model (DEM) software at the Social Security Institute of Costa Rica. DEM is a management tool for the utilization of price and consumption data for pharmaceutical products; and
- developed a case study on the use of the RXDD computer intervention for prescribing analyses for presentation at meeting of health, population and nutrition (HPN) officers from Latin American USAID missions.

(4) Private sector commercialization

- conducted an oral rehydration salts (ORS) marketing study in Guinea; and
- analyzed ORS packet-size changes in the Egyptian ORS distribution program for potential application to Kenya.

(5) Urban environmental health/water and sanitation

- participated in the development of an urban health strategy at an USAID urban health conference in Nairobi, Kenya ;
- prepared a draft technical paper to be used by the Africa and RAD Bureaus as a technical reference and guide to urban health policy and programming issues in the region; and
- collaborated with the Water and Sanitation Health Project (WASH) to develop and apply an environmental health risk assessment methodology, which was field-tested in Ecuador.

(6) Miscellaneous MCH issues

- participated in the development of child survival strategies and/or institutes in Ecuador, Chad, the Philippines, and Rwanda;
- participated in evaluations of child survival projects in Mali, Sudan, and Indonesia;
- developed an information, education, and communication (IEC) campaign for health interventions for the Ministry of Education of Mali;
- analyzed and made recommendations regarding public health financing in Ecuador; and
- conducted an institutional analysis of the effectiveness of the Dominican Republican government's public health and social assistance programs.

III. FINANCIAL INFORMATION

The PRITECH contract called for up to 250 person months of assistance to be provided through HSS. The contract amendment for a sixth project year increased this figure to 275. HSS activities were financed both by mission and Office of Health buy-ins and central funds. The table below illustrates the total financial and person month expenditures for HSS assignments, as well as the total funding from buy-ins and from central funds. The last two years witnessed major interruptions in HSS activities such as the Persian Gulf War, and a project year 5 (PY5) internal PRITECH decision to cease funding HSS activities requiring central funds, due to financial constraints facing the project.

IV. ACHIEVEMENTS/LESSONS LEARNED

- (1) **Use of PRITECH HSS support.** Overall, PRITECH was both flexible and responsive in utilizing the HSS mechanism to undertake discrete activities related to primary health care objectives identified by the clients, USAID missions, bureaus, and host country ministries. Evaluation of HSS activities has been based on the criteria mentioned in the introduction, and feedback from the HSS clients indicates a high level of satisfaction.

- (2) **Limits to HSS support.** Due to the short-term, ad hoc nature of HSS assignments, there are limits to the extent to which their technical and programmatic benefits can be measured. The individual nature of HSS assignments renders difficult the application of standard criteria to the evaluation of their accomplishments, and this component of the project did not fall under PRITECH's mandate to evaluate country program and research and development activities. Future efforts in this area may be directed toward devising methods for integrating HSS activities into a project evaluation component, in order to maximize the potential long-term benefits of HSS activities.
- 3) **HSS assignments' settings.** The majority of HSS activities were conducted in non-PRITECH program countries. Should the HSS mechanism continue to be utilized in the future, efforts should be made to integrate HSS activities with overall country programs, thus providing support complementary to CDD/ORT program (or other health program) efforts. This could be done through greater utilization of the expertise of project staff already involved with country programs. Furthermore, experiences gleaned from non-project countries should be shared with countries facing similar issues.
- 4) **Marketing of HSS support.** The HSS mechanism for the provision of technical assistance needs to be better advertised by USAID/Washington to USAID missions in order to heighten its effectiveness.
- 5) **Staffing for HSS activities.** The extremely labor-intensive nature of HSS assignments drew personnel resources away from the project's country program focus. From a management perspective, additional staffing to coordinate HSS activities is suggested.

OVERALL FINANCIAL STATUS

At the end of the project, by October 31, 1993, accrued expenditures totaled \$33.2 million. Of the total spent, 62 percent or \$20.9 million came from core funds, very close to the 60 percent envisioned at the beginning of the project. PRITECH received \$12.9 million of buy-in funds from USAID missions and Washington offices for specific programs. PRITECH worked hard to acquire the buy-in funds; for example, program development efforts took place in 45 countries, although only about 40 percent of the country programs proposals could be brought to the point of approval and funding. The balance unexpended at the end of the contract was 2 percent of available funds.

Expenditures during the final 13 months of the contract, project year six (PY6), were \$5.5 million. The spending level dropped almost 40 percent from the \$9.0 million spent during project year five (PY5), as activities tapered off in anticipation of closing at the end of the contract.

Fifty percent of funds spent were directly related to country programs; the portfolio of country programs was PRITECH's first priority. Buy-in monies spent for country programs totaled \$10.5 million, 64 percent of the country program category. More than half of funds for country programs was spent on "sustained" programs, characterized by multi-year, comprehensive diarrheal diseases control (CDD) programs managed by staff resident in the countries. About 13 percent was spent for less comprehensive, "intermittent" country programs. Core funds from the Office of Health were used mainly for innovative private sector programs, as well as high priority country programs that USAID missions were not ready to support, e.g., Zambia. The total spent for sustained and intermittent country programs was \$13.8 million. Most of these funds, almost 72 percent, were spent in Africa. About 19 percent of the funds was spent in Asia/Near East countries, and 10 percent in Latin America. The five largest country programs were split between Africa and Asia:

Kenya	\$1.36 million	
Indonesia	1.14 million	
	I.-public sector	(.54)
	II.-private sector	(.60)
Cameroon	1.06 million	
Pakistan	1.04 million	
Mali	.99 million	

Nine percent of funds were spent for ad hoc technical assistance or participant training requested by USAID missions and offices. Most of these funds, \$2.6 million, was spent for short-term technical assistance in countries, for example, the War Victims Program.

Another 9 percent was spent for RAD managed by the technical unit (TU) staff, and included operations research and studies in countries, information dissemination, and sponsored

conferences. Many of these activities were important stimulants for innovative activities in the country programs, for example, breastfeeding and nutrition activities.

Project management costs were \$10.7 million, 32 percent of total spending. When PRITECH was first authorized, the Office of Health decided to pay for the headquarters costs of managing programs. USAID missions were not asked to pay for the management of country programs at headquarters until near the end of the contract. As a result, in comparison with newer projects sponsored by the Office of Health, the general project management costs are overstated and the costs of country programs are understated.

ANNEX 1
LIST OF PUBLICATIONS

Bibliography

- 0376 Abramson, S. DEVELOPMENT OF HEALTH SECTOR FINANCING PROJECT, INDONESIA. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-168, February 1987, 13p.
- 4519 Aftab Associates (Pvt.) Ltd. PERPETUAL TRADE AUDIT FOR ORS: REPORT FOR THE MONTHS OF AUGUST AND SEPTEMBER, 1990. Arlington, VA, Management Sciences for Health, PRITECH Project, January 1991, 45p.+app., LPC 022-PA.
- At the request of PRITECH/Pakistan, Aftab Associates (Pvt.) Ltd. launched a perpetual trade audit. The audit consists of a monthly survey of 1200 retailers in 21 cities to monitor the sales of ORS. Comparative market shares of competing brands are presented, as well as market size and distribution. In addition to the overall figures, tables for the top 10 cities are included.
- 5854 Aguilar, A. M.; Zamora, A. CENSO Y EVALUACION DE UNIDADES DE REHIDRACION ORAL COMUNITARIAS. Arlington, VA, Management Sciences for Health, PRITECH, ICP-073-80, April 28, 1992, 16p. +app.
- In December 1991, staff members of Bolivian ORUs, as well as local residents and health workers, were interviewed as part of an evaluation of the ORUs. The results showed that the public was well aware of the ORUs, but that there were great differences between units in levels of staff training, case-management skills, and record-keeping. The report recommends that the role of the units be clarified and standardized, and that refresher trainings and supervisory visits take place.
- 3109 Aguilar, A. M. INFORME PRELIMINAR DE ASISTENCIA TECNICA PARA LA EVALUACION DEL PROGRAMA PREMI EN ECUADOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 006-EC, November 30, 1988, 9p.
- This evaluation document recommends to PREMI (the national Ecuador program to reduce child death and disease) 1) greater integration of programs; 2) greater inclusion of grass-roots experience into local, regional, and national planning; 3) better HIS; 4) more work on female education because of its measured relation to child health and survival; and, 5) more training for service providers in interpersonal skills, especially talking to mothers.
- 5584 Aguilar Liendo, A. A. INFORME DE VISITA A GUATEMALA PARA REALIZAR UNA EVALUACION RAPIDA DE LAS ACTIVIDADES REALIZADAS EN LA PROGRAMA DE CONTROL ENFERMEDADES DIARREICAS QUE LLEVAN A CABO 4 ORGANIZACIONES NO GUBERNAMENTALES. Arlington, VA, Management Sciences for Health, PRITECH, HSS 097-GU, August 2, 1991, 25p.
- The author reviewed four non-governmental organizations in Guatemala that provide maternal and child health services. The organizations reviewed were APROFAM, which promotes responsible parenthood; AGES, which provides human sexuality education; PAMI, which focuses on maternal health; and IPROFASA, a pharmaceutical importer. Based on the review the author makes recommendations about how public-private partnerships can fill gaps in health services provided by the Ministry of Health. Immunization was noted as an area in particular need.
- 1656 Aguilar, A. M.; Spain, P. L. THE PRITECH-PROCOSI COLLABORATION: WORKING WITH A PVO CONSORTIUM IN BOLIVIA. Arlington, VA, Management Sciences for Health PRITECH Project, PRITECH Occasional Operations Papers, October 1992, 8p.
- This short report describes the growth of PROCOSI, the consortium of child-survival PVOs in Bolivia. The paper presents the main activities of the group and describes PRITECH assistance, which included training activities and CDD assistance.
- 0506 Alden, J. S. INSTITUTIONAL AND ADMINISTRATIVE ASSESSMENT FOR THE PROPOSED SWAZILAND PRIMARY HEALTH CARE PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-77, July 1985, 28p.
- 5415 Alden, J. S.; Salole, G. M.; Williamson, J. MANAGING UGANDA'S ORPHANS CRISIS. Arlington, VA, Management Sciences for Health, PRITECH, HSS 122-UG, December 3, 1991, 57p.+app.

During a three-week period from July 17 - August 2, 1991, an assessment team visited Uganda to review the current

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crisis regarding the country's orphan population and the prospects for managing the situation in the future. The current number of orphans ranges from 400,000 to 1,100,000, the majority of whom were orphaned due to civil strife and the spread of AIDS. Despite such large numbers of orphans, the team did find that the majority of these children were being cared for by extended families and, therefore, were not institutionalized. They also found that many national and international NGOs provided aid to orphans, although their efforts were not always well coordinated. In this report the authors discuss these and other findings and make recommendations to manage the crisis in the future.

- 1145 Alden, J.; Lebow, R.; Quigley, M.; et al. MID-TERM REVIEW OF THE MOZAMBIQUE PROSTHETICS PROJECT. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-136-AR, December 1992, 52p. +app.

This evaluation of a USAID-funded prosthetics project in Mozambique found that production and repair of prostheses were on schedule, despite a lack of precise estimates of local needs and civil unrest. But mismanagement, lack of skilled workers, and shortage of funds show that this project is not sustainable as currently structured.

- 0464 Alden, J.; Thorne, M. SWAZILAND RURAL HEALTH DEVELOPMENT PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-40, February 20, 1985, 37p. +app.

- 5501 Alt, D. IMPROVING ORS SUPPLY AND DISTRIBUTION: A PRITECH-ASSISTED EFFORT IN THE PHILIPPINES. Arlington, VA, Management Sciences for Health, PRITECH Project, 11p.+app.

In the 1980s the Philippine CDD program undertook the development of a system for determining how many ORS packets each health facility should stock and to calculate when to reorder supplies and how much to order. In this paper the author describes the new ORS ordering system, explains how the system was developed and implemented, discusses the system's impact on ORS supply, and presents the lessons learned in implementing the system.

- 6011 Alvarez L., S.; Spain, P. L. THE CICLOPE INNOVATIONS IN RURAL COMMUNICATION: REACHING THE UNREACHABLE VILLAGES IN MEXICO. Arlington, VA, Management Sciences for Health, PRITECH Occasional Operations Papers, August 1992, 6p.

PRITECH enlisted the help of a Mexican consultancy group, Ciclope, to promote ORT in 2 Mexican states. Ciclope trained nearly 400 rural health auxiliaries in diarrhea messages. These auxiliaries then set up booths at village markets and used a flip chart and comic books to teach mothers about diarrhea treatment. Messages were reinforced through lottery games.

- 0308 Arce, R. ASSESSMENT OF PRIVATE SECTOR PRODUCTION OF ORS IN CENTRAL AMERICA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-99, March 1985, 12p. +app.

- 2585 Aubel, J. ASSISTANCE TO THE NATIONAL CAMEROON CDD PROGRAM. Arlington, VA, Management Sciences for Health, PRITECH, DC 447, July 1988, 20p. + app.

The primary focus of this study was on data collection from the community as well as data collection from health personnel. Knowledge and attitudes relating to diarrheal disease management were assessed at the community level as well as among health personnel.

- 3113 Aubel, J. COMMENTS ON PUBLIC HEALTH TRAINING IN MALI AND AN OUTLINE FOR A FAMILY HEALTH MANUAL. Arlington, VA, Management Sciences for Health, PRITECH, HSS 013-MA, June 13, 1989, 72p.

The consultant collaborated closely with a national technical advisory group to produce a timeline for a national family planning education strategy for health personnel. An outline for a family planning curriculum was also prepared for personnel at the district level. This document is available only in French.

- 0050 Aubel, J.; King, J.; Rasmuson, M. PROMOTION OF DIARRHEAL DISEASE MANAGEMENT BY MOTHERS: EDUCATION AND DISSEMINATION OF ORAL REHYDRATION THERAPY. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-156, April 1986, 54p. +app.

0044 Aibel, J.; King, J.; Rasmuson, M. STRATEGY ASSESSMENT OF TUNISIAN ORT PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-156, April 1986, 25p. +app.

0492 Ausherman, C. R.; Arnold, M. PHASE TWO: MEDICAL TECHNICIAN CURRICULUM REVISION PROJECT REPORT/EVALUATION DESIGN. Arlington, VA, Management Sciences for Health PRITECH Project, SS-7, September 11, 1984, 36p. +app.

5871 Auxila, P.; Goncalves, V. FINAL REPORT OF ACTIVITIES AND RECOMMENDATIONS: FINAL VISIT TO CAJA COSTARRICENSE DE SEGURO SOCIAL, COSTA RICA. Arlington, VA, Management Sciences for Health, PRITECH, HSS-087-CR, August 2, 1991, 16p.

This short report summarizes a consultant visit to Costa Rica to install a computer system linking drug data on a mainframe to microcomputers. The data can then be used to analyze the cost and consumption of drugs for the planning of future purchases.

1846 Baker, J.; Kramer, L.; Furst, B. ORAL REHYDRATION THERAPY IN ASIA: REPORT ON A WORKSHOP, MARCH 17-21, 1985, DHAKA, BANGLADESH. PRITECH, 1985, 54 p.

These are proceedings of a workshop held in Bangladesh on ORT in follow-up to ICORT I. Discussion topics included program implementation issues, how to create consumer demand, resistance of physicians, and monitoring and evaluation.

6549 Bannerman, C.; Quigley, M.; Chapnick, B. EVALUATION REPORT. WORLD REHABILITATION FUND HONDURAN REHABILITATION ASSOCIATION. Arlington, VA, Management Sciences for Health PRITECH Project, HSS 153-HO, August 1993, 9p.

This AID-financed program was begun in 1988 and expanded in 1990 to assist noncombatant victims needing prosthetic, orthotic and other rehabilitation services. The project objective has been to create a self-sustaining Honduran capability to provide rehabilitation services to the general population.

0053 Barros, F.; Martorell, R.; Scrimshaw, S. REPORT ON INCAP PROJECTS IN THE AREA OF RISK FACTORS OF LOW BIRTHWEIGHT, NEONATAL MORTALITY, AND LACTATION PERFORMANCE. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-179, October 1986, 21p.

1664 Bartlett, A. EPIDEMIOLOGY OF PERSISTENT AND CHRONIC DIARRHEA IN CHILDREN OF RURAL GUATEMALA. PRITECH Report, DC 175, June 1986.

The purpose of this consultancy was to provide technical assistance to INCAP in the design of field procedures and data collection instruments required for implementation of the study.

4157 Bates, J.; Dominguez, L.; Ross-Degnan, D. HONDURAS RxD FIELD TEST: FEASIBILITY OF PRESCRIBING ANALYSIS OF DIARRHEA TREATMENTS IN PUBLIC SECTOR HEALTH FACILITIES AND DRUG SALES FOR DIARRHEA TREATMENT IN COMMERCIAL SECTOR PHARMACIES. Arlington, VA, Management Sciences for Health PRITECH Project, ICP-058-HO, August 27, 1992, 30p. +app.

Prescribing analysis uses a sample of medical encounters to see which health problems are being treated and whether drugs are being used adequately. This report presents the results of using the RxD system to examine diarrhea and parasitic cases in Honduras. The study found that 45% of diarrheal cases received ORS and an average of 2.6 drugs were prescribed per case. Available in English or Spanish.

6470 Bates, J.; Rankin, J.; Ross-Degnan, D. Rx DRUG USE ANALYSIS SYSTEM: DEVELOPMENT AND APPLICATION OF A TOOL FOR MEASURING AND MONITORING DRUG USE PRACTICES. Arlington, VA, Management Sciences for Health PRITECH Project, 1993, various paginations.

The Rx Drug Use Analysis System will consist of a set of standardized procedures for studying drug use practices

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in a variety of settings and for different purposes, and an integrated software that will allow for the input, processing, and analysis of these data.

- 3645 Benavente, J.; Calderon, R.; Eckroad, K. et al EVALUACION DE MITAD DE PROYECTO DEL PLAN DE REDUCCION DE LA ENFERMEDAD Y MUERTE INFANTIL (PREMI) EN ECUADOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 006-EC, July - August, 1988, 172p.

This report is the mid-term evaluation of PREMI, the Ecuador Program to Reduce Infant Morbidity and Mortality. The program's focus was on rural areas. Key program areas included CDD, EPI, breastfeeding, nutrition, and growth monitoring. Despite a lack of good data to document PREMI's impact, the team found that PREMI had created a national awareness about child survival and credited this to its expansion of CDD and EPI services.

- 0411 Bender, D. SAVE THE CHILDREN TRAINING OF TRAINERS WORKSHOP, BOLIVIA. Arlington, VA, Management Sciences for Health PRITECH Project, SS-239, November 1988.

- 1418 Biddle, S. C.; Danforth, N.; O'Connor, R. MANAGEMENT REVIEW FOR PROJECT CONCERN INTERNATIONAL. PRITECH, Washington, D.C., 20 January to 15 March, 1986, SS 112, 46p.

The purpose of this review is to analyze and review the management and organizational structure of PCI headquarters to assess PCI's capacity to handle a rapidly expanding field program, with particular attention to be paid to the organization and management concepts and practices being used in managing its field projects.

- 0054 Bisailon, S. PRESENTATION MADE TO REGIONAL TRAINING PROGRAMS FOR PHARMACISTS IN ORT: TUNISIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-108, September 1985, 17p. +app.

- 3227 Black, R. E. PLANNING FOR A CHILD SURVIVAL TRAINING AND RESEARCH CENTER: CEBU, THE PHILIPPINES. Arlington, VA, Management Sciences for Health, PRITECH, HSS 036-PH, August 29, 1989, 11p.

Recommendations are made in the areas of service, training, and research for the Child Survival Training and Research Center to be constructed at the Southern Islands Medical Center in Cebu. In all three components the focus will be on maternal and child health. Trainees will include both service providers and trainers. Research priorities will include CDD, ARI, nutrition, and immunization.

- 1446 Black, R. TRIP REPORT OF A CONSULTATION ON THE MONITORING AND EVALUATION OF THE ORAL REHYDRATION THERAPY COMPONENT OF THE USAID PRIMARY HEALTH CARE FINANCING PROJECT, PHILIPPINES. PRITECH, Washington, D.C., 13-19 June 1985.

The purpose of this consultancy was to review and comment on the Tier 1 and Tier 2 AID reporting requirements and to evaluate the feasibility of using data from the Philippines for a large-scale Tier 3 analysis.

- 2488 Black, R. E.; Keusch, G. T. TRIP REPORT: TECHNICAL ASSISTANCE TO THE "ORT GROWTH MONITORING AND EDUCATION" PROJECT AT THE INCAP, REVIEW OF "EPIDEMIOLOGY OF PERSISTENT AND CHRONIC DIARRHEA IN CHILDREN IN RURAL GUATEMALA" RESEARCH COMPONENT. Arlington, VA, Management Sciences for Health, PRITECH Project, ACP 002-GU, November 30, 1988, 13p. + app.

This mid-term evaluation of the "Epidemiology of Persistent and Chronic Diarrhea in Children in Rural Guatemala" research component concludes that the study is going well and that "it should make an important contribution to our understanding of persistent diarrhea in this setting."

- 3115 Blakney, R. B.; Litvack, J. I.; Quick, J. D. FINANCING PRIMARY HEALTH CARE: EXPERIENCES IN PHARMACEUTICAL COST RECOVERY. Arlington, VA, Management Sciences for Health PRITECH Project, HSS 035-IR, June 22, 1989, 157p.

"This paper considers a variety of pharmaceutical cost recovery experiences and provides detailed reviews of experiences in eight countries: Ghana, Haiti, Liberia, Mali, Nepal, Nigeria, Thailand and Zaire." The efforts in these countries were inspired by the Bamako Initiative of 1987.

- 4382 Blum, D.; Northrup, R.; Herman, E. CASE MANAGEMENT IN DIARRHEAL DISEASE CONTROL PROGRAMS. Arlington, VA,

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This document outlines a strategy by which improved diarrhea case management at both the household and health facility levels can reduce diarrhea-related morbidity and mortality. This strategy emphasizes effective communication with mothers and promotion of fluid therapy as well as appropriate health care worker training and supervision. Other issues discussed include the integration of feeding into case management, promotion of rational drug use and private sector involvement.

- 4172 Blum, D.; Herman, E.; Northrup, R. ORAL REHYDRATION AND FEEDING: STATE OF THE ART IN DIARRHEA MANAGEMENT. Arlington, VA, Management Sciences for Health, PRITECH Occasional Operations Papers, August 1990, 19p.+app.

This paper critically considers some of [the] concerns regarding current recommendations for diarrhea management. It begins with a description of the physiologic basis of oral rehydration. The following sections examine the available evidence concerning the advantages and disadvantages of using oral rehydration versus intravenous therapy for the treatment of diarrhea-induced dehydration. The final sections review the literature regarding the effects of continued feeding during diarrhea. The discussion focuses on the management of diarrhea in young children (under five years of age) in the health facility setting. [published abstract] Also available in French.

- 0058 Booth, E. M.; Clements, M. L. BUILDING INDEPENDENCE: STRENGTHENING MOTHERS CLUBS THROUGH AN ORAL REHYDRATION THERAPY PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-93 and DC-109, July 1985, 38p. +app.

- 0284 Booth, E. M. TRIP REPORT -- INDONESIA: PREPARE MASS MEDIA CAMPAIGN STRATEGY PLAN FOR ORT. Arlington, VA, Management Sciences for Health PRITECH I Project, DC73, February 1985, 34p. +app.

- 3114 Brace, J. A PHILIPPINE INFORMATION CENTER ON DIARRHEAL DISEASE AND CHILD SURVIVAL: RECOMMENDATIONS FOR START-UP AND OPERATIONS. Arlington, VA, Management Sciences for Health, PRITECH, SUP 036-PH, September 12, 1989, 25p. + app.

Information needs of the Philippine Department of Health related to diarrheal disease and child survival are assessed. The design and operation of an information center are laid out, drawing on the materials and procedures of the PRITECH/Washington Information Center.

- 5872 Brace, J. REVIEW AND EVALUATION: ORANA/PRITECH INFORMATION CENTER. Arlington, VA, Management Sciences for Health, PRITECH, ICP-049-OR, January 9, 1991, 11p.

This brief report describes the activities of the ORANA Information Center on Child Survival, in Dakar, Senegal, since its inception in 1985. The center collects documents and disseminates information on diarrhea and vitamin A to francophone Africa.

- 0504 Brady, T.; Norris, J.; Rosenber, R.; et al. THE PHILIPPINES COUNCIL FOR HEALTH RESEARCH AND DEVELOPMENT "SEMINAR-WORKSHOP ON HEALTH CARE" FINANCING SCHEMES. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-73, September 12, 1985, 12p.

- 3498 Brown, J.; Salmonsson, S.; Leifert, T. et al AN EVALUATION OF THE NATIONAL CDD PROGRAM IN ZAMBIA. Arlington, VA, Management Sciences for Health, PRITECH, STP 013-2A, February-March, 1989, 60p.+app.

A PRITECH assessment team reviewed the components of the national CDD Program, with particular attention to PRITECH technical contributions. Their report presents background information on Zambia and the national program, findings of three recent research studies, and recommended actions for the Ministry of Health to consider.

- 0138 Brown, J.; Rasmuson, M.; Blum, D. PRITECH PROJECT PROPOSAL TO ASSIST THE KENYAN NATIONAL CDD PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-216, July 1987, 45p.

2792 Brown, K. H. REVIEW OF STUDIES RELATED TO THE NUTRITIONAL MANAGEMENT OF DIARRHOEA: TECHNICAL ASSISTANCE TO THE ORAL REHYDRATION THERAPY, GROWTH MONITORING AND EDUCATION PROJECT AT THE NUTRITION INSTITUTE FOR CENTRAL AMERICA AND PANAMA. Arlington, VA, Management Sciences for Health PRITECH Project, ACP-004-GU, October 1992, 24p.

Several studies related to the dietary management of diarrhea are critiqued and refocused. The effects of mixed versus vegetable diets are compared. Another study presents focus group discussions on KAP related to the dietary management of children with diarrhea. As a natural extension of these studies, direction is given for conducting recipe trials.

3111 Brown, R. COMMENTS ON CONSULTATION VISIT TO INCAP. Arlington, VA, Management Sciences for Health, PRITECH, ACP 003-GU, October 3, 1988, 11p.

The purpose of this consultancy was to improve current Child Survival educational and training efforts in the Central American countries under the guidance of INCAP. Primary recommendations of the report are: 1) development of new Child Survival training materials is unnecessary; 2) the best approaches should be shared among the Central American countries; 3) improvements can be made in INCAP's post-graduate courses.

5878 Brown, R.; Karp, A.; Mata, J. EL COLERA EN NICARAGUA: UNA RAPIDA EVALUACION DE LA PREPARACION DEL PAIS. Arlington, VA, Management Sciences for Health PRITECH Project, ACP-011-NC, March 23, 1992, 44p. +app.

This is the report of the PRITECH/WASH/HealthCom team that was invited to Nicaragua in 1991 to advise the government and USAID about cholera. Cholera had not yet arrived in Nicaragua. Recommendations centered on case management, water and sanitation, and public education.

0066 Brown, R.; Fabricant, S. ZAMBIAN NATIONAL DIARRHEAL DISEASE PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-160, April 1986, 80p. +app.

3840 Bryant, D. H. EVALUATION OF PHARMACARE RAMALLAH, WEST BANK. Arlington, VA, Management Sciences for Health, PRITECH, HSS 068-WB, January 9-20, 1990, 12p.

The consultant performed an assessment of the operations of the Pharmicare pharmaceutical plant in Ramallah based on the US Current Good Manufacturing Practice (GMP) regulations. Small deviations from GMP were detected, but none were serious enough to warrant halting production. Recommendations are made for improvements.

2934 Burleigh, E. STUDY OF PERSISTENT DIARRHEA: INCAP, GUATEMALA CITY. Arlington, VA, Management Sciences for Health PRITECH Project, ACP-006-GU, November 1992, 60p.

Focus group interviews in Guatemala revealed that the humoral theory of disease influenced perceptions of the causes of childhood diarrhea. Stool color was a key factor in diagnosis. "Cool" liquids were used to treat "hot" diseases and "hot" liquids were used to treat "cold" diseases, in accordance with the theory of equilibrium.

1038 Burns, K. ASSIST CARE IN DESIGN OF COMMUNITY MANAGED WATER PROJECT, MANICA PROVINCE, MOZAMBIQUE. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-113-MZ, February 1993, 16p. +app.

This paper describes the technical assistance provided to CARE in 1991 to develop a proposal for a water project in Mozambique. The Manica Water Project is a 3-year pilot project that will assist the provincial water department in the implementation of a community-managed maintenance system and the strengthening of hygiene education.

6525 Burns, K. ASSIST CARE IN DESIGN OF COMMUNITY MANAGED WATER PROJECT - MANICA PROVINCE, MOZAMBIQUE. PRITECH, 1993, 16p. + annexes.

The purpose of this report is to design a community-managed water project in Manica Province, Mozambique. The main components of the project are: strengthening of hygiene education, implementation of community participation, rehabilitation of 40 wells, and substituting existing India Mark II handpumps with Village Level

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Operations and Maintenance pumps (VLUM) -AfriDev/Tara.

- 0513 Callen, W.; Burns, J. A.I.D. HEALTH DEVELOPMENT PLANNING AND MANAGEMENT PROJECT: MID PROJECT EVALUATION. Arlington, VA, Management Sciences for Health PRITECH Project, SS-8, February 1984, 89p. +app.

- 5556 Cameroon Ministry of Public Health. LES CROYANCES ET COUTUMES TRADITIONNELLES CONCERNANT LA DIARRHEE DANS LES REGIONS DU CAMEROUN. Arlington, VA, Management Sciences for Health, PRITECH, SUP-142-CA, February 10, 1992, 36p.

In 1989-90, the Cameroonian Ministry of Public Health's National CDD Program conducted focus groups in 6 regions of the country. This report presents, for each region, the views of mothers, fathers, and grandparents about diarrhea and its treatment.

- 5876 Campbell, R. W. J. AN EVALUATION OF ALTERNATIVE PACKAGING FOR ORAL REHYDRATION SALTS (ORS). Arlington, VA, Management Sciences for Health, PRITECH, SUP-091-PA, April 14, 1992, 75p.

This report presents the results of focus groups of Pakistani mothers gathered to pretest ORS packaging. Mothers were asked to mix ORS solutions from alternative packages (bottle, cup, or bag) and to give their opinion of liquid solutions (available in Tetrapak or bags). The study concludes that new mixing packages add to the cost and complexity of ORS. There may be, however, a market for liquid ORS.

- 1179 Casazza, L. J. DTU TRAINING, ZAMBIA. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-137-ZA, January 1991, 7p. +app.

This short report describes assistance provided to Zambian trainers, in 1990, in developing a curriculum for a national diarrheal case management training course. The activities included increasing participatory methods in training, developing supervisory checklists, and increasing the use of growth charts by health workers and improving their communication skills.

- 5094 Casazza, L. J.; Newman, J. S. EVALUATION REPORT ON THE PHILIPPINES DIARRHEA CLINICAL TRAINING PROGRAM: PART A. Arlington, VA, Management Sciences for Health, PRITECH, HSS-115-PH, March 1992, 14p. +app.

In September 1991, an evaluation was conducted of 2 simultaneously run diarrheal case-management courses in the Philippines. The major difference between the 2 courses was the number of cases seen during the practicum (54 vs. 8). The participants who received more practical training had better case-management skills at the end of training. In addition, the results of pre- and post-test knowledge were broken down to measure performance in specific subject areas. Finally, one course lacked effective training in health education and counseling.

- 4009 Casazza, L. J.; Endsley, S. LINKING TRAINING AND PERFORMANCE: AN EVALUATION OF DIARRHEA CASE MANAGEMENT TRAINING IN THE PHILIPPINES. Arlington, VA, Management Sciences for Health PRITECH Project, PRITECH Occasional Operations Papers, January 1993, 10p.

This short report describes the method used to evaluate health worker training at a diarrhea training unit in the Philippines. Trained workers were followed up after training to assess case management performance in their health facility.

- 4660 Casazza, L. J. ORIGINS OF THE UGANDAN NATIONAL TRAINING UNIT: STEPS IN THE PROCESS. Arlington, VA, Management Sciences for Health PRITECH Project, PRITECH Occasional Operations Papers, February 1993, 14p. +app.

This short report describes the establishment of a diarrhea training unit in Uganda and the development of the training curriculum. The unit collaborated with a lactation management training and designed follow-up guidelines for assessing the workers trained at the unit. Checklists for supervisory visits and clinical management forms are included.

- 5212 Casazza, L.; Newman, J.; Graeff, J. et al TRIP REPORT -- UGANDA. Arlington, VA, Management Sciences for Health, PRITECH, SUP 169-UG, August 20, 1991, 17p.+app.

From February 17 - March 21, 1991, a team from three AID projects (PRITECH, Quality Assurance, and HealthCom) visited Uganda's Makerere University's Mulago Hospital to assist the faculty of the proposed diarrhea training unit (DTU) in developing a framework for training and support of CDD activities. The team also assisted the CDD

Program Manager in planning for an upcoming WHO/CDD health facilities survey and explored strategies for further collaboration of the three projects with WHO in Geneva and in the region. This report documents the team's activities, their conclusions, and their recommendations for future collaborative activities.

- 1845 Cash, R.; Furst, B. ORAL REHYDRATION THERAPY IN AFRICA: REPORT OF A WORKSHOP, LILONGWE, MALAWI, MARCH 29-30, 1985. PRITECH, 1985, 97 p.

These are the proceedings of a conference on ORT in Africa attended by 160 people from 30 countries. Discussion topics included alternative approaches in ORT therapy, training and demand creation, management of programs, and monitoring and evaluation.

- 1077 Catron, F. MARKETING ASSISTANCE TO MEDIPHARM. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-228-UG, December 1992, 10p. +app.

This short report presents recommendations made to Medipharm Industries, a local ORS producer in Uganda, and to ARMTRADES, the main distributor. Recommendations covered logistics, monitoring, ORS pricing, and promotion.

- 3085 CEDPA. AN INITIATIVE TO EXTEND THE CONTROL OF DIARRHEAL DISEASE SERVICES THROUGH COMMUNITY BASED NON-GOVERNMENTAL ORGANIZATIONS. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP-231-KE, October 1992, 31p.

A workshop was developed to assist NGOs to promote effective home management and prevention of childhood diarrhea. During the workshop, individual plans were developed to encourage appropriate behavior change in communities by reaching out to women with limited access to health care. Follow-up technical assistance was provided to all participating NGOs.

- 1113 Chang, J.; Wallace, N. CHILD SURVIVAL PROJECT, HEALTH INFORMATION SYSTEM, ADVENTIST DEVELOPMENT AND RELIEF AGENCY, MALAWI. Pritech, SS 147, 1986.

A consultant team provided technical assistance to the Adventist Relief and Development Agency in Malawi: to (1) devise an information system for project monitoring and evaluation; and (2) assist in the design of and conduct the baseline survey. Appendices include USAID indicators, the baseline survey, tabulation forms and questions for interviewers.

- 3839 Chapnick, B. PROSTHETIC PROJECT IN LAOS. Arlington, VA, Management Sciences for Health, PRITECH, HSS 067-LA, November 3-23, 1989, 3p.

The consultant evaluated a proposed prosthetic project in Laos to be managed by World Concern. He concludes: "The proposed prosthetics project in Laos is feasible, technically warranted, and politically welcome. Its principle problem will be the coordination and management of its several components in the absence of an AID mission." The major components of the project are outlined.

- 0070 Chauls, D.; Wallace, N. DEVELOPMENT OF CHILD HEALTH STRATEGY FOR OMAN: INTERIM REPORT. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-117, December 1985, 23p.

- 1684 Ciclope, S. C., Consulting Group FINAL PROJECT REPORT: ORAL HYDRATION THERAPY PROMOTION, TRAINING OF SUPERVISORS AND HEALTH AIDES AND PARTICIPATORY EVENTS IN REGIONAL MARKETPLACES OF HIDALGO AND VERACRUZ, MEXICO. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-100-ME, August 1992, 42p. +app.

This report presents the results of a broad campaign to promote the prevention of dehydration from diarrhea. The campaign relied on educational techniques and communication materials designed to promote ORT. Community health aides and mothers were targeted through training courses, mothers' groups, and stands in the marketplaces. Outreach in the marketplace included a lottery game with prizes, the use of educational flip charts, and distribution of and instruction on the use of ORS. Dehydrated plantains and gourd dolls illustrated poor skin turgor and the weakness associated with diarrhea.

- 3495 Clayton, C.; Mahrous, H. PROPOSED ORS SACHET TRANSITION FROM 1 LITRE TO 1/2 LITRE, KENYA. Arlington, VA, Management Sciences for Health, PRITECH, ICP 021-KE, June 12-23, 1989, 15p.

The consultants report on their work with the Kenyan MOH/CDD team to develop a plan for the transition from 1

litre to 1/2 litre ORS sachets. The report is divided into three sections: observations and conclusions about the present program, and recommendations for the transition, focusing on logistics and communications.

1740 Clements, M. L. LA EXPERIENCIA MUNDIAL CON LA REHIDRATAACION ORAL. PRITECH Report, 6 p.

This report is a brief summary of the global ORT program. Case studies of Bangladesh, Egypt, Honduras, The Gambia and the United States are highlighted.

0228 Cooper, M.; Gray, A.; Binnerts, R. PRODUCTION OF MEASLES VACCINE AND POLIO VACCINE IN INDONESIA. Arlington, VA, Management Sciences for Health PRITECH Project, DC-47, May 1985, 24p.

3492 Correl, F.; Guyon, A.; Shafritz, L. EVALUATION REPORT: CONTROL OF DIARRHEAL DISEASES; MAURITANIA. Arlington, VA, Management Sciences for Health, PRITECH, STP 002-MU, December 17, 1988, 54p.

This evaluation summarizes what has been accomplished by the national CDD Program to date, future plans and prospects, and strengths and weaknesses of the Program and its management. The evaluation team concludes that the Program has "far to go to become fully operational and to have a significant impact on the health of the target population." Recommendations are made in three broad areas: operations, policy, and management.

3994 Coulibaly, M. ETUDE COMPARATIVE DE LA PRISE EN CHARGE DES CAS DE DIARRHEE DANS LES FORMATIONS SANITAIRES. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-056-CA, October 1992, 25p.

This summary report compares the results of health facility surveys undertaken in Mali, Niger, Cameroon, and Mauritania. The surveys specifically examined case-management practices for diarrhea, training, knowledge of health workers, and treatments indicated on health records.

1802 Coulibaly, M. ETUDE DE LA PRISE EN CHARGE DES CAS DE DIARRHEE DANS LES FORMATIONS SANITAIRES DES PROVINCES DU LITTORAL ET DU SUD AU CAMEROUN. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-056-CA and LPC-032-CA, March 1993, 75p.

This study of 70 health facilities in 2 provinces of Cameroon surveyed health workers and observed case management practices for diarrheal disease. 21% of staff were trained in the area of ORT. 58% of workers interviewed had a good level of knowledge about assessment of diarrheal disease, while 29% had a good level of knowledge about rehydration. Drugs were still overprescribed: 14% of cases were given antibiotics and 43% received other drugs (mostly antidiarrheals). 39% of the facilities had ORT corners, but 36% of the facilities were out of ORS.

3493 Coulibaly, M. PROGRAMME DE LUTTE CONTRE LES MALADIES DIARRHEIQUES DE LA MAURITANIE; ETUDE DE LA PRISE EN CHARGE DE CAS DE DIARRHEE DANS LES STRUCTURES DE SANTE. Arlington, VA, Management Sciences for Health, PRITECH, ICP 008-MU, February 1989, 47p.+app.

This evaluation of case management in Mauritanian health centers took place two years after the beginning of the national CDD program. Four areas were examined: training of health personnel in ORT, case management in health facilities, ORS supply and management, and communication efforts, including the level of mothers' knowledge and practice.

3842 Coulibaly, M. PROGRAMME NATIONAL DE LUTTE CONTRE LES MALADIES DIARRHEIQUES DU NIGER: ETUDE DE LA PRISE EN CHARGE DE CAS DE DIARRHEE DANS LES STRUCTURES DE SANTE. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 033-NG, April 1990, 43p.+app.

Four areas were included in this evaluation of Niger's CDD program: health worker training in ORT; diarrhea case management in the health centers; ORS packet availability and use; and mothers' degree of knowledge about ORT. The study was carried out in three departments and one urban community (Niamey).

1514 Coulibaly, M. PROGRAMMES NATIONAUX DE LUTTE CONTRE LES MALADIES DIARRHEIQUES: MALI, NIGER, MAURITANIE, SENEGAL. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-023-SA, September 1992, 37p.

Health facility surveys were conducted as part of the midterm evaluations of the national CDD programs in Mali, Niger, Senegal, and Mauritania. This report presents and compares the results of the surveys, which examined

case management, health worker training, ORS supply, health care supplies and demonstration materials, case records, and maternal knowledge.

- 2859 Crone-Coburn, C.; Cross, P.; Smith, B. ANALYSIS OF MANAGEMENT AND PRIMARY HEALTH CARE CONSTRAINTS WITHIN THE CONTEXT OF THE SILAIS. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-135-NC, October 1992, 21p.

The goal of the SILAIS system in Nicaragua is to expand and improve PHC services, while simultaneously improving the status of women and children. Decentralization of the health-care system is seen as a means to achieve this goal. This report identifies factors that will encourage or hinder the decentralization process.

- 1968 Cross, P.; Brown, R.; Coburn, C. C.; et al. FIRST EVALUATION: ORAL REHYDRATION THERAPY, GROWTH MONITORING AND EDUCATION PROJECT INCAP/ROCAP. Arlington, VA, Management Sciences for Health PRITECH i, DC 236, November 1986, 76+ p.

This report is an evaluation of the INCAP Child Survival project which relates mainly to Oral Rehydration Therapy, Growth Monitoring, and Feeding/Nutrition programs. The conclusions of the report indicate that INCAP should be more focused in all of its efforts with regard to Child Survival. Improvement of their management and taking a more coordinated approach are also recommended.

- 3225 Cutting, W. A. M. MEDICAL EDUCATION AND TRAINING FOR DIARRHOEAL DISEASE IN JORDAN AND THE PROSPECT OF INCORPORATING THE PRITECH/WHO TRAINING MATERIALS. Arlington, VA, Management Sciences for Health, PRITECH, ACP 005-JD, November 6, 1989, 10p.

This report outlines the present diarrheal disease situation in Jordan as well as that of the medical services, the medical profession, and current medical education. It recommends further actions in order to incorporate components of the PRITECH-WHO Diarrhoeal Diseases Training Package into the medical education system and, most specifically, into the practical training program for primary care specialists.

- 2285 Dabis, F. FINAL REPORT: MEASLES ANTIBODY STUDY - CONGO. Arlington, VA, Management Sciences for Health PRITECH I Project, September 1986, 28p. +app.

"At the request of the CCCD-Congo project, a CCCD/PRITECH mission was carried out in Brazzaville, from August 22 to September 9, 1986. The mission had two objectives: to conduct a serologic study of the dynamics of maternal measles antibodies in infants less than 10 months of age, and to review Oral Rehydration (ORT) activities in the hospital environment in Brazzaville...The present final report gives the principal [sic] results of the serologic investigation." Tables detailing age distribution, nutritional status, birthweight and several other indicators are included.

- 2286 Dabis, F. A REVIEW AND RECOMMENDATIONS FOR IMPROVED HEALTH INFORMATION SYSTEM - RWANDA. Arlington, VA, PRITECH, August 1987, 4p.+ appendices.

This trip report summarizes the activities involved in assisting CCCD/Rwanda and the Ministry of Health to improve the current health information system (HIS). Attached are appendices of suggested proposals, in French, and a multitude of forms for the tracking of health information.

- 0150 D'Agnes, L.; Widjaya, A. PRODUCTION AND DISTRIBUTION OF ORS PRODUCTS IN INDONESIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-231, April 1988, 27p. +app.

- 1849 Dale, C.; Northrup, R. SYMPOSIUM PROCEEDINGS, CEREAL-BASED ORAL REHYDRATION THERAPY: THEORY AND PRACTICE. International Child Health Foundation and PRITECH, 1988, 59 p.

This report contains the proceedings of a symposium on cereal-based ORT that took place at the National Academy of Sciences in February 1987. Discussion topics included the history of ORT development, implementation of ORT, status of cereal-based ORT research, and nutritional aspects.

- 0227 Davachi, F. EVALUATION OF THE ORT TRAINING UNIT, ZAMBIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-449, July 1988, 6p.

5873 Diene, S. M. PLANS D'ACTION POUR LES PROGRAMMES NATIONAUX DE LUTTE CONTRE LES MALADIES DIARRHEIQUES ET DE LA NUTRITION, 1990-1995. Arlington, VA, Management Sciences for Health, PRITECH, HSS-095-SE, August 2, 1991, 49p. +app.

This paper is comprised of 2 national plans for Senegal for 1990-95. The first delineates the government's plan for nutrition and the second describes the national CDD program plan. Both plans include an overview of the health problem, the objectives of the plan, specific activities to be undertaken, and estimated budgets.

5792 Dipko, L.; White, K. INFORMATION PLEASE! A VISIT TO THE ORANA INFORMATION CENTER. Arlington, VA, The PRITECH Project, June 1992, 19p.

The ORANA (Office de Recherches sur l'Alimentation et la Nutrition Africaines) Information Center on Child Survival, in Dakar, is an important regional source of information on diarrhea, nutrition, and vitamin A. This report documents the center's activities, including document collection, dissemination, translation, and publication production. This unique service has been met with an increasing demand for information from a growing audience of decisionmakers, teachers, and health workers.

5788 Dipko, L. INTERNATIONAL FORUM FOR FRANCOPHONE AFRICA INFANT FEEDING AND CHILD SURVIVAL: CONFERENCE REPORT. Arlington VA, PRITECH Project, March 1992, 90p.

This conference, cosponsored by PRITECH and the Nutrition Communication Project, was held in response to the growing understanding that infant-feeding practices and maternal nutrition are of key importance to child survival. The report includes summaries of the main conclusions and actions of the conference (held in Lome in September 1991), a copy of the agenda, a list of participants, and a bibliography. The summaries are grouped into 5 sections: progress in child survival, support of women, breastfeeding promotion, infant feeding and diarrhea prevention and treatment, weaning practices, and integrating nutrition into other health programs. The report is available in English and French.

0226 Dondi, N. N. CONTROL OF DIARRHOEAL DISEASES PROJECT, KENYA. Arlington, VA, Management Sciences for Health, PRITECH I Project, DC-415, September 1988, 32p. +app.

4506 Dondi, N. KENYA CDD PROGRAMME: FINAL REPORT OF THE COMMUNICATION RESOURCE PERSON. Arlington, VA, Management Sciences for Health, PRITECH Project, ICP 003-KE, October 10, 1990, 12p.

PRITECH's communications consultant in Kenya discusses progress made under the three main objectives of the consultancy from 1987-1989: 1) to generate a plan to integrate communications into the ongoing CDD program; 2) to integrate communications into the program and transfer responsibility for implementation to the districts; and 3) to produce basic materials to support the communications effort. The report also presents planned activities for 1990.

5655 Downs, F. NEEDS ASSESSMENT IN PROSTHETICS PRODUCTION AND DISTRIBUTION IN SRI LANKA. Arlington, VA, Management Sciences for Health, PRITECH Project, MSS 101-SL, February 25, 1992, 30p.

In this paper the author reports on his work to assist USAID/Colombo and a local PVO to outline a program to expand technical assistance in prosthetic production and distribution to victims of the ongoing civil war in Sri Lanka. The author studied the patients' background, the current provision of prosthetic services, the nature of medical care, and the conditions in the country (e.g. economic, technical) in terms of being able to provide prosthetic services. Based on his findings, he makes recommendations on how USAID and the local PVO (Friends in Need Society) can coordinate efforts to meet the growing need for prosthetics in Sri Lanka.

1272 Echols, J. HEALTH COMMUNICATION, EL SALVADOR. PRITECH, 7-20 May 1986, SS 141, 69 p.

This report details recommendations for AID assistance to CEPROCE in El Salvador (Centro de Produccion de Comunicacion Educativa) for audio-visual, print, TV and radio education materials.

3838 Eckroad, K. SISTEMA DE INFORMACION DEL SERVICIO AMBULATORIO, ECUADOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 069-EC, December 7-20, 1989, 34p.

285

This report discusses the testing of data forms for outpatient clinics in Ecuador and makes recommendations for improvements. It also includes a schedule for implementing these changes.

- 2554 Egal, F.; Yacoob, M. CAMEROON HEALTH SECTOR ASSESSMENT. Arlington, VA, PRITECH, December 1987, 38p.+ appendices.

This assessment focuses on the delivery of health services to rural areas in Cameroon. Operational strategy recommendations are presented for the improvement of basic care delivery.

- 1410 Egal, F.; Wolfheim, C. MIDTERM EVALUATION REPORT: NATIONAL ORT PROGRAM, UGANDA. PRITECH Report SS177, Feb.-Mar. 1987, 35 p.

The Uganda ORT program, funded by the MOH, UNICEF, and USAID, was initiated in 1984. This evaluation cites the many obstacles existing in Uganda which have hindered the program, and notes that the second phase will focus on reaching the population through mass communication.

- 0350 Emrey, R. EVALUATION OF ECUADOR INTEGRATED RURAL HEALTH DELIVERY SYSTEM PROJECT. Arlington, VA, Management Sciences for Health PRITECH Project, SS-13, December 21, 1984, 70p.

- 1723 Endsley, S.; Prins, A. KENYA FOCUSED PROGRAMME REVIEW: PHASE II. Arlington, VA, Management Sciences for Health PRITECH Project, ECP-011-KE, October 1992, 40p. +app.

This report summarizes the discussions held by consultants reviewing the Kenyan national CDD program. The areas reviewed included home case management, district-level supervision, ORS supply, program management, and operational training at the district level.

- 5216 Endsley, S. SUSTAINABILITY TASK FORCE MEETING -- PRITECH. Arlington, VA, Management Sciences for Health, PRITECH, ECP 005-IR, August 27, 1991, 7p.+app.

On February 8, 1991, the PRITECH Project convened a task force to assist in defining sustainability in terms of CDD programs, to identify determinants of CDD program sustainability, and to obtain agreement on the proposed PRITECH approach to assess sustainability. This approach would integrate sustainability indicators into periodic country program reviews rather than conduct a separate study on sustainability. This report presents the proceedings of the meeting and outlines the conclusions and recommendations of the participants. An "issues and options" paper prepared by PRITECH that outlined key issues and presented PRITECH's approach is also included.

- 4140 Enge, K. I.; Harrison, P. F. MATERNAL CHILD HEALTH PROVIDERS IN GUATEMALA--KNOWLEDGE, ATTITUDE, AND PRACTICES: RESEARCH FINDINGS AND SUGGESTIONS FOR APPLICATION. Arlington, VA, Management Sciences for Health, PRITECH, SS 249, January 1988, 186p.

In 1986, a national survey was carried out to better determine the knowledge, attitudes, and practices among health care providers in Guatemala in terms of five major interventions: immunization, control of diarrheal disease/ORT, breastfeeding and lactation management, growth monitoring, and acute respiratory infections. Also available in Spanish.

- 3390 Enge, K.; Hewes de Calderon, S.; et al. ORAL REHYDRATION AND IMMUNIZATION: THE ROLE OF THE RURAL HEALTH PROMOTER, GUATEMALA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 009-GU, August - December, 1988, 194p.

Case studies were performed in 8 rural communities and 4 health districts to evaluate the level of knowledge of rural health promoters in the areas of ORT and EPI, as well as their effectiveness as a link between the district health services and local communities. Field investigators reported good relations between promoters and community members but found current training programs, reference materials, and institutional support of promoters inadequate. Also available in Spanish.

- 2858 Espindola, J.; Ballesteros, C.; Schaeffer, C.; et al. TEMA: DIARREA. La Paz, Bolivia, CARITAS, with technical assistance from PRITECH, August 1988, 76p.+ app.

This report discusses the results of a knowledge, attitudes and practices survey as well as the results of other

analyses performed to assess maternal treatment practices concerning diarrhea in Bolivia.

- 2216 ETUDE FORMATIVE PNI-TRO, RAPPORT [SYNTHESE]. ETUDE QUANTITATIVE C.A.P.: VACCINATION - MALADIES DIARRHEIQUES, SELS DE REHYDRATATION ORALE. LMS Conseil for PRITECH, August 1988, 42p.

The principal objective of this paper is to disclose information concerning the knowledge, attitudes and practices of Moroccan mothers regarding diarrheal diseases and oral rehydration therapy.

- 2217 ETUDE FORMATIVE PNI-TRO. RAPPORT ETUDE QUANTITATIVE C.A.P.: VACCINATION - MALADIES DIARRHEIQUES, SELS DE REHYDRATATION ORALE. LMS Conseil for PRITECH, July 1988, 219p.

This report is a more comprehensive version of the "Etude Formative PNI-TRO. Rapport etude synthese." The results of a KAP survey of Moroccan mothers regarding diarrheal disease vaccination and oral rehydration salts are reported, along with all corresponding statistics.

- 2233 ETUDE FORMATIVE PNI-TRO. RAPPORT ETUDE QUALITATIVE: LACUNES ET RESISTANCES RELATIVES AUX DIARRHEES INFANTILES S.R.O. - VACCINATION. LMS Conseil for PRITECH, July 1988, 63p.

This is the formative report based on a KAP survey of Moroccan mothers' knowledge and practices relating to diarrhea. Oral rehydration solution is not perceived by the mothers as a regular treatment for dehydration and diarrhea.

- 4776 Eustache, L. INFORMATION, EDUCATION, COMMUNICATION AU MALI. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-138-MA October 1992, 59p. +app.

This report presents an evaluation of and recommendations for the national center for health IEC in Mali. The report includes identifying potential partners and developing a coordination plan, identifying training and restructuring needs, and suggestions for future activities and strategies.

- 0348 Ewbank, D. C. EVALUATION OF THE IMPACT OF HEALTH PROGRAMS IN ZAIRE. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-127, April 1986, 18p. +app.

- 5563 Fabricant, S.; King, J. ASSESSMENT OF THE NIGER HEALTH SECTOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 121-NG, January 3, 1992, 91p.

From July to August 1991, a four-week examination of the health sector in Niger was conducted to assist USAID/Niger with health sector programming for the next five years. The authors studied documentation of the Ministry of Public Health (MSP) programs, USAID-funded activities, and other agencies. They also observed various activities and interviewed key health personnel. This report presents their conclusions and recommendations for future programming.

- 1969 Fabricant, S. ORS LOGISTICS IN CAMEROON: DEMAND, SPECIFICATIONS, DISTRIBUTION, PROCUREMENT, AND FEASIBILITY OF LOCAL PRODUCTION OF ORAL REHYDRATION SALTS. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-327, November 1987, 23 p.

A plan for a national CDD program was not developed in Cameroon until 1986. The plan was revised in 1987, and this report is the first formal input to the national CDD program since the PRITECH assistance agreement was signed in 1986.

- 0251 Fabricant, S. ORS PRODUCTION AND DISTRIBUTION IN TUNISIA. Arlington, VA, Management Sciences for Health PRITECH Project, DC-59, September 1984, 17p. +app.

- 0139 Fabricant, S. J. ORS PRODUCTION AT THE PHARMACIE CENTRALE DE TUNISIE. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-228, December 1986, 7p. +app.

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- 1377 Fabricant, S. PRIVATE SECTOR COMPONENTS OF ACCELERATED COOPERATION FOR CHILD SURVIVAL (ACCS) PROPOSAL FOR PROJECT SUPPORT ASSISTANCE FOR AN ORS COMMERCIAL SALES PROGRAM IN YEMEN. PRITECH, March 1986, SS 119, 35 p.

This report describes strategies for local production of ORS, improving access to ORS packets for most of the population, mass media education in ORS, and advertising ORS availability through the private sector.

- 0344 Fabricant, S. J. PRODUCTION AND DISTRIBUTION OF ORS IN BANGLADESH: AN ASSESSMENT OF THE DESIGN AND IMPLEMENTATION OF THE ORT COMPONENT OF THE SOCIAL MARKETING PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-115, March 1986, 24p. +app.

- 0195 Fabricant, S. J. SUPPLY OF ORAL REHYDRATION SALTS SACHETS FOR THE BANGLADESH SOCIAL MARKETING PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-370, April 1988, 15p. +app.

- 0077 Fabricant, S. ZAMBIA NATIONAL DIARRHEAL DISEASE PROGRAM: ORAL REHYDRATION SALTS (ORS) SUPPLY AND DISTRIBUTION. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-160, April 1986, 14p.

- 0491 Favin, M. MID-TERM EVALUATION OF TIWANACU HEALTH PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-67, July 12, 1985, 27p.

- 5791 Ferraz-Tabor, L.; Jansen, W. H. FORGING NEW PARTNERSHIPS: PRITECH'S PAKISTAN EXPERIENCE. Arlington, VA, Management Sciences for Health, PRITECH Project, 1991, 24p.

From 1988 to 1990, PRITECH assisted Pakistani commercial companies to increase production of and promote ORS, without outside subsidies. PRITECH disseminated information, organized marketing workshops, assisted in marketing research and promotional activities, and provided assistance in technical areas and new product development. The outcomes of the project are significant. First, commercial sales of ORS increased by 86%, from 15m packets in 1989 to 26m in 1990. The commercial sector is now the predominant distribution channel for getting ORS to the public. Second, commercial firms are devoting more production capacity to ORS. Firms are also starting new, complementary initiatives and developing new products. Third, the project forged important partnerships between firms and between firms and the government.

- 6342 Ferraz-Tabor, L. MOBILIZING THE PRIVATE SECTOR FOR PUBLIC HEALTH IN INDONESIA. Arlington, VA, Management Sciences for Health PRITECH Occasional Operations Paper, March 1993, 14p.

In 1991, PRITECH developed a program to tap the potential of Indonesia's commercial sector to promote ORT and to expand the production of ORS. This paper describes PRITECH's approach, the impact of the program, and the lessons learned.

- 4136 Fields, R.; Burdman, G. TRIP REPORT: INTERNATIONAL SYMPOSIUM ON FOOD-BASED ORAL REHYDRATION THERAPY, KARACHI, PAKISTAN. Arlington, VA, Management Sciences for Health, PRITECH, CON 008-PA, November 12-14, 1989, 13p.+app.

This report summarizes the proceedings, discussions, and recommendations of the "Symposium on Improved Oral Rehydration Therapy in Practice in the Home and in the Community," held November 12-14, 1989 at Aga Khan University in Karachi. One of the conference presentations, "Food-based ORT - Management Considerations," by Jon Rohde, is included in the appendices.

- 2761 Flavien, N. RAPPORT DE PARTICIPATION DANS L'ETUDE L.M.D.: CAMEROON. Arlington, VA, Management Sciences for Health, PRITECH Project, DC 465, September 1988, 7p. + app.

The knowledge, attitudes and practices about the treatment of diarrheal disease were surveyed in three different areas of Cameroon, and both the French and English summaries of the survey results are contained in this report.

- 0079 Fontaine, O. RAPPORT DE MISSION A DJIBOUTI. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-

- 2256 Fontaine, O. SEMINAR REPORT: INFANT DIARRHEAL DISEASES IN DJIBOUTI - A DAILY PROBLEM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-315, June 1987, 16p.

As a preliminary exercise prior to the planning of Djibouti's National Diarrheal Diseases Control program, a seminar was held for all of Djibouti's physicians and pharmacists. The agenda was "to discuss and analyze the problems posed by infant diarrhea in their daily practice and to propose strategies best adapted to the country..." This report summarizes the objectives of the seminar and the participants' recommendations for setting up a national CDD program.

- 2384 Foreman, P. NEPAL CHILD SURVIVAL PHARMACEUTICALS: RETAIL SECTOR STUDY. Arlington, VA, PRITECH, September 1987, 15p.+ appendices.

In order to gain a clearer picture of pharmaceutical drug use in Nepal, a three-part study was conducted to collect importer location/manufacturer/product data, importer data, and retailer data. It is hoped that the resulting information will be useful for developing training strategies that promote the safe and cost-effective use of pharmaceutical products. This report includes an analysis of preliminary study findings.

- 2552 Frere, J. HEALTH AND MANAGEMENT INFORMATION SYSTEM FOR CHILD SURVIVAL PROJECT IN PAKISTAN. Arlington, VA, PRITECH, December 1987, 22p.

This report discusses the problems encountered with Pakistan's health and management information system and suggests strategies aimed at creating a more efficient and sustainable system.

- 1662 Fry, S. PLAN D'ACTION D'EDUCATION POUR LA SANTE DANS LE PROJET DE LUTTE CONTRE LES MALADIES TRANSMISSIBLES DE L'ENFANCE EN REPUBLIQUE POPULAIRE DU CONGO. PRITECH Report, SS96, February 1986, 34 p.

This consultancy report provides a workplan for Congo's national CCCD program.

- 1663 Fry, S. RAPPORT DE MISSION EN EDUCATION POUR LA SANTE REPUBLIQUE POPULAIRE DE CONGO. PRITECH Report, SS 96, February 1986, 22 p.

The purpose of this consultancy was to assist in the development of an education component for the CCCD project in the Congo.

- 0924 Furst, B. SOCIAL MARKETING ORAL REHYDRATION THERAPY SOLUTION - A WORKSHOP. PRITECH, DC 74, January 1985, 82 p.

Recent trends in overseas economic development have led to an interest in marketing certain technologies in developing countries with the goal of making them self-supporting and self-sustaining over time. In November 1984 the AID Office of Health, through the PRITECH project, sponsored a workshop which explored the potential of marketing ORT/ORS for the treatment of childhood and infant diarrheal dehydration.

- 5087 Gaffikin, L. A PROPOSED METHODOLOGY FOR PREDICTING ANNUAL ORS NEEDS OF THE CDD PROGRAMME/MINISTRY OF HEALTH -- KENYA. Arlington, VA, Management Sciences for Health, PRITECH Project SUP 089-KE, March 1990, 37p.+app.

The purpose of this study was to develop a strategy for determining the number of ORS packets that are required annually by institutions supplied by the Kenyan Ministry of Health's CDD program. In this report the author describes the methodology used to calculate how many ORS packets should be provided to each district annually by the CDD program.

- 0368 Gaye, P. A. ATELIERS DE FORMATION DES FACILITATEURS/SUPERVISEURS ET PREMIERS COURS MOYEN NATIONAL: LE PROJET CCCD/GUINEE. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-140, October 1986, 23p. +app.

- 0346 Gaye, P. A. TRAINING STRATEGY FOR CCCD/GUINEA. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-116, June 1986, 9p.

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0595 Georghiou, G. REPORT OF THE EXTERNAL REVIEW OF THE PAKISTAN MALARIA CONTROL PROGRAM: INSECTICIDE RESISTANCE. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-92, January 1986, 32p.

1801 Geslin, C. COMPARISON OF CASES OF ACUTE AND PERSISTENT DIARRHEA IN NIGER. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-059-NG, March 1993, 60p. +app.

This study of 200 children under age 5 seen at MCH centers in Niamey compared children with persistent diarrhea with controls with acute diarrhea, to assess the importance of persistent diarrhea, identify the types of treatment administered by mothers and health workers, and identify risk factors. An estimated 6% of diarrheal episodes in Niger are persistent. Persistent diarrhea was more common in malnourished children and in infants ages 7-24 months. No differences were observed in treatment, but mothers tended to give more food to their children with persistent diarrhea. This report is in French.

5869 Geslin, C.; Zabramba, M. ENQUETE SUR LE CIRCUIT D'APPROVISIONNEMENT ET DE DISTRIBUTION DU SRO DANS 4 PROVINCES, 1989. Arlington, VA, Management Sciences for Health, PRITECH, RAD-017-BF, August 2, 1991, 44p.

In 1989, pharmacies, health centers, and health workers in 4 provinces of Burkina Faso were surveyed to determine the efficiency of ORS distribution. The study found that ORS is administered in 51% of cases. But antidiarrheals are dispensed in 52% of cases, usually in health centers where these drugs are available, because ORS does not stop diarrhea. Finally, the survey found that 93% of dysentery cases are treated with metronidazole. The authors conclude that ORS-distribution channels must be improved and that a strategy to discourage the use of antidiarrheals must be developed.

4488 Gittelsohn, J. TECHNICAL CONSULTANT VISIT TO THE GAMBIAN FOOD AND NUTRITION ASSOCIATION (GAFNA). Arlington, VA, Management Sciences for Health, PRITECH Project, RAD 042-GA and ICP 044-GA, December 10, 1990, 40p.

During site visits in the Gambia, the consultant assisted GAFNA and PRITECH/West Africa staff in designing and conducting their respective ongoing qualitative research on infant feeding. The assistance included selection of appropriate qualitative data collection and analysis methods, training of data collectors in research methods, establishing systems for qualitative data management and analysis, training computer operators, and reviewing preliminary data in order to make decisions about continued research.

0375 Goings, S.; Cunningham, N. ASSIST IN PREPARATION OF HEALTH PORTION OF FIVE-YEAR DEVELOPMENT PLAN FOR THE FEDERAL MINISTRY OF HEALTH, NIGERIA: VOLUMES I AND II. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-154, December 1986.

2375 Gonzalez, M. de L. ANTIMICROBIANOS EN ENFERMEDAD DIARREICA - COSTA RICA. Arlington, VA, Management Sciences for Health PRITECH I, November 1987, 32p.

This report discusses the role of antimicrobials in the treatment of diarrheal diseases. Included are various articles on oral rehydration in hypernatremic infants, management of newborns with electrolyte imbalance while using a pure ORS solution, and the use of ORS in newborns with dehydration from diarrhea.

4375 Gove, S. ACUTE RESPIRATORY INFECTIONS: SUMMARY FOR CDD PROGRAMS. Arlington, VA, PRITECH, May 1990, 20p.

In this paper the author reviews what would be involved in implementing an ARI program in conjunction with an existing CDD program. A technical summary of ARI worldwide is presented as well as the major objectives of an ARI program, such as effective case management and ARI prevention. Guidelines for integrating specific aspects of ARI programs into CDD programs are provided.

0296 Green, E.; Louis, T. ANTHROPOLOGICAL AND MARKETING RESEARCH PLAN FOR SOCIAL MARKETING OF ORS THROUGH THE BANGLADESH SOCIAL MARKETING PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-86, April 1985, 32p.

0080 Green, E. C. DIARRHEA AND ORS IN BANGLADESH. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-107, September 1985, 26p. +app.

6552 Green, E. C.; Williamson, J.; Nimpuno-Parente, P. EVALUATION OF THE CHILDREN AND WAR PROGRAM. A SUB-REGIONAL PROGRAM OF SAVE THE CHILDREN (USA). Arlington, VA, Management Sciences for Health PRITECH Project, HSS 141-AR, August 1993, 75p + annexes.

This paper evaluates the Children and War Program that aims to assist children who have been adversely affected by the war that has continued in Mozambique since the mid-1970's. This sub-regional program focuses on refugee children and psycho-social issues in Mozambique, Malawi, and Zimbabwe.

2187 Griffiths, M.; Piwoz, E.; Favin, M. IMPROVING YOUNG CHILD FEEDING DURING DIARRHEA: A GUIDE FOR INVESTIGATORS AND PROGRAM MANAGERS. Washington, D.C., Manoff International Inc., The Weaning Project for PRITECH, June 1988, 55p.

This guide presents a field methodology useful for collecting, interpreting and synthesizing information from mothers on feeding practices during and after childhood diarrhea. Through the different phases of the methodology - problem identification, intervention or concept testing, and analysis and testing - as well as the "five basic steps" of reviewing existing information, household interviews, household trials, group discussions and synthesis, a clearer picture of the causes of improper feeding practices and appropriate responses for their improvement can be obtained.

3491 Griffiths, M. WORKSHOP ON QUALITATIVE RESEARCH, NUTRITION EDUCATION AND CHILD FEEDING: PAKISTAN. Arlington, VA, Management Sciences for Health, PRITECH, HSS 018-PA, November 23 - December 14, 1988, 10p.+app.

The main focus of the report is a five-day workshop to "train both social science researchers and nutritionists from a variety of Pakistani institutions in qualitative research techniques for the study of feeding practices, especially as they relate to child illness." Related activities reported on include a growth monitoring presentation, planning for workshop follow-up, and work on a child feeding protocol.

1657 Harrison, P.; Overholt, C.; Huff, M. EVALUATION DE PROJETS: SANTE URBAINE ET DEVELOPPEMENT COMMUNITAIRE II, PROGRAMME ELARGI DE SANTE COMMUNITAIRE ET DE PLANNING FAMILIAL, PROGRAMME DECENTRALISE DE SANTE COMMUNITAIRE. PRITECH Report, SS 133, April 1986.

This report evaluates three projects in Haiti in the primary health care area.

1970 Harrison, P. F.; Cross, P. M.; Fojardo, J. M.; et al. IMMUNIZATION/ORT/CHILD SURVIVAL PROGRAM, GUATEMALA PROJECT PAPER SUPPLEMENT, CONCEPT DEVELOPMENT. PRITECH report SS 185, March-April 1987.

This supplemental report evaluates the Immunization/ORT/Child Survival program in Guatemala, focusing on concept development. The current situation and key issues are outlined, and the project is described, followed by annexes on technical studies.

0606 Harrison, P. F.; Arce, R.; Clements, M. G.; et al. ORT PROJECT CONCEPT DEVELOPMENT, GUATEMALA: VOLUME I. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-99, September 9, 1986.

0406 Hartman, A. F. EVALUATION AND FINAL REPORT OF THE CONTINUING EDUCATION COMPONENT TO IMPROVE THE RATIONAL USE OF MEDICATIONS OF THE HEALTH SERVICES SUPPORT PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-235, August 1988, 36p. +app.

0013 Hartman, A. F. PRITECH PROMOTION AND EVALUATION OF ORT/EPI ACTIVITIES IN ECUADOR. Arlington, VA, Management Sciences for Health PRITECH Project, DC-18, December 1985, 89p.

0371 Health Policy Institute. PAYER POUR LA SANTE DU PUBLIC: HAITI, 1984-1994. Arlington, VA, Management Sciences for Health PRITECH Project, SS-15, June 4, 1984, 226 +app.

3496 Helfenbein, S. ANALYSIS OF THE MANAGEMENT DEVELOPMENT NEEDS OF THE BURUNDI MINISTRY OF PUBLIC HEALTH: INTERNAL AND DONOR RESOURCE INTEGRATION. Arlington, VA, Management Sciences for Health, PRITECH, HSS 064-BU, November, 1989, 23p.

This report analyzes the state of management capability in the Ministry of Health and makes short- and long-term recommendations for future USAID/Bujumbura health sector development interventions. Also available in French.

0522 Helitzer, D. TECHNICAL ASSISTANCE ON ORS MARKETING ACTIVITIES: PORT-AU-PRINCE, HAITI. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-82, July 1985, 12p. +app.

0194 Henn, A. E. ORT PROMOTIONAL VISIT: CAMEROON. Arlington, VA, Management Sciences for Health PRITECH Project, DC-35, September 1984, 14p.

4384 Herman, E.; Prins, A. INCORPORATING DYSENTERY MANAGEMENT INTO DIARRHEAL DISEASE CONTROL PROGRAMS. Arlington, VA, PRITECH, May 1990, 23p.

This document outlines a strategy to effectively incorporate dysentery management into current COD programs. It provides relevant scientific data, such as the etiology and incidence rate of dysentery, and describes the operational and programmatic implications of these data.

4298 Herman, E.; Tsu, V. D. MONITORING THE SAFETY OF SUGAR-SALT SOLUTIONS PREPARED IN THE HOME: A SAMPLE PROTOCOL. Arlington, VA, Management Sciences for Health, PRITECH Project, January 1990, 22p.+app.

Studies show that significant errors often occur in the preparation of sugar-salt solution. This document provides a step-by-step guide for conducting a household survey to determine the safety of SSS prepared by mothers with previous knowledge of the intervention. It enables managers to decide whether IEC strategies about SSS have worked well.

4135 Herman, E. REPORT OF WORKSHOP ON HOME AVAILABLE FLUIDS STRATEGIES AND RESEARCH. Arlington, VA, Management Sciences for Health, PRITECH, SUP 092-PA, April 17, 1990, 17p.

This workshop was organized in response to the need expressed by many countries for specific guidelines on identifying and selecting home fluids that can be recommended for the initial household management of diarrhea. Summaries of country experiences, statement of key issues, conclusions reached by the participants, and the author's recommendations for country programs are outlined, as is a recommended plan of action for one specific country, Pakistan.

6050 Herman, E.; Jenkins-McLean, T. TRAINING NEEDS ASSESSMENT AND PERFORMANCE ANALYSIS OF THE UGANDAN HEALTH INSPECTORATE STAFF. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-191-UG, February 1992, 29p. +app.

In July 1991, the Ugandan Ministry of Health conducted a training needs assessment of its health inspectorate staff. CDD training for the staff was seen as effective because of good levels of basic knowledge, self-assurance, and reported activity, and because of improved community knowledge. But there was also room for improvement, including raising community ORS use, improved ORS mixing, increased handwashing, and increased community coverage. The health inspectorate staff identified lack of resources as the main barrier to their work.

0187 Hewitt, W.; Imhoof, M.; Smith, W.; et al. EVALUATION OF THE PAKISTAN NATIONAL ORAL REHYDRATION PROGRAM. Arlington, VA, Management Sciences for Health PRITECH Project, DC-27, September 1984, 70p.

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5787 Hogle, J.; Prins, A. PROSPECTS FOR COLLABORATING WITH TRADITIONAL HEALERS IN AFRICA. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-032-EA, April 1991, 71p.

This report reviews past collaborations between biomedical workers and traditional healers to draw conclusions about the feasibility of such collaborations in Africa. The study concludes that traditional healers will incorporate biomedical methods that are perceived as effective and that training can change traditional healing practice. But there are many constraints to effective training, including the difficulty of identifying traditional healers, balancing the priorities of the participants, designing appropriate curricula, and ensuring that healers use the biomedical techniques correctly. The report concludes with a number of recommendations specifically developed for the PRITECH project.

5862 Hogle, J. UGANDAN TRADITIONAL HEALERS STUDY: INDIGENOUS KNOWLEDGE AND MANAGEMENT OF CHILDHOOD DIARRHOEAL DISEASES. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 180-UG, February 1992, 114p.

This report presents the results of the Ugandan Traditional Healers Study, conducted in 1990 by the national CDD program and PRITECH. Data were collected from 365 healers, in 3 districts, using interviews, focus groups, and case studies. The report provides in-depth descriptions of the healers' practices related to diarrhea, AIDS, tetanus, measles, malaria, and other health problems. The report concludes with recommendations for establishing cooperation between health workers and traditional healers.

0455 Hornby, P. BKKBN MANPOWER PLANNING WORKSHOP. Arlington, VA, Management Sciences for Health PRITECH Project, SS-4, May 17, 1985, 129p.

SS-4 Hornby, P. ESTABLISH MANPOWER PLANNING METHODOLOGIES IN NATIONAL FAMILY PLANNING COORDINATING BOARD. Arlington, VA, Management Sciences for Health PRITECH Project, SS-4, May 17, 1985, 39p.

3642 Huff-Rousselle, M.; Turnbull, J. C. ASSESSMENT OF JAMAICAN PUBLIC SECTOR PHARMACEUTICAL SYSTEM. Arlington, VA, Management Sciences for Health, PRITECH, HSS 060-JA, November, 1989, 55p.+app.

This report presents an overall assessment of selection procurement, and distribution of pharmaceuticals in Jamaica's public sector. Recommendations are made for systemic improvements.

4259 Huff-Rousselle, M. EVALUATION OF THE AGENCE D'APPROVISIONNEMENT DES PHARMACIES COMMUNAUTAIRES (AGAPCO), HAITI. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-054-HA, August 7, 1992, 37p.

AGAPCO was established in 1981 as a semi-autonomous agency of the Haitian MOH to provide a limited number of essential drugs at low-cost to the most disadvantaged Haitians. This report presents an evaluation of AGAPCO and recommends future action.

0438 Hume, M. THE BAMADO INITIATIVE. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-282, September 1988, 5p.

4381 Hume, M. SUPPLY MANAGEMENT AND DISTRIBUTION FOR CDD PROGRAMS. Arlington, VA, PRITECH, May 1990, 18p.

This paper focuses primarily on the strategic issues related to ORS supply and distribution and on the management issues involved in product selection, procurement, distribution and use of ORS. The author emphasizes that coordination of all aspects of CDD programs is necessary to facilitate proper supply and distribution.

2207 Hung, M. M. EVALUATION DE LA VALEUR NUTRITIVE DE TROIS PREPARATIONS TRADITIONNELLES (KOKO, FURA ET TUWO) ET DE RECETTES PRECONISEES PAR LE PROJET PRITECH. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-249-NG, April 1993, 10p. +app.

This study developed 4 new recipes based on 3 Nigerian weaning foods and evaluated the protein and caloric contents. The recipes are nutritionally adequate for children 6 months to 2 years. A survey found that mothers

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accepted the new recipes.

- 4402 Hygino, J. VISITE TECHNIQUE A LA REPUBLIQUE DE GUINEE, DANS LE CADRE DE L'ETABLISSEMENT D'UNE UNITE DE PRODUCTION DE SELS DE REHYDRATION ORALE (SRO) AU SEIN DE DEUX ENTREPRISES PHARMACEUTIQUES LOCALES. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-040-GI, August 8, 1992, 83p.

This report examined the capabilities of 2 Guinean pharmaceutical companies to begin production of ORS. The report concludes that the staff of both companies are qualified and that the 2 facilities would need renovations. The report also estimates start-up costs. The report is in English and French.

- 6551 Hystop, A.; Herman, E.; Waters, H. FOLLOW-UP AND EVALUATION OF A FLYER ON THE HOUSEHOLD MANAGEMENT OF DIARRHEA. A STUDY CONDUCTED BY THE CAMEROON DIARRHEAL DISEASE CONTROL PROGRAM. Arlington, VA, Management Sciences for Health PRITECH Project, LPC 59 CA, September 1993, 17p.

This paper describes a study to assess the distribution and use of a flyer on CDD household management for caretakers developed by the Cameroon Diarrheal Disease Control Program.

- 2854 Jelliffe, D. B.; Jelliffe, E. F.; Naylor, A. BREASTFEEDING FOR CHILD SURVIVAL: PAKISTAN. Arlington, VA, Management Sciences for Health, PRITECH, HSS 014-PA, June 1, 1989, 84p.

Six regional seminars in Pakistan were conducted, along with one national seminar, to "guide the conduct and practice of any medical practitioner who wishes to promote and protect breastfeeding."

- 5874 Jenkins-McLean, T.; Herman, E. THE UGANDAN PUBLIC HEALTH INSPECTORATE TRAINING NEEDS STUDY. Arlington, VA, Management Sciences for Health, PRITECH, SUP-191-UG, February 19, 1992, 6p. +app.

This brief report outlines PRITECH assistance to a study of Ugandan health inspectorate staff. The report describes the design of the study, the identification of health inspectors, and the assessment of the effectiveness of CDD-management training for the inspectorate staff. The study found that the CDD training was effective, as seen by increased knowledge of the staff and increased awareness in the community.

- 0217 Johnson-Casteelle, D. ORS HEALTH EDUCATION AND PROMOTION IN ZAMBIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-405, August 1988, 27p.

- 2834 Kane, M.; Diop, B. REPRESENTATIONS ET PRATIQUES DE L'HYGIENE CHEZ LES POPULATIONS DE LA VALLEE DU FLEUVE SENEGAL: L'EXEMPLE DU DEPARTEMENT DE POODOR. Dakar, Senegal, PRITECH/ORANA, April 1989, 33p.

The health problems related to sanitation and other environmental factors are described in this report. Perceptions and practices relating to hygiene and diarrheal illnesses are also included.

- 3998 Kane, M. UTILISATION DU MATERIEL EDUCATIF PAR LES AGENTS DE SANTE AU MALI. Arlington, VA, Management Sciences for Health PRITECH Project, RAD 024-SA, July 1990, 22p.

Two previous studies (1988 and 1989) showed that educational materials produced by the PNLM (National Control of Diarrheal Diseases Program) were being under-utilized by health personnel. This study looks at the reasons behind this under-utilization in terms of health education materials produced by the various programs of the Family Health Division, Ministry of Health.

- 5503 Kane, S. B.; Moussa, F. ETUDE SUR L'UTILISATION DU MATERIEL EDUCATIF PAR LES PERSONNELS DE SANTE EN MAURITANIE. Arlington, VA, Management Sciences for Health, PRITECH Project, RAD 024-SA, August 2, 1991, 17p.

The purpose of this qualitative study was to determine why Mauritanian health workers under-utilize existing health education materials and to recommend ways to improve the use of these materials. Observations and interviews indicated two main factors behind the under-utilization of educational materials: 1) an emphasis on curative rather than preventive health services and 2) the lack of health worker training in the area of health education and communications. Recommendations are made for improving these deficiencies.

- 4343 Keith, N. YOUNG CHILD FEEDING, WEANING, AND DIARRHEA ILLNESS: HAUSA PRACTICE AND EDUCATIONAL IMPLICATIONS. PART I: ETHNOGRAPHIC STUDY. Arlington, VA, Management Sciences for Health PRITECH Project, LPC-089-NG, December 1992,

2901

This ethnographic study examines and documents Hausa (in Niger) practices and beliefs in the areas of feeding, weaning, and diarrheal disease. 24 mother-child pairs (with children ages 4-16 months) were selected in a village and followed for more than a year using interviews, monthly questionnaires, and descriptions of feeding practices and diarrhea treatments. Findings on breastfeeding, supplementary feeding, and diarrhea management are highlighted.

- 1399 Kelly, J.; Klassen, L.; Totino, T.; et al. MANAGEMENT ASSESSMENT OF THE HEALTH SYSTEMS VITALIZATION PROJECT USAID/EL SALVADOR. PRITECH, May 1986, SS 130, 38 p.

This report assesses the VISISA Project's efforts to restore the flow of pharmaceuticals, medical supplies and equipment through El Salvador's health care system. The report also makes recommendations for the management of the project in AID.

- 1405 Kelly, P. SERVICE NATIONAL DES ENDEMIES MAJEURS EVALUATION DU RESEAU DES COLLABORATEURS VOLONTAIRES EN VUE DE SON RENFORCEMENT, EXTENSION ET DIVERSIFICATION EN HAITI. PRITECH, Washington, D.C., November 1985, SS98, 32 p.

This survey assesses voluntary collaborators (health workers) in Haiti and the level of coverage they currently provide. The goal of the survey is to plan further training and expansion of the CV network for primary health care in rural Haiti.

- 3841 Kelso, J. H. ASSESSMENT OF THE MANUFACTURING AND PRODUCTION OPERATIONS OF THE BALSAM PHARMACEUTICAL MANUFACTURING PLANT IN RAMALLAH, WEST BANK. Arlington, VA, Management Sciences for Health, PRITECH, HSS 068-WB, November 28-December 16, 1989, 30p.

The consultant reports on his assessment of the manufacturing and production operations of the Balsam pharmaceutical plant in Ramallah, West Bank. The two major deficiencies noted are lack of management and lack of good manufacturing practices. Recommendations are given to correct these problems.

- 0362 Kempner, D.; O'Connor, R. ASIA/NEAR EAST CHILD SURVIVAL RESOURCE PLANNING METHODOLOGY DEVELOPMENT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-131, April 1986, 18p. +app.

- 0382 King, J.; Roberts, D. REDESIGN OF THE HEALTH PROJECT PID, USAID/TOGO. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-169, February 1987, 16p. +app.

- 4084 Kone, A. ANALYSE DES DONNEES DES REGISTRES D'EVALUATION DE LA DIARRHEE DES POSTES DE REFERENCE DE MALI. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-011-MA, October 1992, 29p.

The epidemiological study used case records from Malian regional health centers to determine the incidence, distribution, pathology, treatment, degree of dehydration, and outcome of diarrheal cases.

- 3644 Kone, A.; Kane, M. CONNAISSANCES, ATTITUDES ET PRACTIQUES DES MERES EN MATIERE DE THERAPIE DE REHYDRATATION PAR VOIE ORALE: MALI. Arlington, VA, Management Sciences for Health, PRITECH, RAD 018-MA, September, 1989, 58p.+app.

In order to examine and improve the education and communication strategies of the Mali National Diarrheal Disease Program (PNLMD), a study was carried out on maternal knowledge, attitudes, and practices concerning diarrhea management and ORT. The researchers also looked at ORS prescribing and selling practices and attitudes and practices related to the issue of commercialization.

- 5656 Kone, A.; Kane, M. CONNAISSANCES, ATTITUDES ET PRATIQUES DES MERES EN MATIERE DE THERAPIE DE REHYDRATATION PAR VOIE ORALE -- SENEGAL. Arlington, VA, Management Sciences for Health, PRITECH Project, ICP 011-SE, August 11, 1991, 35p.+app.

A survey was conducted between January and July 1989 in 10 regions of Senegal to study the knowledge, attitudes, and practices of mothers regarding diarrhea management. The authors studied the socio-demographic

characteristics of the study population, the prevalence of diarrhea, various modes of treatment, and knowledge about the correct use of oral rehydration (including ORS and SSS). They also investigated the sources of information about ORT and their impact on mothers' knowledge, attitudes, and practices. Finally, they studied the mothers' perceptions about the educational materials produced by the national CDD program. This report presents their findings and conclusions.

- 4495 Laible, N.; Campbell, R. PHASE I REPORT: LIQUID ORAL REHYDRATION SOLUTION (ORS) PACKAGED ASEPTICALLY IN TETRA PAKS IN PAKISTAN. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 091-PA, December 10, 1990, 18p.

The authors examine the technical feasibility of packaging liquid ORS using Tetra Pak machines in three Pakistani dairies which already use the Tetra Pak system for milk. They conclude that the material currently available for juice Tetra Pak packaging is appropriate for liquid ORS, and that the dairies' machinery and operator/facility expertise are adequate. Phase II will examine the best ORS formula to use, the best processing methods, and actual packaging performance.

- 4585 Laible, N.; Campbell, R. PHASE II REPORT: LIQUID ORAL REHYDRATION SOLUTION (ORS) PACKAGED ASEPTICALLY IN TETRA PAKS IN PAKISTAN. Arlington, VA, Management Science for Health, PRITECH Project, January 1991, 15p.+app., SUP 091-PA.

Four Pakistani dairies participated as test facilities to demonstrate physically the feasibility of packaging liquid ORS in Tetra Paks using aseptic conditions. The trials showed that liquid ORS can be dependably filled into Tetra Paks aseptically and contained for extended periods (more than 2 months to date).

- 6092 Lara, V. CHOLERA EPIDEMICS IN PERU: RAPID ASSESSMENT OF THE EPIDEMICS CONTROL. Arlington, VA, Management Sciences for Health PRITECH Project, STP-038-LC, September 1992, 18p.

The response to the cholera epidemic in Peru is examined in this report. Different components of the health care system are identified, described, and evaluated. Areas targeted for improvement include uniform educational messages, increased local production of ORS, and strengthening of water and sanitation systems. The lessons learned in Peru are outlined and presented as an important source of information for other South American countries.

- 3116 Lebow, R.; Prins, A.; Purves, M. D. et al PRITECH ASSESSMENT OF THE CRS/TUNISIA PN/LAD PROGRAM. Arlington, VA, Management Sciences for Health, PRITECH, STP 007-TU, June 23, 1989, 34p. + app.

Progress made by the Catholic Relief Services (CRS)/Tunisia CDD project during PRITECH I is assessed. Initial ideas are discussed for PRITECH support to the Tunisia program under PRITECH II.

- 0508 Leighton, C. ANALYSIS OF FINANCIAL ISSUES FOR THE PROPOSED SWAZILAND PRIMARY HEALTH CARE PROJECT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-77, July 1985, 42p.

- 0347 Leonhardt, T.; Gaye, P. TRAINING OF TRAINERS: KARA, TOGO. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-116, July 1986, 11p.

- 0192 LeSar, J. W.; Fabricant, S.; Fox, K. BURMA ORT COUNTRY ASSESSMENT REPORT. Arlington, VA, Management Sciences for Health PRITECH Project, DC-30, September 1984, 70+p.

- 0247 LeSar, J.; Baker, J.; Puffer, R. INFANT AND CHILD SURVIVAL IN THE DEVELOPING WORLD. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-58, September 1984, 56p.

- 1847 LeSar, J.; Harrison, P.; Buxbaum, A. MANUAL FOR ASSESSMENT AND PLANNING OF NATIONAL ORT PROGRAMS. PRITECH, December 1985.

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Intended as a reference guide to those engaged in assessing or planning national ORT programs, this manual includes sixteen articles on various CDD issues ranging from financing ORT programs to marketing and sales of ORT.

- 0287 LeSar, J. REPORT OF A ONE-DAY VISIT TO PAKISTAN. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-76, January 1985, 2p.
- 0288 LeSar, J. W. REPORT ON TRIP TO INDIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-76, January 1985, 5p.
- 0086 Louis, T. TECHNICAL ASSISTANCE IN EVALUATING COMMUNICATIONS CAMPAIGN PROPOSALS FOR THE PAKISTAN ORT PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-112, September 1985, 3p. +app.
- 0133 Lukaski, H.; Prentice, A. BIOELECTRICAL IMPEDANCE METHODOLOGIES FOR BODY COMPOSITION STUDIES, INCAP. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-211, December 1986, 8p.
- 6420 Lwanga, J. TRADITIONAL HEALERS BASELINE SURVEY IN GOMBIA COUNTY (UGANDA). Arlington, VA, Management Science for Health PRITECH Project, June 1993, LPC 079-UG, 37p.
- The objectives of this survey were to find out the number of traditional healers practicing in Gombia County and their characteristics in relation to diarrhea treatment. Another objective was to sensitize TH's and the communities about the Uganda Traditional Healers Initiative Vanguard Project. Recommendations are made.
- 0291 Lyons, J. V. REPORT OF A CONSULTATION TO NIGERIA FOR PRITECH. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-83, May 1985, 34p. +app.
- 1050 Mahmood, K. TECHNICAL PRODUCTION ASSISTANCE VISIT TO MEDIPHARM INDUSTRIES, KAMPALA, UGANDA. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-228-UG, December 1992, 17p. +app.
- An evaluation of Medipharm Industries, in Kampala, found that it was producing ORS at only 40% capacity and had not instituted quality assurance policies. Recommendations for increased efficiency included meeting employee needs, setting company objectives, retraining in quality control, and reporting and monitoring production data.
- 3112 Maju, P. T. Fidiara Utama STAFF TRAINING IN COMPUTERIZED MANAGEMENT INFORMATION SYSTEMS, PHASE I REPORT: TECHNICAL STUDY AND TRAINING RECOMMENDATIONS (INDONESIA). Arlington, VA, Management Sciences for Health, PRITECH, SUP 040-IN, September 12, 1989, 19p. + app.
- This report analyzes the computer training needs of CDD staff at central and provincial levels in Indonesia, and describes training courses responding to those needs pertaining to the development of a CDD MIS.
- 3229 Maju, P. T. Fidiara Utama STAFF TRAINING IN COMPUTERIZED MANAGEMENT INFORMATION SYSTEMS; PHASE II - REPORT; TRAINING RESULTS AND RECOMMENDATIONS; REPUBLIC OF INDONESIA. Arlington, VA, Management Sciences for Health, PRITECH, SUP 040-IN, November 6, 1989, 12p. + app.
- The consultant reports on the field implementation phase of a two-part project. Selected staff at central offices and provincial CDD offices were trained. Application exercises focused on selected CDD program indicator data. The report assesses post-training computer literacy and makes recommendations for future training.
- 1318 Malek, E. A. EVALUATION OF SCHISTOSOMIASIS ACTIVITIES IN THE HASHEMITE KINGDOM OF JORDAN. PRITECH Report, SS 63, April 1985.

The report reviews the current schistosomiasis research and control programs in Jordan, and makes recommendations for further AID support to these activities.

- 0343 Manclark, C. R.; Cooper, M. S. EVALUATION AND TOUR OF BURMA PHARMACEUTICAL INDUSTRIES AND THE BIOLOGICALS PRODUCTION FACILITIES. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-107, October 16, 1986, 25p.

- 2663 MANUEL DE RECYCLAGE POUR LE PERSONNEL DE SANTE ET DE L'ACTION SOCIALE. Burkina Faso, Ministere de la Sante et de l'Action Sociale, and PRITECH, 1988, 79p.

The WHO Supervisory Skills modules of the CDD program and the PRITECH diarrhea modules form the basis for this French language handbook. The materials have been amended somewhat and condensed into one booklet for use as a technical teaching aid.

- 4378 Marx, M. PROGRAM PROBLEM-SOLVING STUDIES FOR CDD PROGRAMS. Arlington, VA, PRITECH, May 1990, 35p.

This paper discusses the use of program problem-solving studies (PPSS) as a tool to aid CDD managers in conducting research explicitly linked to program needs. Guidelines for carrying out a PPSS are provided, which include definition of the problem, design and implementation of the study, and strategy adjustments based on the gathered data.

- 1666 Mathison, J. ORAL REHYDRATION THERAPY IN NIGERIA. PRITECH Report, SS 79, February 1986, 180 p.

The purpose of this consultancy was to assist AID/Lagos and Unicef/Nigeria in ORT efforts with Child Survival Programs. It found that there is a sound, appropriate, and applicable ORT methodology established, but further training of health personnel in its use is needed.

- 1699 Mayer, J. DIARRHOEAL STUDY - MOH/USAID - KAKAMEGA DISTRICT: KAP I QUESTIONNAIRE. PRITECH Report on Health Communications Activities in Support of the Kenyan National CDD Program, 1987, Appendix C.

This questionnaire tests the knowledge of diarrheal symptoms and treatment among child-caretakers in Kenya.

- 0337 Mayers, M. INFANT MORTALITY IN SELECTED COUNTRIES OF THE MIDDLE EAST AND NORTH AFRICA: A REVIEW OF SOME TRENDS AND CONTRIBUTING FACTORS. Arlington, VA, Management Sciences for Health PRITECH Project, SS-10, September 11, 1984, 9p. +app.

- 5214 McCarthy, D. REPORT ON TECHNICAL ASSISTANCE PROVIDED TO THE EXPERIMENT IN INTERNATIONAL LIVING - PROYECTO DE APOYO A LA SALUD MATERNO INFANTIL (EIL-PAMI) COMPONENT -- EXPANSION OF FAMILY PLANNING SERVICES, GUATEMALA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 108-GU, August 2, 1991, 11p.+app.

In this report the author discusses an assessment of the supervisory program of the Experiment in International Living - Proyecto de Apoyo a la Salud Materno Infantil (EIL-PAMI) component of the AID Expansion of Family Planning Services program in Guatemala. He reports that there is a functioning supervisory system in place although some problems have been experienced. However, he also notes that there is a commitment to address these problems and that this technical assistance visit was useful in stimulating actions. Recommendations for improvements include task prioritization, increasing supervisory visits, and strengthening the Supervisory Plan.

- 4528 Mirza, N.; Mutie, D. DIARRHOEAL DISEASES CURRICULUM GUIDELINES FOR UNDERGRADUATE MEDICAL STUDENTS AND POST-GRADUATE PAEDIATRIC RESIDENTS. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 126-KE, December 1990, 44p.

This curriculum was developed for undergraduate physicians in Kenya, as well as for resident pediatric specialists. The aim was to prepare physicians to manage diarrhea cases more effectively. It contains lectures on: management of CDD programs, epidemiology and pathophysiology of diarrheal diseases, clinical syndromes of acute diarrheal diseases, clinical management of acute watery diarrhea, and prevention of diarrhea.

4520 Mirza, N. M. ORAL REHYDRATION THERAPY REPORT COMPILED FOR CDD/KENYA: THE FLUID/FOOD PANEL. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 098-KE, December 1990, 26p.+app.

The Fluid/Food Panel was appointed by the Kenyan Division of Family Health to assist the national CDD Program to identify operational research areas and to provide guidance in formulating policy issues concerning home management of diarrhea. This report includes the panel's recommendations, as well as draft reports by panel members.

1398 Mitchell, M.; Sencer, D. CHILD SURVIVAL STRATEGIES FOR PAKISTAN POST-1987. PRITECH, 4-24 May 1986, SS 132, 23 p.

The report outlines the successes of the Pakistani EPI program and proposes a strategy for ORT implementation that builds on these successes.

0386 Mitchell, M. D.; Rogosch, J. CHILD SURVIVAL STRATEGY FOR SENEGAL. Arlington, VA, Management Sciences for Health PRITECH Project, SS-176, August 1987, 36p.

0393 Mitchell, M. D.; Seims, S. CHILD SURVIVAL IMPLEMENTATION PLAN FOR SENEGAL. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-194, August 1987, 17p.

2300 Mitchell, M. REVIEW OF THE MONITORING SYSTEM OF THE PAKISTAN PRIMARY HEALTH CARE PROJECT. Arlington, VA, PRITECH I, SS 224, September 1987, 34p.

A background overview of the initial stages of a monitoring system for the Pakistan Primary Health Care (PHC) Project is presented, followed by the outcome of a review conducted one year later. Recommendations for improvements are included, as well as appendices outlining standard treatment protocols for priority PHC activities, and revised monitoring forms.

4909 Mobarak, J. MISSION PRITECH EN GUINEE: LE VOLET MARKETING. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-040-G1, August 18, 1992, 26p. +app.

This report presents the results of a PRITECH visit to Guinea to assess the potential of marketing the locally produced ORS. The PRITECH team recommended starting up a social marketing campaign for ORS, producing a brand-name ORS alongside the generic packets, and working with producers and pharmacists to keep prices low. Once ORS information is well disseminated, ORS can be made available over the counter.

2575 Moore, R.; Proano, F.; Sanchez, E. C. et al REVIEW OF PUBLIC HEALTH FINANCING IN ECUADOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 003-EC October 18, 1988, 37p.

The purpose of this review was to assist USAID in designing a new Child Survival/Maternal and Child Health Project and also to provide information on the operation of the Ministry of Public Health financial system nationally, provincially, and at the hospital level.

0422 Mora, J. O.; Avila de Mails, P. REVIEW TRAINING PLAN OF THE CHILD SURVIVAL PROGRAM OF THE DOMINICAN REPUBLIC. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-252, August 1988, 24p.

0419 Mora, J. O.; Teller, C. TECHNICAL COMMENTS ON THE DOCUMENT "ESTUDIO NUTRICIONAL DE LA PROVINCIA INQUISITIVI, CON ENFASIS EN LA DEFICIENCIA DE VITAMINA A." Arlington, VA, Management Sciences for Health PRITECH I Project, SS-243, November 1988, 4p.

2357 Mukuria, A. G. KENYATTA NATIONAL HOSPITAL LACTATION MANAGEMENT NEEDS ASSESSMENT FOR MOTHERS. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-254-KE, April 1993, 42p. +app.

This report describes the findings of a KAP survey of mothers regarding breastfeeding and Kenyatta Hospital

practices, as described by the mothers. Although knowledge about breastfeeding was high, many mothers intended to introduce supplementary foods and fluids too early.

0480 Nashold, R. D. VITAL REGISTRATION IN THE REPUBLIC OF INDONESIA WITH SPECIFIC PROPOSALS FOR WEST SUMATRA. Arlington, VA, Management Sciences for Health PRITECH Project, SS-57, June 1985, 34p. +app.

5213 Ndonko, F. SUMMARY OF CAMEROON REPORT ON TRADITIONAL HEALERS. Arlington, VA, Management Sciences for Health, PRITECH, RAD 032-EA, August 20, 1991, 36p.+app.

In 1990 a knowledge, attitudes and practices study was conducted in Cameroon to assess the practices of traditional healers (THs) with respect to diarrheal diseases. This report summarizes the study's findings in the following areas: 1) the role of THs in diarrhea case management; 2) types of treatment used by THs; 3) collaborative experiences between THs and biomedical practitioners; and 4) THs' knowledge and acceptance of ORT. A main conclusion drawn was that although the healers had little knowledge about ORT, they could easily accept it and integrate it into their practice with proper instruction. NOTE: Only the executive summary of this report is in English; the text and annexes are in French.

0338 Norris, J.; Raymond, S. U.; Fairbank, A.; et al. ETUDE INDICATIVE DE LA CROISSANCE DU SYSTEME DES SOINS DE SANTE DANS LE ROYAUME DU MAROC: RAPPORT A L'INTENTION DU MINISTERE DE LA SANTE PUBLIQUE. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-101, January 1986, 66p. +app.

2586 Norris, J.; Colon, D.; Fairbank, A. HEALTH AND DEVELOPMENT IN BELIZE: A SECTOR ASSESSMENT. Arlington, VA, Management Sciences for Health, PRITECH, HSS 026-BE, January 12, 1989, 79p.

This assessment provided the Government of Belize and USAID with an analysis of health service status, morbidity and mortality patterns, and current and planned intervention programs in its health sector.

0188 Northrup, R. AN ASSESSMENT OF DIARRHEA TRAINING UNITS (DTU) IN PAKISTAN. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-290, October 1987, 16p. +app.

3002 Northrup, R. IMPROVING IEC EFFECTIVENESS IN CDD PROGRAMS. Arlington, VA, Management Sciences for Health, PRITECH, June 14, 1989, 3p.+, memo.

This paper is a report on a PRITECH meeting which focused on information, education, and communications (IEC) efforts in the Sahel and in Cameroon. Several key issues were identified, including relevance of IEC to mothers' cultures, diversity of target groups, measuring behavior change, and IEC capabilities of CHWs. A presentation of mothers' use of ORT, a questionnaire for field personnel, and materials on IEC efforts in the Sahel are included.

2832 Northrup, R. S. PASSIVE IMMUNITY AGAINST DIARRHEA: MEETING WITH PROCOR TECHNOLOGIES/LAND O'LAKES. Arlington, VA, Management Sciences for Health, PRITECH, Memo to US Agency for International Development, March 31, 1989, 3p + attachments.

PRITECH representatives met with PROCOR representatives (a Land O' Lakes subsidiary) to discuss the use of high-titer immunoglobulin from milk to prevent diarrhea in Third World infants and children. The results of this meeting are reported in this memo.

2641 Northrup, R. S. PROGRESS IN DIARRHOEA CONTROL: IMPLICATIONS FOR THE PRACTICING PEDIATRICIAN. Multan, Pakistan, paper presented at the Fourth National Pediatric Conference for PRITECH, February 1989, 7p.

The progress that has been experienced in controlling diarrhea through oral rehydration therapy is outlined in this paper. Topics covered include communication with mothers, home fluids, feeding, etiological advances, drugs, and vomiting.

2302 Northrup, R. REPORT ON PAKISTAN. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-369, February 1988, 30p. +app.

This trip report reviews the progress of Pakistan's national Diarrheal Diseases Control program. Various elements are examined, including case management, preventive care, ORS logistics, health education and communications, training, evaluation, monitoring and supervision, operations research, planning, and administrative support. USAID's Child Survival Project development plan and PRITECH's role in Pakistan's CDD activities are also discussed.

0212 Northrup, R. S. REVIEW OF CLINICAL TRAINING, INDONESIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-386, August 1988, 40p. +app.

4383 Northrup, R.; Fry, S. STRATEGIES FOR TRAINING HEALTH WORKERS IN NATIONAL CDD PROGRAMS. Arlington, VA, PRITECH, May 1990, 15p.

This paper examines some of the principle issues related to training in CDD programs and presents options and strategies for achieving and sustaining appropriate case management of diarrhea by health workers...[It] first reviews issues that are relevant to the effectiveness of training courses and then presents issues related to actions other than training needed to facilitate behavioral change. [published abstract]

0095 Northrup, R. S. TRIP REPORT: NIGER. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-165, March 1986, 17p.

2268 Northrup, R. TRIP REPORT: INDONESIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-302, February 1988, 33p.

This report discusses the outcome of a trip to Indonesia where, after visiting four medical schools regarding their curricula of diarrhea medical education, a five phase plan for its further development was prepared. Also discussed is a progress review of the national ORI program, which was conducted in both Jakarta and West Java.

6550 Oldham, W. D. USAID WAR VICTIMS ASSESSMENT VISIT TO VIETNAM. REPORT ON MEDICAL AND SURGICAL ASPECTS OF ASSESSMENT. Arlington, VA, Management Sciences for Health PRITECH Project, HSS 140-VE, 1993, 7p.

This report assesses the War Victims Fund program in Vietnam. Special attention was paid to assessing the opportunities requiring medical or surgical interventions or training, the progress of the prosthetics program, and the policy and management issues and conduct.

1193 Olson, C.; Bates, J. EVALUATION OF THE PUBLIC SECTOR ORS SUPPLY SYSTEM IN PAKISTAN. PRITECH, DC 195, 7 August-10 September 1986, 63 p.

This consultancy report reviews the functions and the principal component of the ORS supply system, identifies existing and potential constraints, and recommends solutions for these problems. The report finds that distribution operations need to be improved.

2587 Olson, C.; Garcia, R. THE INTRODUCTION OF THE DRUG ESTIMATION AND MONITORING SYSTEM IN COSTA RICA. Arlington, VA, Management Sciences for Health, PRITECH, SS277, August 1988, 17p. + app.

This report describes a consultancy to Costa Rica during which the Drug Estimation Monitoring System (DEM) was introduced in order to assess drug consumption patterns. Obtaining the ability to project pharmaceutical requirements was also an objective of this consultancy.

2017 Olson, C. REPORT OF A CONSULTANCY ON ORS SUPPLY AND DISTRIBUTION IN NIGERIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-303, December 1987, 13 p.

This consultancy report is an outline and specifications draft for a USAID Request for Proposal to contract for private sector involvement in production, marketing, and distribution of ORS packets. The report has two parts: a review of some of the issues with recommendations and the draft for RFP.

4379 O'Malley, G.; Spain, P.; CEDPA. CDD ALLIES. Arlington, VA, PRITECH, May 1990, 11p.

This paper presents ideas concerning practical collaboration with organizations and groups other than ministries of health that are involved in delivering health care. It summarizes what has been done, what the constraints are and how one can initiate such collaboration in order to most effectively reach mothers and other health care providers. Potential collaborations with the commercial sector, private physicians and nurses, traditional healers, the media, and other development programs are reviewed.

- 0479 Oswalt, K. S. FEASIBILITY STUDY AT THE DISTRICT LEVEL OF A MANAGEMENT INFORMATION SYSTEM FOR MALARIA CONTROL. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-52, July 17, 1985, 35p.

- 1400 Overholt, C.; Cross, P. COSTA RICA HEALTH SECTOR OVERVIEW. PRITECH, SS 110, December 1985, 62 p.

This report summarizes the trends in conventional health status indicators, provides an overview of the structure and organization of the Costa Rican health sector and identifies the barriers to efficient, effective delivery of services by public institutions.

- 3226 Parlato, R. PAKISTAN HEALTH EDUCATION STRATEGY. Arlington, VA, Management Sciences for Health, PRITECH, SUP 041-PA, November 6, 1989, 37p.

This report presents the strategy developed for Pakistan's Health Education Committee to effectively use free TV and radio air time granted by the Ministry of Information and Broadcasting for the promotion of educational health messages. The key areas to be covered during the media program are CDD, nutrition, EPI, water and sanitation, and adult diseases, such as AIDS and high blood pressure.

- 3166 PATH. QUARTERLY AND FINAL REPORT: FOLLOW-ON TECHNICAL ASSISTANCE TO MEDIPHARM INDUSTRIES LTD. KAMPALA, UGANDA. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-228-UG, October 1992, 19p. +app.

This collection of reports focuses on technical assistance provided to a pharmaceutical company in Uganda in the areas of marketing and ORS production. Recommendations include increasing the sales force, strengthening the technical background of sales representatives, and improving quality control measures.

- 4609 PATH/Jakarta. COMMERCIAL SECTOR ORS PROJECT: KEY RESEARCH FINDINGS AND RECOMMENDATIONS FOR DEVELOPMENT OF A STRATEGY FOR SOCIAL MARKETING OF CHILD SURVIVAL CONCEPTS IN INDONESIA. Arlington, VA, Management Sciences for Health, PRITECH, SUP 014-IN, January 1991, 18p.+app.

After conducting a knowledge-attitudes-practices survey of Indonesian mothers of under-fives on ORT, PATH/Jakarta concluded that a large gap exists between knowledge of ORT and actual use. This report identifies the reasons for low ORT usage and recommends a communications strategy for the future.

- 4377 Patterson, G. ENSURING THE SUSTAINABILITY OF CDD EFFORTS. Arlington, VA, PRITECH, May 1990, 9p.

This paper discusses the elements which are essential to sustainability of CDD programs aimed at reducing morbidity and mortality through correct ORT use. These elements include: (1) sustaining demand by mothers for ORS; (2) sustaining essential and timely interventions, such as ORS supply and distribution, health worker training, and health communications; and (3) sustaining overall program viability through institutional, political, economic, and management support.

- 6427 Pizarro, D.; Spain, P. L. DOMINICAN REPUBLIC. Arlington, VA, Management Sciences for Health PRITECH Project, September 1992, STP 023-DR, 22p.

To update the Child Survival Project, this paper recommends the redesign and updating of Dominican medical school curricula. The update should emphasize primary health care, especially child survival interventions. It also recommends in-service training workshops for doctors.

- 0533 Pizarro, D. REPORT ON ACTIVITIES PERFORMED IN THE DOMINICAN REPUBLIC Arlington, VA, Management Sciences for Health PRITECH I Project, SS-83, December 5, 1985, 8p.

3999 Plopper, S. ASSISTANCE TO THE FAMILY HEALTH DIVISION WITH TRAINING OF TRAINERS\SUPERVISION AND EVALUATION WORKSHOPS, MALI. Arlington, VA, Management Sciences for Health, PRITECH, HSS 084-MA, March 5 - April 21, 1990, 10p.

The consultant and three Malian co-trainers conducted two workshops for central and regional level Division of Family Health personnel. The first was a three-week training designed to prepare personnel to train MCH\FP (Maternal and Child Health\Family Planning) staff at the "cercle" and "arrondissement" levels. The second was a two-week training which prepared personnel to supervise and evaluate MCH\FP services at the regional, "cercle," and "arrondissement" levels.

4586 PRE-TEST OF TELEVISION SPOTS ABOUT ORAL REHYDRATION THERAPY. Arlington, VA, Management Sciences for Health, PRITECH Project, LCP 020-PA, January 1991, 39p.+app.

The Pakistan National Institute of Health requested assistance from the PRITECH Project in the production and pre-testing of TV spots for the CDD program. Results of two rounds of pre-testing are reported on in this document. The methodology used was qualitative pre-testing with the purpose of incorporating feedback from representatives of the target audience.

0389 Prins, A. MISSION PRITECH EN GUINEE Arlington, VA, Management Sciences for Health PRITECH I Project, SS-178, January 1987, 59p.

0427 Prins, A. PID DEVELOPMENT: STRENGTHENING PRIVATE SECTOR DISTRIBUTION OF ORS IN SUDAN. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-281, November 1988, 24p.

1636 Prins, A. POTENTIAL CDD PROGRAM ACTIVITIES IN GUINEA, CONAKRY. Technologies for Primary Health Care (PRITECH) Project, SS178, 19-30, January 1987, 28 p.

In January of 1987, the PRITECH mission to Guinea/Conakry assessed the current situation in Guinea in the area of diarrheal disease control in order to make recommendations concerning PRITECH's eventual assistance to the existing CDD program in this area. The team found that no national program currently exists.

1242 Prins, A.; Saade, C. PRELIMINARY PROPOSAL ESTABLISHING LOCAL PRIVATE SECTOR PRODUCTION AND DISTRIBUTION OF ORS IN ZAIRE. Arlington, VA, Management Sciences for Health PRITECH Project, PCP-008-ZI, August 1992, 24p.

This report details the preliminary proposal to assist in ensuring that there is a sustainable source of ORS in Zaire. The plan to enlist Cowbell, a private sector food manufacturer in Zaire, to locally produce ORS is outlined. The need for research that results in culturally relevant educational and promotional materials is stressed. Also available in French.

4380 Prins, A. PREVENTIVE ANTIDIARRHEAL INTERVENTIONS. Arlington, VA, PRITECH, May 1990, 23p.

This paper provides operational guidelines to assist CDD program managers in incorporating into their programs those preventive strategies which would best complement their ongoing efforts to improve the treatment of children with diarrhea by health care providers and family child caretakers. Four approaches are reviewed: (1) integrating focused activities into existing programs; (2) collaborating with other programs; (3) advocating policy and strategy changes; and (4) adding on new components to existing programs. Specific interventions outlined include breastfeeding promotion, and improving water supply, sanitation, and domestic hygiene.

3117 Prins, A.; Rene, O. E.; Atanga, N. S. et al PRITECH II ASSESSMENT: CAMEROON NATIONAL CONTROL OF DIARRHEAL DISEASES PROGRAM. Arlington, VA, Management Sciences for Health, PRITECH, STP 012-CA, July 24, 1989, 23p. + app.

In this report, the PRITECH assessment team presents its major findings and recommendations in three areas: 1) progress toward the establishment of an integrated national program for the control of diarrheal diseases in Cameroon; 2) PRITECH's role in assisting this effort; 3) future program development and PRITECH's role within it.

6426 Prins, A.; Heise, K. PRITECH PROPOSAL FOR SUPPORT TO THE MADAGASCAR NATIONAL PROGRAM FOR THE CONTROL OF DIARRHEAL DISEASE. Arlington, VA, Management Sciences for Health PRITECH Project, September 1992, 14 p. STP 064-MG.

This paper proposes PRITECH assistance that will consist of both long- & short-term technical assistance, limited operational support aimed at improving quality, improving access to ORS, and strengthening CDD program planning and management.

- 2759 Prins, A. REPORT OF THE JOINT MANAGEMENT REVIEW OF THE DIARRHOEAL DISEASE PROGRAMME: SUDAN. Arlington, VA, Management Sciences for Health, PRITECH, STP 011-SU, May 22, 1989, 23p. + app.

This report outlines the success that the Sudan National Control of Diarrheal Diseases program has enjoyed since its inception in 1985, and discusses the possibilities for PRITECH collaboration.

- 1712 Prins, A. REVIEW OF THE MALAWI CDD PROGRAM. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-050-ML, September 1992, 7p. +app.

The Malawian national CDD program was launched in 1981 and developed a 5-year strategy in 1985. Among the activities undertaken include: establishing ORT corners in most health facilities, developing health education materials, and importing and distributing ORS. Recommendations for improvement include assigning a fulltime national program manager, developing a budget and detailed plan of operations, strengthening case management and training, and developing a CDD information system and ORS stock management system.

- 3497 Prins, A. VISIT TO THE UGANDA CDD PROGRAM. Arlington, VA, Management Sciences for Health, PRITECH, PCP 005-UG, July 12-20, 1989, 41p.

This report analyzes the current state of the existing Uganda CDD program. Suggestions of activities for which PRITECH could provide assistance are outlined. These include: improving Health Inspectorate training, supervision, and manpower development; planning a program to involve traditional healers in CDD activities; developing a reinforced public sector communications strategy; and writing a long-term CDD operations plan and policy statement.

- 6294 PRITECH. GUIDELINES FOR COMPANIES MARKETING COMMERCIAL CEREAL BASED ORS (CBORS) PRODUCTS. Arlington, VA, Management Sciences for Health PRITECH Project, June 1993, 4p.

These guidelines were designed to steer the promotion of cereal-based ORS in a way to increase the benefits of ORT to children with diarrhea and to reduce the possible consumer misuse or misunderstanding of the product's benefits.

- 2009 PRITECH. INFORMACION ESTADISTICA. PRITECH, Caritas Boliviana, September 1987, 240 p.

This guide to improve infant health focuses on controlling diarrhea, reducing the incidence of dehydration, teaching and training mothers, and improving infant nutritional status.

- 2013 PRITECH. MANUAL DE MATERIALES 1 ETAPA PROMOTORAS DE SALUD. PRITECH, Bolivia, Caritas, 1987.

This is a manual from the Bolivia Caritas Project, of materials for health care promoters which include extensive training materials for mothers whose infants have diarrhea.

- 2169 PRITECH Project. TRAINING FOR THE CONTROL OF DIARRHOEAL DISEASES, INTERMEDIATE LEVEL, MODULES 1 - 4. Dakar, Management Sciences for Health PRITECH Project, 1987.

These modules on diarrheal diseases were developed for use by teachers of Sahelian health workers at the intermediary (nursing) level. They introduce methods that allow both the teacher and the students to take an active role in the learning process, and therefore better prepare the students for situations they will encounter as health agents in the real world. Module 1 is entitled "Epidemiological Overview and Clinical Concepts"; Module 2, "The Treatment and Prevention of Diarrhoeal Disease" and its appendix, "Cholera"; Module 3, "Application of Health Education Techniques to Diarrhoeal Disease Control Programmes"; and Module 4, "Elements of a National Programme to Combat Diarrhoeal Diseases". A fieldwork guide accompanies the modules and a teacher's guide contains teaching instructions as well as answers to various exercises. These modules were originally written in French and have been translated into English and Arabic.

- 0275 Prysor-Jones, S.; Simpson, R. CHAD NATIONAL ORT PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-65, December 1984, 21p. +app.

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- 6012 Prysor-Jones, S. INTEGRATING DIARRHEA CONTROL TRAINING INTO NURSING SCHOOL CURRICULA IN THE SAHEL. Arlington, VA, Management Sciences for Health, PRITECH Occasional Operations Papers, August 1992, 11p.

This short report outlines the steps taken by the PRITECH Sahel Regional Office to develop booklets for use in nursing schools. With the help of WHO and key personnel from 11 nursing school, 5 booklets about the epidemiology and etiology of diarrhea, case management, and patient education were developed, as well as a book about field work and a teacher's guide. The modules are now being used in 16 nursing schools in 6 countries.

- 1741 Prysor-Jones, S. LA LIAISON ENTRE LA FORMATION ET L'EXECUTION DE PROGRAMMES DE R.V.O. PRITECH, doc. prepared for ICORT II, December 1985, 7 p.

This paper outlines the requirements for development and execution of national oral rehydration therapy programs. National programs require great sacrifices of time, energy and resources and, at times, improvisation. They should be considered in a global context; program supervision is more important than training.

- 0261 Prysor-Jones, S.; Bates, J.; Fabricant, S.; et al. NATIONAL DIARRHEAL DISEASE PROGRAM PLAN: MALI. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-62, April 1985, 52p. +app.

- 0273 Prysor-Jones, S.; Simpson, R. NIGER NATIONAL ORT PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-64, October 1984, 28p. +app.

- 0424 Puffer, R. MORTALITY IN INFANCY AND CHILDHOOD IN INDIA. Arlington, VA, Management Sciences for Health PRITECH Project, SS-28, June 3, 1985, 44p.

- 3995 Putney, P. J.; Smith, B. GUATEMALAN HIGH RISK BIRTH STRATEGY SEMINAR AND FOLLOW-UP. Arlington, VA, Management Sciences for Health, PRITECH, HSS 083-GU, March 1990, 41p.

As follow-up to a high risk birth strategy seminar held in Guatemala City in March 1990, two further sessions succeeded in producing a plan of action and a set of recommendations for presentation to the Ministry of Health. A key recommendation was the establishment of a Technical Advisory Group to monitor, advise, and carry forward the process of designing and implementing a national traditional birth attendant program.

- 4000 Putney, P. QUETZATENANGO MATERNAL NEONATAL HEALTH PROJECT, INCAP. Arlington, VA, Management Sciences for Health, PRITECH, HSS 074-GU, February 1990, 27p.

Traditional birth attendants (TBAs) are a key element in any successful strategy to reduce maternal and infant mortality in Guatemala. This report reviews the proposed INCAP "Quetzaltenango Maternal and Neonatal Health Project" which will focus on improving TBAs' knowledge, skills, and relationship to the formal health system as well as on the system's capacity to respond appropriately to cases which are referred.

- 3641 Putney, P. J.; Smith, B. THE TRAINING AND PRACTICE OF TRADITIONAL BIRTH ATTENDANTS IN GUATEMALA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 025-GU, February, 1989, 48p.+app.

This report presents an "in-depth study of the mid-wifery practices of traditional birth attendants of the Guatemalan highlands with a view towards making recommendations as to how midwifery practice could best be supported or modified to enable it to make a maximum contribution to maternal and child health." Also available in Spanish.

- 2549 Quick, J.; Hume, P. CHILD SURVIVAL, COST-RECOVERY, AND ESSENTIAL DRUGS: EXPERIENCE AND ISSUES. Arlington, VA, PRITECH, February 1988, 23p.

Country-specific experiences with cost-recovery schemes, pharmaceutical expenditures and other financial

mechanisms are examined in this report. A list of selected readings on financing drug supply is included.

2722 Quick, J.; Foreman, P. CHILD SURVIVAL PHARMACEUTICALS IN INDONESIA: PART II. Arlington, VA, Management Sciences for Health, PRITECH, DC 425 + 466, May 3, 1989, 41p. + app.

"[This] study presents an objective, detailed picture of prescribing patterns [in Indonesia] which elaborates considerably on previous formal and informal reports on health center drug use."

0294 Quick, J. REPORT OF A CONSULTATION ON ORS SUPPLY AND DISTRIBUTION IN NIGERIA. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-84, May 1985, 34p. +app.

4865 Rankin, J. STUDY OF THE LOGISTICS OF DRUGS AND MEDICAL SUPPLIES. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-066-PH, August 18, 1992, 11p.

This short report comments on the Foundation for People's Concern's third progress report on the Filipino Department of Health logistics. The report examines selection, procurement, distribution, and use of drugs and medical supplies.

0233 Rasmuson, M. COMMUNICATIONS SUPPORT FOR DIARRHEAL DISEASE CONTROL IN THE PHILIPPINES. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-56, December 1984, 15p.

4374 Rasmuson, M.; Spain, P. COMMUNICATIONS IN SUPPORT OF CDD PROGRAMS. Arlington, VA, PRITECH, May 1990, 11p.

This paper focuses on the communications component of CDD programs and discusses the constraints which often lead to program deficiencies. Among the most serious constraints are technically underdeveloped communications programs, inadequate resources and shifts in ORT policy. In order to overcome such obstacles, the authors recommend the following: (1) reassessing the present program and conducting formative research; (2) mobilizing new resources; and (3) replanning the communications strategy based on research results.

0096 Rasmuson, M.; Fryson-Jones, S. PROMOTIONAL VISIT: GAMBIA. Arlington, VA, Management Sciences for Health, PRITECH I Project, DC-110, February 1986, 9p.

4373 Rasmuson, M. PROMOTING COMMERCIAL SALES OF ORAL REHYDRATION SALTS. Arlington, VA, PRITECH, May 1990, 14p.

In this paper the author examines various aspects of selling ORS packets. The essential components of a sales strategy are outlined, including assessing market potential, collaborating with the private sector and encouraging a favorable regulatory framework. ORS marketing is discussed in detail with emphasis on pricing, distribution and promotion. Finally, the author provides several examples of mechanism for public/private sector collaboration in ORS sales.

0232 Rasmuson, M. REPORT OF A PRITECH VISIT TO THE KINGDOM OF MOROCCO. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-53, December 1984, 22p.

0484 Raymond, S. U. PUBLIC AND PRIVATE ROLES IN IMMUNIZATION: THE DONOR RESPONSE. Arlington, VA, Management Sciences for Health PRITECH Project, SS-61, May 22, 1985, 140p.

0099 Reddy, L. REPORT ON SHORT-TERM CONSULTANCY FOR OMANI-AMERICAN JOINT COMMISSION. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-117, December 1985, 13p. +app.

0444 Rens, M. C. POPULATION ASSISTANCE NEEDS IN BURUNDI: POSSIBLE CONTRIBUTION OF USAID. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-32, February 19, 1985, 15p.

1971 Reynolds, J.; Petrich, E. END OF PROJECT EVALUATION PRIMARY HEALTH CARE II, BURMA. PRITECH report SS 195, August 1987.

This summary focuses on qualitative issues of priority interest: village health worker performance training, health education, supervision and management, information systems, research and evaluation, participant training, technical assistance and Quality for Child Care Survival.

2266 Rice, C. CARE BELIZE: METHODOLOGY AND ANALYSIS OF KAP SURVEY. Arlington, VA, PRITECH, June 1987, 26p.

The CARE Maternal Child Health (MACH) Project in Belize called for a KAP survey that would provide baseline data useful for the beginning of the project, as well as at the project's termination for impact evaluation purposes. This report discusses the development and administration of the KAP survey.

6093 Roberts, R. S. DISTRIBUTION AND PRODUCTION OF ORS IN RWANDA. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-022-RW, September 1992, 12p.

This report provides recommendations to the Ministry of Health in Rwanda based on an evaluation of the supply, distribution, and possible production of ORS. Strengthening of health education, case management, and promotional activities are suggested. Research and analysis of current demand for ORS should precede decisions regarding increased supply and distribution.

2664 Roberts, R. S. LA DISTRIBUTION DU SRO ET L'APPROVISIONNEMENT EN D'AUTRES PRODUITS MEDICAUX IMPORTANTS DANS LA LUTTE CONTRE LES MALADIES DIARRHEIQUES DANS LA REPUBLIQUE DU MALI. Arlington, VA, Management Sciences for Health, PRITECH, SUP 001-MA, February 28, 1989, 28p. + app.

This report emphasizes the need for a distribution method for ORS in Mali which is similar to that of other medical supplies. The use of medical supply centers and pharmacies is proposed.

1479 Rohde, J. FOLLOW-UP ORT PROMOTIONAL VISIT TO INDIA SEPTEMBER 12-20, 1984. PRITECH, DC 60, 12-20 September 1984.

This is a report of a series of consultations in India with USAID, MOH and State officials for diarrheal disease and measles control and family spacing methods programs.

1388 Rohde, J.; LeSar, J. IMPROVING ORT USE AND NUTRITIONAL STATUS IN CENTRAL AMERICA AND PANAMA. PRITECH, 21 February-9 March, 1984, DC13, 32 p.

This report outlines the background of the nutritional status of children in Central America and Panama. The report also sets out CDD proposals and discusses the roles of various donors in these efforts.

0155 Rohde, J. E.; Smith, W. ORT PROMOTIONAL VISIT: IMPLEMENTATION OF SELECTIVE PRIMARY HEALTH CARE ACTIVITIES IN USAID AREA PROJECT -- MAHARASHTRA. Arlington, VA, Management Sciences for Health PRITECH Project, DC-24, September 1984, 17p.

1080 Rohde, J.; Fabricant, S. PHILIPPINES ORT COUNTRY ASSESSMENT REPORT. Arlington, VA, Management Sciences for Health PRITECH Project, DC 25, September 1984, 91p.

This report summarizes the diarrheal disease situation in the Philippines and the steps the government has taken to control the situation. Analyzes the institutional development of the program.

1879 Rohde, J. SUGGESTED TRAINING ACTIVITIES FOR DIFFERENT LEVELS OF HEALTHWORKER. Draft for Pakistan CDD program, PRITECH, February 1988, 8 p.

Training activities for village-level and community healthworkers, as well as for paramedicals and health professionals, are outlined in this draft paper.

- 4050 Roisin, A.; Zerbo, P. J.; Corbin, C. ETUDE DE LA PRISE EN CHARGE DES CAS DE DIARRHEE DANS DEUX GROUPES DE QUATRES PROVINCES DU BURKINA FASO. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-151-BF, October 1992, 19p.

This report presents the results of a baseline survey undertaken in 4 provinces of Burkina Faso. The survey aimed to document current case-management practices for diarrheal episodes.

- 1752 Saade, C.; Blyth, K. ASSESSING THE ORS MARKET AND PROGRAM PLANNING FOR THE CONTROL OF DIARRHEAL DISEASES, MADAGASCAR. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-302-MG, March 1993, 36p.

This report summarizes a meeting between PRITECH and the Ministry of Health to plan a PRITECH country program in Madagascar. The program will include health worker training and ORS promotion and marketing.

- 6210 Saade, C.; Tucker, H. BEYOND PHARMACIES: NEW PERSPECTIVES IN ORS MARKETING. Arlington, VA, Management Sciences for Health PRITECH Project, 1993, 32p.

The concept for this booklet originated at the workshop "Expanding ORS Marketing to New Horizons" held in Singapore in July 1992. This booklet 1) illustrates PRITECH's approach to working with the commercial private sector, 2) describes issues of concern to ORS marketers and the public health community, and 3) reports on the creative strategies identified and discussed by the participants of the workshop.

- 3494 Saade, C. BOOSTING ORS COMMERCIALIZATION IN THE PHILIPPINES: PART I. Arlington, VA, Management Sciences for Health, PRITECH, SUP 026-PH, February 23 - March 3, 1989, 15p.+app.

This report presents background information on the Filipino pharmaceutical market, reviews past attempts at ORS commercialization in the Philippines, summarizes discussions with the Department of Health, USAID, and private companies regarding various commercialization options, and presents specific recommendations.

- 4139 Saade, C. BOOSTING ORS COMMERCIALIZATION IN THE PHILIPPINES: PART II. Arlington, VA, Management Sciences for Health, PRITECH, SUP 026-PH, September 12-22, 1989, 19p.+app.

The author reports on his follow-up to a previous visit (see #3494). He describes progress made in current ORS commercialization efforts and discusses the options for action. Recommendations of which companies to use and a scope of work for an ORS commercial consultant conclude the report.

- 2852 Saade, C. OVERCOMING BARRIERS TO MARKETING ORS IN THE PRIVATE SECTOR IN PAKISTAN: A REPORT ON MARKETING AND SALES WORKSHOPS. Arlington, VA, Management Sciences for Health, PRITECH, STP 005-PA, June 1, 1989, 11p. + app.

The purpose of this trip was to develop and/or improve the marketing of ORS in the private sector of Pakistan. The assignment included a two-day workshop on the development of an ORS marketing strategy for actual and potential ORS producers and a one day training seminar on sales techniques for sales trainers of ORS producers.

- 3643 Saade, C. PLAN DE MARKETING SOCIAL DES S.R.O. "KENEYAJI" AU MALI. Arlington, VA, Management Sciences for Health, PRITECH, SUP 064-MA, October, 1989, 24p.+app.

This report is the product of a five-day, national-level workshop to develop a social marketing plan for locally produced ORS. The report includes background information, goals, strategies, evaluation plans, and a detailed plan of action.

- 5291 Sack, D. A. CONTROL OF CHOLERA IN BELIZE. Arlington, VA, Management Sciences for Health, PRITECH, STP 042-BE, September 5, 1991, 15p.+app.

Due to the spread of cholera in Latin America, the Ministry of Health of Belize requested a review of the nation's cholera control plan by PRITECH. The author reviewed the plan and made recommendations based on his analysis. Because it is unlikely that cholera can be absolutely prevented from entering Belize, the author suggested a shift to adequate surveillance, control, and treatment efforts in the event of an outbreak. Specific recommendations are made in the following areas: 1) preparing to treat large numbers of patients; 2) careful detection and epidemiologic surveillance; 3) improving water supply and sanitation; 4) strengthening educational activities; 5) limiting cholera's importation; 6) integrating cholera control efforts into the overall CDD strategy; and 7) evaluating effectiveness of control efforts.

- 6343 Sack, D. A. DEVELOPMENT OF A CHOLERA CHECKLIST FOR CHOLERA CONTROL. Arlington, VA, Management Sciences for Health PRITECH Project and Baltimore, MD, Department of International Health, The Johns Hopkins University School of Hygiene and Public Health, August 1992, 23p.

This checklist was designed to provide guidance in the design and review of national and regional cholera control plans. It is divided into an administrative checklist for managers who are tracking activities and a technical checklist for planners who are organizing technical activities.

- 0583 Salazar-Lindo, E. FIRST EVALUATION OF PARAGUAY'S NATIONAL DIARRHEAL DISEASE CONTROL PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-84, September 1985, 16p. +app.

- 4608 Sallet, J. P. EVALUATION DE LA MISE EN OEUVRE DE L'INITIATIVE DE BAMAKO AU SENEGAL. Arlington, VA, Management Sciences for Health, PRITECH, HSS 088-SE, December 1990, 41p.+app.

This report summarizes a study of the feasibility of implementing the Bamako Initiative in Senegal. It describes how the study was carried out, the findings, and the subsequent recommendations for action if the Initiative is to be used successfully to improve the quality of life in Senegal.

- 2548 Sanghvi, T. NUTRITION AND INFANT FEEDING IN PAKISTAN: RECOMMENDATIONS FOR A USAID CHILD SURVIVAL PROJECT. Arlington, VA, PRITECH, January 1988, 41p.

This report examines the nature and magnitude of malnutrition in Pakistan's children, and the implications for child survival initiatives if nutritional issues in Pakistan are not addressed. Major constraints to reducing the level of malnutrition are discussed, as well as recommendations for possible interventions.

- 0104 Sankar, P. GAMBIAN MOTHER'S UNDERSTANDING OF DIARRHEAL DISEASE AND THE USE OF ORAL REHYDRATION SOLUTION. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-146, December 1985, 37p. +app.

- 4032 Sanou, M. CONTRIBUTION A L'ETUDE DE LA DIARRHEE PERSISTANTE A DAKAR CHEZ LES ENFANTS DE 0 A 5 ANS. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-061-SE, October 1992, 104p. +app.

This paper reviews the problem of persistent diarrhea in children and presents the results of a survey in Dakar. The survey aimed to estimate the prevalence of persistent diarrhea in the city and its suburban areas, to understand the KAP of mothers, and to examine the case-management practices of health workers. The study found that 15-18% of diarrheal cases are persistent, concentrated in children under age 2, and that some mothers gave inappropriate weaning foods and did not give enough food during diarrheal episodes. In addition, lack of hygiene was common. Finally, while case management was adequate, health workers did not educate mothers about prevention.

- 1667 Santosham, M.; Silimperi, D.; Louis, T. MEASLES IMMUNIZATION AND ORAL REHYDRATION THERAPY IN MAHARASHTRA, GUJARAT, AND HIMACHAL PRADESH, INDIA. PRITECH Report, DC 81, May 1986, 115 p.

The Integrated Rural Health and Population (IRHP) project has three primary focuses: ORT, measles immunization, and birth spacing. This report focuses on the first two areas, presenting all aspects of the project's immunization and diarrheal disease control activities. The social marketing components for both activities are also evaluated.

- 0423 Schaeffer, C. HUMANITARIAN IMPACT OF THE CURRENT PANAMANIAN FOOD EMERGENCY. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-269, August 1988, 16p.

- 2155 Schaeffer, C.; Aguilar, A. ORAL REHYDRATION SALT PACKET IMPORTATION, DOMESTIC PRODUCTION AND DISTRIBUTION IN BOLIVIA, 1979-1988 - PHARMACISTS PRACTICES IN THE MANAGEMENT OF ACUTE INFANT DIARRHEA. La Paz, Bolivia, PRITECH, 1988, 16p.

"The purpose of this report is to inform the reader of what the importation, production and distribution patterns of ORS have been for the last four years including the analysis of pharmacists' practices." The report recommends that, due to local production constraints and the fact that ORS packets may not always be available in the future, research into the efficacy of home available fluids for preventing and treating diarrhea is necessary.

- 2760 Schlendorf, J.; Basilio, J.; Brown, R.; et al. PRITECH PROCESS EVALUATION OF THE ORT COMPONENT OF THE PRIMARY HEALTH CARE FINANCING PROJECT. Arlington, VA, Management Sciences for Health, PRITECH Project, DC462, September 1988, 51p. + app.

This evaluation of the USAID/Philippines authorized Oral Rehydration Therapy component of the Primary Health Care Financing Project, which began in 1985, gives an overview of the project's accomplishments and provides recommendations for change.

- 0107 Sencer, D.; Mata, L. OMANI-AMERICAN JOINT COMMISSION FOR ECONOMIC AND TECHNICAL COOPERATION: REPORT OF THE CHILD HEALTH TEAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-152, April 1986, 72p.

- 5504 Sene, M. EVALUATION DE L'UTILISATION DES PERSONNELS NON SOCIO-SANITAIRES DANS LE CERCLE DE BANKASS, REGION DE MALI. Arlington, VA, Management Sciences for Health, PRITECH Project, SUP 135-MA, August 2, 1991, 15p.

The Mali National CDD Program undertook the training of "non-health personnel" at the community level in order to increase the reach of the Program's health education activities. Those chosen to participate were generally known as "opinion leaders" in their communities. After training, they were expected to hold educational talks on treatment and prevention of diarrhea and to make home visits. An evaluation to determine the effectiveness of these personnel found that they were reaching mothers with correct messages about diarrhea. The study revealed possible difficulties in expanding the role of this group, despite their effectiveness. Recommendations to increase the effectiveness of these community leaders are outlined.

- 5211 Sene, M. RAPPORT DES VISITES DES UNITES DE REHYDRATATION ORALE (URO) ET DES CENTRES DE RECUPERATION ET D'EDUCATION NUTRITIONNELLE (CREN) DE LA REGION DE DAKAR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 095-SE, August 2, 1991, 7p.

This report briefly outlines the results of visits to ORT units and health centers carrying out nutrition activities in the Dakar region of Senegal. Among the problems identified in ORT units were lack of supervision, inadequate ORS supplies, improper diarrhea case management by health workers, and lack of materials to demonstrate ORS preparation. Problems with nutritional surveillance activities involved lack of proper equipment and lack of an information, education and communication strategy for nutrition activities at the regional level. The author's recommendations to correct these problems are also presented.

- 5502 Sene, M. UTILISATION DU MATERIEL EDUCATIF DANS LES STRUCTURES DE SANTE AU NIGER. Arlington, VA, Management Sciences for Health, PRITECH Project, RAD 024-SA, December 10, 1990, 21p.

The objective of this qualitative study was to identify factors explaining the under- or non-utilization of health education materials by health workers in Niger and to identify ways to improve educational activities within the health system. Observations and interviews revealed that most educational activity is taking place in maternal and child health centers. Education is therefore not reaching two important target groups (fathers and grandmothers), nor is it reaching mothers who do not attend these centers. Recommendations for the improvement of health education efforts focus on five areas: health worker training, educational techniques, research, reorganization of health education activities within the health system, and use of other communication channels, such as mass media.

- 1691 Sene, M.; Diop, M. UTILISATION DU MATERIEL EDUCATIF PAR LES PERSONNELS SOCIO-SANITAIRES AU SENEGAL. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-024-SA, September 1992, 26p.

This report presents the results of a study of Senegalese health workers to determine why they use educational materials, and how many workers are not using materials. External factors that affected use included supply of materials and lack of training in their use. The main attitudinal factor identified was that workers put more importance in curative rather than preventative services.

- 1658 Shepard, D. GUIDELINES FOR PROJECTING COSTS AND DEVELOPING BUDGETS FOR SELECTED PRIMARY HEALTH CARE ACTIVITIES. Report prepared for the PRITECH Finance Advisory Group meeting, Washington, DC, December 1983.

These guidelines were prepared to project costs of selected primary health care interventions for which technical assistance is sought, particularly ORT and childhood immunizations.

- 2429 Shipp, P. THE POTENTIAL APPLICATION OF PERSONNEL MANAGEMENT TECHNOLOGY IN THE GOVERNMENT HEALTH SERVICES IN NEPAL. Arlington, VA, PRITECH, February 1986, 30p.

This report investigates the feasibility of various recommendations for the improvement of personnel administration in Nepal's health services system. Such obstacles as lack of drive, poor skills, and lack of commitment among health care workers, poor living conditions in rural areas, low pay, lack of equipment, and poor supervision are discussed.

- 4138 Shipp, P.; Lebow, R. H. THE STRENGTHENING OF PUBLIC HEALTH TRAINING FOR MIDDLE LEVEL HEALTH MANAGERS IN NEPAL. Arlington, VA, Management Sciences for Health, PRITECH, HSS 085-NE, March - April, 1990, 17p.

Decentralization and regionalization of all government services in Nepal have created increasing numbers of officials whose responsibilities include significant public health management functions. However, very few of these individuals have had formal public health training. The authors present their assessment of the training needs and recommendations for meeting these needs.

- 4137 Smith, B. FAMILY PLANNING STRATEGY SEMINAR, GUATEMALA CITY, GUATEMALA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 083-GU, March 1990, 8p.

A Family Planning Strategy Seminar was held on March 29, 1990, to begin work on expanding family planning programs as part of the solution to Guatemala's high risk birth problem. A summary of the proceedings, conclusions reached, and recommendations for further action are presented. Also available in Spanish.

- 5215 Smith, B. HEALTH SYSTEMS MANAGEMENT PROJECT -- FINAL EVALUATION. Arlington, VA, Management Sciences for Health, PRITECH, HSS 106-GU, August 9, 1991, 34p.+app.

This report presents an evaluation of the administrative reform portion of the amended Health Systems Management Project of USAID/Dominican Republic. These reforms focused on finance, budgeting, information management and personnel. The evaluator concluded that this project was very effective overall despite time constraints and the economic situation in the country. Greatest achievements were noted in the areas of budgeting, accounting, information systems, and personnel. He recommends that short term technical assistance be continued over the next several months to ensure progress and that a follow-on project be carried out within a longer time frame.

- 3110 Smith, B.; Bridwell, D. INSTITUTIONAL ANALYSIS/EVALUATION; HEALTH SYSTEMS MANAGEMENT PROJECT; DOMINICAN REPUBLIC. Arlington, VA, Management Sciences for Health, PRITECH, HSS 002-DR, September 15, 1988, 35 p. + app.

The consultants' objectives were to "measure outputs accomplished under the [Health Systems Management] Project against projections, ...analyze and comment on the institutional reform process, ...make judgements regarding the degree of institutionalization and the probability of sustaining accomplishments and...identify additional management areas into which the project might extend." Areas focused upon include finance, MIS, and personnel. This document is also available in Spanish.

- 5000 Smith, B. THE NICARAGUAN HEALTH SECTOR: A PRELIMINARY ANALYSIS. Arlington, VA, Management Sciences for Health, PRITECH Project, HSS 091-NC, June 27, 1991, 45p.+app.

In this report the author presents an analysis of the health services and health situation in Nicaragua. He reviews morbidity and mortality data as well as describing the health system's, donors' and private sector's response to managing the country's vast health needs. Overall, the system has made considerable gains despite economic and political constraints. Based on the data analysis, the author makes recommendations for improving the health system.

- 0300 Smith, W. A. ECUADOR CHILD SURVIVAL PROGRAM. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-96, March 1985, 37p. +app.

- 0174 Smith, W.; Louis, T.; Ferraz-Tabor, L. PAKISTAN NATIONAL CDD PROGRAM: COMMUNICATION REVIEW. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-267, July 1987, 39p.
- 0477 Smith, W. A.; Arce, R.; Pizarro, D.; et al. PRITECH DIARRHEAL DISEASE CONTROL: MEXICO STRATEGY ASSESSMENT REPORT. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-48, June 20, 1985, 79p.
- 1848 Smith, W.; Verzosa, C.; Whitesell, P.; et al. TALKING WITH MOTHERS ABOUT DIARRHEA: A WORKSHOP FOR PHYSICIANS. PRITECH, 1988, 24 p.

This manual was designed to be used in workshops that provide physicians with the necessary skills and knowledge to improve communications with the mothers of diarrhea patients. A Leader's Guide, providing trainers with full instructions on leading workshops, accompanies the manual.

- 0596 Snyder, J. EPIDEMIOLOGY OF DIARRHEAL DISEASE IN NEPAL. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-94, January 21, 1986, 10p. +app.
- 5838 Snyder, L. MEASLES VACCINATION: OPPORTUNITY TO REDUCE MEASLES-ASSOCIATED DIARRHEA. Arlington, VA, Management Sciences for Health PRITECH Project, April 1992, 20p.

Children who are weakened by measles are more susceptible to malnutrition, diarrhea, and other infectious diseases. CDD programs can help increase measles-vaccination rates by identifying "missed opportunities" (that is, clinic visits when vaccinations can be made), mobilizing communities through IEC, and improving case management of measles-associated diarrhea. The paper includes a copy of the WHO missed opportunities for immunization survey.

- 5027 Spain, P. CDD IN KENYA: POLICY AND RESEARCH ON HOME TREATMENT. Arlington, VA, PRITECH Project, PRITECH Occasional Operations Paper, June 1991, 9p.

This paper consists of three separate papers on various aspects of the CDD program in Kenya. The author reviews results from the 1990 WHO/CDD household case management survey in Kenya and discusses the implications of the findings for the Kenyan communications strategy. In addition, he reviews the findings of the Fluid and Foods Panel, which recommended the use of uji, a locally available porridge, for the home management of diarrhea.

- 0076 Spain, P. L. COMMUNICATIONS PLAN FOR DIARRHEA DISEASE CONTROL IN GHANA. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-255, August 1988, 32p. +app.

- 3391 Spain, P.; Saade, C. PROPOSAL FOR LIMITED INTERVENTION IN JORDAN. Arlington, VA, Management Sciences for Health, PRITECH, STP 009-JO, January 7-20, 1989, 8p.

Jordan's efforts in diarrheal disease since 1980 are briefly reviewed and potential threats to continued progress are outlined. Two areas are recommended for A.I.D. involvement: medical education (for doctors, nurses, and pharmacists) and promotion of Aquasol (ORS) among physicians and pharmacists.

- 5875 Staats, I. B. ETHIOPIAN PROSTHETICS AND ORTHOTICS NEEDS ASSESSMENT. Arlington, VA, Management Sciences for Health, PRITECH, HSS-104-ET, February 25, 1992, 20p. +app.

This paper reports on a visit to Ethiopia to assess the availability and accessibility of prosthetics, orthotics, and rehabilitation services. The report concludes that the need for rehabilitation services is extensive and chronic, despite the government's interest and the efforts of NGOs. Distribution of devices and services is limited to urban areas, and training and compensation for rehabilitation personnel is inadequate.

- 2120 Steinwand, R. W. IS THE PRITECH COUNTRY REPRESENTATIVE MECHANISM A MODEL FOR THE FUTURE? A VIEW FROM THE FIELD.

Arlington, VA, Management Sciences for Health, PRITECH Occasional Operations Papers, April 1993, 23p.

The PRITECH Project has relied on long-term technical assistance -- country representatives -- to implement its country CDD programs. Country representatives worked closely with the CDD teams of local ministries of health and other donors, and were supported by regional PRITECH offices and the PRITECH Washington office. This paper describes the management issues surrounding the use of country representatives in a centrally funded aid project.

2211 Stone, R.; Bwaratsi, K. TRAINING OF TRAINERS: YAOUNDE, CAMEROON. Arlington, VA, PRITECH, 1988, 108p.

From May 2 to May 13, 1988, two Training of Trainers (TOT) workshops were held in Yaounde, Cameroon. In response to the Ministry of Health's emphasis on decentralized ORT training, the workshops were intended to instruct doctors and nurses in the planning, implementation and evaluation of training activities so that they in turn can conduct ORT training sessions for their counterparts at the provincial level. This report provides a background description of the TOT workshops, their agenda and list of objectives, recommendations, evaluations by both TOT groups, training handouts (Annex A) and an outline of the TOT sessions (Annex B).

0242 Tayback, M. THE NATIONAL ORAL REHYDRATION PROGRAM OF PAKISTAN: CONSIDERATIONS FOR AN EXPANDED EFFECTIVE INITIATIVE. Arlington, VA, Management Sciences for Health PRITECH I Project, DC 57, March 1985, 9p.

2506 Teixeira, L. SCHOOL MEAL PROGRAM OPERATIONS MANUAL - CARE DOMINICANA. Arlington, VA, PRITECH, December 1987, 55p.

This report presents a distribution and monitoring system designed for the School Meal Program in the Dominican Republic. All of the necessary procedures and accompanying forms are included; the author suggests that they would be equally useful in maternal child health programs with little or no adaptation necessary.

2855 TEMA: ALIMENTACION Y NUTRICION. Sucre, Bolivia, CARITAS, Proyecto Mejoramiento Infantil, with technical assistance from PRITECH, January 1988, 127p.+ app.

The theme of this training course, conducted by CARITAS, Bolivia and PRITECH, was feeding and nutrition. The training course for health care workers was carried out under the auspices of the Infantile Improvement Project.

2856 TEMA: VIGILANCIA NUTRICIONAL. Cochabamba, Bolivia, CARITAS, Proyecto Mejoramiento Infantil, with assistance from PRITECH, May 1988, 145p.+ app.

Nutrition monitoring is the theme of this training course carried out by CARITAS, Bolivia with technical assistance from PRITECH, under the auspices of the Infantile Improvement Project.

6442 Tetanye, E.; Efobi, E.; Hernandez, E. et al WATER SUPPLEMENTATION IN AFRICAN SUB-SAHARAN RURAL AREAS: EVIDENCE FOR A USELESS AND HARMFUL PRACTICE FOR EXCLUSIVELY BREASTFED 0-6 MONTH OLD INFANTS OF FAR-NORTH CAMEROON. Report prepared for the Cameroon CDD Program and PRITECH, 1991, n.p.

This document discusses evidence against the high-risk practice of water supplementation for exclusively breastfed infants of far-north Cameroon. It recommends that CDD programs discourage this practice, even in hot and arid regions.

5834 Tetanye, E.; Takang, E. E. B. WATER SUPPLEMENTATION IN EXCLUSIVELY BREASTFED INFANTS AGED 0-6 MONTHS IN HOT AND ARID AREAS: THE CASE OF MERI-MAROUA IN CAMEROON. Arlington, VA, Management Sciences for Health, PRITECH, RAD-051-CA, April 28, 1992, 41p. +app.

50 infants under 6 months of age in Maroua, Cameroon, were divided into 2 groups. One group was exclusively breastfed while the other received supplemental water. There was no significant difference in urine output or specific gravity between the 2 groups. Thus there is no benefit to water supplementation. And as all water samples from the infants' homes were contaminated with enteropathogens, water supplementation may be dangerous.

4260 Tift, S. SUPPLY, DISTRIBUTION, AND PROMOTION OF ORAL REHYDRATION SALTS (ORS): ANALYSIS OF THE BOLIVIAN MOH SYSTEM. Arlington, VA, Management Sciences for Health PRITECH Project, ICP-059-80, August 1992, 23p. +app.

Although there is no shortage of ORS at the national level, inadequacies of the Bolivian public distribution

system result in shortages at the district level. This results in district hoarding and inefficient use. This report presents recommendations for improvement, including exploring other distribution systems (such as the private sector), training district workers in inventory management, and understanding motivational and behavioral issues behind ORS use. Available in English or Spanish.

0108 Tisa, B. REPUBLIC OF DJIBOUTI: PRITECH TECHNICAL ASSISTANCE TO UNICEF. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-153, September 1986, 14p. +app.

0130 Tomaro, J. B.; Arce, R. INCAP AND THE PRIVATE SECTOR: COLLABORATION IN THE FIELD OF ORAL REHYDRATION THERAPY. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-206, October 1986, 11p.

4376 Tomaro, J. LOCAL PRODUCTION OF ORAL REHYDRATION SALTS. Arlington, VA, PRITECH, May 1990, 12p.

This document discusses various issues to consider when undertaking local production of ORS. Among the most important factors are the government's position on ORS production, the actual demand for ORS, the costs of production, the area's production capability, and the marketing and promotion strategy.

2915 Tomaro, J. B. PLAN FOR IMPLEMENTING THE EPIDEMIOLOGICAL TRAINING AND LABORATORY SUPPORT COMPONENTS OF THE BIOMEDICAL RESEARCH PROJECT: INDIA. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-094-IA, October 1992, 23p. +app.

The Biomedical Research Project, a USAID project in India, has been revised. The focus of the project is on training epidemiologists and lab technicians, and ensuring overall sustainability of the effort. This report details the plans for implementing the field epidemiology and laboratory support components.

2558 Torres, D. XV PERUVIAN PEDIATRICS CONFERENCE - CIUDAD TRUJILLO, PERU. Arlington, VA, PRITECH, May 1988, 7p.

This trip report presents an overview of the author's lectures during the XV Peruvian Pediatrics Conference. Issues covered include ORT, clinical aspects of diarrhea and dehydration, the pathophysiology of acute diarrhea, and intravenous therapy.

0146 Toumi, L.; Jemai, Y.; Murray, T.; et al. MID-TERM EVALUATION REPORT OF THE FAMILY PLANNING PROGRAM IN RWANDA. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-25, May 1985, 111p.

6037 Toure, C. PRATIQUES ALIMENTAIRES ET MALADIES DIARRHEIQUES DES ENFANTS DE 0 A 5 ANS AU MALI. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-113-MA/RAD-040-MA, August 4, 1992, 49p. +app.

To record current attitudes and practices about diarrheal disease in Mali, 20 grandmothers and traditional healers and 40 mothers participated in focus groups. This report outlines the results of the focus groups, during which participants were asked about current knowledge and perceptions of diarrhea, feeding practices, and treatment of diarrhea.

5870 Trott, M. A. PROPOSED FOLLOW-UP ACTIVITIES FOR GUATEMALAN ORGANIZATIONS WORKING WITH TRADITIONAL BIRTH ATTENDANTS. Arlington, VA, Management Sciences for Health, PRITECH, HSS-098-GU, August 2, 1991, 20p. +app.

This report describes the activities following up a High-Risk Birth Seminar, held in Guatemala City in 1990. The participants showed an interest in having meetings to discuss Guatemalan programs working with TBAs and high-risk births.

0485 Tsu, V. D. DESIGN OF EVALUATION PLAN FOR ORAL REHYDRATION PROGRAM IN THAILAND. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-66, August 8, 1985, 3p. +app.

0213 Tucker, B. OPERATIONAL PROGRAM GRANT: CHILD SURVIVAL PVO NETWORK-1. Arlington, VA, Management Sciences for Health

- 1724 Tucker, H.; Jansen, W. CEREAL BASED ORAL REHYDRATION SOLUTION AND THE COMMERCIAL SECTOR: CONFERENCE PROCEEDINGS, MARCH 27, 1992. Arlington, VA, Management Sciences for Health PRITECH Project, ADG-006-IR, September 1992, 23p. +app.

These conference proceedings summarize the presentations and discussions of a PRITECH-sponsored conference held in Arlington, VA, in March 1992. Participants at the conference, including representatives from public and commercial sectors, discussed the advantages and concerns regarding the commercial manufacture of cereal-based ORS. The participants identified questions for future research and created guidelines for ORS producers interested in manufacturing cereal-based ORS. The volume includes 5 background papers prepared for the conference.

- 1608 Unda, R. F. THE ABUSE OF ANTIDIARRHEAL AGENTS AND ANTIMICROBIAL DRUGS IN THE TREATMENT OF INFANT DIARRHEA IN MEXICO. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-229, March 1987, 66 p.

This report is a supplementary study that intends to illustrate the widespread abuse of antidiarrheal and antimicrobial agents. No scientific protocol or epidemiological method was followed. Nonetheless, the evidence informally gathered here should suffice to encourage the use of epidemiological methods to formally evaluate the severity and extent of the problem in Mexico.

- 1603 Unda, R. F. REPORT ON THE ANALYSIS OF CURRENT INSTRUCTION OF DIARRHEAL DISEASE MANAGEMENT WITHIN THE DIFFERENT MEDICAL PROGRAMS OF THE NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO (UNAM). PRITECH, DC 229, March 1987.

This report describes the medical school curriculum at the National Autonomous University of Mexico, with emphasis on instruction of diarrheal disease management. The author points out the flaws in the current instruction and makes recommendations for improvement.

- 0417 Vigano, O. CURSO DE TECNOLOGIA EDUCATIVA, COSTA RICA. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-242, November 1988, 15p. +app.

- 1194 Walker, D.; Schneider, R. THE FEASIBILITY OF A FEMALE VILLAGE DEPOT HOLDER SUB-PROJECT IMPLEMENTED BY THE MINISTRY OF SOCIAL WELFARE AND WOMEN'S AFFAIRS. PRITECH, SS 172, 19 November-15 December 1982, 22 p.

This consultancy report details an analysis of the feasibility of using a community-based system to distribute family planning and ORT products in Bangladesh. The consultant team found the profit-motivated system as potentially viable.

- 2532 Walker, D.; Schneider, R. SMP COMMUNITY BASED SALES PROJECT - DRAFT PROJECT PLAN, 1988-1992. Arlington, VA, PRITECH, November 1987, 58p.

This report summarizes observations and recommendations resulting from a trip to Bangladesh, where technical assistance was provided to the Social Marketing Program SMP/Bangladesh. Assistance focused on "the design of the women's entrepreneurial village sales agent program to sell contraceptives, ORS, and other supplies to remote rural villages."

- 5652 Wall, D.; Prins, A. CARE WORKSHOP ON LINKING DIARRHEAL DISEASE CONTROL AND WATER SUPPLY AND SANITATION PROGRAMS (SEGOU, MALI). Arlington, VA, WASH Project and Arlington, VA, PRITECH Project, February 1992, 64p.

This report describes the preparation for and proceedings of a five day workshop which took place in 1991 in Segou, Mali with programming staff from CARE and other private voluntary organizations working in West Africa. The goals of the workshop were 1) to initiate a comprehensive approach to diarrheal disease control in water supply and sanitation (WS&S) and child survival projects through appropriate educational measures; and 2) to promote exchanges between WS&S and child survival projects based on experiences in hygiene education and ORT promotion. A final evaluation of the workshop by the participants is also provided.

- 0395 Walsh, J. INDIA HEALTH SECTOR ANALYSIS. Arlington, VA, Management Sciences for Health PRITECH Project, SS-20,

February 8, 1985, 70p.

- 5980 Waters, H. RAPPORT DE MISSION: REVUE DU PROGRAMME NATIONAL DE LUTTE CONTRE LES MALADIES DIARRHEIQUES. Arlington, VA, Management Sciences for Health PRITECH Project, ECP-01-BF, July 31, 1992, 13p.

This short report summarizes the findings and recommendations of a review of the Burkina national CDD program. It focuses on program management issues and ORS distribution. The reviewers found that the program had several years of instability resulting in the lack of a strategic plan. ORS distribution in Burkina Faso is mainly through public channels, which do not always have steady supply or adequate stocks. The report concludes with recommendations for future action.

- 1725 Waters, H. USAID/RABAT ASSISTANCE FOR CDD: RECOMMENDATIONS FOR INTERVENTION, MOROCCO. Arlington, VA, Management Sciences for Health PRITECH Project, ACP-031-MO, March 1993, 17p.

This report identifies the rationale for a USAID-sponsored CDD program in Morocco. Such a program should include technical assistance, support of health education and ORS promotional activities, and equipment support to health facilities and training centers.

- 4777 Welsby, S. PAKISTAN DIARRHOEA TRAINING UNIT PROGRAMME TRAINERS' GUIDE AND TRAINING MATERIALS, VOLUME I AND II. Arlington, VA, Management Sciences for Health, PRITECH, SUP 044-PA and SUP 075-PA, February 1991, 42p.+app.

In 1989, the Pakistan CDD Program established diarrhea training units at 10 major teaching hospitals. These DTUs provide model diarrhea management on both an inpatient and an outpatient basis. This report contains the trainer's guide and training materials for health worker training at the DTUs.

- 4016 Wertheimer, A. I.; Roberts, R. DRUG STUDY FINDINGS AND RECOMMENDATIONS: PHILIPPINES. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-051-PA, September 1992, 14p. +app.

Two separate reports are combined to provide comprehensive comments on the Philippines national drug policy, the generic drug legislation, and the preparation of the medicines and medical supplies logistics study. All aspects of the logistics study, including the selection, procurement, distribution, and use of medicines and supplies, are discussed and directions for future research are suggested.

- 4505 White, A.; Saade, C.; Northrup, R. THE PRIVATE SECTOR ROLE IN CONTROL OF DIARRHEAL DISEASES, INDIA. Arlington, VA, Management Sciences for Health, PRITECH Project, PCP 007-1A, November 7, 1990, 33p.

This study examines three possible approaches to engaging the private sector in diarrheal disease control in India: 1) reaching private practitioners to improve diarrhea treatment; 2) educating and mobilizing the public through private organizations and agencies; and 3) enhancing the commercial marketing of ORS as a mechanism to reach both private practitioners and mothers/consumers.

- 5998 White, A.; Casazza, L.; Endsley, S. ZAMBIA. Arlington, VA, Management Sciences for Health PRITECH I Project, SUP-183-2A, August 1992, 10p. +app.

This paper reports on a PRITECH visit to the Zambian national CDD program to evaluate case-management practices. The team found poor case management due to overworked staff and lack of resources. Although ORS availability had improved, there were still shortages at many health centers. The team recommended establishing decentralized DTUs, approaching private physicians and traditional healers to participate in trainings, and encouraging local ORS production.

- 1438 White, K. "WE COULDN'T HAVE ASKED FOR MORE!" LESSONS LEARNED IN INFORMATION DISSEMINATION. Arlington, VA, Management Sciences for Health, PRITECH Occasional Operations Papers, March 1993, 9p.

This short paper describes the activities of the PRITECH Information Center. It describes the Center's services -- responding to information requests, producing the monthly acquisitions list and a newsletter, and documenting the project's activities -- and their impact on users.

- 1438 White, K. "WE COULDN'T HAVE ASKED FOR MORE!" LESSONS LEARNED IN INFORMATION DISSEMINATION. Arlington, VA, Management Sciences for Health PRITECH Occasional Operations Papers, March 1993.

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- 6051 WHO. ENQUETE SUR LA MORBIDITE ET LA PRISE EN CHARGE DES CAS DE DIARRHEE. Arlington, VA, Management Sciences for Health PRITECH Project, RAD-067-CA, August 1992, n.p.

This paper presents the results of a household survey conducted in Cameroon as part of an evaluation of the national CDD program. The survey sought to investigate diarrhea incidence for children under age 5 and caregiver practices for feeding and treatment, including use of ORS, fluids, and drugs.

- 0603 Wilensky, G. R. ALTERNATIVE FINANCING AND DELIVERY OF HEALTH SERVICES IN TURKEY. Arlington, VA, Management Sciences for Health PRITECH I Project, SS-95, October 1985, 14p.

- 2581 Wittet, S. HEALTH SURVEY ANALYSIS AND PLANNING FOR FUTURE STUDIES - DJIBOUTI. Seattle, WA, Program for Appropriate Technology in Health, for PRITECH, July 1986, 12p. + app.

This consultancy was conducted on behalf of PRITECH to analyze the results of health personnel KAP studies, to assist with further KAP studies, and to analyze data on child nutrition.

- 2531 Wolfheim, C. CCCD - COTE D'IVOIRE: MASS COMMUNICATIONS PROGRAM. Arlington, VA, PRITECH, July 1987, 5p.+ appendices.

This report outlines a strategy for a long-term mass communications program in the Ivory Coast, which emphasizes the use of radio messages. Attached is the proposed strategy in French, as well as the texts of radio spots promoting vaccination.

- 1639 Wolfheim, C. THE GAMBIA NATIONAL PROGRAM FOR THE CONTROL OF DIARRHEAL DISEASES: AN ASSESSMENT OF CURRENT ORT EDUCATIONAL MATERIALS AND KAP OF VILLAGE HEALTH WORKERS. Arlington, VA, Management Sciences for Health PRITECH I Project, DC 202, January 1987, 17 p. +app.

This study, which was conducted by PRITECH in collaboration with the Health Education Unit of the Department of Medical Services in The Gambia in 1986, was carried out as part of The Gambian National Program for the Control of Diarrheal Diseases. It had as its objectives: (1) to assess the level of knowledge and practices of the use of Sugar-Salt-Solution (SSS) by Village Health Workers (VHW) and Traditional Birth Attendants (TBA); (2) to evaluate the understanding and use of current educational materials as needed; (3) to investigate the problems associated with the availability and use of materials on ORT and diarrhea and how best to address these problems, and (4) to begin developing new materials as needed.

- 0295 Wolfheim, C. SINE-SALDUM RURAL HEALTH PROJECT EDUCATIONAL MATERIALS DEVELOPMENT, KAOLACK, SENEGAL. Arlington, VA, Management Sciences for Health PRITECH I Project, DC-85, May 1985, 9p.

- 2576 Wolfheim, C. TWO PART STUDY: GAMBIAN VHW/TBA UNDERSTANDING AND PRACTICE OF THE USE OF SUGAR-SALT-SOLUTION; EVALUATION OF UNDERSTANDING AND USE OF CURRENT EDUCATIONAL MATERIALS ON ORT AND ASSESSMENT OF NEEDS FOR NEW MATERIALS. The Gambia, PRITECH Consultancy, August/September 1986, 25p. + app.

The first part of this study addresses the level of knowledge and practice of ORS by Village Health Workers and Traditional Birth Attendants. The second part concerns the current (1986) level of availability and use of print materials on ORS and diarrhea management, problems with their use, and ways to address these problems.

- 2062 Wright, N.; Mathurospas, W.; Varavithya, C. RURAL PRIMARY HEALTH CARE EXPANSION PROJECT: FINAL EVALUATION REPORT. Arlington, VA, Management Sciences for Health PRITECH I, SS-157, December 1987, 36 p. +app.

This evaluation of the Thailand Rural Primary Health Care Expansion Project found that while the level and quality of training of health workers was good under the circumstances, the transfer of health information to villagers remains weak. The report recommends further research to discover why this problem exists and why villagers are by-passing the PHC system.

- 4901 Yayasan Indonesia Sejahtera. FINAL REPORT: STUDY OF PHARMACEUTICAL PRESCRIPTION PATTERNS DURING OUTBREAKS OF DIARRHEA, INDONESIA. Arlington, VA, Management Sciences for Health PRITECH Project, SUP-022-1h, October 1992, 5p. +app.

This report describes how YIS assisted the Indonesian subdirector for CDD in conducting a study of pharmacy prescription patterns during outbreaks of diarrhea. Guidance was provided in designing the survey instrument, using Rx data entry software, analyzing the data, and producing descriptive tables and graphs. The results of the study are provided in Indonesian.

- 1026 Zardo, H.; Fay, S. G. REVIEW AND ASSESSMENT OF THE LAPROMED FACILITY, GUATEMALA CITY. Arlington, VA, Management Sciences for Health PRITECH Project, HSS-114-GU and HSS-116-GU, February 1993, 12p. +app.

This report provides recommendations to convert Lapromed, a local production facility at the University of San Carlos. The authors conclude that Lapromed is an adequate facility for ORS manufacturing, which could eventually produce 2 million sachets a year. The authors also recommend that policy issues surrounding ORS production and distribution be clarified and that systems be set in place for sustainable production.

- 0518 Zukin, P. GUIDE D'EVALUATION DE LA FAISABILITE D'UNE ORGANISATION DE MAINTIEN DE LA SANTE (OMS). Arlington, VA, Management Sciences for Health PRITECH I Project, SS-80, 1985, 117p.

ANNEX 2
FINANCIAL TABLES

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH II)
TABLE I – PROJECT EXPENDITURES BY PROJECT YEAR
 End of Project – 10/31/93

PROGRAM CATEGORY	PY 1	PY 2	PY 3	PY 4	PY 5	PY 6	CUMULATIVE
	EXPENDITURES	EXPENDITURES	EXPENDITURES	EXPENDITURES	EXPENDITURES	EXPENDITURES	EXPENDITURES
I. COUNTRY PROGRAM SUMMARY							
Sustained Country Programs ^(a)	20	1,700,646	2,120,131	2,758,700	3,526,144	1,641,261	11,746,902
Intermittent Country Programs	7,092	280,109	269,710	340,739	357,693	810,671	2,066,014
Ad Hoc Country Programs	14,974	21,883	2,560	13,670	266,232	425,729	745,048
Promotion of Country Programs	309	14,565	41,287	39,307	842	0	96,310
Country Program Development ^(b)	24,230	313,724	112,319	274,505	542,850	214,094	1,481,722
Supervision/Program Management	0	29,931	42,913	27,845	21,701	3,813	126,203
Evaluation of Country Programs	0	0	0	51,867	104,323	18,594	174,784
SUB-TOTAL	46,625	2,360,858	2,588,920	3,506,633	4,819,785	3,114,162	16,436,983
ii. SYSTEMS SUPPORT ACTIVITIES							
Health Systems Support	115,354	730,630	584,908	438,639	434,348	275,946	2,579,825
Supported Conferences	126,062	79,596	125,539	72,575	68,061	0	471,833
SUB-TOTAL	241,416	810,226	710,447	511,214	502,409	275,946	3,051,658
III. RESEARCH AND DEVELOPMENT							
Research & Development	61,190	52,143	172,861	425,693	692,721	182,649	1,587,257
Info Collection/Dissemination	0	166,797	196,238	309,500	259,200	232,233	1,163,968
Sponsored Conferences	0	0	0	216,775	13,374	0	230,149
SUB-TOTAL	61,190	218,940	369,099	951,968	965,295	414,882	2,981,374
IV. PROJECT MANAGEMENT							
Advisory Groups	0	15,446	34,691	320	82,775	0	133,232
Project Management Costs	552,075	1,771,637	2,006,313	1,779,447	2,804,876	1,641,953	10,556,301
SUB-TOTAL	552,075	1,787,083	2,041,004	1,779,767	2,887,651	1,641,953	10,689,533
UNALLOCATED COSTS	20,618	77,309	(89,257)	106,684	(136,017)	24,927	4,264
GRAND TOTAL ^(c)	921,924	5,254,416	5,620,213	6,856,266	9,039,123	5,471,870	33,163,812
TOTAL FUNDS AVAILABLE							33,835,072
TOTAL VALUE OF CONTRACT							35,928,767

^(a) Sustained Country Programs is a total of Local Program Costs, Field Office Support and Sustained Country Programs, including Regional Programs.

^(b) Includes ORS commercialization activity.

^(c) Cumulative expenditures include disbursements of \$32,730,598 and accruals of \$433,214 as of 10/31/93.

11/10/93

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH II)

TABLE II – SUMMARY PROJECT EXPENDITURES

End of Project – 10/31/93

Program Area	Expenses Thru 11/30/93			Estimated Accruals			Total Expenses Thru 11/30/93			Total Expenditures
	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	
I. COUNTRY PROGRAMS										
A. Sustained	3,443,627	5,263,903	2,952,998	10,558	75,816	0	3,454,185	5,339,719	2,952,998	16,436,983
B. Intermittent	487,849	792,860	676,344	0	50,000	58,961	487,849	842,860	735,305	11,746,902
C. Ad Hoc	84,701	618,347	0	0	42,000	0	84,701	660,347	0	2,066,014
D. Program Promotion	96,310	0	0	0	0	0	96,310	0	0	745,048
E. Program Development										96,310
1. Country Strategies	672,969	11,545	0	0	0	0	672,969	11,545	0	684,514
2. Commercialization	771,472	8,347	0	17,389	0	0	788,861	8,347	0	797,208
F. Supervision	126,203	0	0	0	0	0	126,203	0	0	126,203
G. Evaluation	172,784	0	0	2,000	0	0	174,784	0	0	174,784
II. SYSTEMS SUPPORT										
A. Health Systems Support	954,624	1,413,082	158,579	33,540	20,000	0	988,164	1,433,082	158,579	3,051,658
B. Supported Conferences	465,383	0	0	6,450	0	0	471,833	0	0	2,579,825
III. RESEARCH AND DEVELOPMENT										
A. R and D Activities	1,537,257	0	0	50,000	0	0	1,587,257	0	0	2,981,374
B. Information Dissemination	1,119,968	0	0	44,000	0	0	1,163,968	0	0	1,587,257
C. Sponsored Conferences	230,149	0	0	0	0	0	230,149	0	0	1,163,968
IV. PROJECT MANAGEMENT										
A. Advisory Groups	133,232	0	0	0	0	0	133,232	0	0	10,689,533
B. Project Management Costs										133,232
MSH	8,170,183	0	0	2,500	0	0	8,172,683	0	0	8,172,683
SUBS	2,363,618	0	0	20,000	0	0	2,383,618	0	0	2,383,618
V. UNALLOCATED	4,264	0	0	0	0	0	4,264	0	0	4,264
TOTAL EXPENSES BY SOURCE	20,834,593	8,108,084	3,787,921	186,437	187,816	58,961	21,021,030	8,295,900	3,846,882	33,163,812
TOTAL EXPENSES BY PERIOD		32,730,598			433,214			33,163,812		
CUM. EXPENSES BY SOURCE	20,834,593	8,108,084	3,787,921	21,021,030	8,295,900	3,846,882	21,021,030	8,295,900	3,846,882	33,163,812
CUM. EXPENSES BY PERIOD		32,730,598			33,163,812			33,163,812		
CUM. FUNDING BY SOURCE	20,945,118	8,837,797	4,052,157				20,945,118	8,837,797	4,052,157	33,835,072
CUM. FUNDING BY PERIOD		33,835,072						33,835,072		
SURPLUS/DEFICIT BY SOURCE	110,525	729,713	264,236				(75,912)	541,897	205,275	671,260
SURPLUS/DEFICIT BY PERIOD		1,104,474						671,260		

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TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH II)
TABLE III – SUMMARY PROGRAM EXPENDITURES
End of Project – 10/31/93

Program Area	Expenses Thru 11/30/93			Estimated Accruals			Total Expenses Thru 11/30/93			Total Expenditures
	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	
I. COUNTRY PROGRAMS										
A. Sustained										
Burkina Faso	13,105	220,843	319,200	0	0	0	13,105	220,843	319,200	553,148
Cameroon	6,049	1,047,336	0	0	5,000	0	6,049	1,052,336	0	1,058,385
Indonesia I	0	0	544,366	0	0	0	0	0	544,366	544,366
Indonesia II	597,054	0	0	3,000	0	0	600,054	0	0	600,054
Kenya	794,336	0	567,276	0	0	0	794,336	0	567,276	1,361,612
Mali	0	963,096	0	0	28,580	0	0	991,676	0	991,676
Mexico	469,644	84,328	0	0	5,000	0	469,644	89,328	0	558,972
Niger	0	702,550	0	0	3,000	0	0	705,550	0	705,550
Pakistan	57,958	0	979,644	0	0	0	57,958	0	979,644	1,037,602
Philippines	21,337	0	372,566	0	0	0	21,337	0	372,566	393,903
Uganda	13,758	614,700	169,946	0	17,236	0	13,758	631,936	169,946	815,640
Zambia	656,407	0	0	558	0	0	656,965	0	0	656,965
CESA Region	343,865	0	0	0	0	0	343,865	0	0	343,865
Central America	303,079	0	0	7,000	0	0	310,079	0	0	310,079
Sahel Region	167,035	1,631,050	0	0	17,000	0	167,035	1,648,050	0	1,815,085
Subtotal – Sustained	3,443,627	5,263,903	2,952,998	10,558	75,816	0	3,454,185	5,339,719	2,952,998	11,746,902
B. Intermittent										
Bolivia	345,581	79,092	0	0	0	0	345,581	79,092	0	424,673
Chad	4,521	0	0	0	0	0	4,521	0	0	4,521
Gambia	0	276,515	0	0	0	0	0	276,515	0	276,515
Honduras	29,365	0	0	0	0	0	29,365	0	0	29,365
Madagascar	0	0	385,365	0	0	58,961	0	0	444,326	444,326
Mauritania	100,597	0	0	0	0	0	100,597	0	0	100,597
ORANA	0	437,253	0	0	50,000	0	0	487,253	0	487,253
Senegal	0	0	290,979	0	0	0	0	0	290,979	290,979
Tunisia	7,785	0	0	0	0	0	7,785	0	0	7,785
Subtotal – Intermittent	487,849	792,860	676,344	0	50,000	58,961	487,849	842,860	735,305	2,066,014
C. Ad Hoc	84,701	618,347	0	0	42,000	0	84,701	660,347	0	745,048
D. Program Promotion	96,310	0	0	0	0	0	96,310	0	0	96,310
E. Program Development										
E.1 Country Strategies	672,969	11,545	0	0	0	0	672,969	11,545	0	684,514
E.2 Commercialization	771,472	8,347	0	17,389	0	0	788,861	8,347	0	797,208
Subtotal – Program Dev't	1,444,441	19,892	0	17,389	0	0	1,461,830	19,892	0	1,481,722

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH II)

TABLE III – SUMMARY PROGRAM EXPENDITURES

End of Project – 10/31/93

Program Area	Expenses Thru 11/30/93			Estimated Accruals			Total Expenses Thru 11/30/93			Total Expenditures
	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	R & D/H	Mods	Del. Ord	
F. Supervision	<u>126,203</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>126,203</u>	<u>0</u>	<u>0</u>	<u>126,203</u>
G. Evaluation	<u>172,784</u>	<u>0</u>	<u>0</u>	<u>2,000</u>	<u>0</u>	<u>0</u>	<u>174,784</u>	<u>0</u>	<u>0</u>	<u>174,784</u>
SUBTOTAL – COUNTRY PROGRAMS	<u>5,855,915</u>	<u>6,695,002</u>	<u>3,629,342</u>	<u>29,947</u>	<u>167,816</u>	<u>58,961</u>	<u>5,885,862</u>	<u>6,862,818</u>	<u>3,688,303</u>	<u>16,436,983</u>
II. SYSTEMS SUPPORT										
A. Health Systems Support	954,624	1,413,082	158,579	33,540	20,000	0	988,164	1,433,082	158,579	2,579,825
B. Supported Conferences	<u>465,383</u>	<u>0</u>	<u>0</u>	<u>6,450</u>	<u>0</u>	<u>0</u>	<u>471,833</u>	<u>0</u>	<u>0</u>	<u>471,833</u>
SUBTOTAL – SYSTEMS SUPPORT	<u>1,420,007</u>	<u>1,413,082</u>	<u>158,579</u>	<u>39,990</u>	<u>20,000</u>	<u>0</u>	<u>1,459,997</u>	<u>1,433,082</u>	<u>158,579</u>	<u>3,051,658</u>
III. RESEARCH & DEVELOPMENT										
A. R & D Activities	1,537,257	0	0	50,000	0	0	1,587,257	0	0	1,587,257
B. Information Dissemination	1,119,968	0	0	44,000	0	0	1,163,968	0	0	1,163,968
C. Sponsored Conferences	<u>230,149</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>230,149</u>	<u>0</u>	<u>0</u>	<u>230,149</u>
SUBTOTAL – RESEARCH & DEVT	<u>2,887,374</u>	<u>0</u>	<u>0</u>	<u>94,000</u>	<u>0</u>	<u>0</u>	<u>2,981,374</u>	<u>0</u>	<u>0</u>	<u>2,981,374</u>
IV. PROJECT MANAGEMENT										
A. Advisory Groups	133,232	0	0	0	0	0	133,232	0	0	133,232
B. Project Management Costs										
B.1 MSH	8,170,183	0	0	2,500	0	0	8,172,683	0	0	8,172,683
B.2 SUBS	<u>2,363,618</u>	<u>0</u>	<u>0</u>	<u>20,000</u>	<u>0</u>	<u>0</u>	<u>2,383,618</u>	<u>0</u>	<u>0</u>	<u>2,383,618</u>
SUBTOTAL – PROJECT MANAGEMENT	<u>10,667,033</u>	<u>0</u>	<u>0</u>	<u>22,500</u>	<u>0</u>	<u>0</u>	<u>10,689,533</u>	<u>0</u>	<u>0</u>	<u>10,689,533</u>
V. UNALLOCATED	<u>4,264</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4,264</u>	<u>0</u>	<u>0</u>	<u>4,264</u>
GRAND TOTAL BY SOURCE	<u>20,834,593</u>	<u>8,108,084</u>	<u>3,787,921</u>	<u>186,437</u>	<u>187,816</u>	<u>58,961</u>	<u>21,021,030</u>	<u>8,295,900</u>	<u>3,846,882</u>	<u>33,163,812</u>
GRAND TOTAL BY PERIOD		<u>32,730,598</u>			<u>433,214</u>		<u>33,163,812</u>			<u>33,163,812</u>