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BURMA ORT COUNTRY ASSESSMENT REPORT

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Preface

This assessment report encompasses three separate but related parts. The first section evaluates the child mortality situation in Burma as well as the policy and strategy of the government in its efforts to establish diarrheal disease control activities and expand health services to under-served areas. The second section reviews the system of ORS supply and distribution within the country. The third section describes the current public communications channel system and reveiws the Central Health Education Bureau's efforts to provide communications support.

It should be noted that the findings of this report are based on data of uncertain quality, rendering the conclusions somewhat tentative.

CONSULTANT REPORT:

Review of Selected Diarrheal Disease Mortality Reduction Components of the SRUB's Community Health Program

May 7-18, 1984

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The PRITECH PROJECT
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REVIEW OF SELECTED DIARRHEAL DISEASE MORTALITY REDUCTION COMPONENTS OF THE SRUB's COMMUNITY HEALTH PROGRAM

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I. Executive Summary

A three-person team visited Burma for two weeks to review the diarrheal disease mortality reduction components of the Socialist Republic of the Union of Burma's (SRUB) community health care program. This report covers the child mortality and diarrheal disease situation in Burma and a description and analysis of the Ministry of Health's (MOH) policies, strategies, programs, and plans with special attention to training, management and health information systems, and, in a very brief fashion, research.

The overall conclusion is that infant and child mortality in Burma has lessened considerably and that diarrhea deaths, while still important, are relatively infrequent at the village level except in a vulnerable subset of the 0-5 child population. Given this situation, a home-based approach to diarrhea case management may be preferable to reliance on packets which, instead, could be reserved for serious cases and vulnerable children. The overall program of the MOH is well conceived but the child mortality reduction potential would be improved by measles vaccinations and better coverage of pregnant women with tetanus toxoid. Some areas of training could be expanded, for example, private general practioners, and others need more emphasis on the nutritional aspects of ORT. Township and Rural Health Center management of diarrheal disease could be strengthened including better monitoring systems. Continued research on safe, effective, acceptable, low cost home-based solutions is needed.

The MOH is commended for its progress-to-date and its sound plans. Recommendations for further progress are made to the SRUB and USAID/Burma is encouraged to continue its support of the MOH's efforts and to consider, if requested, helping expand and strengthen various child mortality reduction efforts of the SRUB, especially measles and other vaccination programs, and, perhaps improving perinatal health through support for research.

II. Child Mortality and Diarrheal Disease in Burma in the 1980s.

Infant and child mortality in the 0-5 age group in Burma remains significant accounting for about 30% of all deaths in the population (see Reference 3 notes). Table 1 shows five community-based studies of child mortality, diarrhea mortality, and diarrhea incidence rates. References 1 and 3 show two independent estimates of infant (0-1) and child (1-4) mortality in the 1982-83 calendar years. These data plus discussions with Burmese professionals suggest that Burmese IMR is now about 40/1000 live births. Child mortality is best estimated at about 9/1000 children 1-4 years of age. Reference 4 shows 1976 data illustrating that IMR has been dropping rapidly over the last 5-8 years. Other vital statistics (Reference 5, not shown) show a steady decline in IMR from 274 in 1940 to the 50's in 1975 suggesting that the national figure of 40 is not a serious underestimate. Reference 3, the key study, gives a 95% confidence interval of 31-50 around their national estimate of 40. The same study reports a 95% c.i. of 6.6-10.8 for children 1-4 years.

Table 1

SUMMARY OF KEY COMMUNITY-BASED STUDIES ON
CHILD MORTALITY AND DIARRHEA

Reference	Year of Study	Mortality Rates 0-1	Mortality Rates 1-4	Diarrhea Mortality Rates 0-1	Diarrhea Mortality Rates 1-4	Rank as cause of Mortality	Rank as cause of Morbidity	Estimated Annual Incidence Rate of Diarrhea/100 children 0-1	Estimated Annual Incidence Rate of Diarrhea/100 children 1-4	Estimated Annual Incidence Rate of Diarrhea/100 children 0-5	Estimated No. of Episodes/Child/Year
1	1982-83	39	5								
3	1982	40 Total 45 Rural 15 Urban	9 9 5	4.5	1.1	3	2	32	15	18	0.18
4	1976	97 Rural 70 Urban									
7	1981									216	2.16
8	1983			0	0			76	113	103	1.03

NOTES ON REFERENCES

1: Sentinal midwife reporting system for entire year

3: Randomized household morbidity and mortality survey during dry season

4: Randomized perinatal mortality study in Rangoon and nearly rural areas in dry season

7: Randomized household surveys in peri-urban area of Rangoon during dry season

8: Randomized one year longitudinal study 40 km from Rangoon with daily diarrheal surveillance

While national figures are impressive, Burma still has disparities in infant mortality between rural and urban areas (45 rural, 15 urban), between ecological zones (59 in dry zone, 22 in delta, and between well served areas and non-served areas (see Table 2 below). Age 1-4 mortality varies similarly, to IMR 99.4 rural, 5.7 urban and 5.6 delta to 12.7 in the hilly zone). 1-4 mortality is also much higher in underserved areas.

Table 2

(Adapted from Table 39, Reference 3)

Demographic Indicators by Level of Service

Level of Service / Rate	1	2	3
IMR	33	38	64
1-4 MR	7	8	16

Level 1: Basic Health Workers & VHW's

Level 2: Basic Health Workers only

Level 3: Services of any kind equal to or more than an one hour walk away.

While these data are striking, the frequency of a 0-5 death in a village of 1000 people is not common - only 2 rural children would die in a year extrapolating from Reference 3 data. Other health matters may be perceived as more important by the villagers themselves.

Reference 3 is the only recent study from which the diarrhea-related 0.5 mortality may be calculated. Calculations by Dr. Lesar (see Ref. 3 notes) estimate that diarrhea mortality rates were approximately 4.5 for the 0-1 group and 1.1 for the 1-4 group. Given some variation in the data, this represents 9-11% of the infant mortality and 9-13% of the 1-4 mortality. Reference 3, Table 47 is shown in part below in a modified fashion. It clearly shows that not only is diarrhea an important cause of death but that other conditions also merit attention, such as the category "fever with skin symptoms" which may be mostly measles.

Table 3

RANK 0-1	RANK 1-4	CAUSE OF DEATH	NO. OF DEATHS* 0-1	NO. OF DEATHS* 1-4	PROPORTIONATE MORTALITY 0-1	PROPORTIONATE MORTALITY 1-4
1	1	"Other" Fever	13	13	.18	.24
3	2	Pneumonia	7	8	.09	.15
3	3	Diarrhea	7	7	.09	.13
3	-	Tetanus	7	-	.09	-
4	3	Fever with Skin Symptoms	5	7	.07	.13
2	-	Perinatal Causes	11	-	.15	-

* 74 child deaths 0-1 and 54 in 1-4 groups.

Tetanus and "fever with skin symptoms" may be vaccine-preventable disease. "Other" fever may include malaria, septicemias, and meningoencephalitis.

Three community - based studies have estimates of the annual incidence rate of diarrhea/100 children (see Table 1). There is a very wide variation

between them (18-216). Reference 3, cited previously as the best source of mortality data, has a very low incidence using a two week recall method. This might reflect under-reporting. The high estimate is also a recall survey in a peri-urban area. Reference 8 is the most carefully done incidence survey and was longitudinal in nature lasting one year and there was daily diarrheal surveillance. It found 103 case/100 children/year in a rural population 40 km from Rangoon. In conversations with Burmese professionals, there is an opinion that diarrhea is higher in more crowded peri-urban areas. If so the 216 figure in Reference 7 may be reasonable. For planning, the figure of 1.03 episodes of diarrhea/child/year is recommended until further information becomes available.

Reference 3, even with low-incidence rates, gives a picture of the morbidity burden on young children. Table 4, adapted from Reference 3, Table 40 shows the following.

Table 4

RANK		COMPLAINT	NUMBER OF COMPLAINTS		PROPORTIONATE MORBIDITY	
0-1	1-4		0-1	1-4	0-1	1-4
1	1	"Other" Fever	44	121	.44	.40
2	2	Diarrhea	18	28	.18	.09
3	3	Measles	7	22	.07	.07
3	8	Malaria	2	10	.02	.03

"Other" fevers certainly include upper respiratory infections and various viral diseases plus, most likely, undiagnosed malaria.

Hospital data (see Ref. 5 and notes) confirm the importance of

malaria and diarrhea in township hospital admissions (12.9% and 8.7% respectively in 1978) and in mortality (diarrhea 11.6% and malaria 9.7% in 1978). 1975 data from Rangoon Children's Hospital, a referal hospital, showed diarrhea as the number are cause of admissions at 21%. Reference 7, contains the Proceedings of a Research Seminar on Acute Diarrhea in childhood held in Rangoon in 1982. Among other information, it shows how appropriate treatment for diarrhea has dropped the case-fatality ratio (CFR) from over 20/100 in 1940 to less than 2/100 in the 1970's in Rangoon hospitals. Although not well documented, CFR in all Burma hospitals is thought to be over 7/100 even now. If true, this suggests that considerable improvements can still be made in hospital case management for diarrhea.

In summary, the infant and young child mortality rates in Burma now are remarkably low especially relative to the GNP and family income. The recent positive trends suggest the SRUB policies and programs in social welfare and health plus the availability of adequate food supplies for the majority of the population are producing beneficial health effects. Even so, considerable disparities still exist between regions and areas covered by health services and those un-covered. The high rates in unserved areas are striking and may reflect the benefits of the governments approach to health care delivery; may reflect a previous selection process favoring non-remote areas; or most probably both. Continued expansion of the delivery system is important and is underway with SRUB, AID, and UNICEF financial support.

Diarrhea is still an important cause of death and morbidity but malaria, pneumonia, perinatal causes, measles, and tetanus are also important. Measles and tetanus are vaccine-preventable. The annual incidence rate of diarrhea needs more study. Best estimates are about 1.03 episodes/child/year for

children 0-5 years. Diarrhea is still an important cause of hospital admissions, a costly burden to the MOH. Case fatality rates in townships hospitals may still be higher than desirable.

III. History, Current Policies and Strategies and Current Programs and Plans of the SRUB for Reduction in Diarrheal Disease Mortality through 1986

a. History

Food and water-borne diseases have long been recognized as major health problems in Burma and case management has been improving steadily since the mid-1970's following important hospital-based studies by Professor U Tin U at Rangoon Children's Hospital (see previous section). Diarrheal disease was not specifically targeted in the People's Health Plan I (1977-8 to 1981-82). In 1979, a field research project was started to study the feasibility, acceptance, and effectiveness of ORT when given by mothers in village settings (Ref.8). The Peoples Health Plan II (1982-86), prepared in 1981, highlighted diarrhea as the number one problem and set a specific objective "To bring down the Case Fatality Rate (CFR) of diarrheal diseases among the general population from 16 to 8 percent. Achievement of this objectives depends largely on the effective utilization of oral rehydration salts (ORS)". This was to be accomplished by a considerable expansion of the community health system and refresher training of community health workers and auxiliary midwives financed mostly by SRUB, USAID, and UNICEF (see AID Project Paper, Primary Health Care II - No. 482-0004).

b. Current Policies and Strategies

The SRUB is aware, interested in, and committed to improving diarrheal disease control in Burma and to expand health services to underserved areas. Government policies favor reduction in mortality from acute diarrhea

through expanded use of ORT and through reduction in incidence of diarrheal disease through epidemiological surveillance, operations research, health education, and improvement of environmental sanitation. ORT was recently declared a household item. At this point in time, the MOH strategy is to use ORS packets for "first-line" treatment of all diarrhea if available. If ORS packets are not available, home-based solutions are the treatment of choice.* The MOH desires to have ORS packets accessible throughout the country as soon as possible and to resupply them to hospitals, clinics,and health workers and through cooperative stores. At the present time, MOH strategies do not include training of private general practioners. However, 4,000 registered traditional practioners are to be given refresher training which could include clinical aspects of diarrhea. The strategy does not, at present, involve non-governmental organizations (NGO's) such as the Buremse Medical Society, the Maternal and Child Welfare Society, or the nursing society in educational programs for CDD or the promotion of sales of ORS through commercial outlets. However, the MOH is planning to use the cooperative stores as points of sale (details in following sections). Monks, schools, or youth groups are not currently involved in CDD. Research programs in support of ORT and CDD are part of the overall approach.

* A recent study (Reference 9) at the Rangoon Infections Diseases Hospital found that while ORT plus breast-feeding during diarrhea had no adverse effect on the child with diarrhea, boiled-rice feeding plus ORT during diarrhea led to more frequent stools, more volumious stools, and a longer duration of diarrhea. However, the children did retain more fluid during diarrhea and gain more weight afterward. As such, ORT plus boiled rice is safe even through mothers may complain about the stool volume and frequency.

c. Program and Plans

The MOH has no specific Control of Diarrheal Disease (CDD) program but CDD is part of the national Disease Control Program (DCP) and the Community Health Care Plan. At the central level, CDD is located in the Department of Health (DOH) and managed by the Deputy Director (DD) for Rural Health Centers/MCH/School Health. There is a Diarrheal Disease Committee within the DOH chaired by the Deputy Director for Disease Control and including the DD/Epidemiology, DD/ Rural Health, assistant Director Nutrition, and an epidemiologist from the Central Epidemiological unit. There appears to be close contact within the DOH but less so with the Directorates of Medical Education or Medical Research or other ministries. At the State levels there is a disease control unit and a specialist advisor sanctioned to advise the state/division health director. At the township, a disease control unit is sanctioned. There is no separate CDD budget in PHP II nor any line item for ORS. However, AID and UNICEF are major contirbutors of ORS (details in following section). Laboratory support for diarrheal disease etiology identification exists in class A laboratories (100 & bedded hospitals, the National Health Laboratory in Rangoon, and the branch in Mandalay.

Actual service delivery for ORT in the public health system is part of basic health services offered by the MOH through township hospitals, Rural Health Centers (RHC's) Rural Health Subcenters (RHSC's) and by community-based Volunteer Health Workers (VHWs) including Community Health Worker (CHW's), auxiliary midwives (AMWs), traditional birth attendents (TBAs), and traditional medical practioners (TMPs). Priority attention is to be given to diarrhea and other problems areas. The Project Paper 482-0004 describes the basic health and community health systems. By the end of

PHP II, the government expects to have 58.3% of all villages covered by a CHW or AMW who will be trained in MCH and CDD, especially ORT. This will greatly expand coverage (defined as up to a one hour walk or 2 1/2 miles) of RHCs which is estimated to be about 30%. Even so, one study found that annual use of RHCs is only 29 visits per 100 persons, although-if considering only people within a 2½mile radius-this rises to 96 visits per 100 persons (see ref. 10 table 13)."

MOH national estimates are 0.62 visits per person per year in 1982/83 including both clinic attendance and personal health care contacts during village visits (Ref 11). Since many visits may be repeat visits, the proportion of the population using the MOH system is much less. In any event, self-care, private doctors, traditional practioners and others are important sources of care. Even in areas having Volunteer Health Workers, the VHWs are used to sickness care less than the self, the private doctor, or the traditional practioner (Ref 3, Table 43). A number of areas for improvement in the services delivery program were found from evaluations in recent years including need for improved supervision, heavy reliance on commodity inputs by doctors, and spotty health information systems. Most of these are being addressed through the new USAID project. However, information is lacking on the incidence of diarrhea by administrative unit, on the utilization of various health workers by the population for diarrhea, and on the use of ORT. Improved immunization coverage, improved nutrition surveillance and education, and expanded biomedical and operations research on diarrhea and ORT would be helpful. Currently about one-half of doctors work in private practice. They are an importance source of care in small towns and would benefit from up-to-date information on diarrheal disease, nutrition, and other MCH subjects.

In addition to service delivery through the community health plan, the Central Epidemiology Unit (CEU) and Special Disease Control Program Units (SDCP) carry out diarrheal control measures including (1) case detection, reporting, and registration, (2) surveillance, early case detection, laboratory, and stool/rectal swab collection, (3) epidemiologic investigation and epidemic control, and mass cleaning campaigns.

d. Training Activities

The MOH plans an ambitious program of in-country training of basic and community health workers in PHP II as shown in Table 5 below.

Table 5

Type of Training	1982/83	1983/84	1984/85	1985/86	Total
Country Training					
- Clinical and Program Implementation					
° Doctors	54	56	56	57	223
° BHWs	1360	1430	1420	1450	5660
° CHWs	4100	4100	4100	4100	16400
° AMWs	1100	1100	1100	1100	5600
° TBA's	3000	3000	3000	3000	12000
° TMPs	1210	975	920	895	4000
° Village Tract Councils					5592
° Township Peoples Councils					140

Regarding inter-country training courses for senior managers, clinicians, and laboratory specialists, the MOH has had four staff attend the WHO course in clinical aspects of diarrhea, two attend the WHO National Program Managers Course and about 45 attend the WHO Mid-level Managers Course. During 1978-81, about 230 of the township level professional staff received training that included clinical aspects of diarrheal disease control and some information on program implementation.

Table 6 shows the type, duration, pertinent course content, and responsible institution/trainer for courses having CDD content for selected persons. Under-graduate and post-graduate medical, public, health, and nursing education is not shown. Conversations with the Directorate of Medical Education suggest that under-graduate and post-graduate medical education in clinical aspects of diarrhea is satisfactory. There are no current plans to retain the over 4500 general practioners in private practice or to train traditional medical practioners in diarrheal disease.

Table 6

Type of CDD Training Courses, Duration, and Curricula

Type of Training Course and Trainees	Duration (hours of CDD training)	Place of Training	Course Content	Training Institution/Trainer
I. Clinical and Program Management				
- doctors	2	Rangoon	C P	Department of Health
- BHWs	3	Township	C	Township Medical Officers (TMO)
- CHWs	3	Township and RHC	C	TMO, Health Assistant (HA)
- AMWs	3	Township	C	TMO, Lady Health Visitor
- TBAs	3	Village	C-H	Midwife of RHC

C = clinical

P = program implementation

H = home - based solutions only

The Health Assistants at RHCs, while trained in clinical aspects, are not specifically trained in diarrheal program management although they usually manage RHC's potentially serving a population of 20,000. Both Village Tract Council and Township Peoples Council Training courses will include some material on the CDD program and ORT. An evaluation of the volunteer health workers (CHWs, AMWs) carried out in 1982 (Ref 12) concluded that 60% of VHWs had average to excellent performance in a variety of tasks (knowledge and skills tested together) but there was a wide range of performance for a variety of reasons. Diarrheal disease and ORT were not tested. Nutritional surveillance was, unfortunately, one of the weaker areas.

The MOH has serious problems providing sufficient training materials and the lack of training materials for CDD was noted at all levels even though many teachers made their own materials and had students copy them. The review of PHP I also found that curricula and training methods could be selectively improved. Faculty lack funds to follow-up their students which could help them improve their training programs.

d. Management and Health Information System Activities

Diarrheal disease management is mostly through the community health program which is carried out through the central Department of Health, the State/Division health departments, the township health office, and the Rural Health Centers. At each level, there are elected decision-making bodies who have authority, to some degree, over the health officials.

An important level of management is the township where the Township Medical Officer (TMO) is in charge. The TMO usually has a Township Health Officer (THO) and 1-2 clinical doctors who mostly work in the 50-bed hospital. He has two clerical staff for administrative matters. There

are nurses and others assigned to the hospital. Many TMOs have been in position for many years. The MOH is retraining them but the cycle takes about six years. The new AID project provides for State/Divisional Training Teams to improve the training process. At this point in time, many TMOs are less knowledgeable about clinical or implementation aspects of diarrheal disease and ORT than desirable for CDD management.

Within the township, supervision of RHCs, SCs, and community workers is seriously hampered by lack of staff, vehicles, and a low petrol allowance. Most RHCs are managed by Health Assistants (HAs) trained in the 1950's and 1960's. The MOH is retraining them and upgrading other workers to HAs but this is a time-consuming and costly process. They are unlikely to be inadequately skilled in CDD program management. The evaluation (Ref 12) cited earlier found that supervisory skills in general of RHC staff needed improved.

Regarding health information systems activities, the MOH has improved its surveillance of child mortality by adding a sentinal lay reporting system using MW/AMWs. Routine mortality information is processed from hospital data and from registered deaths. Under-reporting is serious. At the present time, diarrhea morbidity is routinely reported monthly by the basic health system as total visits for diarrhea (0-5 age group) and new visits (0-5 age group). The number of diarrhea cases given ORS is also reported. This information is just starting to be reported. Data reaches Rangoon about three months after the reporting period. Hospitals report the number of admissions and deaths for diarrhea.

The MOH now has a Central Epidermiological Unit for reportable diseases including diarrhea. The plan calls for surveillance of cholera and diarrhea by CHWs who are to report to local health authorities, especially if many cases occur. At present, there is no routine sentinal surveillance for

diarrheal disease. Instead, special community, based studies and hospital admission data have been used. Selected critical interventions have been identified for use in monitoring and evaluation (Ref ____, page 3) but are not clearly reported at present.

f. Research Activities

The Department of Medical Research (DMR) is the responsible organization for medical research in Burma and carries out an active diarrheal diseases research program including epidemiological studies (Ref. 7, Ref. 8), etiological studies, bacterial and vial research, and pathophysiological studies. They have conducted studies on ORT as well including clinical studies, operations research, use of drugs in diarrhea, nutrition and diarrhea, and neonatal diarrhea. The Department of Health and the Department of Medical Education also carry out surveys and selected clinical studies. Financial support for these studies comes from SRUB, WHO, UNICEF, and AID, among others.

IV. Analysis of Selected Diarrheal Disease Mortality Reduction Components of the SRUB's Community Health Program

A. Policies, Strategies, and Plans

Although the MOH strategy includes early treatment of diarrhea in the home using locally available resources, they continue to stress the need for considerable donor-supported packets or pre-mixes (see Fabricant report). The recent one year longitudinal study (Ref. 8) clearly supports the wisdom of a home-based approach as the "front-line" strategy with packets being used for dehydration and perhaps for children with frequent multiple episodes. The longitudinal study found that while overall annual incidence of diarrhea was 1.03 episodes/child/year, 48% of the children had no episodes at all and 11% of the children accounted for nearly one-half of all episodes. In

this study, there were no diarrhea deaths at all and ORS had no beneficial effect on weight gain except in the 11% of children having repeated bouts. The authors concluded that "In situations in our study villages where diarrhea prevalence and mortality were low, most episodes were mild and multiple episodes per child were not common, provision of ORS in the home to be readily available at all times for all cases for administration by mothers would have little discernible impact on mortality and morbidity. In such situations, provision of standard ORS should be aimed at the vulnerable group, i.e., children ill with more severe diarrhea or children with multiple episodes of diarrhea in whom ORS has been shown to reduce mortality and morbidity, and in whom there is now found to have a demonstrable positive nutritional effect" (Ref. 8, page 3). Similar findings are found in the North Okkslapa study (Ref. 7, epi section, No.3) where high incidence rates usually were found in children 0-3 in low income, crowded homes and where domestic animals were kept in the home area. Reference 11, carried out by the same authors as the longitudinal study, found that 25% of children admitted with diarrhea in Rangoon Children's Hospital died even after a successful rehydration. For children, dying after successful rehydration, malnutrition was the most important complication followed by septicemia and broncho-pneumonia. About 50% of neonates, a third of children in the 1-12 months age group and a third of children in the 1-4 age group admitted to the hospital had concurrent illnesses.

While interpretations of these studies may vary, it seems that under conditions of relatively low IMR, 1-4 MR, and diarrheal incidence existing in most parts of Burma now, that the vast majority of children are not suffering mortality or adverse nutritional consequences from diarrheal disease which, if they have diarrhea at all, are mild, single episodes.

On the other hand, there appears to be a subset of children, probably 10-20%, who have frequent diarrhea, malnutrition, and other illnesses (many probably were low birth weight). These children will benefit from ORS but also need special care that focuses on frequent surveillance for illness; vaccination with measles and DDT; nutrition education to the families; in some cases, food supplements; home visits for hygiene and sanitation; and community awareness of the need to help these families. These conditions, if valid, suggest that the strategy of early feeding of home-made nutritious soups in adequate volumes at the onset of diarrhea is safe in Burma now with ORS packets as a pack-up system for children with repeated episodes of diarrhea or dehydration.

It does seem that the MOH could expand its delivery strategy to include other sources of care, particularly the western-trained general practioners in private practice, pharmacists, school teachers, youth groups and so forth. The traditional medical practioners need training in diarrheal disease as well. The strategy also needs to give an enhanced role to the use of health communications through mass media (see Fox report). Regarding child mortality reduction, measles and tetanus need improvements. Malaria remains a serious problem.

Regarding planning, the MOH could write up a specific plan of operation for CDD although their present approach is working quite satisfactorily. The current PHP II community health plan emphasing expansion of the volunteer health system is very sound regarding CDD activities as actual utilization of the government's health system is low as a percentage of visits to all sources of care.

B. Training

The emphasis on training of basic and community health workers is sound. Our observations of and discussions with a limited number of BHWs and VHWs found that their knowledge of and skills in use of ORS packets was satisfactory but that they seemed to be less aware of the nutritional aspects of diarrhea including the consequences of diarrhea and the need for frequent feeding during and after the diarrheal episode.

Given the evaluation of the CHW and AMW carried out in 1982, it seems desirable to carry out a survey of knowledge and skills of various workers in diarrheal disease and ORT before changing any training materials. Manuals could be revised depending on the findings of this assessment.

The MOH is now emphasizing management at the township and RHC level and have adopted WHO materials in CDD but we did not have adequate discussions to have a clear understanding of the extent and quality of the training. Given the six year cycle for re-training of township health staff, it seems that more might be done to upgrade skills in diarrheal disease more quickly. Given the estimated case Fatality Rates at small hospitals, training of medical staff in clinical aspects of diarrhea seems desirable. As mentioned earlier, consideration should be given to training of private and government medical practioners, perhaps through the Burma Medical Association.

Training materials for CDD are insufficient at all levels and support of external agencies could be sought to fill this need.

Although improvements are still to be made in some areas, progress in training is impressive overall.

C. Management and Health Information Systems

Management of diarrheal disease activities could be improved by strengthening of the township health office organization, staffing, and skills. This potentially important management unit appears to concentrate most of its activities on curative outpatient care and hospital-oriented work. Given the objectives and targets of PHP II, the staffing pattern of the Township Health Office may need a manpower and job analysis. The same analysis might be worthwhile for the RHC itself. Even when information for monitoring of planned activities is available, it was not clear that staff were comfortable using that information for decision-making. This suggests that further strengthening of townships and RHCs in the planning and monitoring of diarrheal disease and other child mortality reduction programs would be helpful.

Data gathering for child mortality and diarrheal disease is improving considerably at the present time. However, information on access to ORT and ORS packets on a population basis is not currently available (Examples of indicators might be "% time packets available in program areas," "% population with access to packets," "% population aware of packets", and so forth). Data on use of ORS and/or ORT is not readily available even though the register books now record "treatment given" for diarrhea. The "treatment given" could be anti-diarrheals or antibiotics rather than ORS or advice on home-based ORT. For "treatment given", analysis is not yet done on the % of 0-5 visits with diarrhea given ORS or home-based ORT. This health information data could be useful at some point in the future.

D. Research

This area was only briefly covered but our impression was that research capability and activity is impressive in Burma. Given the need

need for a home-based strategy in Burma, research on safe, effective, acceptable, and low cost home-based food combinations is highly important.

V. Pertinent Activities of Other Donors in Diarrheal Disease Mortality Reduction

WHO, Australian Development Assistance Bureau (ADAB), and UNICEF are active in diarrheal disease areas. WHO provides training materials, training courses, and research grants in support of diarrheal disease. ADAB is assisting with a village water supply project and has expressed interest in additional primary health care activities.

UNICEF is by far the most active of other donors in support of diarrheal disease. UNICEF is supporting supplies, training, and equipment costs for one-half of the PHC II community health activities. They also support village water supply expansion, latrine construction, assistance to Burma Pharmaceuticals for ORS, and selected vaccines and anti-malarials. Their contribution is $6.6 million during 1982/83 to 1985/86. They are hoping to provide technical cooperation in logistics and have a project support communications staff person in Rangoon from their own budget.

VI. Conclusions and Recommendations

A. Conclusions

1. The Socialist Republic of the Union of Burma has made remarkable progress in lowering its infant and child mortality rates especially relative to its GNP and family income. This impact reflects progressive policies and programs in public health and social welfare, a generally adequate nutrition situation, and high female literacy among other variables. The diarrhea mortality rate is also low as is the diarrhea incidence rate. Even so, there is a considerable variation in child mortality (and probably diarrhea mortality and incidence) in different parts of the country.

2. Ministry of Health policies regarding reduction of diarrheal disease mortality are excellent and the overall strategy to rapidly expand the peripheral work force is sound. The MOH might reconsider its "packet-oriented" strategy given the infrequent deaths from diarrhea at the village level where, for example, in a village of 1000 people, a diarrhea death in the 0-5 age group might occur once each 4-5 years. Instead, a home-based strategy focusing on continued feeding, encouraging fluids, and teaching mothers to understand when diarrhea will become dangerous would be satisfactory for those children who have a single, mild episode occasionally. For that subset of children who have multiple episodes of diarrhea, often are malnourished or have another infection, ORS packets should be available but additional medical attention may also be needed.

3. For improved coverage of the population, training of other sources of care such as private general practioners, pharmacists, registered traditional medical practioners, and others would be useful.

4. Health communications support needs greatly enhanced in support of diarrheal disease control activities.

5. MOH strategies for child mortality education would be greatly enhanced by effective measles immunizations programs and improved coverage with TT vaccine for pregnant women to prevent tetanus neonatorum.

6. The training plan is soundly conceived overall and is ambitious in scope. For peripheral workers (VHWs and BHWs) more emphasis on the nutritional aspects of diarrhea would be useful. For doctors, more training of small hospital staff would be helpful. For TMO's and HAs, more skills in diarrheal disease management would be helpful. Training materials are lacking due to financial constraints.

7. Considerable progress has been made in strengthening diarrheal diseases planning and monitoring under difficult staffing and financial constraints. Further strengthening of township and RHC planning and implementation in diarrheal disease management would be helpful as would an improved information system on access and ORT use.

8. Research capability and activity was briefly reviewed and continued testing of home-based solutions for safety, effectiveness, acceptability, and costs are important.

B. Recommendations to the SRUB

1. Continue to analyze your current strategies regarding reduction of diarrheal disease mortality in Burma. Consider some site visits to other relevent programs.
2. Evolve a system that focuses on early case finding and special care for the vulnerable children in the population.
3. Consider training of private general practioners, perhaps through the Burma Medical Association, and other important sources of care. Secure donor support for more training materials.
4. Strengthen health communications support for diarrheal disease mortality reduction.
5. Consider how to add measles immunizations and strengthen coverage of pregnant women with tetanus toxoid.
6. Consider additional training of selected staff.
7. Consider some information system strengthening and look at manpower needs, especially at township and RHC level.
8. Continue and perhaps expand research on home-based solutions.

C. Recommendations to USAID/Burma

1. Support the above recommendations through the existing project PHC II (482-0004), PRITECH, and other sources, as appropriate.
2. Consider, if interest exists in the MOH, additional support for immunizations, especially measles and TT in pregnancy. An epidemiological and planning review might be useful.
3. Consider supporting other causes of child mortality reduction such as malaria, accidents and perinatal mortality including research. Reviews of these might be useful.

ANNEX A

REFERENCES AND NOTES

Reference No. 1: Vital Statistics Rates by States and Divisions, 1982-83 based on Midwife Reporting.

This reporting system is based on use of midwives to report on vital events. The accuracy of this reporting system was checked (see Ref.2) and compared to a 1982 survey and were slightly higher than survey results. Date by State and divisions are attached.

Reference No. 2: Khin Maung Thwin, "A Study on the Development of Demographic Indicators in Burma", Health Information Services, Rangoon" May 1983.

Reports survey data from Ref. 3 and compares it to the midwife reporting system for selected areas. The results are shown below.

1982	(IMR mw	46
	(IMR survey	34
1982	(1 - 4 MR mw	7.2
	(1 - 4 MR survey	5.6

Reference No. 3: Khin Maung Thwin, "Household Survey on Morbidity, Mortality and Health Care" Evaluation Study No. 1, Health Information Services, Rangoon, July, 1983.

This study, financed by USAID, was a cross-sectional household survey carried out in April of 1982 during the dry season. The data was collected from 12 townships selected at random from the four geographic regions of the country. Twelve thousand households with a total of 65218 persons were interviewed. Vital events and cause of death information were for the previous 12 months. Morbidity information were for the last 14 days prior to the date of collection.

Reference No. 1

VITAL STATISTICS RATES BY STATES AND DIVISIONS (1982-83)

(Based on MW Reporting)

STATE/DIVISION	POPULATION	L.B.R.	S.B.R.	I.M.R.	1-4yr. C.M.R.	D.R.	Abortion Rate	M.M.R.
Pegu Division	509689	24.1	12.1	27.7	6.1	4.9	39.1	0.3
Magwe Division	508770	27	15	63	6	5	18	0.4
Mon State	621447	26.5	9.6	24.2	4.0	4.3	32.5	0.7
Chin State	173476	23.7	9.7	45.9	5.3	5.0	16.5	-
Rakhine State	337573	25.6	12.5	35.7	2.6	2.5	24.3	0.7
Kachin State	94992	21.2	19.3	46.6	6.4	4.6	24.3	-
Irrawaddy Division	393417	23	12	43	7	5	41	1
Tenasserim Div.	199046	25.5	7.5	36.7	4.2	5.7	52.1	0.6
Rangoon Division	571775	19	12	34	5	3	30	0.9
Kayah State	28949	49.9	9.7	30.1	7.9	5.5	29.8	1.4
Shan State	159443	23.3	15.1	39.6	7.4	4.9	34.8	1.1
Sagaing Division	376969	22	13	51	4	3	22	0.6
Karen State	160041	26.7	6.1	25.8	2.4	2.5	42.2	0.2
Mandalay Division	232106	23.4	7.2	35.6	5.1	5.1	31.7	0.7
T O T A L	4367693	24.1	11.5	38.6	4.9	4.4	30.9	0.6

References and Notes

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The mortality data is attached for both rural and urban areas. Rural IMR is higher than urban IMR (45 to 15) and rural IMR is lowest at 22 in the delta zone and highest at 59.1 in the dry zone. Rural 1-4 MR is 9.4 as compared to 5.7 in urban areas. Rural 1-4 MR varies from a low of 5.6 in the delta to 12.7 in the hilly zone.

The mortality rates were also analyzed by level of service available to the population. Table 39 shows the variation by populations having access to basic health workers (mid-level) only, basic health workers plus village health workers, and no services (at least a one hour walk from any service.) The findings are as follows:

	BHW + VHW	BHW only	None
IMR	33	38	64
1 - 4 MR	7	8	16

0-5 mortality as a % of all dealths

A. 0 - 1 age group

$$\frac{40.5}{1000} \times \frac{\text{CBR}}{26.7} = 1.08 \text{ deaths}$$

B. 1 - 4 age group

$$\frac{8.7}{1000} \text{ in age group} \times 94 \text{ children} \times 0.5/1000 \text{ pop} = 0.82 \text{ deaths}$$

$$T \quad \underline{1.9 \text{ deaths}} \text{ in 0-5}$$

CDR = 6.3, therefore $\frac{1.9}{6.3}$ = 30% of all deaths

The diarrhea mortality rate based on my calculations is about 4.5/1000 for children 0-1 and 1.1/1000 for children 1-4 using the populations in each age group at the time of the survey. These calculations are not exactly true incidences as the estimated mid-year population was not used. However, variation is not significant for purposes of this report. Calculations

are as follows:

0-1	1-4
7 diarrhea deaths in last 12 months	7 deaths
1539 children 0-1	6150 children 1-4
DMR 0-1 $\frac{7}{1539} \times 1000 = 4.5$	DMR 1-4 = $\frac{7}{6150} \times 1000 = 1.1$

Diarrhea plus dysentary accounted for 11% of the 0-1 deaths as did pneumonia and tetanus fever accounted for 18% and "certain"perinatal causes 15%. Fever with rash accounted for 7% of deaths.

Diarrhe accounted for 13% of 1-4 deaths ranking third behind fever (24%) and pneumonia (15%). Fever with rash was also 13%. This probably includes measles, dengue, and other viral illnesses.

The estimated annual incidence rate for diarrhea plus dysentary is about 30/100 children 0-1 and 12/1000 children 1-4 based on the calculations below.

0-1

18 diarrhea + 1 dysentary cases in 2 weeks

1539 children

$$\frac{19 \text{ children} \times 26 \text{ 2 week periods/yr.}}{1539} \times 100 = 32.1$$

1-4

28 diarrhea + 8 dysentary cases in 2 weeks

6150 children

$$\frac{36 \times 26}{6150} \times 100 = 15.2$$

Diarrhea accounted for 18% of the 0-1 morbidity and 9% of the 1-4 morbidity.

References and Notes

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For children 0-1, "other" fever accounted for 44% of morbidity, measles 7%, and pneumonis 2%.

For children 1-4, "other fever" accounted for 40% of morbidity, measles 7% and pneumonia 4%.

On a regional basis, Table 41 shows the most common complaints. It is partially reproduced below in a reorganized fashion.

ALL AGES

Rank	Delta	Dry	Hilly	Coastal
1	Other fever	Other fever	Other fever	Other fever
2	Measles	Malaria	Anemia	Malaria
3	Malaria	Anemia	Malaria	Anemia
4	Anemia	Asthma	Diarrhea	Indigestion
5	Indigestion	Diarrhea	Indigestion	Asthma
6	Hypertension		Hypertension	Other abdominal disease
7	Asthma		Other cough	Diarrhea
8	Diarrhea		Asthma	

For children 0-5, calculations based on Table 40 show the following morbidity situation:

Rank 0-1	Rank 1-4	Complaint	No. of Complaints 0-1	No. of Complaints 1-4	Proportionate Morbidity 0-1	Proportionate Morbidity 1-4
1	1	Other fever	44	121	.44	.40
2	2	Diarrhea	18	28	.18	.09
3	3	Measles	7	22	.07	.07
8	8	Malaria	2	10	.02	.03

For children 0-5, calculations based on Table 47 show the following mortality situation:

Rank 0-1	Rank 1-4	Cause of Death	No. Deaths 0-1	No. Deaths 1-4	Proportionate Mortality 0-1	Proportionate Mortality 1-4
1	1	Other Fever	13	13	.18	.24
3	2	Pneumonia	7	8	.09	.15
3	3	Diarrhea	7	7	.09	.13
3	-	Tetanus	7	-	.09	-
4	3	Fever with skin symptoms	5	7	.07	.13
2	-	Perinatal	11	0	.15	-

Reference No. 4: U Tin U, et al, "Report of the Perinatal Mortality and Low Birth Weight Study Project - Burma, SEARO Intercountry Collaborative Project - WHO, 1981.

This study, carried out in 1976-77 covered 20,000 households and 100,000 people in a peri-urban area near Rangoon and a rural area. About 47% of the population were rural and about 53% urban. The actual community study took place in January 1977 over a four week period. Vital events were for the previous 12 months. The findings were a stillbirth rate of 20.3 (17.7 urban, 22.7 rural), an age-specific death rate (1-4 age group) of 14.2, an early neonatal death rate of 31 and a rural IMR of 97 and an urban IMR of 70. 22% of children were below 2500 grams at birth.

Reference 5: Health Information Booklet, 1981, Ministry of Health, Department of Health, Health Information Services, Rangoon, Burma, September, 1981.

Table 2.1 shows the decline in IMR from 273 in 1940 to 52 in 1975 using vital statistics data. Table 4.2 shows diarrhea as number 2 cause of admissions to township hospitals behind malaria (12.97) in 1978 at 8.7% of admissions and the number one cause of mortality in township hospitals in 1978 (Table 4.3) (11.6% of all deaths) and the most common cause of admission to Rangoon Childrens Hospital in 1975 at 21%. Diarrhea was also the number one cause for visits to OPD's in the summer season in 1978, number 2 during the rainy season, and number three in the winter (9.0%, 6.0%, and 5.9% respectively).

Reference 6: Hospital In-Patient Report, 1980, Ministry of Health, Health Information Services, Department of Health, Rangoon, Burma, 20 September, 1982.

Table 4 reports ill-defined intestinal infections as the number two cause of hospital morbidity (8.5%) second only to malaria (14.8%) and also second to malaria for mortality at 10.1% (malaria at 11.2%).

Reference 7: "Acute Diarrhea in Childhood", Proceedings of the Research Seminar on Acute Diarrhea in Childhood organized by the Department of Medical Research, Rangoon, Burma, 27 February 1982.

This monograph has three major sections: epidemiology, etiology, and management. The epidemiology section has four presentations. The first presents a country profile. Table 1 shows a case fatality ratio (CFR) of 21-35 in 1940 to 1.56 in Rangoon hospitals in 1970. Table 5 shows that gastroentites and colites caused 7% of deaths in infants in Rangoon hospital in 1970 and reports same data on hospital mortality and morbidity as Reference 6. Table 11 shows morbidity high from 3-28 months of age with a peak at age 15 months in a peri-urban cohort study. Table 12 shows a diarrhea mortality rate of 2.7/1000 in 0-1 and 0.5 in children 1-4 in

two Rangoon hospitals in 1963-65.

The third study in the epidemiology section reports on two community-based studies near Rangoon in a peri-urban population in 1981. A dry season incidence rate of 16.7/100 children 0-5 was found (4 week period) and a rainy season incidence of 20.3 (5 week period). Diarrhea was much higher in children 0-3 in the rainy season. High diarrhea incidence was associated with rearing of domestic animals, family income, crowding, and low SES. Estimates of the annual incidence rates based on this study are shown below.

Dry season calculated as 39 weeks, wet season as 13 weeks (3/4-1/4).

dry season $\frac{16.7}{4}$ episodes/week x 39 weeks = 163

wet season $\frac{20.3}{5}$ episodes/week x 13 weeks = 53

Estimated annual incidence = 216

Reference 8: Thane-Toe, Khin - Maung-U, et al, "Oral Rehydration Therapy in the Home by Village Mothers in Burma, to be published in Transactions of the Royal Society of Tropical Medicine and Hygiene, also found in Reference 7, management section.

A one year longitutinal study in six village communities about 40 Km from Rangoon with 218 children under five in the control villages and 623 in the test villages. Daily diarrheal surveillance was carried out making this a highly sensitive study. Incidence was 1.03 episodes of diarrhea/child/year. 48% of the children had no diarrhea and 49% of the episodes occurred in 11% of the children who had three or more episodes each. No deaths occurred in either the control or test villages. ORS had a positive effect on weight changes in the children with frequent epidodes but no effect on the mild cases. The authors concluded "In situations

in our study villages where diarrhea prevalence and mortality were low, most episodes were mild and multiple episodes per child were not common, provision of ORS in the home to be readily available at all times for all cases for administration by mothers would have little discernible impact on mortality and morbidity. In such situations, provision of standard ORS should be aimed at the vulnerable group, i.e., children ill with more severe diarrhea or children with multiple episodes of diarrhea in whom ORS has been shown to reduce mortality and morbidity, and in whom there is now found to have a demonstrable positive nutritional effect (page 3 of draft).

Reference No. 9: Khin - Maung U, et al, "Effect of Feeding during Diarrhea on Clinical Outcome," unpublished study, Department of Medical Research, Rangoon, Burma, 1983.

Reference No. 10: U Kyaw Sein, U Aung Tun Thet, et al, "Utilization of Rural Health Centers in Burma, An Evaluation Study," Department of Health, Rangoon, Burma, August 1983.

Reference No. 11: "Report of an Evaluation Workshop on Primary Health Care - Basic Health Services Programme 1982/83, Department of Health, Rangoon, Burma, November 1983.

Reports general clinic attendances as a proportion of the population as 0.38 and personal health care contacts during village visits as a proportion of the population as 0.24. Together they equal 0.62 visits/person/year.

Reference No. 12: "Study of Monitoring of Vital Events, Nutritional Status 0-3, Birth Weights, and Primary Health Care at the Village Level (1981-82), Health Assistant Training School, Department of Health, Rangoon, August, 1983.

Reference No. 13: Khin - Maung U, et al, "Residual Deaths in Acute Childhood Diarrhea" unpublished report by the Department of Medical Research, Rangoon, 1983.

ANNEX B

SCHEDULE AND PEOPLE MET

May 7

AM

Dr. U Ba Tun, Director, Department of Health
Dr. Mya Win, Deputy Director
Dr. Than Sein, Joint Secretary, Project Committee
Department of Health
and staff

Mr. Hal Kuloy
UNICEF Representative
and staff

PM

Mr. Charles Ward
AID Representative

Dr. U Ba Tun and staff

May 8

AM

Diarrhea Committee

Dr. U Ba Tun
Dr. Kyaw Lwin
Dr. Tin U
Dr. U Thaung
Dr. Khin May Kyi
Dr. Than Sein

PM

Health Education Bureau
Dr. U Myint Swe, Assistant Director
and staff

May 9

AM

Department of Medical Research

Dr. Aung Than Ba Tu, Director General
Dr. Khin Maung U
and staff

PM

Reading

May 10

AM

Field Visit to North Okkalapa Hospital
and Urban Hospital Center

Dr. Soe Soe A
Dr. May Mya Sein
with Dr. Mya Win, DD/DOH

PM — Discussions with Cooperatives Department

U Hla Swe, Deputy Director for Marketing and staff

May 11

AM — Health Information Service

Mr. Khin Maung Thwin

PM — Health Assistant Training School

Dr. Su Hla Swe and staff

May 12

AM)
PM) — Review of Document

May 14

AM)
PM) — Beginning of writing of Report

May 15

AM)
PM) — Field trip to Hmawbi to Township Office, RHC and interviews of AMWs and CHWs accompanied by Dr. Mya Win and Dr. Than Sein

May 16, 17

AM)
PM) — Report writing and briefing of AID officials Mr. Ward and Mr. Nelson

May 18

AM — Exit meeting with Dr. U Ba Tun and staff

PM — Writing of Report

CONSULTANT REPORT:

SUPPLY AND DISTRIBUTION OF ORS IN BURMA

MAY 6 - 19, 1984

Stephen J. Fabricant, B.S., M.B.A.
The PRITECH Project

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Executive Summary: ORS Production, Distribution and Utilization

1. On the basis of the best available information on diarrhea incidence and and health services utilization, it appears that the planned supply level of ORS packets from all sources (5.4 million/year) will be sufficient through at least 1986. These estimates are based on the existing plan for expanding community health care and ORS distribution, and take into consideration only the 0-5 years age group.

2. The most significant increase in demand through 1986 will result from the phased buildup of the numbers of volunteer health workers who can distribute packets, and from a more rapid expansion in the number of sales outlets for ORS through village co-operative stores. However, these two effects will overlap to a considerable degree rather than being additive, since at the field level they will represent alternative sources of packets.

3. Physical distribution of packets does not appear to be a serious constraint at present, or for projected levels of demand. CMSD is handling distribution chores adequately, and technical and other assistance has been offered by UNICEF. There is room for improvement at the peripheral level, particularly in storekeeping and inventory control to minimize program costs and wastage of ORS. A study should be made of consumption patterns, and an information system developed for control of supplies of ORS and other BHS drugs. The information system would also aid in the on-going process of program evaluation.

4. The actual demand for packets can be greatly increased or decreased from the level projected by implementing alternative ORT campaign strategies. Emphasizing home-based treatment, for example would reduce packet use from 2 packets/episode, while promotion of packet sales would probably increase utilization.

5. In the event a strategy or combination of strategies is adopted which would result in a greater demand for packets, local production at BPI could increased to 5 to 10 million per year within one or two years with no major additional donor commitments.

Supply and Distribution of ORS in Burma

1.0 Overview

The use of ORS in Burma dates to 1978, when the Department of Health (DOH) began to integrate oral rehydration into its health delivery system, using ORS packets imported by UNICEF. Six years later, ORS is widely distributed and is effectively available to much of the rural population, an important mortality-reducing component of the People's Health Program.

While a large-scale facility for ORS packet production has been placed in operation, Burma still depends on external donors for raw materials and additional finished ORS packets. Distribution within the DOH system, which includes a large number of peripheral staff and volunteer workers, is reasonably effective but imperfect knowledge and access to this system by the rural population limits the degree to which ORS is used. The lack of useful data about diarrhea-related behavior and ORS utilization makes it impossible to formulate complementary or alternate strategies for maximizing the use of ORS and bringing mortality due to dehydration down to lower levels. In the absence of such information, recurrent costs may be higher than necessary, or shortages of ORS supply may result.

2.0 Present Situation: ORS Supply

2.1 Donor Inputs

Finished ORS packets (1 - liter size) are being provided free to the DOH at the rate of 2 million per year. These arrive and are distributed as part of the Auxiliary Midwife (AMW), Community Health Worker (CHW) Kits and Drugs and Dietary Supplementary (DDS) Kits. AMW and CHW Kits (about 1/2 million packets per year) constitutes the initial stock of drugs and equipment for new peripheral health workers, while the DDS Kits are intended as replenishments for stationary rural health facilities. These kits and

and sets are supplied by UNIPAC/Copenhagen, with the costs shared almost equally by USAID and UNICEF under their PHC II and PHC/BHS projects respectively. These supplies will continue through at least 1985/86 under existing programs.

USAID has also imported 1.5 million packets to ensure the resupply of VHWs and RHCs as a one-time contribution to the DOH supply system.

Finally, approximately 500,000 packets per year will be provided in DDS sets for the DOH/UNICEF joint nutrition project.

In addition to the finished packets, UNICEF will supply, through at least 1985/86, sufficient materials for local production of 2.4 million packets annually.

2.2 Local Production

Burma Pharmaceutical Industries (BPI) was supplied with ORS manufacturing equipment and materials by UNICEF in 1981, and after several false starts is now completing a run of 1.8 million half-liter packets and plans to produce 1-liter packets at a rate of 2.4 million per year. In the event that increased production is required, funds are available from UNICEF for more equipment and materials which could raise production to 4.8 million using one shift and conceivably double this if two shifts are used, as is often done in other BPI production areas. (See Annex 1)

2.3 a. Annual ORS supply replenishment for years 1984, 1985, and 1986 are therefore predictable based on the foregoing sources:

Table 1

	Per Year
RHC resupply (USAID/UNICEF)	1.5 million
New VHW initial stock	0.5
Joint Nutrition Project	0.5
BPI Production	2.4
	4.9 million

b. Data on DOH distribution of ORS is available but only reflects the amount in the distribution pipeline. Lack of consumption data renders it impossible to know the presently existing stock of ORS in Burma, the following estimate of the amount supplied to date can be used as a first step:

Table 2

78-83 by UNICEF (kits)	7.1 million
BPI production (liter equivalent)	0.9
USAID	1.5
	9.5 million

2.4 Projected maximum need

It is possible to estimate the potential need for ORS packets based on available demographic and epidemiological data. These figures are based on the assumption that two ORS packets will be consumed for each episode of diarrhea in children under five.

Table 1

	1984	1985	1986	1987	1988
Total Population (2% growth rate)	32.8 million	33.5	34.1	34.8	35.5
Population under 5 (11.8% of population)	3.87 million	3.95	4.02	4.11	4.19
No. of Episodes (1.03 per child)	3.98 million	4.07	4.14	4.23	4.31
No. of Packets	7.97 million	8.14	8.28	8.47	8.63

3.0 Present Situation: Distribution of ORS

Present ORS distribution channels are the same as used for other drugs. The major avenues are the Trade Corporation for Medical Stores,

the DOH and the Cooperatives Department. The latter two channels currently serve some rural areas directly down to the village tract level. (Fig. 1).

3.1 DOH Channels

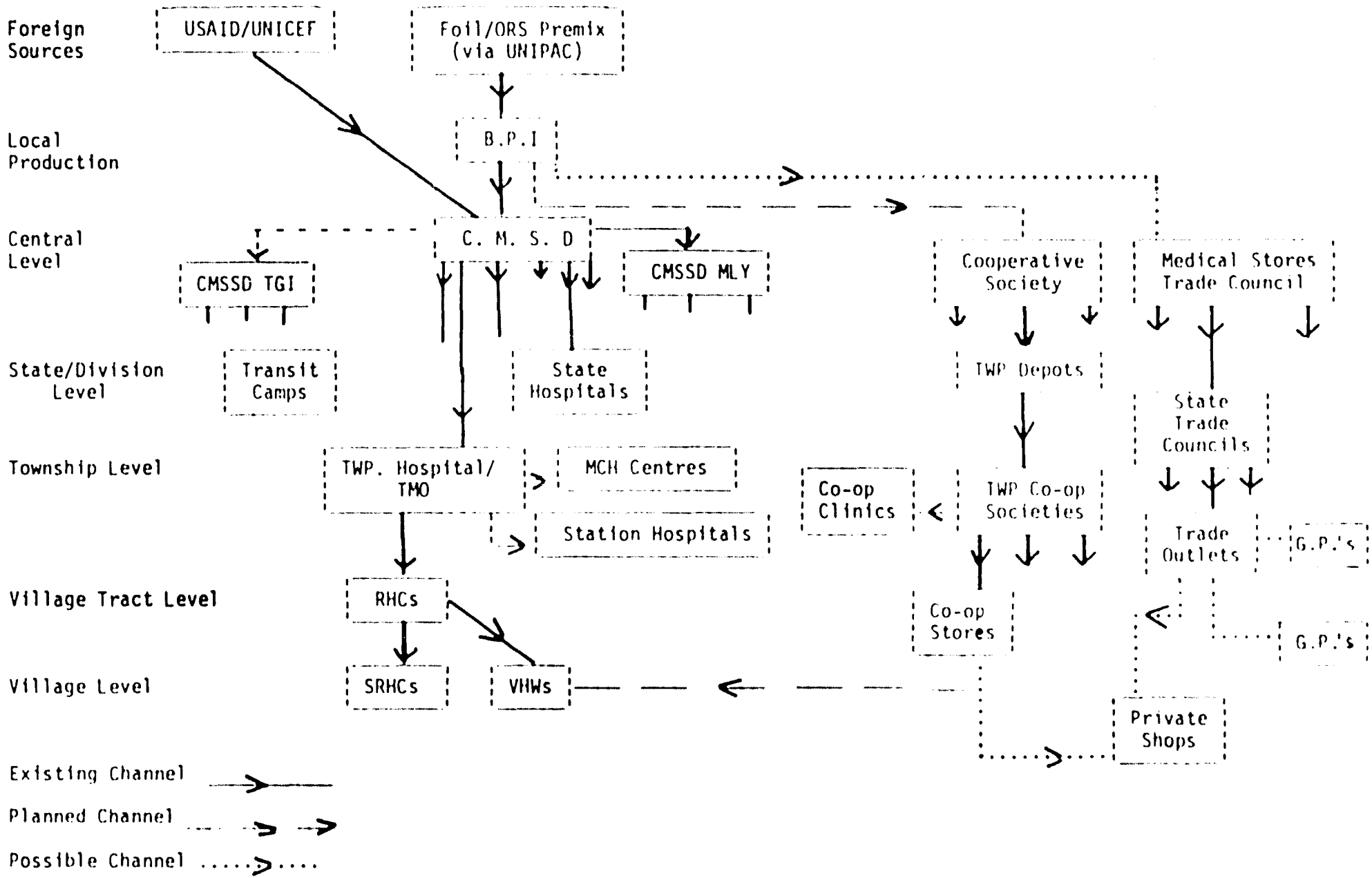
Essential supplies, including ORS, reach areas of Burma in two ways under DOH auspices. Through a system managed by the Central Medical Supplies Depot (CMSD), all stationary facilities of the DOH down to the RHC and SRHC level are resupplied, and new stocks of drugs procured and stored. The volunteer health workers (VHWs) who actually provide most patient contact under the PHC program receive their initial stock of supplies through the DOH, but then obtain additional supplies through other outlets sanctioned but not directly controlled by the DOH.

3.1.1 Central Medical Stores Depot

The CMSD physically consists of a large compound in Rangoon enclosing 11 separate warehouses plus administrative offices and workshops, a sub-depot in Mandalay in which around 20% of total expendable supplies are stored for distribution in middle Burma, and eight transit camps around the country. A second sub-depot is being constructed in Taunggyi, as are a new administration building and cold storage facility in the Rangoon compound, as part of an ADB project. A staff of 420 in Rangoon performs the tasks of goods clearing, transport, sorting, inspection, storekeeping, packing, shipping, procurement, and administration.

External inputs to the CMSD logistics system include the ADB construction and the salary support of a CMSD Assistant Officer by UNICEF. Long-term technical assistance for logistics systems analysis, and training has been proposed and funded by UNICEF, but not yet agreed to by the SRUB.

Fig. 1 - ORS PACKET DISTRIBUTION CHANNELS



CMSD has three main sources of medical supplies and equipment: drugs manufactured locally by BPI (about $45 million worth last year), imports procured annually by direct CMSD tender to foreign companies ($12.5 million), and donor imports. Port clearance of direct imports and most donor supplies is evidently handled with little difficulty and delay by CMSD staff and transport. USAID supplies are cleared by USAID staff and placed in a designated warehouse at CMSD. (A new, larger warehouse for USAID commodities is being renovated at a nearby location, and should be adequate for future imports under PHC II).

The CMSD owns seven 6.5 ton and two 3.5 ton trucks, which are used almost exclusively within Rangoon, for pickups from BPI and the port and deliveries to local DOH hospitals, the railway station, truck depots, river ports, and other common carriers. Supplies are shipped to other divisions by combination of government rail and river streamers, and cooperative or government truck fleets or as a last resort, privately-owned trucks. The major problem currently encountered in this system is a shortage of railway wagon space and truck transport to Mandalay. If additional trucks were supplied to CMSD, they would primarily be used on this route. Otherwise, delays occur but shipments regularly reach all areas with minimal delays. Remote townships in the mountainous states often must be reached by mule train or porters for the final leg. Damage sometimes occurs enroute due to water or dropping of a crate, but losses are evidently kept to a minimum. Smooth functioning of the system is aided by the advancing of funds to state/divisional directors and TMOs in charge of transit camps to cover costs of forwarding goods to the end users. These funds are replenished annually.

Shipments to state/divisional hospitals are made three times a year based on annual indent and two supplementary indents. Supplies for RHCs, however, are distributed according to the order of the PHC project director, and are generally sent twice a year direct to the Township Medical Officers (TMO). If no doctor is assigned to an RHC, resupply may occur only once a year due to lower utilization of drugs. The amount and type of drugs supplied to RHCs are according to a standard list based on the availability of the items at CMSD. Supplementary indents for drugs which are consumed rapidly can also be made. Since the population served and utilization of RHC's varies widely, it is the responsibility of the TMO to redistribute drugs among RHC's in the township. If there is an excess supply or shortage of some item within the township as a whole, the TMO notifies the Division Health Officer, who then attempts to redistribute the item between townships. The value of drugs distributed annually to each RHC is K9,000 from DOH/BPI, plus DDS sets costing around $100.00 each. DDS set are supplied at a rate of roughly 1 per 1000 population served per year.

In actual practice it is quite common for RHC doctors to receive their supplies at CMSD when they come to Rangoon or Mandalay for official or personal reasons. In these instances they usually are accompanied by a helper from the RHC who signs for the crates and assumes responsibility for having them delivered by bus, etc. Some supplies are picked up directly from transit camps as well.

Once at the RHC, SRHC, MCH center, etc., supplies are kept in small godowns under direct responsibility of the Medical Officer. Due to the lack of administrative personnel at this level and the many demands on the M.O.'s time and absence of any specific training in storekeeping,

this function may often be inadequately performed. Improper storage in conditions of high heat and humidity can result in rapid deterioration of ORS and other drugs.

3.1.2 Supply of Volunteer Health Workers

Donor-supplied CHW and AMW kits are stored at CMSD or forwarded to the sub-depot at Mandalay, but often are given directly to the volunteer as part of a ceremony rather than going through the usual routes. Resupply of expendible drugs, etc. for the CHW then becomes the responsibility of the people of the village. Funds are collected (from K400 to K600 per year) by the Village Peoples Council and sent to the TMO or Township Cooperative Society, from which office a representative is sent to Rangoon to buy BPI-packaged CHW resupply kits from the Trade Corp. after obtaining authorization from the PHC/BHS project director. Sometimes a group of townships entrusts this task to the State/Divisional Health Officer or Cooperative Syndicate. Production of kits has not been sufficient to meet demand in past years. Townships requested 7,500 kits in 1983, compared with BPI's production of 4,000. Resupply of ORS to RHCs and VHWs was unaffected since an adequate quantity of USAID-supplied packets has been distributed to RHCs, which in turn give packets to VHWs.

Not all the items in the CHW kit need to be procured through this channel, however. Some simple, basic drugs such as vitamins, aspirin, iodine, etc., have been designated as "common household items" and are available through cooperative stores and other common consumer outlets. As part of a project agreement with UNICEF, ORS has recently been so designated, and arrangements made for up to half of BPI's ORS production to be channeled through the system of cooperative stores and clinics.

The CHW will thus have a second channel to purchase the ORS and perhaps other necessary items. There are 12,466 cooperative stores in rural areas, one in nearly every village tract.

3.2 Other Channels

3.2.1 Co-operative Stores and Clinics

As mentioned earlier, the extensive network of primary-level cooperative stores (12,466 in villages, 2,440 in urban wards) will become an outlet for ORS. ORS will also be stocked at 561 cooperative clinics, most of which are in urban and peri-urban areas.

The distribution network starts with the Central Cooperative Society, which signs a quarterly procurement contract with a supplier (in this case BPI) which penalizes the supplier for non-delivery. Contracts can only be made for six months forward supply.

Supplies are allocated by township according to the available amount (orders generally exceed the supply of BPI drugs). States/divisions and many townships have their own depots in Rangoon.

Transportation to the township co-op societies is usually not a problem if fuel is available, since each township has its own trucks. Similarly, deliveries from township depot to village-level co-op is given priority by the transport co-ops at township level. There is generally no fixed resupply schedule, and primary and township co-ops both reorder on demand. Since a "profit motive" can be imputed in this system, close attention is presumably paid to maintaining efficient inventory levels.

ORS will be bought from PIC/BPI at the 18 pyas/packet. All imported materials are supplied free by UNICEF, and this costs reflects BPI's overhead and direct costs of production. There is no markup for drugs in the co-op system, so the village co-ops will be assessed only transport charges and

overheads. At a typical road transport charge of 1 per ton-mile, transport should not exceed 1 pya/packet anywhere in Burma, so an eventual retail price of 20 pyas/packet can be expected.

3.2.2 Medicine and Medical Stores Trade Council

It has been agreed that a portion of BPI's production of ORS will be sold to this organization, which is the distribution and regulatory body for a national network of retail drug outlets. About 50% of BPI's total production of drugs is distributed through this network, which extends down to the township level. Although individuals purchase drugs from the Trade Council outlets, they play a more significant role by supplying private physicians and clinics and small private traders.

4.0 Access and Utilization of ORS at the Village Level

Under existing plans, there are only three major sources of ORS packets in rural areas: at RHC's, at village co-ops, and from volunteer health workers. In order to be able to calculate the expected demand for ORS packets as opposed to the need as calculated in section 2.4, it is necessary to estimate the proportion of the population that can actually get packets when needed.

Access in this context has two dimensions, geographic and economic. A conventional definition of geographic accessibility is if the desired product or service is within an hour's journey by foot, which is roughly a 2-1/2 mile radius of the household in the case of rural Burma. Since ORS packets will for the most part be available for free or very low cost, economic accessibility of 100% can be assumed. (An exception is in areas served only by private traders, where the present going price is K2-3. However, the geographic extent of this channel is not sufficiently known to base any calculations on it).

4.1 Access and Utilization of RHC's

A detailed study (Ref. 1)[1] has found that in areas where RHCs exist, 30% of the population in the presumed catchment area live within 2 1/2 miles, while 70% lived beyond this radius. That this distance does indeed represent a barrier to utilization was demonstrated by the finding that only 2% of the patients coming to RHCs surveyed reported that they lived further than 2 1/2 miles away. Thus in a typical township with 71,000 population, only 21,400 people have what could be called realistic access to the RHC.

The study further found that while children 0-5 were represented in the patient population in greater numbers than in the general population (17.2% vs 12%), the diarrhea cases (all patients) ranked much lower in frequency (6th or 7th) than found in hospital studies, where it was usually second in prevalence. This suggests strongly that only a small percentage of those people living within convenient access of RHCs actually bring children there for treatment of diarrhea. For purposes of estimation, assume that only 1 out of 4 children in this radius are brought there when they have diarrhea. Thus the effective utilization rate of RHCs for diarrhea in children may be only (.30 X .25) or 7 1/2% of the "served" population.

On a national basis, the actual demand for ORS from RHCs can be projected as follows:

[1] Utilization of Rural Health Services (Evaluation Study). Dr. U Kyaw Sein et al. Rangoon, July 1983.

Table 3

	1984	1985	1986
No. of RHC's/Townships served	167	237	307
Rural Population (millions) (70% of total) 2% growth rate	22.1	23.4	23.9
Total Population in RHC townships (million)=n	12.2	17.7	23.4
Population under 5 yrs in 2 1/2 mile radius of RHC = n X (3 X .112)=n	439,200	637,200	842,400
Above population actually brought to RHC for diarrhea n" = n' X .25	109,800	159,300	210,600
Packets required (2 per child/year)	219,600	318,600	421,200

4.2 Access and Utilization of CHWs and AMWs

For purposes of calculating the number of packets of ORS likely to be distributed by volunteer health workers, it can be assumed that while everyone in the CHW's own village has perfect access to him, unless the distance from neighboring villages is small, his services will only be utilized by the inhabitants of his village. The target for expansion of coverage of AMW's is expressed in terms of the number of village tracts served, and while it is reasonable to imagine an AMW's service area extending

to 4.7 villages (the average per village tract) for midwifery, it is not realistic to expect that her coverage for diarrhea would be more than her own village.

Although the projected coverage by village for CHW's and AMW's separately is known, (Ref. 2) 16,400 new CHWs trained by 1986 will extend coverage from 21% to 46% of all rural villages; 5,600 new AMWs will extend coverage from 17% to 27% of villages or 76% of village tracts), the degree to which their placement will coincide in a village is not specified and therefore neither can the real ORS coverage be calculated. Since ORS will effectively be available if either the CHW or the AMW resides in a village, the coverage by 1986 could range from 46% if all AMW's are chosen from village where there is a CHW, to 73% if they are chosen from villages where there is no CHW. Using an intermediate present coverage of 30%, increasing to 60% by 1986 under the condition that all cases of diarrhea in children under 5 are brought to the VHW's attention and two packets per episode are dispensed, yields the following requirements:

Table 4

	1984	1985	1986
VHW village coverage	30%	45%	60%
VHW covered population (millions)	6.75	10.53	14.34
Under-5 population covered (millions)	0.76	1.18	1.61
Packets required	1,560,000	2,395,000	3,317,000

4.3 Demand in urban areas

Information on utilization of health services and specific diarrhea incidence data for urban areas is incomplete. Although geographical access to DOH facilities may be very high, particularly in the smaller urban areas, the high rate of female employment suggests that utilization may be quite low, especially for less serious illnesses. Mothers often prefer to take a child to a private doctor, who would normally have a clinic in the evening. Diarrhea incidence in urban areas has been reported as lower than the 1.03 episodes per year, while incidence in peri-urban areas may be higher. Using the 1.03 average, 75% accessibility factor, and a 25% utilization rate yields the following estimate of demand, assuming 2 packets used per episode.

Table 5

	1984	1985	1986
Urban Population (millions)	9.84	10.04	10.24
Under-5 (millions)	1.10	1.12	1.15
Diarrhea cases using DOH (millions)	210,000	215,000	220,000
Packets needed	420,000	430,000	440,000

4.4 Effect of Village Co-operative outlets

With 12,466 primary consumer co-operative stores at the village tract coverage by only 1,211 RHCs, a significant increase in access to ORS packets can be expected. Since there is wide variation in the size of village tracts, even within the more densely-populated townships, it is difficult to estimate the average degree of geographical access to these outlets.

In tracts which are bigger than 10 square miles, it is likely that not more than 2 additional vilagges lie within 2 1/2 miles of (one hour's walk) of the village where the store is, whereas from 2 to all additional villages have at least this degree of access in tracts smaller than 10 square miles. If 10 square miles is the population-weighted modal area of all village tracts, then in half of the tracts all of the population has access, and in the other half, around half the population has access, for an average accessibility of 75%. Assuming that in the 10% of tracts that have RHCs already, the population will continue to get ORS packets from the RHC and VHW's for free rather than pay 20 pyas, then the cooperatives represent a potential increase in access of (.90 X .75) = 67 1/2%.

To calculate the likely immediate demand, we can guess that not more than the 25% of mothers that bring a child to the RHC for diarrhea will go to a store to buy a packet.

Table 6

	1984	1985	1986
Rural population (millions)	22.5	23.4	23.9
% population with (millions) access to co-op stores	15.2	15.8	16.1
Under-5 pop. with co-op access (millions)	1.70	1.77	1.80
Above population not covered by VHWs (millions)	0.94	0.59	0.19
Packets required	1,880,000	1,180,000	380,000

At this point some consideration must be given to the fact that the VHW's coverage area and the co-operative stores' coverage overlap considerably, and therefore should not be considered to be additive. Not enough is now

known about the behavior of mothers to predict the circumstances under which they will go to a VHW if one is available and when they would buy a packet at a co-op store. Some factors in addition to relative price affecting this decision are: distance traveled, access at different times of the day/week, additional care and advice available from the CHW, and the effects of public information campaigns.

At present, a likely scenario is that opening the cooperatives channel will immediately increase the actual demand for packets,and that the quantity sold to the public through the co-ops will decrease as coverage by VHW's increases. However, the plan to have VHW's obtain their resupply of packets from co-op stores means that the volume distributed through that channel will remain high once the DOH ceases to resupply the VHW's.

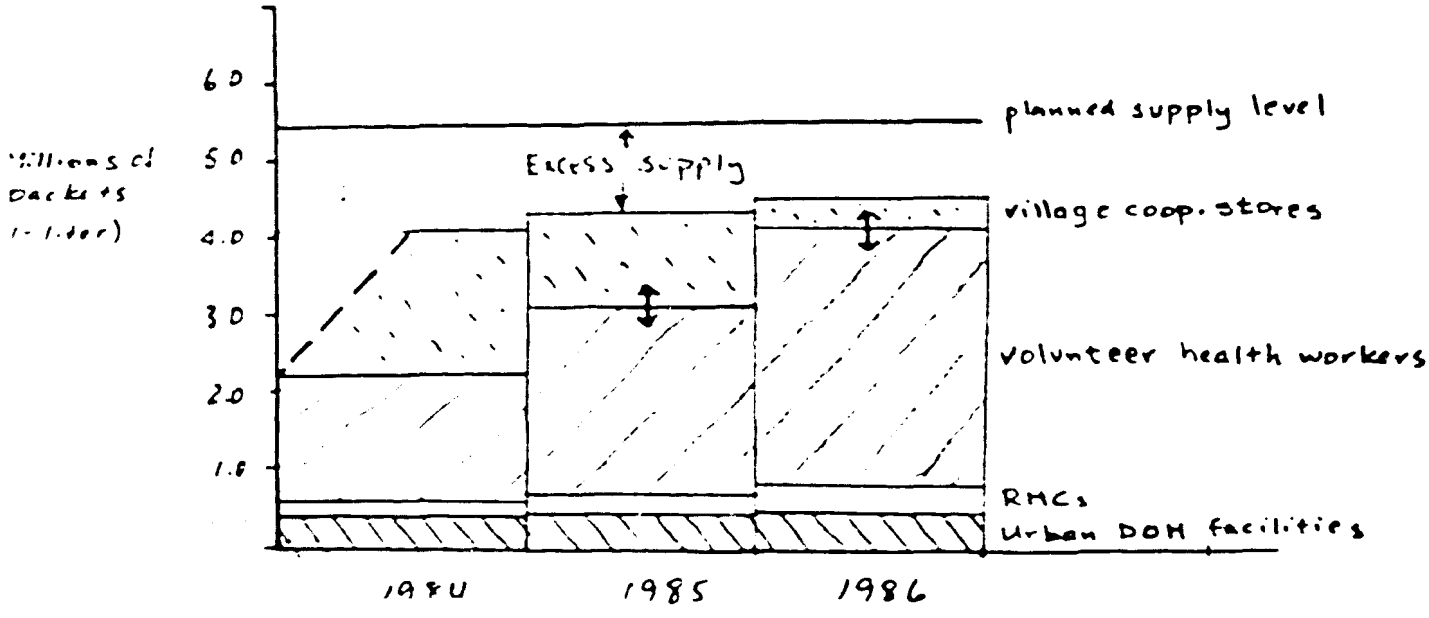
4.5 Summary of demand estimates

Table 7 (Millions of 1-liter packets)

Distribution channel	1984	1985	1986
Urban health facilities	0.42	0.43	0.44
RHC's	0.22	0.32	0.42
VHW's	1.56	2.39	3.32
Additional co-op distribution	1.88	1.18	0.38
Total (millions)	4.08	4.32	4.56
Excess Supply (millions)	1.32	1.08	0.84

The excess supply would probably be available to the Trade Corporation distribution channel for supplying the private sector and private clinics.

Fig. 2 Components of demand for ORS packets



5.0 Conclusions

5.1. Based on the existing utilization rate of the rural health services and the increase in accessibility to providers that will result from the planned expansion under the People's Health Plan II, the present level of ORS supply is likely to be adequate. Distribution of packets through village co-operatives will increase access, but probably will reduce the demand through VHWs, resulting in a relatively small net increase.

5.2. The estimate of total projected demand by 1986 of 4.56 million packets is subject to a great degree of variance, and most likely represents a high estimate since it is based on the use of two packets for each episode of diarrhea. Statistics suggest that moderate or severe dehydration results in only a third of all episodes in Burma, and most cases are or could be, treated by continued breast-feeding and with other liquids.

On the other hand demand for packets could increase sharply if the RHC's were better utilized and if sales at the co-op stores were actively promoted.

The actual demand for packets is therefore seen to be highly sensitive to program strategy, the degree to which use of home-based treatments are taught, and to communication strategies such as promotion of sales in cooperative stores and encouragement of the use of health services for diarrhea.

Home-based solutions are being actively researched in Burma, and if experience in other countries is relevant, these could substitute for as much as half the packaged ORS needed.

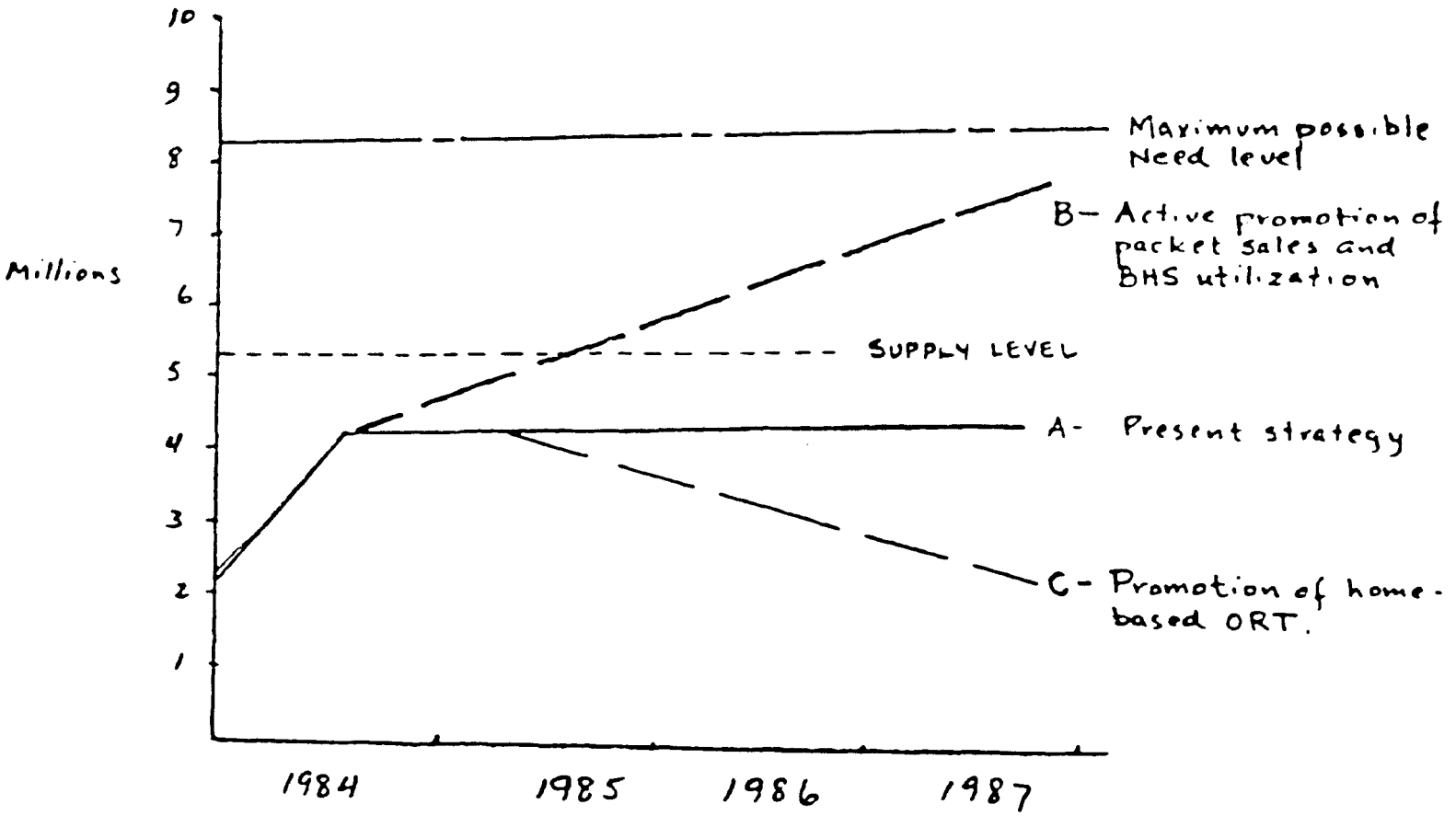
Fig.3 . illustrates the effect of three different strategies on the need for finished packets:

A. As per foregoing assumptions, packets will be available through co-operative stores for 20 pyas but not actively promoted; VHWs and RHC staff continue to dispense 2 packets for each case of diarrhea in under-5's.

B. Active promotion of ORS sales in cooperatives, and health information emphasizing use of ORS packets for all cases of diarrhea in under-5's.

C. Health worker training and health information emphasizing use of home solutions as a first-line treatment of diarrhea; widespread availability of packets for moderate/severe dehydration.

Figure 3 - Examples of the effect of alternative ORS strategies on demand for ORS packets



3. In the absence of more accurate information about the demand, distribution, and use of ORS packets and the incidence patterns of diarrhea, it will be difficult to match supply with demand. No good purpose is served by producing and feeding excess packets into the distribution pipeline due to the limited shelf life of the packets and the costs of maintaining high inventory levels. Eventually these costs will be borne by the DOH.

Similarly, local and national shortages with result if the demand for packets is underestimated. This would be especially serious if no strategy for promoting home-made solutions is implemented.

The development of an information system for tracking distribution of ORS by geographic area, service level, and age of patient would be a minimum recommendation for effective planning. Other key drugs could also be included in the system. This system could use as an information base the data collected in the modified Form EHC now in use by the DOH.

5.4 Under scenarios "A" and "C" (Fig. 3), the supply of packets will be in excess of the requirements of the DOH and village cooperatives. Assuming the desirability of making packets widely available at a low price, some part this excess should be supplied to the Medical Stores Trade Corporation, thereby making packets available to private traders and practitioners. Wholesale and retail pricing through this channel would have to be negotiated between BPI, the DOH, and the Trade Corporation. If BPI's selling price to the Trade Corporation exceeds 18 pyas, some or all of the profits might be returned to UNICEF. Accurate information about use in DOH channels and sales in cooperative channels will be required for planning for allocation and future production. While excess production can be stockpiles, this should be avoided when possible due to the expense and potential for deterioration of packets.

Annex 1. Report of visit to BPI, 17 May 1984: ORS Production at Burma Pharmaceutical Industries (BPI)

1. The current plan, in cooperation with UNICEF, is to produce 2.4 million 1-liter (27.5 gm.) packets per year. Packaging film (Italian origin) and pre-mixed ORS (KBI, Bremen) are ordered through UNIPAC. Shipments of materials equivalent to 1.5 million packets arrive in Rangoon at 6-month intervals. The FOB cost of the premix is 2.1 ¢ per packet, the foil in 0.7 ¢ per packet, total 2.8 ¢ FOB, approximately 3.2 ¢ CIF Rangoon.

2. The premixed ORS arrives in 240-kg plastic drums, which are difficult to handle without proper equipment. Eighteen drums arrived at BPI broken from the last shipment of 130 drums. The drums and foil are kept in various air-conditioned rooms in the plant, but they are generally not kept cool more than eight hours a day.

3. The premix is processed by unloading half (120 kg) the contents of a drum and sifting it to 60-mesh. Although the premixed ORS is supposed to be this fineness, this is done to remove the occasional large crystals and foreign objects which would interfere with packet filling. After sifting, the 120 kg batch is dried for 1 hour at 85° to a moisture content of 1-2% since the room in which sieving is done is not air-conditioned. The 120 kg batch is then mixed in a steel drum hoop mixer.

4. The mixing drum is brought into the filling room, which is air-conditioned and dehumidified to 45-55% RH. The hopper of the Rovema S-90 filling/sealing machine must be tapped off by a hand scoop every five minutes or so. A carriage hoist for continuous overhead feeding is planned. This room is not insulated, but a false ceiling about 250 cm. high is installed. The layout of the ORS production area is the same as it was in 1981. The floor drain in the filling room has been covered.

5. The Rovema S-90 is operated at a speed of 45 packets per minute for the 500-ml packets now being filled to use up the old stock of foil. This would probably be lowered for 1-liter packets, production of which will begin in June. Checking for packet weight is done with a fare-balance in the same room. Sealed packets are removed to the sieving-drying room for cartoning in boxes of 50.

6. Ten packets per 10,000 are sent to the BPI quality control laboratory. Contents are tested for moisture (acceptable content is 1-2%), glucose, chloride, and bicarbonate. They have no functioning flame photometer for measuring sodium and potassium.

7. When queried about the possibility of increasing production, BPI officials estimate that the present setup will have an annual capacity of 2.4 million 1-liter packets with a single shift plus one or two hours of overtime. This implies operating the filling/sealing machine at a rather conservative 30 packets per minute. They would be very reluctant to add a full second shift if additional packets are needed for fear of wearing out the machine, although to date there have been no failures that could not be repaired with spare parts on hand.

8. BPI official say space for a second filling room can be made available should another machine be needed for increased production. Another air-conditioning unit would also be required. They prefer not to install a second machine in the present room. It is understood that funds for additional equipment are available from UNICEF through a program for strengthening essential drug production in Burma.

9. I said that I would discuss the provision of a flame photometer with UNICEF. Due to the possibility of separation of the premixed ORS and the difficulty of re-mixing a 240-kg drum, the ability to test the packets or processed mixture for sodium and potassium would seem critical. Alternately, the mixture could be supplied in smaller drums, preferably not more than 50-kgs which could be re-mixed.

Annex 2. Potential ORS Production by "Cottage Industry " Co-operatives.

1. Although not likely for the next few years, it is possible to foresee a time when donor support for ORS supplies will run out and a shortage of foreign exchange will turn attention to the production of packaged ORS using inexpensive, locally-available materials.

2. The two most expensive imported components of ORS are the anhydrons glucose and the packaging material. It is possible to substitute locally made ordinary sugar (sucrose) and cheaper polyethylene or polyester film for these, and to further reduce costs by using locally-made salt for pharmaceutical-grade sodium chloride, and a cheaper grade of bicarbonate or citrate and potassium chloride. Most of these substitutions will have an adverse effection shelf life. Some research has been undertaken recently on the use of Burmese sugars and salt in oral rehydration fluids. Further work is required, as is operational research on the issue of required shelf life.

3. Should these approaches prove technically feasible and economically desirable, the Cottage Industries Department of the Ministry of Cooperatives is, in principle, willing to look into the possibility of developing a practical small-scale production schemes which could be put to use by village co-operatives. The advantage of decentralized production over centralized also remains to be demonstrated.

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CONSULTANT REPORT:

REVIEW OF HEALTH COMMUNICATIONS ACTIVITIES RELATED TO DIARRHEAL DISEASE MORTALITY REDUCTION IN BURMA

Karen F.A. Fox, Ph.D.

THE PRITECH PROJECT

May 19, 1984

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EXECUTIVE SUMMARY

A three-person team visited Burma for two weeks to review the diarrheal disease components of the Socialist Republic of the Union of Burma's community health care program. This report describes the current public communications channel system and describes and analyses the Central Health Education Bureau's efforts to provide communications support.

The overall conclusion is that Burma has accessible mass media coverage of the entire population and that radio could be used to provide not only public health education but also to train and motivate community health workers and other health care providers. Effective use of mass communications will require capacity building for the professional staff of the Central Health Education Bureau in communications research, and in mass communications planning, production, and management.

The specific mass communications program adopted should be based on audience research and on the ORT approach to be emphasized. A packet-based approach will call for more health worker and physician training, while a home-prepared ORS approach will require special emphasis on instructing and motivating mothers of young children.

The Central Health Education Bureau has already made important contributions to supporting ORT efforts in Burma. This report presents recommendations for further developing the mass communications and other programs to permit even greater contributions in the future to achieving the goals of the People's Health Plan.

1. BACKGROUND

1.1. The Burmese Communications System

1.1.1. Radio. The Burma Broadcasting Service (BBS) is run by the Ministry of Information. BBS is located in Rangoon and transmits over several short-wave bands as well as AM. (AM broadcasts from Thailand, China, India, and other countries can also be received in Burma at night as well as short-wave broadcasts.)

BBS broadcasts from 7:00 a.m. to 10:30 p.m. daily. The AM station (954) alternates programming in Burmese and English during the broadcast day. The same programs are carried beyond Rangoon by short-wave transmission. These short-wave broadcasts include programs in ethnic languages on a rotating basis. Languages include Arakan, Chin, Kachin, Kayah, Mon, Pwo Karen, Sgaw Karen, and Shan, as well as Burmese.

Transmission coverage of the country is 100%. (Short-wave BBS broadcasts reportedly can be heard as far away as Singapore.)

Data on listenership may be gathered by BBS but is not made public. One estimate of audience size is 25 million -- approximately 70 percent of the population. A 1979 estimate of radio sets was 700,000. Assuming this may have grown to 1 million by 1984, this is one radio set for every 35 people. Officials at the Health Education Bureau (1984) estimated that 30% of rural households owned radios, with a higher rate of ownership in cities. A 1983 study of 100 households found that about 55 possessed radios. Radio sets cost from 100 to 200 kyats each and there is a small license fee.

The focus of broadcasts is entertainment punctuated by short news programs (ten-to-fifteen minutes) several times daily. Entertainment is music

(Burmese and Western classical and "easy listening") and a serial titled "Our Village" which uses a stable set of characters who encounter situations considered typical of village life.

BBS divides its audience into three segments--peasants, workers, and youth--and appartently strives to offer some programs targetted to the needs and interests of each segment (e.g., "Our Village" for the peasants). This is in addition to the "general public" nature of the music and news programming.

1.1.2. Television. Television was introduced in Burma in 1981. In that year there were approximately 6,000 sets. TV transmission is limited to one station on the air about 2 hours on weekdays (7:30 p.m. to 9:40 p.m.) and about 5 hours on Saturdays and Sundays. We can assume that TV ownership is now substantially higher, even considering that (1) TV sets must be imported and are very expensive and (2) that the TV signal only reaches a 50-mile radius around Rangoon and Mandalay. Data on TV ownership and audience size is probably gathered by the Ministry of Information but is not released. (There is an annual TV license fee of 6 kyats, which implies some effort to register set ownership.)

Television sets appear to be located exclusively in private homes. Bars, restaurants, and other public gathering places do not have television sets, a reversal of a common pattern in other countries.

TV entertainment consists of cartoons, songs, reruns of American series (The Six Million Dollar Man, Baretta, The Love Boat), and occasional imported or Burmese movies. In addition each evening there is a news and weather program.

Educational (including health-related) programs appear several times a week. In the week of May 7-13, there was a high school physics lesson (15 minutes),

a high school chemistry lesson (15 minutes), 2 BBC English lessons (in one one-hour block), and Sesame Street (one hour on Saturday afternoon). The one health-related program was a 12-minute Sunday evening show on headache and migraine.

1.1.3. Printed Materials. The News and Peridocials Corporation oversees newsgathering, editorial policies, printing, and publishing of all newspapers and (?) periodicals. There are six daily newspapers, all published in Rangoon, with circulations ranging from 20,000 to 150,000. They differ little in size, format, and content. All newsgathering is done by News Agency Burma (NAB), part of the News and Periodicals Corporation. NAB is the only agency authorized to receive outside wire service copy, from which NAB provides newspaper editors with a list of stories from which they may choose. National news is gathered through a country-wide chain of stringers. The editors of all 6 newspapers meet together daily to discuss and clear their editorials with NAB.

Calculating overall newspaper readership is complicated by (1) an undetermined overlap in readership (people reading more than one), (2) lack of data on the extent to which newspapers are available beyond cities and towns, and (3) the estimate that the average newspaper copy is read by 10 people. The most generous estimate of newspaper readership would be the sum of circulation for each of 6 daily newspapers (412,000) multiplied by average readership per copy of 10, equaling 4.12 million readers.

In addition to the 6 daily newspapers, are over 4 dozen weekly, bimonthly, monthly, and quarterly periodicals. These include general interest, party affairs, educational, and news magazines, as well as periodicals on movies, crime, music, physical fitness, humor, science and religious affairs. Some

periodicals a e targetted--for workers peasants, women, children, hi school students, teachers, Lanzin Youth, war veterans, and party members. The ciruclation of the 30-some privately published periodicals ranges from 3,000 to 15,000. Virtually all of Burma's periodicals are based in Rangoon. Magazine content was not analyzed.

1.1.4. Other Media

1.1.4.1. Traditional/Folk Media. Pwes continue to be a vital, popular form of entertainment. A typical pwe combines music, dance, skits, and much slice-of-life humor and gags. A pwe begins in the late afternoon and may continue until dawn.

Pwes are performed by professional troupes who follow circuits booked by local impressarios. Pwes are usually given free of charge by a family or group. Pwe troupes even come to rural villages reachable only on foot or by farm tractor.

1.1.4.2. Cassette Tapes. Ownership of cassette tape recorders is growing. It is estimated that every village has at least one. Cassette players and tapes can be rented in most areas. A 1983 study of 100 households (20 in each of 5 states/divisions) found 29% owned cassette players. Cassette recording and distribution is in private hands. Cassettes include stories told by professional story tellers as well as music.

1.1.4.3. Video Cassettes. Video cassettes are produced and distributed by non-government enterprises. For example, cassettes of sermons by senior abbots are produced and circulated. There is evidence of some sophistication in video tape use. SONY Corporation, which is not licensed to sell in Burma, recently held two seminars in Rangoon, one on videotape editing which drew 100 attendees, and one on video equipment maintenance which drew 80. Videotaping of weddings at Rangoon's top hotels can be arranged. Video production and use in the health sector is apparently nil as of 1984.

1.1.4.4. Motion Pictures. The Burmese movie industry produces 40 to 50 features per year. Production is private, but scripts must be passed by the Film Censor Board before film stock is released for production. The Motion Picture Agency Board imports over a couple of hundred films each year from the United States, Japan, India, and others. Most movie theaters are owned by the government. As of 1970 attendance figures indicated that the average Burmese saw a feature film eight times a year. Health Education Bureau staff report that messages on slides are (frequently ?) shown before feature films and that they have prepared (or could prepare) slides with health messages for distribution to movie theaters.

Films for instructional use in health education are reported to be either wornout, outdated, or where new--as not interesting to Burmese because they show exclusively people from other countries.

1.1.4.5. Billboards. There are a number of billboards in Rangoon advertising filsm, tailor shops, etc. A person desiring a billboard rents the space and hires a free lance artist to design and paint it. There is no information about whether the government uses billboards for mass communication purposes. In any event there are few in Rangoon and doubtless fewer if any beyond the capital.

1.1.5. Advertising and Marketing Firms. While Burma's private sector constitutes 56% of the value of production of goods and services (The Guardian, Rangoon, May 11, 1984), there are no advertising or marketing firms.

1.1.6. Audience/Marketing Research Capacity. Surveys of media impact have been conducted under government auspices. According to the

Health Education Bureau, the Burma Broadcasting Service conduct surveys each summer, carried out by students during the 4-5 months between high school completion and university entrance. These studies are presumably more general than health education. The Institute of Economics apparently also collects and/or compiles data that would be relevant to communications planning.

The Health Education Bureau (HEB) recognizes the value of audience research. From time to time public health students are assigned by their professors to do surveys of sources of health information. HEB, in cooperation with WHO, commissioned Dr. Nyi Win Hman, Psychology Department, University of Rangoon, to conduct a study of the impact of health communications through mass media, defined as posters, slides, films, radio, newspapers, leaflets, booklets, etc. The formal report was prepared in 1983 and reflects very good grounding in research methodology and data analysis

1.1.7. Indication of Credibility. CHEB has at least once used a popular Burmese actress as a spokesperson for a health education program. Using government and religious figures as spokespersons is apparently not considered seemly.

Research would be needed to determine the relevant components of communicator credibility for health communications.

1.2. Previous Communication Experience

1.2.1. Other Public Sector Experience. Burma has highly successful programs to increase literacy and agricultural production. Neither program has made significant use of mass media communications, however. The literacy program has tremendous government support. The leaders of the literacy program and the many volunteers are committed and receive recognition for their efforts.

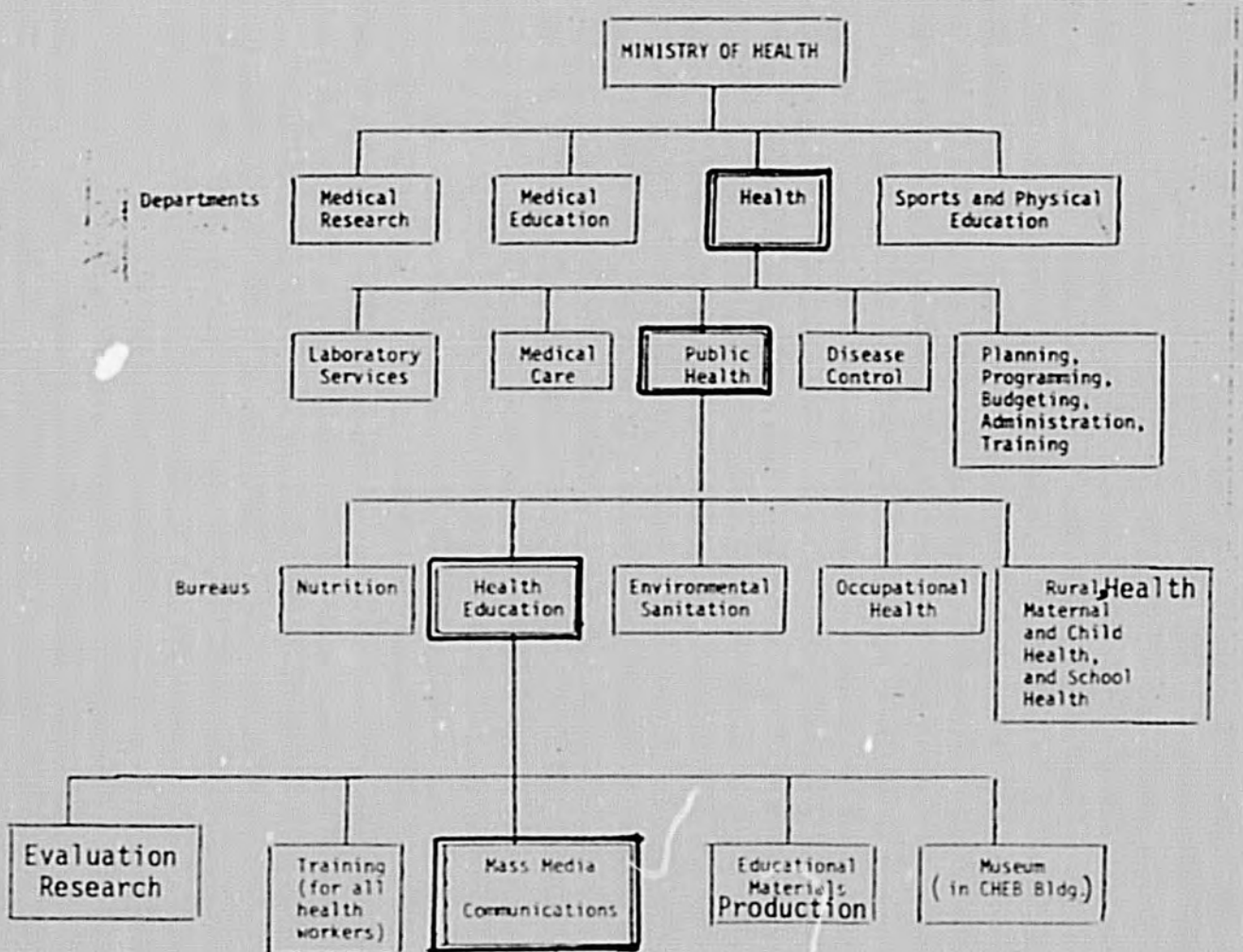
Agriculture programs are carried out through 15,000 well trained agricultural extension workers. Thirty percent have university degrees in agriculture, and most of the others have completed an agricultural technical high school course or have an agriculture diploma. The effectiveness of the extension workers is greatly increased by the fact that the government owns most of the agricultural land and can suggest to those who lease it what crops to plant and what seed, fertilizers, pesticides, and techniques to use.

These are impressive examples of large-scale programs but neither has a mass media communications component.

1.2.2. Private Sector Marketing/Advertising. Not organized or accessible.

1.2.3. Health Sector Communications Experience. Health communications are developed principally by the Central Health Education Bureau (CHEB) in Rangoon in response to requests from program managers in the Department of Health. In some instances the UNICEF communications officer has collaborated in preparation of posters, booklets, and flyers.

The Central Health Education Bureau (CHEB) is responsible for virtually all health communications, including training programs for all health workers, production of educational materials, a museum on health for school children, as well as mass media and communications.



The CHEB sees its role as providing support for other areas of the Department of Health (DOH), particularly Public Health. The CHEB responds to requests and also asks "What kind of materials do you want?" CHEB also translates and reprints WHO materials.

The CHEB is headed by an Assistant Director. Each of the five areas has one senior person and one assistant. All ten professional staff have university degrees -- one an M.D., one a master's in Community Medicine, one a Master of Arts -- and the Assistant Director has also completed advanced study. Some CHEB staff nave participated in study tours and training overseas.

Most of them have developed their skills "on the job," and did not have specialized training before joining CHEB. Each senior professional has an assistant who is learning as he works.

The CHEB has tremendous responsibilities with a very limited staff. CHEB could potentially make a major contribution to preventive health through mass communications if the necessary expertise, training, and other resources were made available.

Process of Communications/Materials Development. When CHEB receives a request for assistance, CHEB personnel will meet with the requestor to discuss who is the target audience, what content, and (presumably) what media. There is some evidence that requestors (typically doctors) come to

CHEB and ask for "a poster," "a booklet," or "a radio show" without going through prior analysis. In such cases CHEB complies with the request and develops the requested material in the specified format.

Educational Materials Development Experience. The CHEB produces health textbooks for all educational levels, and for training of health workers. They prepared booklets for community health workers on several topics related to mothercraft. (When asked if booklets were distributed to mothers, CHEB staff explained there was no money to support wider distribution.) CHEB also produces 3 titles per year on health topics which are used as reading material in the literacy program. (Titles are also prepared by Agriculture and other areas.)

Mass Communications Development Experience.

Radio. The CHEB regularly prepares radio programs for BBS transmission. Once assigned to prepare a radio show, CHEB (and the requestor) establish the form of presentation: discussion, interview, drama, dialogue/Q&A. CHEB prepares the script which is then reviewed first with a specialist and then by the Health Education Advisory Committee who must approve before the script can be used. The approved script then goes to the BBS for BBS approval. Once approved by BBS, BBS produces the radio programs with involvement of CHEB staff. This process does not appear to involve pretesting of either the radio script or the execution with members of the target audience before broadcast.

At least one CHEB health program is broadcast each week, then subsequently repeated once or twice in different time slots. The typical CHEB program is about 15 minutes long. Programs are also translated into other languages for broadcast to ethnic minorities.

CHEB also provides health content which is woven into an ongoing radio serial "Our Village" from time to time. Beamed at rural listeners, "Our Village" is considered one of BBS's most popular shows.

CHEB staff report that BBS 'always wants more programs," indicating approval of and support for the job CHEB is doing in this area. Health topics enjoy a demand second only to agriculture.

Songs. CHEB also oversees the development and production of health songs. They provide composers with the health content and then select the best songs. CHEB then attempts to recruit the best popular singer to record them. Cassettes are copied and distributed to State and District Health Officers and to District Medical Officers in the hope that they will be used in connection with health related and other public events. There is apparently no data on whether or who these song cassette tapes are used by health and medical officers.

The songs are also broadcast on BBS, typically just before and following a health program. Listeners can write BBS and request songs. Some of the health songs have been so requested.

The recent set of songs included an ORT song, which apparently isn't considered the best. CHEB identified their best songs on the following topics:

- health care for all by 2000
- nutrition
- dengue fever
- childcare

Other Media. CHEB also prints some health messages in donated newspaper spaces. These appear to be slogans (e.g., "Health Care for All by the Year 2000") rather than information or calls for action.

CHEB also provides slides to movie theatres in 200 towns (of the 314 towns with movie theatres). These slides are shown before the feature film.

CHEB reports that most health education films in Burma are over 25 years old and are wornout, obsolete, or both. CHEB reports "trying to produce film."

Quality of CHEB Materials and Communications. All CHEB materials are in Burmese and thus content and presentation style cannot be assessed. Print materials include some multi-color printing and overall production qualities probably match or exceed the production qualities of other print materials produced in Burma.

Likewise radio broadcast quality was not analyzed. There are some indications that radio programs could be strengthened by socio/anthropological research of audience characteristics, by pretesting, and by an evaluation of impact. For example during one plague outbreak a radio message was aired telling people to douse rats with kerosene and light them with a match, when most listeners either hadn't been able to obtain kerosene for a long time or couldn't afford it. CHEB may also miss some important communications opportunities, perhaps by its responsive position. Hepatitis B is a major health problem at certain seasons of the year. CHEB produced a lengthy book for physicians on the medical complications of hepatitis, but there was no public health education program.

Coverage of Health Topics in Mass Communications. The mass communications staff at CHEB prepare 8 to 10 radio programs each month, and in addition they prepare film scripts (for the Central Film Division of the Motion Picture Corporation), and they are working on TV programs, although CHEB does not have its own facilities and equipment to shoot videotape.

Separate radio programs are developed in four categories: "Health Corner," peasant programs, youth programs, and special programs in response to epidemics or using WHO materials. Appendix A presents the model for mass communications prepared by U Bin Soe. Appendix B presents the numbers of radio programs by audience category for each of the four major programs of the People's Health Plan for 1981, 1982, and 1983. This chart indicates the Mass Media section's efforts to provide appropriate coverage in each area.

Other Health Education Materials Noted. Health center educational materials appear to be mostly w ll posters. In the one Rural Health Center the waiting area walls had nearly spaced posters, but most were old, some had over complicated messages, and at least one was no longer relevant -- a poster on the benefits of smallpox vaccination in a township where the last case of smallpox occurred some years ago. The posters appeared to be wall decorations rather than adjuncts to health education. Six of the newer posters were in the staff meeting room and dealt with mosquito control and other topics. The staff room was also equipped with a Nystrom Chart Set (8 charts) on "Systems of the Body," which presumably is used in some training programs. The center staff told us they have a flannel graph for use in giving talks to mothers.

In the outpatient waiting room in the Township Health Office we observed no posters on walls. Of course the presence of posters by itself does not indicate a better health education result, nor their absence a poorer one. But the virtual absence of print and pictorial materials for patient and preventive health education does suggest that much of the health education provided consists of the health workers' instructions when the person or a family member is already ill.

Impact of Health Education Communications Efforts. A 1983 study by Dr. Nyi Win Hman of the University of Rangoon is the one document reviewed which deals with impact. The report is titled "A Ctudy on People's Perception Towards Health Information/Education Delivered Through Mass Communication Media (Printed, Projected, Broadcasted) at the Level of Home, Community, First Health Facility."

The reports presents findings from structured interviews with three members of each of 20 households in one township or village in each of 5 States/Divisions. Areas from which samples were drawn vary in rural/urban and presence/absence of People's Health Plan (PHP). Hlaing Township in Rangoon Division was the only urban area sampled. In each household the mother, the head of household (or other adult family member if head unavailable), and a high school age boy or girl.

Data collected included:

(1) personal data and reported general exposure to health education (HE)

(2) factual knowledge about infections and vector borne diseases and prevention

(3) factual knowledge about personal, house-environmental, and food hygiene and nutrition

(4) factual knowledge of maternal and child health and vaccination/ immunization

(5) reported exposure to health education concerning infectious diseases, hygiene, maternal and child health, and immunization and the channels through which this exposure took place. The interview schedule was not included in the report so it is not known whether knowledge of diarrheal disease prevention and treatment were measured. Personal and household data included age, ethnicity, religion, education, occupation, monthly income, mean number of family members, mean number of children and adults per household, type of house construction (bamboo, wood, etc.) type of latrine, specified waste disposal site, source of drinking water and possession of radio and/or cassette tape recorders.

The study concludes "There was very weak evidence of real acquisition of health information and knowledge from the media." A mean of 41% of the total sample reported exposure to health education and 42% reported exposure to health posters, however there was little reported acquisition of health information through radio or print materials. In the Rangoon sample 60% of mothers, 75% of heads of household, and 45% of high school youth interviewed (N=20 of each) gave the subject of one or more radio health programs they had heard, but in the other 4 samples fewer than 30% in any group were able to do so. Except for Rangoon heads of household, few if any subjects reported health subjects read about in the newspaper.

Given the limited impact of mass media health communications to date, most current knowledge and information about health apparently comes from interpersonal sources. The study author recommends more group health education instruction, to replace "individual-oriented methods", apparently the primary channel of health information now. It is not clear why the author does not recommend further development and testing of mass media health communications, the potential of which has not yet been well tested in Burma.

Role of UNICEF. UNICEF has a full-time communications officer with preparation in journalism, Samphe Lhâlungpa. He has worked on health materials, sometimes at the request of CHEB, sometimes by direct request from a DOH program manager. For example, Lhalungpa developed some nutrition posters and print materials, including a 2-sided flyer for mothers on mixing home ORS as well as nutrition and weighing. UNICEF-Rangoon also commissioned and recently (1984) produced an excellent 62-page manual entitled Pretesting Communications Materials which instructs trainers and supervisors in pretesting, particularly in child health and nutrition education programs. Examples in the manual come from work done in Nepal

and Burma. Sixty copies were distributed to CHEB April. A short version of this manual will be prepared for field workers and will be distributed by Central Medical Stores. UNICEF also developed a demonstration tape of health songs, hiring the composer and musicians, locating a singer, and renting a private recording studio. At present (May 1984) UNICEF has not developed a plan for using the tape/songs.

1.3. General Attitudes Toward Communications

1.3.1. Held by Government in General. The government controls all the mass media, which suggests that the government feels that the mass media can have an impact on people's knowledge, beliefs, and behavior. The government controlled media apparently have not been used to any significant extent for mass communications campaigns in agriculture, literacy, health, or other areas. This suggest that perhaps the government has not yet considered the potential inherent in its direct access to the mass media.

1.3.2. Held by the Department of Health. The leadership in the Department of Health and especially in the Central Health Education Bureau believe that health education is essential and support the idea that all possible delivery systems sshould be used. The People's Health Plan II (1982-86) does not, however, include a communications component.

1.3.3. Held by the Private Sector. No information.

1.3.4. Held by the US AID Mission. The present Health Officer strongly supports health education and communications as a new area for potential AID support. He has good rapport with the CHEB.

1.3.5. Held by UNICEF. UNICEF is a strong supporter and includes communications support in almost all its health/nutrition programs. UNICEF has budgeted $400,000 for communications support for the 1982-1986 period.

1.4 Role of Health Communications in ORT

1.4.1. Evolution of Policy. As of 1984 there has been no stated strategy regarding use of health communications in ORT in any coordinated manner. There are no data on current public awareness of ORT, ORS, or how to judge the severity of dehydration, nor are there communications goals (such as, "to increase awareness of ORS packets among mothers of children 0-3 years of age from x% to y%"). The education/communications objective has instead been to train new health workers in these areas.

1.4.2. Level of Integration of Health Communications Programs Within the Sector. The Central Health Education Bureau is the principal producer of educational materials and communications but CHEB has not yet been able to develop a planned integrated communications program as they primarily respond to specific requests from other areas. Such an integrated communications program would put a heavy burden on the time, expertise, and experience of present CHEB professional staff.

1.4.3. Achievements to Date

- CHEB has produced a range of print materials on ORT (and related areas), as well as radio-programs and songs.
- Several CHEB staff have received advanced training in public health and one is currently studying abroad.
- CHEB has an interest in doing communications research to strengthen the effectiveness of their work, and CHEB, with WHO, commissioned a media effectiveness study last year.

1.5. Constraints on Health Communications Activities

1.5.1. Probable Limitations as of 1984

1.5.1.1. Staff Resources. CHEB staff are already working hard to try to meet the current level of demand for its services. CHEB's wide scope of responsibility -- producing virtually all the health training, education, and communications materials for the entire country -- could absorb a much larger professional staff. Any increased use of mass communications for health would require additional staff.

1.5.1.2. Skills. The CHEB staff professionals have university degrees and some have had advanced training but none have had experience in researching, planning, and implementing an integrated mass communications campaign. Extending current skills and learning new skills would be required. Present health education materials programs.

1.5.1.3. Perceptions. CHEB is viewed by some health program managers as an agency which serves their educational materials and communications needs. This is an appropriate perception, but health program managers (primarily physicians) may tell CHEB's development expertise. CHEB could probably be more effective if viewed as valued consultants and partners. In the case of a mass communications campaign, CHEB would have to have considerable authority to plan and implement programs without lengthy delays.

1.5.1.4. Past History. The potential of radio has not been fully appreciated as yet. There is apparently no previous history of consciously using radio and/or other mass media campaigns to train health workers or to inform and motivate the general public.

1.5.1.5. Research. CHEB acknowledge the value of research in identifying and understanding target audiences, pretesting materials, and

evaluating impact. At present CHEB does not have enough staff with professional training and experience in communications research to undertake a substantially expanded research program.

1.5.1.6. Linkage Between Health Communications and Primary Health Care Workers. To date the linkage has been in the form of training materials and manuals included in health workers' kits. Mass media communications, when used, have not been coordinated with the efforts of health workers as yet.

1.5.1.7. Cultural/Linguistic - At present educational materials and communications are all produced in Rangoon. Selected radio programs are translated by BBS for broadcast to ethnic minorities, Direct translation may not adequately adapt these messages to the experience and beliefs of ethnic minorities. Different messages, settings, and examples may be essential. Pretesting would be very important.

1.5.2. Awareness of Limitations. These constraints have not been perceived as significant as long as CHEB continues with its present tasks. Any new efforts would have to deal with tehse constraints.

1.5.3. Efforts to Overcome Limitations. CHEB currently has one staff member studying for an M.P.H. in Manila. CHEB is striving to do more radio programs and to work with television, but without additional expertise and staff major improvements will be very slow in coming.

1.5.4. Potential for Removing Limitations. CHEB staff appear to have the educational background, experience and motivation to develop and perfect their skills in communications, if training opportunities and appropriate technical assistance were made available.

1.6. Strategic Options

1.6.1. Public Sector. Communications strategies available to the Department of Health and the Central Health Education Bureau include the following:

1. CONTINUE THE STATUS QUO IN COMMUNICATIONS. Continue present packet distribution through health centers and community health workers and continue the present combination of health training, radio programs, and print materials.
2. PROVIDE COMMUNICATIONS SUPPORT FOR A PACKET-BASED APPROACH. This strategy would call for the following types of communications:
   2.1. Communications and training for physicians (government and private) and other health workers, instructing them in preventing, recognizing and treating diarrheal dehydration through packet and home-prepared ORS and through continued feeding.
   2.2. Mass media messages for mothers on the same topics, as well as informing them where they can obtain ORS packets.
   2.3. Enhanced information on packets.
3. PROVIDE COMMUNICATIONS SUPPORT FOR A HOME-PREPARED SOLUTION APPROACH. If the decision is made to emphasize home treatment of diarrhea and dehydration, the following types of communications support would be called for:
   3.1. A carefully researched and developed mass media (radio) campaign to instruct mothers (and others) about the causes of diarrhea, determining severity of dehydration, the importance of continued feeding, and correct

preparation and use of home ORS.

3.2. Information for doctors and other health care providers on the above topics.

3.3. Development of audio and visual materials for use in training health workers and for health workers to use in training mothers and others.

2. RECOMMENDATIONS

2.1. Develop Communications Capacity of CHEB

Any increase in communications effort will call for skill enhancement in communications research, and in mass communications planning, production, and management. This capacity building would prepare CHEB for an expanded role in health communications in general, as well as in support of ORT.

This training could draw on experts at the University of Rangoon and the Institute of Economics; short- or long-term technical assistance; and overseas training. Technical assistance would probably be the most fruitful approach, since advisors could train CHEB staff and also demonstrate the skills by working along with them on a communications project. Since different skill areas would be important, technical assistance should involve several advisors, eah with special expertise. A high calibre of training would enable current CHEB staff to train new staff in the years ahead.

A valuable adjunct to this "on the job" training would be study trips to observe how mass communications are being used in other countries to support health priorities.

2 2. Develop Public Health Communications Programs

2.2.1. Design and conduct an extensive communications research program to identify target audience for ORT communications, and to learn their present ways of dealing with diarrhea in young children, their knowledge of prepackaged and home-prepared ORS and of continued feeding, their media access and usage patterns, their use of and access to various types of health care, and key demographic characteristics.

2.2.2. Based on research evidence, select target audiences for subsequent communications and conduct focus group interviews to identify attitudes, knowledge, and other factors which will determine potential messages and approaches.

2.3.3. Develop and implement a mass media health communications campaign which enlists doctors and other health workers along with direct public education using radio and print. This campaign could be implemented and evaluated in selected areas of the country to compare the effectiveness of various combinations of campaign components (e.g., radio alone, radio plus leaflets, radio plus health worker involvement, etc.)

2.2.4. Develop, test, and print important information for mothers directly on the ORS packet. This information should include the importance of continued feeding.

2.2.5. Prepare and distribute health education materials for health workers to use to teach mothers, other health workers, and the community. Materials should "tell the story" and not depend heavily on the memory or educational level of those who use them. Examples include picture flipcharts and story casettes.

2.2.6. Consider the feasibility of providing supporting print materials to households. For example, paper fans can be printed with health messages and distributed, with the advantage that people will keep and use the fansand the health message will be reinforced.

2.3. Expand Provision of Technical Information

2.3.1. Through the Burma Medical Association, provide training, publications, and other information to physicians particularly those in private practice.

2.3.2. Develop and implement a series of radio programs for use in training and retraining health workers. Health workers could be advised to listen to this radio program regularly. Programs would present stories of how a health worker handled a particular situation, role playing of a typical situation, and encouragement to health workers on progress in improving public health.

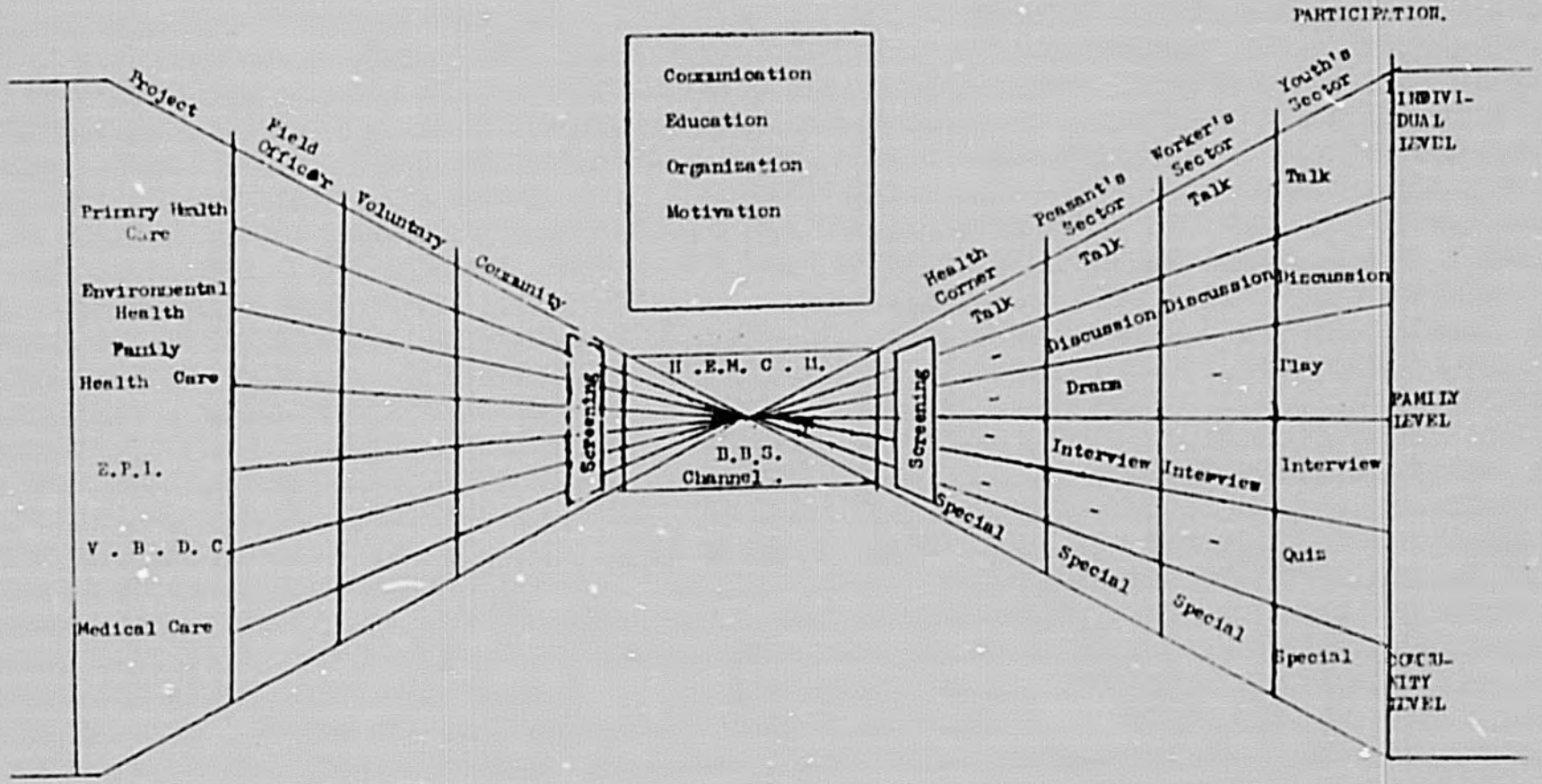
APPENDIX A

HEALTH EDUCATION MASS COMMUNICATION MEDIA

APPENDIX A

HEALTH EDUCATION MASS COMMUNICATION MEDIA

PATTERN.



APPENDIX B

CHEB MASS COMMUNICATION ACTIVITIES

IN SUPPORT OF ONGOING PHPP PROGRAMS

1981 - 1983

APPENDIX B

CHEB Mass Communication Activities in Support of Ongoing PHPP Programs, 1981-1983

1981

PHC Programs	Health Corner	Peasant Program	Youth Program	Special Program	Total	%
Community Health Care	6	10	4	-	20	16.13
Disease Contr	16	20	12	2	50	40.32
Environmental	4	6	4	-	14	11.29
Hospital Care	26	8	4	2	40	32.26
	52	44	24	4	124	100%

1982

PHP Programs	Health Corner	Peasant Program	Youth Program	Special Program	Total	%
Community Health Care	6	12	10	2	30	23.07
Disease Control	30	8	16	-	54	41.53
Environmental Health	4	16	2	-	22	16.94
Hospital Care	12	6	6	-	24	18.46
	52	42	34	2	130	100%

1983

PHP Programs	Health Corner	Peasant Program	Youth Program	Special Program	Total	%
Community Health Care	2	15	13	-	30	24.2
Disease Control	26	13	10	2	51	41.1
Environmental Health	6	4	2	-	12	9.7
Hospital Care	18	5	8	-	31	25.0
	52	37	33	2	124	100%