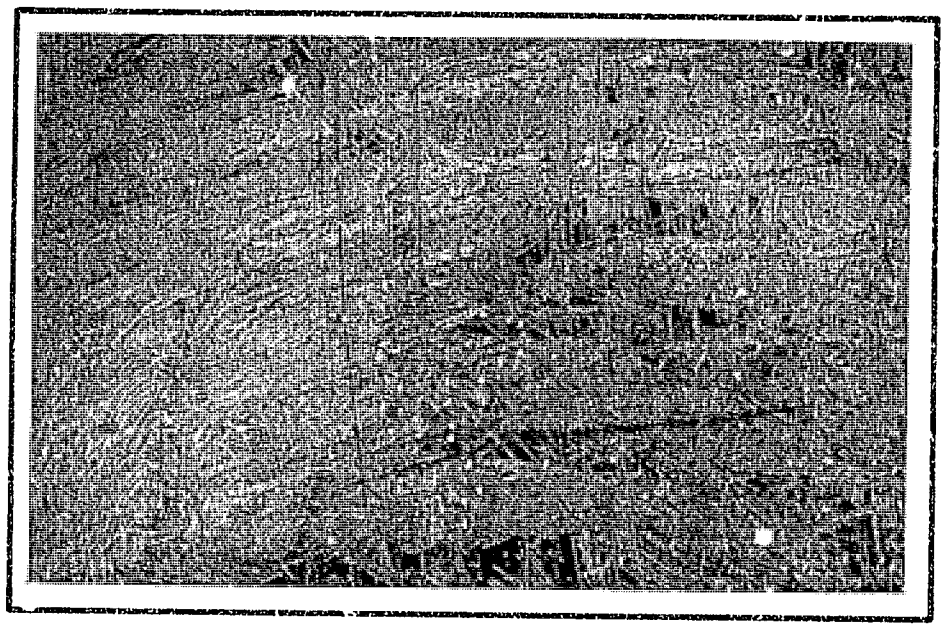

PRITECH

Technologies for Primary Health Care

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ZAMBIAN NATIONAL DIARRHEAL

DISEASE PROGRAM

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Foreward

This report was prepared by a PRITECH team after a brief visit to Zambia for two purposes: (1) to provide the Ministry of Health with comments on the national program for control of diarrheal diseases, and (2) to provide the basis for USAID/Washington approval of PRITECH activities in Zambia. Readers in Zambia may be more interested in the Summary Findings and Recommendations, and the Sections concerned with plans (pages 57 - 79). Appendix B proposes some management arrangements. Appendix C is a tentative list of activities for communications and training which will need further discussion with the Ministry and donors, especially UNICEF.

The team is grateful to the Ministry of Health staff for their generous provision of time and attention, coordinated by the Assistanct Director for Primary Health Care, Dr. Nyaywa.

April 18, 1986.

Zambian National Diarrheal
Disease Program

APPENDIXES:

Basic Statistics - Zambia [a]/

Population	1983	Percent of Total
National Total	6,245,000	
- below one year	218,600	3.5
- one to four years	949,300	15.2
- 5 to 14 years	1,830,000	29.3
- women 15 to 45 years	1,399,000	22.4

Adult Literacy (1980)

Male	79%
Female	58%

Health Statistics (1983)

Crude birth rate	48 per 1000
Crude death rate	16 per 1000
Natural growth rate	3.2 %
Infant mortality rate	105 per 1000 live births
Child mortality rate	20
Life expectancy at birth	48.3 years

GNP per capita (1983) US $ 580
(UNICEF)

[a]/ Source: "Primary Health Care-Zambia," Dr. R.S. Patel, Primary Health Care Advisor, Ministry of Health, Zambia.

ZAMBIAN NATIONAL DIARRHEAL DISEASE PROGRAM

I. Executive Summary and Recommendations

A. Rationale

It is generally agreed that diarrheal diseases are among the major health problems of preschool children in Zambia. Rates of morbidity and mortality indicate that diarrheal diseases are the leading conditions in every district. ORT, as one of the primary health care interventions, is an inexpensive, widely available, and appropriate method for clinical management of the dehydration associated with diarrheal diseases. The following intervention strategy is based on the February 1986 plan of operation for "The Control of Diarrhoeal Diseases Programme" published by the Ministry of Health, Government of Zambia (GRZ). (See Appendix A.)

B. Team Findings

1. General

a. Management capacity of the MOH is stretched to the limit and requires shoring up.

b. ORT activities are underway which need to be continued, expanded and accelerated.

c. Links among CDD program activities are crucial and can be strengthened.

d. To achieve program objectives, all existing health delivery systems need to be reinforced (the MOH services including the missionary hospitals, the mining hospitals, and the military health services), and other service delivery systems will

need to be involved. Currently, 25% of rural families are beyond walking distance of rural health centers.

e. Focus of CDD efforts should remain on families and communities.

f. CDD needs to be promoted not as an isolated or vertical program, but as an integral part of primary health care (PHC). CDD can be employed to lead the way for strengthening PHC activities such as nutrition, EPI, and health education.

g. We see CDD as central to PHC because it involves all the basic elements of PHC:

(1) education,

(2) training,

(3) community involvement,

(4) appropriate drug use,

(5) prevention,

(6) environment,

(7) CDD puts health care in the hands of the mother.

h. CDD lends itself to interministerial collaboration among Ministries of Health, Higher Education, Social Development, Agriculture, Education, and Information and Communication.

2. ORS Production

A standard packet size (either 1 liter or 750 cc. mix) must be chosen before nationally standardized production can begin and before educational materials and messages can be designed and produced. The whole program will be delayed until

this decision is made. SIDA is withholding ORS from its drug kits until there is a decision.

a. Regarding the 750 cc. packet size:

(1) Pros

- Bottle size readily available. Only 60% of Mazoe bottles returned. Other kinds of 750 cc. containers are available.
- Materials for 500,000 packets exist in Kabwe.
- 500,000 instructional inserts have been printed.
- Inter Chem is able and willing to switch to 750 cc. packets for commercial sales.
- Schweppes expects no change in size and has placed a new order for 750 cc. bottles.

(3) Cons

- Possibility of prolonged delays in G.P.L. production.
- One liter UNICEF (and Inter Chem) packets are available, 400,000 in central Lusaka stores and many distributed.
- Other one liter UNICEF packets may be on order.
- Change in Mazoe bottle size may occur as in Zimbabwe.

b. Regarding the one liter size packets:

(1) Pros

- They exist in Zambia and are in the supply system.

- UNICEF cost is approximately 1/2 that of local production.
- UNICEF one liter packets can be purchased/or obtained in emergency shortages.

(2) Cons

- Standard one liter measuring system is more complicated.
- Kabwe production and inserts currently set up for 750 cc.

3. Communications

a. A number of materials and an informative newsletter have been developed (BWINO).

b. There are ongoing radio programs in English and seven local languages, and a television program.

c. Efforts to cooperate with other health agencies have been initiated.

d. The Health Education Unit is productive and experienced, however, the staff of the Health Education Unit (MOH) is overextended with handling ongoing programs, without initiating new ones.

e. Additional expertise in graphics and radio broadcasting are needed to initiate programs at the district and local levels.

f. Communications materials need further pretesting with involvement of representatives of the target audience.

g. Intensive work in the field is necessary to implement programs at the local level.

h. Lack of transportation represents a major constraint to field work effectiveness.

4. Training

a. Personnel at various levels have been trained in ORT, including trainers who, in turn, have trained others.

b. WHO modules have been used; however, there is need for adaptation and development of training materials for local situations, particularly for rural health workers.

c. The training staff is overextended for carrying out the existing training programs and cannot dedicate adequate time to development of appropriate materials.

C. Team Recommendations

1. General

a. Authority and direction for the National CDD Program should be provided by a National Program Council for CDD chaired by the Director of Medical Services. Working within the framework of program plans approved by the National Program Council, implementation actions should be approved and directed by a National CDD Program Working Committee, chaired by the Director of MOH services. A CDD Program Manager, working within the MCH unit, should serve as Executive Officer for the Working Committee (See Appendix B).

The actual programmatic activities to deliver health services are to be carried out by each of the systems of health care delivery,

i.e., the MOH, the military services, mining companies and the Churches Medical Association (CMAZ).

b. The program should be carried out nationally, using a standard packet size, consistent program messages and mass media. Implementation will have to occur province-by-province. After completing the implementation plan and training program at the national level, the national CDD staff will need to assist provinical PHC staff to develop provincial plans for training and education. The objective of provincial plans should be to involve as many community level agents as possible (CHWs, TBAs, literacy workers, teachers, extension workers, traditional medical practitioners, sellers of medicines) to extend knowledge of ORT and suppliers of ORS to all families, including those in remote rural areas.

c. The CDD branch will avoid the establishment of vertical and isolated ORT activities, but will support approaches which integrate CDD with primary health care (PHC).

d. Within the Maternal-Child Health (MCH) Unit of Primary Health Care in the MOH, there will be developed a CDD coordination branch composed of a Zambian program manager and an expatriate program facilitator. Although the coordination branch will concentrate on CDD activities initially, it will develop approaches and processes that can be adapted to other aspects of MCH.

e. An MOH program account will be established to support the CDD activities under the supervision of the MCH

Director. UNICEF funds will be channeled into this program account for direct support and implementation of field activities.

f. Support and resources will go to CDD activities in each of the delivery systems (above) up to the point that the specific system is able to absorb such support. Although the capacity of each delivery system may differ, uniform approaches for public education, training, refresher inservice of courses, distribution of ORS, monitoring, supervision and evaluation will be developed.

g. The coordination branch will endeavor to identify all of the CDD activities in the country, and to establish links among related activities supported by bilateral and multi-lateral agencies. For example, the provision of essential drugs by SIDA to six districts and UNDP's drugs for 15 drought-affected areas will be connected to standardized ORT health education messages and uniform training in those specific districts. Similarly, integration of CDD with EPI and nutrition programs will be developed and strengthened.

h. The need for short term consultants for CDD activities will be identified by the CDD coordination unit and authorized by the MOH Director within the framework of the approved CDD plan of operation.

2. <u>ORS Production and Distribution</u> (See pages 60 to 67)

a. A single size packet/sachet will be established for public consumption, although in-hospital usage is open to more than one size packet.

b. The decision regarding the size of packets will affect: production of ORS, instructional materials, and public messages.

c. A final decision on packet size is required quickly and before instructional materials are ready for production.

d. If the decision is to standardize on the 750 cc. size, all the remaining one liter packets in Zambia can be used under hospital preparation and supervision for in-hospital and outpatient needs.

e. The best chance for avoiding the confusing situation of relying on 1-liter packets in an environment where no convenient 1-liter household measure exists, or the even worse situation of having two packet sizes in circulation, is to take the necessary steps to assure that production of 750-ml packets by GPL proceeds without delay. In view of the MOH budgeting crisis due to devaluation of the kwacha, donor support will be required. A useful form of support would be the provision of ORS materials by UNICEF, plus an additional amount of local currency to cover part of production costs. MOH and UNICEF should begin immediately to negotiate an agreement through which UNICEF will donate ORS materials and some kwacha in lieu of imported 1-liter packets.

f. MOH free distribution of ORS packets will be limited by ORS availability of 1 to 2 million packets per year for the foreseeable future due to budget constraints. While the

use of homemade ORT is a part of the CDD program, it can be difficult and costly to teach the mothers, and may not fill the gap between total need for ORT and packet supply. Some interesting possibilities for packet production and distribution exist in the commercial sector, and could fill the gap, at least for the part of the population able to afford it. Commercial distribution of ORS should be considered an integral component of the CDD program for families able to afford purchase. Commercial distribution of GPL ORS should be explored and private sector production should be supported, with the aim of getting a popularly-priced product available through as many outlets as possible. Promotional activities could be planned to reinforce the MOH's ORT promotional efforts.

g. UNICEF should continued reimbursable procurement of ORS materials.

3. Communications (See Appendix C)

a. The strategy to reach families with CDD messages should combine inter-personal contact (e.g., between CHWs and mothers) and mass media (e.g., radio listening groups). This combination should increase adoption of ORT because inter-personal contact can encourage changes of behavior while mass media will reach families with standard messages at low-cost.

b. The Health Education Unit should take the lead within the MOH; however, the staff needs to be augmented by a graphics and a radio broadcasting experts. UNICEF is able and should be requested to provide support.

c. Consistent, standardized instructions for ORT should be determined at the national level, with the form of presentation and language adapted to regions and cultures. ORT educational materials should include an instruction flyer for mothers and families, an instructional booklet and teaching guide for CHWs and other community agents, radio programs, and instructional/promotional posters.

d. Develop expertise at the national, provincial and district levels by conducting training workshops during which participants develop, pretest and produce communications materials.

e. Radio Listening Groups: The broadcasting expert and Health Education personnel will initiate radio listening groups at selected districts as a pilot program.

f. Follow up: MOH/Health Education staff will visit participants periodically to provide support, monitor progress, collect additional materials developed, and carry out other supervisory/monitoring duties as needed.

4. Training (See Appendix C)

a. People to be trained: (1) Medical practitioners including physicians, nurses, clinical officers, pharmacists and traditional practitioners; (2) 4-5000 community level workers including CHWs, TBAs, literacy workers; (3) 600,000 mothers and other family members who give medical care to children.

b. Medical practitioners should learn about ORT through formal and refresher training, i.e.,

- a national seminar for physicians;

- oral rehydration units for experiential training at teaching hospitals;
- incorporation of ORT into curricula at medical training schools.

c. Community level workers will be trained in ORT. The MOH at national and provincial levels will prepare trainers to conduct training at the district levels for supervisors of community agents, who in turn will train and supervise the community agents in ORT at the local level. To reduce costs, this training must be incorporated into routine training programs at the district and local levels.

d. Training materials should be developed for use in routine training programs for all health services systems through workshops for materials design and pretesting. The workshops would involve participants from national and district levels, including MOH, CMAZ, mines and military health systems.

5. Evaluation

a. A baseline survey is essential for periodic and annual data collection to determine the effects of the national CDD program. Cluster sampling techniques will be employed for a national baseline survey of incidence of diarrheal disease, availability or ORS, and effective use of ORT by health workers and mothers.

b. The CDD program staff in the MCH unit will monitor progress in comparison with annual implementation plans.

II. Background

A. Economic History and Structure[1]

The area of Zambia has been a meeting ground for groups probing into the center of southern Africa. The natural boundaries of the Zambezi River on the southern border and the mountainous regions of the northeast made access easiest from the north and west, the route followed by Bantu speaking peoples. For a long time, Zambia's territory, particularly the copper mining area shared with Zaire to the north, has attracted seekers of wealth. The European colonials and traders entered from the south (the British), from Angola in the west (the Portuguese), and from the northeast (Arab and Swahili traders). The British were the most successful in establishing hegemony among the empires controlling the west, the center and the northeast areas.

The territory of Zambia is large and poorly connected by sparse road infrastructure. The British gave their attention to extracting, processing and transporting copper out of Zambia. The modern elements of the economy and the society, and the urban population are clustered along the north-south rail line designed for the copper mining industry. Zambia has the highest proportion of urban population in sub-Saharan Africa, about 45%. Quite recently, another rail line spanned the northeast to permit copper shipments through Tanzania, instead

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[1] This section was drawn largely from the USAID Country Strategy for FY1985.

of South Africa. Zambia has not functioned as a unified entity until the last quarter century.

Many of Zambia's current problems originate in the British colonial period. The British needed cheap labor to work in the copper mines, so they imposed a Native Tax payable only in cash to force the Africans to work for pay. The best agricultural land was reserved for large-scale expatriate farmers to produce cheap maize, instead of developing the indigenous farming system. Tax revenue, much of it coming from the mines, was spent on urban infrastructure and services to benefit the European population, while the rural areas and African agriculture and education were seriously neglected. Traditional systems of agriculture actually eroded due to the loss of labor from the rural areas, their exclusion from the main markets and the absence of a rural road network. By the time of independence, Zambia had unbalanced infrastructure and production capability, with few indigenous managers, technicians and educators.

For several years after independence, rising copper prices produced ample revenue for the government. Large amounts were invested in education, transportation and energy. Urban improvements were focused on large-scale projects and modern industry. Agriculture and more labor-intensive industries were neglected. Development programs failed to establish an economic base for expansion of employment and incomes. In the words of President Kaunda, ". . . most of the industries set up . . . are heavily dependent on imported raw materials and other essential

production inputs; the technology imported has been capital intensive and least suited to the Zambian market. Above all, the planning process has remained weak, both in terms of its impact on decision-making and in terms of its ability to establish a system of monitoring progress of implementation of development projects and programmes."

There are several sets of key constraints to better economic performance. Some are subject to little if any control by Zambian authorities: the political turmoil in neighboring states which has imposed heavy defense costs, disrupted trade routes to the sea, and reduced exports to southern neighbors; the recent scarcity of foreign exchange available to finance imported materials needed in domestic production activities; the drastic decline in Zambia's foreign terms of trade including the precipitous decline in real world market prices for copper exports and higher prices for most imports; and, the recessionary world market demand of recent years.

Other constraints are more controllable through appropriate policy changes or programmed activities. Large portions of the government's recurrent expenditure are subsidies and grants that cover operating losses of parastatals and cooperatives handling agricultural products, inputs and finances. For example, estimates from the published data indicate that in 1980 these subsidies represented 91% of the Ministry of Agriculture and Water Development (MAWD)'s actual recurrent expenditures; in 1981 they represented 83%.

Beginning with 1978 negotiations for an IMF standby loan, Zambia has taken several steps to improve its economic performance and to begin restructuring its economy. Unfortunately, falling copper prices, rising petroleum prices, deteriorating external terms of trade, internal political imperatives and other factors have resulted in setbacks and in some cases ineffective results. Some of the reforms begun such as reduced budget ceilings, increased consumer prices, improved revenue generation, reduced subsidies, reduced domestic credit ceilings and foreign exchange controls have been implemented. Since 1980 the GRZ introduced and maintained incentive producer prices for maize and other food crops to achieve self sufficiency in food production and to reduce foreign exchange costs for importing food grains. This effort has resulted in significant increases in crop plantings, primarily maize.

Real gross domestic income per capita has fallen by 60 percent since 1965, and by 54 percent between 1973 and 1984 alone. Net national savings have gone sharply negative as recurrent expenditures have created budgetary deficits. Debt service payments rose rapidly from 2.5% of export earnings in 1965 to 40% or more in 1982. There has been little improvement in export performance; Zambia relies almost exclusively on the volatile materials (especially copper) export market which produces 95% of foreign exchange earnings. The value of the national currency unit, the kwacha, dropped from more than one U.S. dollar in 1982, to the equivalent of US $.15 in early 1986.

Thus the large investible surplus, which was once thought to have given Zambia high potential for fairly rapid economic development, has not resulted in significant growth and increased productivity and has partially been pre-empted by the urban, industrial and mostly higher income sections of the Zambian economy, leaving the rural and low income groups to subsist on what remains. Within the rural areas themselves, especially the areas outside the "line of rail", limited resources and inadequate markets, transportation and other basic facilities interact to reinforce poverty. Despite the apparent relatively high per capita income, over $500 per year, an ILO study of "Basic Human Needs in an Economy Under Pressure" published in 1980, found one-half the population below the bare minimum nutrition level (especially calorie intake) established for Zambia.

Long-standing rural-urban disparities have persisted and increased: from 1965 to 1980 the prices of agricultural goods declined by 65 per cent relative to the prices of urban products purchased by rural consumers. About 80% of rural families are poor. Although the high real urban wages draw workers into the cities, many urban workers are unemployed; only 23,000 jobs were created in the manufacturing sector between 1965 and 1979. About 26% of urban families are poor.

B. Rural Households[2]

Three types of rural households or farmers have been identified in Zambia: commercial farmers, emergent farmers, and traditional farmers. The small group of commercial farmers are in the top 5 percent or so of all income earners in the country. The emergent farmers have been defined as those who farm less than 20 hectares and sell over 50 percent of what they produce. They are comparatively successful cash crop farmers. They tend to use improved farm technology. Estimates of the size of the emergent farmer group vary from 60,000 to 120,000.

There are approximately 600,000 traditional, basically subsistence, farmers: those using a farm technology based on the hoe or axe (chitemene cultivation) relying on traditional institutions (e.g., not the Ministry of Agriculture) and consuming most of the product grown, fish caught, livestock raised, etc. In 1974, subsistence farmers farmed more than 75 percent of all cropland, mostly one-small plots of less than one hectare and with low productivity hand methods.

Traditional farm families have very poor living conditions, as seen from standards of housing, water and sanitation. According to the 1969 census, inadequate housing was widespread in the rural areas: 80 percent of all homes lacked good thatched roofs; 64 percent lacked adequate sun-dried brick or better

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2 This and the following section are drawn from the 1980 ILO study of "Basic Human Needs in an Economy Under Pressure."

quality walls. Regarding adequate water supplies, 13 percent of rural households in 1974 used tap water; 43 percent were able to use water from a borehole or well, 38 percent had to seek water from a river of stream, and 6 percent found water from some other presumably inadequate source. Sanitation levels are also an indication of low standard of living: 38 percent of rural households in 1974 had a pit latrine or a more elaborate sewage disposal system; 62 percent did not have an adequate system.

Outmigration of working age men from rural areas has given rise to a very uneven distribution of wealth among rural households. Many villages have been deprived of their most able bodied manpower. A 1975 study in seven Zambian provinces showed that the sex ratio of working age adults in rural households was closely related to the general economic conditions of those households; households headed by women were at the bottom of the income scale. Approximately 25% of the traditional farmer households are headed by women.

C. Urban Poor

According to 1972 data there were an estimated 245,000 households in urban low cost and squatter areas and 50,000 families living in high cost urban areas. The rural-to-urban migration and the inadequate supply of urban housing have raised the level of congestion of peri-urban settlements and the standard of living among the poorer households in the urban areas may be declining. Average occupancy per dwelling unit, for example, is believed to have risen in recent years from 4.7 to 6.8 persons

per dwelling. 18.5 percent of urban households lacked adequate sewage access to potable water in 1974, and similarly 11 percent lacked an adequate sewage disposal system. As a result of the increased stress on the urban areas caused by steady rural-urban migration, the quality of urban life and the opportunities for adequate employment are apparently both diminishing. Unquestionably, unemployment is the biggest problem of the urban poor.

D. Health Status[3]

Over the past decade the health status of Zambia does not appear to have improved significantly. Estimation of fertility and mortality levels and trends is uncertain because of problems with the quality of existing data. The best estimate of the national total fertility rate in the 1970s is about 6.75; fertility may have been rising due to a drop in the abnormally high incidence of sterility. The national infant mortality rate (IMR) fell from around 130 in the mid 1950's to about 120 in the mid 1960's, and thence to about 115 in the early 1970's; correspondingly, the proportion of children dying between birth and their fifth birthday (childhood mortality) fell from 22% to 20%, and thence to 19%, respectively.

The national figures are within the general range of fertility and mortality levels in East and Southern Africa. However they conceal sharp regional differentials in both fertility and mortality, which have clear implications for both health and population

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[3] This section is drawn from the IBRD Population, Health and Nutrition Sector Review, October 1983.

policies and programs. Urbanization is a crucial factor in the case of mortality. Childhood mortality estimates for the mid-1960's show a clear general pattern of highest mortality in the rural off-line-of-rail provinces, lowest mortality in the two most urbanized provinces, and an intermediate level in Southern province. The IMR for that period ranged form 82 (Copperbelt) to 175 (Eastern), giving a national average of 121. Past trends also differ systematically, with the urbanized provinces showing marked recent declines in infant and childhood mortality, and the rural provinces only very gradual declines or even none at all; the differentials have thus probably widened over the past 20 years.

This pattern fits well with what is known of background factors such as income levels, general economic development, nutrition, education, and fertility levels. However, there are two puzzling anomalies. One is the exceptionally high IMR found in Eastern province (175 in the mid 1960s) compared to Western, Luapula and Northern provinces (148, 141 and 141 respectively); the other is the relatively lower IMR (98) found in Northwestern province, also combined with a marked past decline similar to the other rural provinces. Both these features are consistently present in both 1969 and 1974 data. Interestingly enough, the population of Malawi, ethnically akin and geographically neighbor to the Eastern province, is also distinguished by exceptionally high infant mortality (close to 200 in the early 1970s); unfortunately no contemporary data are available for the parts of Angola

and Zaire bordering on Northwestern province. Neither anomaly can be explained convincingly by any unique and striking differences among known background factors with Zambia, and further study is required.

Mortality data are unreliable. With no effective registration system, hospital and health center deaths alone are not representative of the community at large. Recent community based survey data do not exist. As mentioned, the crude death rate is approximately 18 per 1000 and the infant mortality rate 115. The leading causes of mortality at health centers in 1981 were measles (26%), pneumonia (14%), malnutrition/anemias (14%), malaria (10%) and diarrheas (10%). It is not possible to disaggregate the data by sex or age. Time trend analysis shows few changes since 1978, but there are some geographic differences. Measles accounts for 25 to 30% of total mortality except in Southern province (15.38%) and in Copperbelt province (5.20%). Malnutrition and anemia range from nearly 8% in Northwestern province to over 31% of total mortality in Copperbelt provinces. Given the high rate of mortality from measles, malnutrition is almost certainly an important underlying cause of mortality.

The leading causes of outpatient morbidity in children under 14 years are upper respiratory illnesses, diarrheas, malaria, fevers, injuries, skin diseases, eye diseases, ear diseases and malnutrition/anemia (Annex 2, Table 2.1). Over 50% of childhood morbidity is due to preventable causes. Differences in morbidity at hospitals and health centers and differences between males and

females are insignificant. When the data are analyzed by province, the leading causes remain the same, but there are some differences in their relative importance. Upper respiratory illnesses and diarrhea are the leading causes of morbidity in all provincial hospitals except Luapula and Western provinces, where malaria is the leading cause. Injuries are prominent in Lusaka, the Copperbelt and Central provinces.

E. History and Current Status of the Health System

1. Public Planning

Since Zambia's independence, the United National Independence Party (UNIP) and the government's emphasis has been to develop health services particularly in rural areas. The Third National Development Plan (1979-1983) emphasizes the following objectives:

a) Continue development of an effective and integrated national health care system;

b) Develop basic health services in rural areas and give priority to those areas where no such facilities exist;

c) Examine the distribution of health workers and expand training programs to attain higher levels of Zambianization;

d) Move toward integration and expansion of preventive and curative services;

e) Provide health protection to an increasing number of mothers, infants, school children and certain vulnerable categories of workers;

f) Decentralize basic health services; and

g) Contribute to nutritional well-being of the population with particular attention to vulnerable groups.

In 1981 the MOH adopted a strategy for implementation of primary health care (PHC) in Zambia to make essential health care accessible to the entire population. Although there is some variation among the 9 provinces, the main activities are expected to be: health education; promotion of adequate nutrition & food supply; promotion of a safe water supply and basic sanitation; maternal and child services, including child spacing; immunization; prevention and control of endemic diseases such as malaria; promotion of mental health; and treatment of common diseases and injuries. There is consensus and widespread support for implementation of the PHC strategy.

The current pattern of disease can be more effectively dealt with through preventive care & simple curative interventions than with hospital-based curative care. Leading causes of morbidity are respiratory illnesses, diarrhea, malaria and injuries. Although mortality data are facility based and unreliable, the stated leading causes of death include measles, pneumonia, malnutrition, malaria, and diarrhea. Health services have been biased toward curative care, but the MOH recognizes the importance of

developing accessible and decentralized preventive and basic curative health care. The strategy for implementation of PHC adopted in 1981 will be carried out in phases with revisions based on pilot study activities.

There are significant inadequacies in the planning framework and these undermine the implementation of the PHC strategy and hamper health sector development. Timing of plans and coordination of anticipated operational costs with planned capital outlays is seriously deficient.

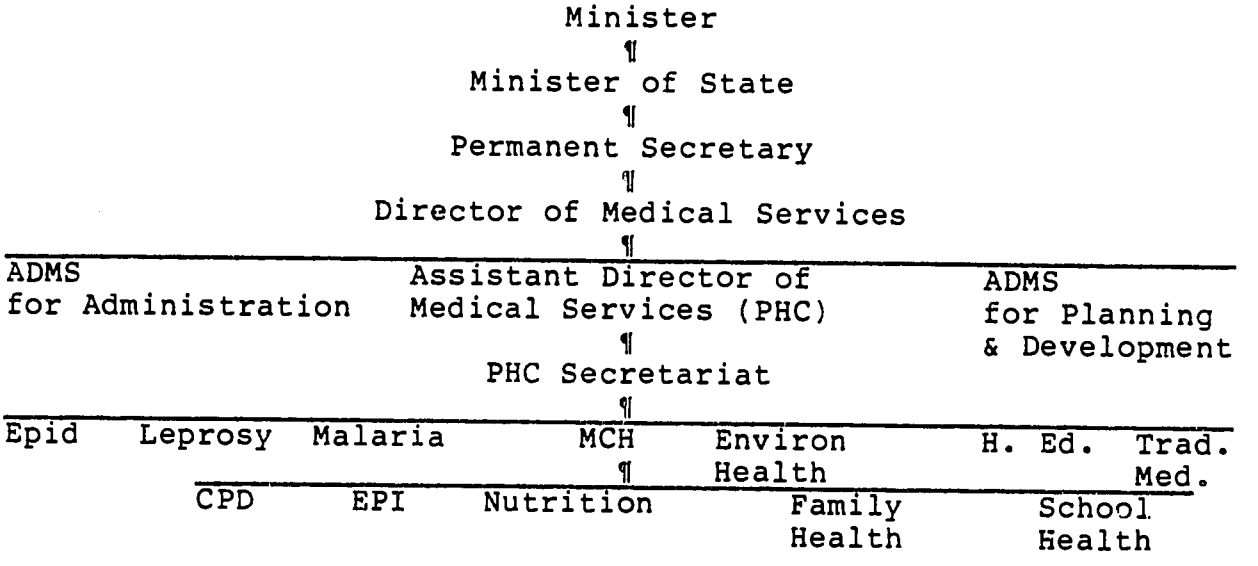
A cohesive long term strategy for health sector development would be buttressed by a 3-5 year plan that indicates in detail the geographic and functional distribution of projects, resources, and expenditures. Such a plan could give details related to recurrent cost implications of capital expenditures. Priorities among programs could be clearly established taking into account both cost effectiveness and distributional objectives. Systems of accounting, data collection and analysis and operational monitoring could be designed to contribute to overseeing cost effectiveness and progress toward stated goals.

2. Organization of MOH Services

To facilitate the PHC strategy, the MOH has been to modify the organization of health services by setting out functional lines of management and involving the districts and communities in the implementation of PHC. Although the concept of decentralization has been accepted by the UMI Party and the Government (Parliament

passed the Decentralization Act in 1980), neither the provincial nor the district level at present are adequately staffed to manage the planned decentralization of PHC. At all levels of the health system, management capabilities must be improved by means of institutional development and management training.

The MOH has an organizational tructure as follows:



The ADMS (PHC) is in-charge of the Control of Diarrheal Diseases Program (CDD), and he has been assisted by the part-time Program Coordinator and a PHC committee at the central level.

In each province there is a Provincial Medical Officer (PMO) in charge of overall provision of health services. The PMO is a member of the Provincial Council which is responsible for inter-sectoral planning, development and cooperation. There is a Provincial Health Management Team which is mandated to work closely with other related sectors. In each province there is a

Senior Medical Officer (Preventive) who is responsible for the day-to-day operations of all PHC programs such as CDD.

At the District Level, the District Medical Officer is in-charge of health services. There is a District Council and a District Health Management Team that helps to stress an integrated approach. The majority of staff training for CDD takes place at the District level.

In the Rural Health Center there is a clinical officer in charge (3 years of training after finishing high school, or Form 5). In some RHCs he is assisted by a health assistant and a midwife for the delivery of services to the community in his catchmen area. Staff training in CDD also occurs at this level. Based at the RHC, the Community Health Workers (CHWs) are the direct link with the community. The CHWs are selected by the community, receive 6 weeks of training and are backed-up and supervised by the RHC staff. The CHWs are each responsible for 300-500 people and involved with CDD in the community. Over 2,000 CHWs have been trained thus far; however, the drop-out rate has been high.

Manpower issues include training, staffing patterns, distribution and manpower planning. In addition, the shortage of local living accommodations may prevent assigning adequate numbers of staff in rural areas. Since the devaluation of the Kwacha, we understand that large numbers of expatriate health professionals, who previously represented the majority of physicians in Zambia,

have left the country leaving large gaps in the coverage at all levels of the health system. Between 1981 and 1984, almost 400 physicians resigned from government service, reducing the total to about 600 physicians in comparison with the over 800 posts available and the estimated 2000 physicians required to maintain health services and training at an acceptable level.

3. Management of Health Services

There are four health services systems in Zambia: (a) facilities directly under the MOH, (b) missionary facilities facilities operating under GRZ policies but coordinated through the Christian Medical Association of Zambia (CMAZ), (c) facilities of the mining companies, and (d) those of the military forces. The mining companies health facilities are in the mining areas, mainly in Copperbelt Province. In the rural areas, the Ministry and the CMAZ health systems each services about half the rural population. The CMAZ receives funds from the MOH budget. General operating policies are established by the MOH, and some standard reports are required. However there is need for more effort directed at coordination among the various components, and at the establishment of a uniform system of training, supervision, monitoring, and evaluation. Currently, there is unevenness in such parameters as well as in the catchment area coverage and the quality of health services delivered by the four systems.

In 1981, the MOH adopted a strategy for the implementation of PHC in Zambia to make essential health care accessible to the entire population. The PHC strategy emphasizes decentralization

and community participation. The MOH has decided to employ the political party structure to develop a strong community base for the PHC program. The community selects CHWs who will be trained to become responsible for carrying out PHC activities in their areas. The CHWs work under the direction of a local health committee and in close relation with the health center staff, either urban or rural. The PHC strategy provides a cost effective approach to provide and expand health services, especially in rural areas.

In a Review of PHC in Zambia reported by WHO and UNICEF in April, 1984 there are certain major findings, including:

1) CHWs are found in many parts of the country, but support and supervisory efforts need a great deal of strengthening;

2) Additional supervision would be require to shift the emphasis from curative work to involvement in more preventive and promotive activities;

3) Supervision of PHC activities at the peripheral level is often inadequate, associated with unavailability of transport;

4) The health information system including recording, analysis, reporting and use was found to be inadequate, requiring review and improvement;

5) The support of activities and supervision require strengthening throughout the system.

As of January 1983, the following number of health facilities were reported: 81 hospitals, 191 urban health centers, 588 rural

health centers, and 63 mobile teams, leprosaria and subcenters. Although 70% of the rural population live in villages with a health facility, 5% of the rural population was underserved and 25% were not served.

4. Financing of Health Services

Prior to the recent devaluation at the end of 1985, the 1983 MOH recurrent expenditure represented 8.4% of the total government's budget, up from 6% in 1980. Health in 1983 received 4.6% of the gross national product.

Nearly 29% of the total MOH expenditure in 1983 came from external assistance. The major external contributions in 1983-1984 came from non-government mines, SIDA, Missions, WHO, UNICEF, and UNDP.

Although the GRZ commitment to the health sector has been firm, the deterioration of the international copper market since 1976 has resulted in stringent fiscal conditions that have significantly affected government revenues and reduced recurrent funds in all sectors. Much of the burden of the shortage of MOH operating funds has fallen on capital maintenance, and along with deterioration of vehicles, buildings, and equipment, the delivery of health services has been impeded. Projected expenditures far exceed projected revenues for the period through 1988. This projected shortfall includes recurrent operating costs required for maintenance and capital expenditures for the PHC programs.

The problems in health financing increase the importance of allocating existing and new resources as effectively as possible. The greater cost-effectiveness achieved by rural PHC should be considered in future allocations. It has been pointed out that such major shortages of funds call into question the present policy of providing all public sector health services without user changes as stipulated in the GRZ constitution. It has been recommended that a phased program of cost recovery including scheduled charges for certain drugs and service and a health insurance scheme be seriously considered.

5. Private Health Services

There is a small number of private medical practitioners, primarily seeing patients in Lusaka, but this number has been reduced in conjunction with the recent devaluation. In addition, it has been estimated that approximately 10,000 traditional healers provide services throughout the country. Some estimate that as many as 9 out of 10 patients seek help from traditional healers prior to coming for MOH treatment and some, in fact, continue traditional medicine while hospitalized. A. Khan, W. Kaunda, J. McGuire; Report from research carried out at the Children's Hospital, Lusaka. The cost of the traditional healer may be greater than that paid to private medical doctors for both traditional healer's consultation fees plus the traditional treatment.

Finally, in addition to major impact on GRZ and MOH budget associated with the recent devaluation of the Kwacha, there have

been major increases in the cost of local foodstuffs. When a family lives on a fixed income, one of the few adjustable items in the household budget is food purchases. Although no documentation is currently available, it may be anticipated that evidence of nutritional deficiencies, particularly among groups who are at high risk such as infant and young children, pregnant and lactating mothers, will increase in incidence.

6. Education of the Medical, Nursing and Pharmacy Professions

a. Training Programs

The key health care providers in Zambia are doctors, clinical officers, registered and enrolled nurses and midwives, health assistants, and village health workers including CHWs and TBAs. Physicians training at the University of Zambia School of Medicine takes 7 years following high school graduation (Form 5). Medical school classes are small and the average output is between 25-30 MDs annually.

The approach followed in the School of Medicine's seven year curriculum in Zambia is similar to that in schools of medicine throughout Africa. The curriculum was taken from that found in Western medical schools and prepares the graduate for medical practice in a more developed country. There is an emphasis on curative concerns of various diseases, a separation out and de-emphasis on both prevention and promotion; therapy is based on the assumption that the ill person will be compliant and be able and willing to follow the thereapeutic regimen. The realities in

Africa in general, and in Zambia specifically, are that preventive and promotive aspects must take the lead over care, along with an emphasis on health education. Medical graduates, as well as other health professionals must be skilled in communication, must be trained to conduct field supervision, and must be a skillful manager and administrator. These modifications deserve careful attention in order to be incorporated into a revised medical curriculum that will be designed to deal with Zambian needs and realities.

The training of registered nurses takes 3 years and is conducted in the country's 4 nursing schools. Each year approximately 170 RNs are graduated. Similar to the medical school curriculum, curative aspects are emphasized rather than preventive health. To support PHC activities, retraining may be required. Nurses, with an additional year of midwifery, may become registered nurse-midwives. Approximately 110 registered nurse midwives graduate from the 2 midwifery schools. Basic nursing training is conducted in the 17 Zambia Enrolled Nurses (ZENs) training schools, with approximately 500 ZENs graduating each year. Attrition is a major problem in the nursing profession with losses of about 30 percent.

At Chainama College of Health Sciences there is a 3 year training course for General and Psychiatric Clinical Officers (CO). Although the CO cadre was designed for assignment in the health centers, with the recent departure of physicians out of

Zambia, more COs are being placed in hospitals and out-patient departments (OPDs). Approximately 60 percent are currently in rural and urban health centers and about 30 percent are in hospitals and OPDs with the remainder on other assignments. Approximately 1000 COs have been trained since 1935, with about half of that total graduated after the new curriculum developed in 1978.

Pharmacist Assistants are being trained at the Evelyn Home College of the University of Zambia. Following high school graduation (Form 5) they receive a 3 year training course. The pharmacist assistants, following graduation, are employed by the MOH in the pharmacies of district-provincial hospitals. In these districts involved in the SIDA Essential Drug Program, the pharmacists in the field are to be provided with additional in-service training. It is thought that most private pharmacies (Chemists Shops) are run by business people without the presence of a registered pharmacist.

Rural Health Center staff, the trainers of Community Health Workers, have been trained at the provincial level, with emphasis on treatment of acute diarrhea and community involvement. Each province has two training programs a year with 35-45 participants each, for one week. Training programs have been carried out since 1984. The total number of trainees to date is approximately 650.

b. Training Materials

Seven ORT modules published by WHO are used in training programs: Introduction, Community Involvement, Assessment and

Control (which is the main module), Targeting, Monitoring, and Evaluation. The training approach consists of reading in group and discussion followed by module), Targeting, Monitoring, and Evaluation. The training exercises and practices. There are also demonstrations, for instance, on the mixing of ORS and the salt and sugar solutions. Recently there have been shortages of WHO modules, thus some training has been carried out using the lecture methodology.

A training manual for provincial personnel is presently being printed. There are no materials specifically for Rural Health Center staff. The WHO materials were considered too sophisticated for this level personnel, thus trainers usually assemble portions of these modules, concentrating on assessment and Control.

7. Distribution of Health Professionals

There is a maldistribution of health manpower in the different provinces of Zambia. The majority of the trained manpower is concentrated in the Copperbelt and Lusaka provinces, where over 70 percent of the doctors and dentists, and over 65 percent of the matrons, RNs and midwives are stationed. Because of the unbalanced distribution, peripheral health facilities are understaffed and generally underutilized. Of all the health personnel in 1983, 79 percent work for the MOH, 10 percent for missions, and 11 percent for industry and the private sector. It is important to note that church-run health facilities provide about 30 percent of all hospital beds in Zambia and in rural areas

provide approximately 50 percent of the ambulatory health services. The mission health facilities are provided with significant MOH funds (estimated at 6 % of the MOH budget), but have the flexibility to carry out activities funded through other sources.

F. Education and Communications

1. Education and Culture

Although enrollment in schools has been rising rapidly, (26% between 1964 and 1979), adult literacy is still only 79% for men and 58% for women. A total of 1,182,044 students were enrolled in primary, secondary and teacher training colleges and the University of Zambia between 1964 and 1984.

There are 78 tribes in Zambia which speak 62 different languages. English is the official language. The seven main languages are Bamba, Nyanja, Tonga, Lozi, Lunda, Kaonde and Luvale. Many thousands of Zambians learned English only to Grade Seven or Form Two; thus the level of understanding of this language is low, particularly if we consider the low literacy rate. Culturally and economically tribes also differ, i.e., some being matrilineal, others patrilineal, agricultural, cattle based economy, etc.

2. Radio and Television

The Zambia Broadcasting Services is government controlled and broadcasts in English and in the seven main Zambian languages. There are two networks broadcast by the ZBC: the General Service broadcast mainly in English and the Home Service which broadcast in Zambia's seven main languages: approximately 38% is broadcast

in English, 13% in Bamba, 12% in Nyanja, 9% in Tonga and Lozi, and the balance in the other languages.

The most recent Mass Media Survey carried out in Zambia (Mytton 1974) with a sample of 4,780 concluded that Bemba and Nyanja were the most widely listened to broadcast languages, followed by English, Tonga, Lozi and Kaonde. Most radio listeners listened for most of the time to the Zambian language programs on Home Service when it was broadcasting Bemba or Nyanja. However, Zambian languages took up only 60% of the total time that the Zambian Broadcast Service was in the air. Only 7% of respondents stated that they understood English very well, although many listened to English language broadcasts because it was broadcast on both networks, thus it had a "captive audience."

The estimated number of households with radio sets is 262,000, with about 60,000 in the Copperbelt and Central provinces, 30,000 in the South, 20,000 in West, East and North, 18,000 in Luapula and 12,000 in Northwestern provinces. Approximately 50,000 households had a radio out of order. The total audience for ZBC radio among African listeners aged 16 and over, was about 1,063,000 out of a possible 1,982,000, these divided between 403,000 in urban and 660,000 in rural areas. The number of audits actually listening to ZBS broadcasts in any day were approximately 497,000 of whom about 267,000 were urban and 230,000 rural listeners. In the Western Province where there were over a quarter of a million persons aged 15 and over, only 20,000 households had radio sets in working order and only about 22,500 adults -- less than 10% --

there listened per day. The estimated radio coverage is 80% in rural areas and 100% in urban areas. In 1982 the number of hours dedicated to education was 2,212 and 2,172 to information.

The (MOH) Health Education Unit has five minute radio broadcasts in English on Mondays, Wednesdays and Fridays. On Thursdays, Saturdays, and Sundays they broadcast in three local languages for 15 minutes. Recently the Health Education unit has started a weekly television program. Radio spots are developed with little prior research and no pretesting due to the lack of a radio production system and of available trained staff.

Television Zambia (TVZ) is government controlled and broadcasts mostly in English. In 1972 there were approximately 18,000 African households with a television set. In 1981 there were approximately 60,000 television sets.

G. Diarrheal Disease Program Activities

1. MOH Policy

Until 1981 there was no specific policy with regard to Diarrhoea Diseases Control, but the Government's policy on health as a whole was to develop preventive health services particularly in rural areas.

The global control of diarrhoeal diseases (CDD) Programme which started as a result of World Health Assembly in 1978 urged among other things member states including Zambia to identify diarrhoeal diseases as a major priority area for action and to apply known effective measures for management and control of

these diseases in the context of Primary Health Care.

In 1981 Zambia adopted a strategy for the implementation of Primary Health Care to make essential health care accessible to the entire population. The fundamental requirements for CDD being:

(a) active community participation;

(b) coordination and cooperation between all sectors engaged in community development;

(c) expansion of services in the rural areas;

(d) training of health workers at different levels.

The present plan is to carry out a massive country wide programme of making popular the use of oral rehydration salts on home treatment basis. To bring down morbidity and mortality due to diarrhoea, preventive measures of proper sanitation and water supply have been instituted.

The Control of Diarrhoeal Diseases activities will be integrated into general health services especially, health education, maternal and child health services including child spacing, and Expanded Programme of Immunization.

2. Health Training

During the medical students clinical rotation on pediatrics, there is full and adequate coverage of childhood diarrhea including description of the etiology, clinical findings, management, and prevention. The medical student is exposed to children with diarrhea at the University Teaching Hospital (UTH) in the pediatric service, in the out-patient, Pediatric clinic, and

in the Pediatric Rehydration Unit. ORT is described to the medical students in the management of associated dehydration and ORS is employed both for hospitalized and ambulatory patients.

There is presentation of ORT in the management of dehydration during the clinical officer (CO) training in pediatrics. However, these are serious shortfalls in the clinical supervision when CO's are out on field assignment throughout their 3 years of training. Nutrition and health education topics are also covered in the classroom, but there may be deficiencies in reinforcement of the messages. Of the 100 hours in pediatrics, COs are given 20 hours directed at CDD. COs are employed by MOH, Mines and Mission health services.

In 1976, along with the introduction of EPI, there was teaching of home mixture of ORS at the community level. The awareness of home-mix ORS for rehydration is considered to be widespread. In 1980, some MOH staff attended CDD seminars in Northern and Luapula Provinces in association with outbreaks of cholera. More recently, in 1984, senior health inspectors were provided with in-service training in C.D.D. More refresher courses are being planned since many of the older health workers in the more remote areas do not know about ORT.

Many health personnel working in Zambia continueto use kaolin, kaopectin and antibiotics routinely to treat patients with diarrhea. Others come from medical training centers where the theory is promoted of the need (role) of "resting the gastrointestinal tract", that is, of withholding food while diarrhea persists.

Nitrogen requirements increase during diarrhea. Children need more food when they are experiencing loose or watery stools. Children who have chronic or recurrent bouts of diarrhea and whose parents modify the diet to reduce "the strain" on the intestines, are bound to have a deterioration of nutritional status.

If the parent seeks help from an herbalist or other type of traditional healer, which as indicated above is extremely common, there is the danger that injurious herbs are given that may prove to be nephrotoxic, causing kidney shut-down, or hepato toxic, resulting in severe liver damage. Although another culturally accepted and beneficial method of treating dehydration is the Zambian tradition of providing sugar-water (without salt). This practice indicates that the concept of rehydration may be present in certain parts of Zambia and merely needs reinforcement along with a slight change in the formula to include salt in the solution.

Many doctors who have been taught ORT consider that this alone is not sufficient, and they prescribe additional medications. Unknowledgeable pharmacists usually have in their stock both ORS and diarrhea mixtures, plus antibiotics. The use of these medicines is inappropriate for treatment of diarrhea; such practices give incorrect messages to the parents who may insist on these prescriptions in future cases of diarrhea.

3. Communications for Diarrheal Diseases

The Health Education unit of the Ministry of Health has developed a number of communication materials: an ORT poster; a

LOGO for the ORT packet; a leaflet to visually explain how to mix ORT; a booklet for mothers, Me and My Baby, which include an explanation and visuals about ORT, when and how to use; the "Bwino Health Care News", a newsletter which is sent monthly to health care personnel. The February issue was on diarrhea control.

Chainama College has developed a video teaching unit on ORT. It represents a positive effort and has been used for teaching. This video unit needs to be reviewed by medical experts, particularly the portion which refers to traditional medicine. It also needs to be pre-tested with its target group: medical/para medical personnel. Pre and post tests could be developed to measure learning gain. An updated/revised version of Chainama's Video Unit could be used in all medical ORT training.

4. ORS Supply and Distribution

What should be a fairly simple system of ORS supply and distribution turns out to be extremely complicated due to the present uncertainty about local public sector production. This uncertainty in turn affects the decision about standard ORS packet size, and significantly complicates the planning of the national ORT program. This section will attempt to clarify the relationship between the major players in the field, and indicate the implications of the decisions which need to be taken.

a. Public Sector

At present, drugs and and supplies are distributed to MOH (and mission) facilities through a dual system. Medical Stores Ltd. (MSL) located in Lusaka, is a parastatal

company which purchases, stores, and distributes drugs for the MOH. Sources include foreign and both private and public sector domestic manufacturers. The stores are large and modern and appear very well managed, with a staff of over 200. Distribution to outlying facilities is done by the M.S.L.'s own fleet, and when necessary some Army 4-wheel drive trucks can be borrowed. The facilities served directly are the provincial centers and general hospitals, with smaller units served if the routes used by the heavy trucks happen to pass nearby.

The MOH is charged the landed cost of the drugs and supplies, plus an additional 20% to cover the operating costs of MSL. The total turnover for 1985 was around K30 million. No duties are paid on goods imported by MSL.

MSL was created as a parastatal in 1976 to relieve problems due to overcrowding at the old Medical Stores. This facility is still in use, and while it is primarily intended as offices of the Pharmaceutical Services and some old stores are being converted to equipment repair workshops, it is also used as stores for materials donated to the MOH, including the ORS supplied by UNICEF (400,000 1-liter packets in stock at present). This organization also has the responsibility for delivering these supplies, but cannot do this effectively due to a shortage of operating trucks. Two new motors have been requested from UNICEF to repair the 7-ton Toyota trucks.

It is not clear why the donated supplies remain the responsibility of the older facility. Possibly MSL did not agree to

store and distribute material it did not purchase, or the donors may have refused to pay the 20% surcharge, but in any case some means has been worked out for these supplies to be transferred to MSL. (MSL will definitely be storing and distributing the drug kits to be supplied by SIDA.) The old stores will also continue to be used as emergency stores, with a small backup stock of essential items.

ORS production in Zambia is planned to take place at General Pharmaceuticals Ltd, another parastatal company operating under MOH auspices. After studies by the U.N. Industrial Development Organization (UNIDO), the plant was built in Kabwe in the early 1980's to produce intravenous fluids, and after a 1982 UNICEF study, the MOH and GPL decided to add an ORS production unit. A UNICEF grant of around $100,000 supplied all the equipment for semi-automatic production of 750-ml polyethylene packets, using the citrate formula. The equipment has been delivered and the production rooms are within a month of completion now. Delays have been attributed to the long delivery time for the equipment and to problems with the contractor used for the building construction. The latest delay is due to the need to install a 3-phase electrical supply.

Chemicals and polyethylene packaging materials for 750,000 packets (an estimate of the first year's production) have been provided through UNICEF reimbursable procurement, with UNICEF in effect providing foreign exchange for the MOH. These and the

locally-printed packet inserts are now in stock at GPL. The 750 ml size was based on the presumed wide availability of glass bottles of this capacity, from an orange squash (Mazoe) and other soft drinks marketed by Cadbury-Schweppes. Other 750-ml bottles bottles of this capacity, from an orange squash (Mazoe) and other are found in large numbers in Zambia also.

This planned local production was intended for free distribution in and through MOH and mission facilities. The initial production capacity of 3/4 million/yr was expected to expand the 1.5 million/yr, which would be less than half the anticipated demand if 50% of under-5 cases were treated with ORS packets.

UNICEF has been providing imported 1-liter packets to the MOH since 1982, at a level reaching nearly one million per year in 1985. When the production delays at GPL became obvious, more packets were ordered (1/2 million most recently) and most of these have been distributed to at least the district hospital level, but few have apparently reached rural health centers. UNICEF's financial commitments for ORS are apparently not determined in advance of MOH requests.

b. Private Sector

Several ORS products are imported to Zambia and distributed in private pharmacies. These are quite expensive, in the neighborhood of K4 to K6 per liter equivalent and at least one is not of the WHO-approved formula. Private pharmacies exist only in the cities and major towns, so it cannot be expected that

these products would have a serious impact on the target population of rural poor.

A locally produced 1-liter packet is also distributed in pharmacies, priced at K1.10, but sold as high as K1.60. This is produced by International Chemicals Ltd., (Interchem) a private company in Lusaka which also makes a line of such over-the-counter (OTC) drugs as paracetamol tablets, kaolin mixture, gripe water, and chloroquin syrup. These are also in the network of parastatal consumer stores (ZCBC, NIEC, and Mwaiseni) comprising about 90 outlets in all provinces.

Production by Interchem started only in 1985 and they are limiting production to what can be moved through pharmacies while simultaneously trying to increase public awareness of the product through fairly extensive radio and TV advertising.

The production capacity is 2 million per year, which they estimate to be 1/3 the maximum national need for ORS. Their packaging machine is used for another product while not used for ORS. The high retail cost of the Interchem packets (equivalent to 16 cents U.S. per liter) is due to the wholesale and retail markups (20% to 30% and 30% respectively) on their production cost of 60 ngwee ($1.00 = K6.90 = 690n), which in turn is elevated by the import duty of 20% on the cost of materials. Labor and indirect costs are quite low due to efficient operations and a low initial investment.

Distribution of Interchem drug products is either through deliveries to their sales agents in Copperbelt and Livingstone,

or to general merchandise wholesalers who come to Lusaka to purchase. There is also some direct distribution to pharmacies and other outlets in Lusaka.

Interchem plans to change the size of their packet to 750 ml if this becomes the national standard, reinforced by GPL production of 750 ml ORS.

Supply Constraints

If production of 750-ml packets were to proceed as planned, the fact that 1-liter UNICEF (and Interchem) packets have been in use for some time suggests the potential for confusion and misuse at the household, level, if not at MOH facilities. There is therefore considerable concern at present over which size would be best, and a PRITECH-supported operations research activity has been proposed for the near future to help answer this question.

The decision is shaded, however, by the possibility that production at GPL will be delayed further due to financial problems of the GRZ, which have produced an arrears by MOH to

III. Analysis of Constraints

A. General Environment

Some constraints present in the general economic and social environment apply specifically to the diarrheal disease control (CDD) program - constraints to the supply of ORS, or constraints to the use of ORS by mothers. Other constraints apply more broadly to delivery of all primary health health care service, but will have a direct bearing on the success of the CDD program.

1. Dispersed and Remote Rural Population

Although Zambia has the most highly urbanized population in sub-saharan Africa, more than half the population still lives in rural areas. Rural families will be hard to reach; the rural population is dispersed and often remote. Off the rail line, there are few points of population concentration. Household contact between mothers and the health system will be uncommon in rural areas. Distribution of ORS packets will involve expense, delays and may not occur in some areas where transport infrastructure is weak.

Prior to independence, there was little investment in roads and infrastructure; there are still few roads. The time needed to reach rural communities by health workers or supervisors can be long and the trip expensive. The distances from Lusaka may be 500 miles, for example, to the Northern Province. Zambia operates a Flying Doctor Service to reach remote areas, in the Western Province, for example, or in Luapula; but regular airline service in Zambia is very limited.

Housing for health workers in rural areas is scarce, making it difficult for health workers to live near the people they serve.

2. High-cost, Scarce Transportation

Few vehicles and spare parts are imported to Zambia because foreign exchange is scarce. Vehicle maintenance and repair facilities that function well are scarce. Fuel and public transport costs are rising sharply as the kwacha devalues. Even bicycles are uncommon. Increasingly, people travel on foot. Approximately 25% of the rural population is beyond walking distance of a rural health facility. Transport is a major, sometimes insurmountable, obstacle in daily activity, making the training and supervision of health workers more difficult. Distribution of ORS packets in rural areas will be expensive and probably irregular without changes in distribution methods.

3. Declining Real Incomes, Especially for Rural Households

Cash available in households for purchases of ORS, or radio batteries or to pay public transport costs is increasingly scarce as the economic situation worsens. Longstanding decline in the terms of trade for agricultural products increases economic stress for rural households. (The typical substantial expenditures for traditional medical treatment, which may be in the range of $1 to $5 for a routine course of treatment, highlight the need for education about more cost-effective medical treatments.)

Another problem caused by declining real incomes is the apparent recent flight of physicians from public medical service.

4. Large Proportion of Female-Headed Households in Rural Areas, associated with male labor migration to line-of-rail communities. The approximately 25% of rural households headed by females are the most likely to be at the bottom of the income scale. Because these mothers need to produce income, they are less likely to have time to seek health services, to acquire health education or to give health care at the onset of diarrhea. These households are less likely to participate in or to benefit from the CDD program because of financial and time constraints; more information is needed about the nature and severity of these constraints at the household level.

5. Severely Constrained National Budget

Zambia cannot afford to maintain the current level of health services throughout the national system. A disproportionately large share is being expended for curative services in the three major hospitals. To expand and to sustain new programs like EPI and CDD, additional funds are needed or reallocations of existing health resources must occur. Allocations for the primary health care system, especially costs of training and supervision, will be crucial to the CDD program.

6. Decline in Foreign Exchange Resources and Declining Value of the Kwacha

Programs dependent on imported goods, such as imported ORS packets, or raw materials for packet production, or fuel for transport are vulnerable to competing claims for scarce foreign

exchange. As with the budget constraint above, a firm policy - level commitment will be needed to sustain resource levels for the program.

7. Lack of Universally Available Household Liquid Measure and Lack of Decision on Packet Size

Mixing instructions for ORS will be complicated because no single measuring container can be stipulated. For example, no standard one-liter bowl is commonly available. Once a standard packet size is selected, mothers may still be confused by having to use combinations of measuring containers. Until a standard size is determined, the national CDD program will be delayed.

B. Health System Constraints

1. Health Budget and Staffing

The general health system constraints in Zambia start with shortages of staff, supplies, support measures, and lack of appropriate supervision at all levels. Health budget constraints are pervasive. Field supervision suffers from shortages of staff and of adequate provision of transportation. The large percentage of attrition found among trained CHWs and other peripheral workers may be the result of infrequent or non existent supervisory visits. The worker at the remote RHC feels isolated in any case, but never to have any contact with the supervisor is a certain prescription for resignation and loss of another worker. A supervisor's role includes in-service training, checking on procedures, reinforcement and encouragement, all vital for good performance. This

support is needed for the distant workers and transport is very important. Reference has been made to the maldistribution of health manpower, and to the shortages in some locations of adequate staff housing. Shortages of supplies will lead to a falling-off of clinic attendance and an increase in the dependence on traditional healers that already represent a significant and important aspect of general health care activity.

2. Emphasis on Curative Treatment

Short comings in the training with an inappropriate emphasis on curative measures, rather than on preventive and promotive efforts are widespread throughout the system. Although the GRZ has made an overt commitment to PHC, it is very difficult to alter long-standing habits of curative practice. Because of the traditional curative orientation in each of the training institutions, cost-effective PHC is given insufficient emphasis and support.

C. Constraints Specific to CDD

1. Current treatment methods for diarrhea are inappropriate Inadequacies in training of all of the categories of health workers have been identified so that major curriculum revisions are strongly indicated. Since CDD was not strongly emphasized to date, refresher courses for all health professionals and paraprofessionals are also needed. Doctors and nurses will require updating about current methods for PHC and CDD. There is a lack of awareness of the vital importance of ORT in clinical management and in home use for early prevention.

Pharmacists, physicians, nurses, clinical officers, CHWs, TBAs and mothers all need instructions in ORT. A training unit in ORT at the University Teaching Hospital (U.T.H.) for the instruction of all levels of practitioner may be extremely important to convince both the pragmatic health workers and parents.

2. ORS Supply Constraints

a. ORS Packet Production

If production of 750-ml packets were to proceed as planned, the fact that 1-liter UNICEF and Interchem packets have been in use for some time is likely to cause confusion and misuse at the household level, if not at MOH facilities. There is therefore considerable concern at present over which size would be best, and a PRITECH-supported operations research activity has been proposed for the near future to help answer this question.

Production at GPL may be delayed further due to financial problems of the GRZ, which have produced an arrears by MOH to Medical Stores, Ltd., and in turn a deficit at GPL. Already, many GPL employees have been furloughed and IV production has ceased. While a newspaper article indicated that the arrears have been settled, at this time there is no definite indication that GPL will resume normal operations soon.

Even if past debts are settled, the recent drastic cuts in the MOH budget and kwacha devaluation would imply that it cannot afford to buy enough drugs, and the reduced allocation would be used mainly to buy essential hospital supplies. It is more likely that it will seek donor assistance for ORS (and other

essential drug supplies), rather than choose either remaining alternative - scaling down the ORT program or instituting a patient fee for drugs or services.

b. Home Preparation of ORS

Because of distribution constraints in Zambia, there may well be problems with the attempt to have packets for ORS readily available throughout the health system(s). Mothers will need to prepare home-mixed ORS if packets are not available at the periphery and in the homes. The occasional unavailability of either salt or sugar makes home preparation problematic, compounded by the unavailability of mixing containers and/or teaspoons.

With regard to information provided to the mother when ORT is being promoted, ORS is not designed to stop the diarrhea. This must be described carefully to the mother or father so that rapid cessation of the diarrhea is not anticipated. Unfortunately, if such information is not provided then the parents who believe ORT should "stop the diarrhea" may not only discontinue the therapy, when diarrhea does not cease immediately, but may be unlikely to employ ORT in future diarrheal episodes.

The team observed that the doctor or clinical officer will often delegate to the nurse the dispensing of ORS and instructions to the parent. This puts the therapy in the hands of the nurse who may not have the same degree of therapeutic credibility as the practitioner. It is altogether too common that treatment and health education messages, along with ORS preparation instructions

are provided not by the (too busy) practitioner, but by the nurse. Similarly, pharmacists may be the ones to instruct mothers and if they believe in additional medication it is unlikely that only ORT will be promoted.

3. Inadequate Medical Diagnoses

Another constraint in the CDD program is the clinical habit of all levels of health providers of not taking a careful and appropriate history and not fully examining the child with the chief complaint of "diarrhea". The treatment of stated symptoms is all too common. This results perhaps from improper training, but also from seeing the role models do this. Clinical judgment must include history and physical examination in order to arrive at the correct diagnostic impression and in order to institute appropriate case management. The pressure of long lines of patients may explain why health workers diagnose only on the basis of chief complaints; nevertheless, inappropriate treatment will cause the poorly treated patient to return the following day, or to seek help elsewhere, perhaps at the local traditional healer.

4. Need for Coordination Among MCH Programs

The lack of coordination among the various sections of MOH's MCH unit can cause duplication of effort. Many basic functions are common to all MCH services: careful planning, logistic support, appropriate training, on-going supervision and monitoring, collection and analysis of data and feed-back to the field. Improving these functions for CDD will benefit other parts of MCH,

e.g., Nutrition, EPI, School Health, and Family Health. There will be greater benefit when training is planned in an integrated fashion, when supervision is coordinated, when data is jointly collected and analyzed. The inter-relationships among subsections of MOH's MCH need strengthening.

D. Constraints in the Public Sector

In an effort to disseminate the ORT message more broadly, attempts should be made to enter into the school system, both public and private, at all levels. School children can be instructed in ORT if school teachers are provided with methods and materials. The MOH Health Education Unit has begun working with the Ministry of Education in a child-to-child program. Teachers in Lusaka's public schools will be the first ones reached. The child-to-child approach should be continued and expanded.

The constraints will be the difficulty in (a) reaching the teachers throughout Zambia; (b) in providing training for the teachers; and (c) in the provision of materials for teachers to teach the children in schools.

Similarly, to extend the ORT message into the homes, mother's groups, or at clubs, civic or political groups, all public organizations that exist should be reached with the ORT message. The constraints are those indicated above that make dissemination through the schools somewhat difficult, including the provision of the teaching and the distribution of teaching materials. The

cost of such efforts may well be justified in the achievement of widespread awareness of the dangers of dehydration and the usefulness of ORT without medicines.

IV. Strategic Options and Recommendations

The constraints, the key problems, cited above are rooted in Zambia's history and linked to current events which are often beyond Zambia's control. Dealing with these circumstances, the Ministry of Health has a formidable task in launching any new health services programs.

There are five strategic issues identified by the team for consideration by the Ministry as it plans a national CDD program: how to organize the management capability at the national level; how to proceed and at what pace with province-level activities; what size ORS packet to supply; what ORS production strategy to pursue; and how to encourage private sector effort.

A. National Management Structure

The MOH is putting into place strong management for maternal child health programs. The new head of MCH, well-trained and with field experience, has arrived as the Ministry is mobilizing to strengthen primary health care activities under the guidance of the Primary Health Care Advisor and the leadership of the Assistant Director for PHC and the Director of Medical Services. CDD already has an experienced and able National Coordinator. While this is a strong team of managers, each of them can give CDD attention for only a portion of their time. Among this group, the head of MCH will have the largest portion of time available for CDD and is well-positioned to manage the working level activities of the program. To be effective, the head of MCH needs the following:

- strong leadership and support at the policy level in the MOH, in conjunction with a policy committee or other coordinating mechanism for the main supporters and participants in the national program;
- a working committee reporting to the head of MCH charged with making happen all the necessary steps in implementing the national CDD program;
- staff support, perhaps a senior nurse, assigned to work full time as the national CDD program manager;
- a budget and approval authority for CDD program funds.

Proposals for the committee structures and the job responsibilities for the head of MCH and the national CDD program manager are shown at Appendix B.

B. Provincial Program Strategy

The Ministry is appropriately committed to a nationwide CDD program, integrating CDD into the primary health care system. CDD activities involve all the basic elements of primary health care and can serve to strengthen the primary health care system; CDD is well chosen along with EPI as a leading PHC program. CDD programs are also well-adapted to large scale effort-especially with mass media for education of mothers and mass distribution of ORS packets. Nevertheless, it is critically important that all the main elements of the CDD program be well-coordinated and in balance. The success of the program rests on changing behavior by mothers throughout the nation. Mothers must have confidence

in ORT; they must know how to mix ORS properly, and how to use it along with appropriate feeding practices; ORS has to be readily available. Successful contact with mothers depends upon careful planning and coordination to ensure consistent messages and timely meshing of program activities.

Zambia is a country marked by diversity: urban/rural dichotomy; great cultural and linguistic variety; fragmented and varied health services; easy transport near rail lines versus the remoteness of areas away from rail lines - all factors important to the CDD program. The diversity argues strongly for careful, deliberate provincial-level planning to take account of regional variations and to fully involve people and organizations at the regional level. Once the national management structure and program direction is established, the focus of effort should shift to the provincial level. Each province needs a plan tailored to its particular problems and constraints, and organized to involve the key provincial people and institutions in the planning process. The planning process and the working committee used at the national level should be replicated in each province. The team recommends starting with one or two provinces, representative at least of the rural-urban variations, to develop an approach to provincial level activities. Later, the program can steadily spread to other provinces.

Within each province, all available resources should be used to their capacity. The various health services - MOH, CMAZ,

mines and the military - should be pushed to the limits of their service delivery. Support in terms of training, educational materials or ORS packets should be provided up to the limits of effective utilization. Without full utilization of all available health systems progress will be slow; even with full utilization, many families will still not be reached.

C. Selection of Packet Size

The team feels strongly that simple, consistent messages are needed in promotion of ORS packets and the associated training and education efforts. The team recommends single packet size be distributed. Risk of confusion among mothers is great if two packet sizes are available. The team did not have a strong opinion on whether the one liter or the 750 ml packet would be best. To help clarify the issue, the team compiled the following pro and con considerations:

1. Regarding the 750 cc. packet size:

a. Pros

- Bottle size readily available. Only 60% of Mazoe bottles returned. Other kinds of 750 cc. containers are available.
- Materials for 500,000 packets exist in Kabwe.
- 500,000 instructional inserts have been printed.
- Inter Chem is able and willing to switch to 750 cc. packets for commercial sales.
- Schweppes expects no change in size and has placed a new order for 750 cc. bottles.

b. Cons

- Possibility of prolonged delays in GPL production.
- One liter UNICEF (and Inter Chem) packets are available, 400,000 in central Lusaka stores and many distributed.
- Other one liter UNICEF packets may be on order.
- Change in Mazoe bottle size may occur as in Zimbabwe.

2. Regarding the one liter size packets:

a. Pros

- They exist in Zambia and are in the supply system.
- UNICEF cost is approximately 1/2 that of local production.
- UNICEF one liter packets can be purchased/or obtained in emergency shortages.

b. Cons

- Standard one liter measuring system is more complicated.
- Kabwe production and inserts currently set-up for 750 cc.

A final decision needs to be made in time to produce or supply enough packets to match demand resulting from an educational campaign, and before production of educational materials with messages involving packet size. The team recommends that a decision be made prior to the end of June 1986.

From the team's perspective, a key question is when GPL production can begin and whether GPL will be a reliable supplier. If GPL begins production quickly and can produce steadily, the team favors a 750 ml packet. If GPL production is delayed or cannot supply reliably, then UNICEF or another supplier will have to fill the gap with 1 liter packets; then the team favors using 1 liter packets consistently.

D. ORS Production Strategy

UNICEF remains the most likely donor for continued ORS supplies. It may agree to assist the MOH by continuing to donate imported 1-liter packets, but also has the option of supporting GPL production by purchasing ORS packets. UNICEF has done this in at least two other countries (Haiti and Indonesia), paying the local producers the equivalent of the landed (CIF) cost of packets from UNIPAC, plus an additional premium as an indication of its commitment to supporting local productions as a matter of principle.

The major constraint to this type of arrangement being made in Zambia is the high cost of the GPL ORS packets. The approximate cost breakdown for ORS production (using raw materials and packaging purchased through UNICEF) is:

	Per 750-ml Packet	
Materials and Packaging (estimated at 2.9 cent CIF: K1=$0.1435)	20	ngwee
Labor	6	
Packet insert (locally printed)	7	
Direct Costs	33	ngwee
Factory overhead (25% of direct costs)	8	
Production cost	41	ngwee
Financing and depreciation	10	
Ex-factory cost	51	ngwee
Profit margin	9	
Planned MOH price	60	ngwee

Compared to these prices, the UNICEF 1-liter packets might seem a bargain. Assuming an FOB price of 5 cents U.S. and 25% for shipping, the final cost to UNICEF in Lusaka is 6.25 cents or 43 ngwee per liter. On a volume basis, this equals 33 ngwee per 750 mls.

There are several arguments in favor of price flexibility, which both UNICEF and GPL/MOH can utilize to arrive at a satisfactory result in negotiating an arrangement.

First, it may be held that since two 750 ml packets will suffice for the typical case of diarrhea almost as often as two 1-liter packets, the price paid could be based on a packet-per packet basis rather than a volume-per-volume basis (43 ngwee/packet).

If this principle is not accepted, UNICEF could also consider paying a premium of, say 25% above the landed cost per liter, as a token of support to local production (which was undertaken in the first place because of UNICEF encouragement) and because it would only be paying a fraction (20 ngwee for materials) in dollars.

Next, there is most likely some room for GPL to reduce its selling price, perhaps foregoing a profit or a positive cash flow for the first few years. This could result in packet price of 51 ngwee (no profit) or 42 ngwee (no positive cash flow).

GPL could consider recovering some cash flow or profit increasing production beyond the MOH requirements for distribution through the commercial sector and to other donor agencies. Sale price could then be raised to a level which would include a net profit.

The Director of Pharmaceutical Services has indicated that the MOH could make an amount available equal to the cost of UNICEF packets under the old exchange rate, reflecting a determination to support the CDD program and GPL production, but also reflecting an effective budget cut for imports. This suggests a possible arrangement. The MOH budgets 15 ngwee per packet, and might therefore be able to spend K150,000 for a million packets in 1986. If GPL production starts by May 1986, it will be necessary to order materials for a further million 750 ml packets as soon as possible since it will take at least 6 months for delivery from UNICEF. If UNICEF agrees to provide the materials and some GPL production costs as assistance to the MOH, it would actually be spending less foreign exchange than for the finished 1-liter packets.

A possible arrangement might work as follows:

a) GPL agrees to lower sales price to 45 ngwee, covering direct costs of production, overhead, and some financing costs.

b) UNICEF agrees to provide foreign exchange for materials and packaging, totalling 20 ngwee.

c) The MOH continues to pay 15 ngwee per packet, the same amount as UNICEF packets cost before devaluation.

d) UNICEF agrees to pay the difference of 10 ngwee per packet in Kwacha.

In terms of one million 750-ml packets, the contributions would be:

MOH	K150,000		
UNICEF	K200,000	=	US$29,000 forex for materials
UNICEF	K100,000		(for printing inserts with UNICEF/ MOH name)
	K450,000		

If UNICEF had been asked by MOH to donate 1 million 1-liter packets, it would cost $62,500 in foreign exchange, so if the idea that the 1-liter packet is equivalent to the 750-ml packet in terms of clinical management of diarrhea is accepted, UNICEF has had the same impact for $33,500 less foreign exchange, plus $14,500 in kwacha, for a net savings of $19,000 per million packets.

GPL, which would be operating at a slight accounting loss but possibly a positive net cash flow (depending on its debt obligations) might compensate for its concessions by increasing production to 2 million per year, selling 300,000 to SIDA (actual requirement for the RHC drug kits) and 700,000 to the NIEC stores. It could request UNICEF to provide materials on a reimbursable basis (duty exemption has been arranged for GPL), but probably

would have to provide the $20,000 in foreign exchange if UNICEF finds it impossible to do.

E. Potential for Commercial Distribution

Even if there is substantial donor support for ORS packets to be distributed free through health centers and hospitals, there will be a need for other modes of access to ORS, as well as the need to promote home-mix solutions. The commercial sector in Zambia offers several attractive possibilities which, taken together, might constitute the field for a social marketing project. The potential components identified during this visit are:

1. Distribution through private pharmacies and drug stores of the Interchem ORS packets. Interchem have already started promotion of these products, but could use assistance in designing a campaign, packet design, point-of-sale displays, etc. Their low production costs (low labor cost and low finance and depreciation due to a low initial investment) offer the possibility of a much lower sales price if materials cost could be lowered and/or an exemption from import duties obtained.

2. Distribution through parastatal government stores (ZCBC, Mwaiseni, etc.) of both Interchem and GPL ORS packets. Both these units (subsidiaries of NIEC) have expressed interest in cooperating with GPL in distribution, and already carry Interchem products. Side-by-side competition between two socially-priced products presents interesting potentials for mutual promotion.

3. Distribution of either ORS packet through general merchandise stores, by means of drink distributions is another approach to reaching remote rural areas. Schweppes-Cadbury have expressed an interest in this, since this is a tie-in with their drinks and squashes sold in 750-ml bottles.

PRITECH can recommend that activities of the above nature be aided by Project Support, a parallel USAID centrally-funded project intended to aid the private sector in ORS production and distribution.

V. Proposed Project

A. Goal: To reduce substantially infant and child mortality and morbidity associated with diarrheal disease in Zambia.

B. Purpose: To assist the GRZ Ministry of Health in carrying out the Control of Diarrheal Diseases Program, PRITECH will help strengthen implementation of the case management strategy to enable mothers and health workers to use ORT effectively. (See Appendix A, GRZ Plan of Operation for CDD Program, esp. pp. 12 and 13.)

C. Inputs

The main activities required to improve case management of diarrheal disease among infants and children are shown on the following tables. The draft program tables presented below indicate activities and desired outcomes along with designation of participating agencies and suggested sources of financial and other support. The PRITECH teams suggestions for training and education are presented in detail in Appendix C; the specific courses proposed there represent ideas and a basis for further discussion and planning of the training and education efforts. PRITECH's contribution, as proposed by the team, would

Zambia National Diarrheal Disease Program (1986-88): Improving Case Management

Activity	Outcome	Participating Agencies and Resources						
		MOH	Other GRZ	UNICEF	WHO	SIDA	PRITECH	Other
1. ORS Production/Supply	-3.5 million packets annually.		- GPL	-Imports and /or local purchase -Reimb.proc. of raw mat.			TA.	Inter-Chem
2. ORS Distribution	-Packets readily available to urban (80%) and rural (50%) households.	-MOH, CMAZ, Mines & Military Health Systems	-MSL -State stores (ZCBC, NEIC, Mwaiseni)			-Drug kits -Logistics -TA		-Inter-Chem -Comm'l Outlets -Cooperatives
3. Program Planning & Mgmt.	-National Program mgmt. capability established. -Coordination among agencies and donors. -Three to five provincial programs underway.	-MOH/MCH -CMAZ -Nat. Program Manager	Policy & Working Committees		Advisor		TA and Mgmt. Support	
4. Training of Health Workers	-See Appendix C.	-MOH/MCH & Health Ed.	-UNZA	-TA Funds	TA Funds materials		TA	
a. Materials & Course Development	-Training materials & instructions guides prepared -Curricula designed							
b. Materials Reproduction	-See Appendix C.	-MOH/MCH & Health Ed.		TA Funds				

Zambia National Diarrheal Disease Program (1986-88): Improving Case Management

Activity	Outcome	Participating Agencies and Resources						
		MOH	Other GRZ	UNICEF	WHO	SIDA	PRITECH	Other
c. Training Courses	-See Appendix C. -All health workers (MDs, nurse, COs, pharmauists, CHWs, TBAs) able to instruct mothers about ORT -Traditional medicine agents informed about ORT.	MOH, CMAZ Mines, Military Systems	UNZA UTH Min. of Soc. Dev. Nat. Med. Council	Funds	TA	Funds	TA	Pharmac.
5. Public Education								
a. Program & Materials Development	-Mothers knowledgeable about proper use of ORT: urban, 60%; rural, 40%	MOH/MCH and Health Ed.	ZBC ZTV. UNZA	TA Funds			TA	
b. Broadcasting and Materials Distri.	-Mothers using ORT effectively: urban, 40%; rural, 25%		ZBC ZTV MOE Min. of Info & Culture					
6. Supervision	-Regular visits by national and provincial CDD program managers to monitor implementation. -Incorp. of CDD into supervision	MOH, CMAZ Mines & Military Systems		Funds	TA	Funds	TA	
7. Management/ Information	-Regular reporting on incidence of diarrhea and me of ORT	MOH, CMAZ, Mines & Military Systems.			TA	TA	TA	

Zambia National Diarrheal Disease Program (1986-88): Improving Case Management

Activity	Outcome	Participating Agencies and Resources						
		MOH	Other GRZ	UNICEF	WHO	SIDA	PRITECH	Other
8. Evaluation	-Baseline and follow-up surveys to determine changes in effective use of ORT.	MOA	UNZA	TA, funds	TA		TA.	
	-Operations research to identify and solve implementation problems	MOH/MCH	UNZA	TA			TA	

be assistance with problems solving, for both management and technical problems. PRITECH would be able to provide a long term representative to work with the National CDD Program Manager, plus up to 40 weeks of short-term expert assistance as well as some funds for problem-solving studies. The PRITECH representative would have a vehicle for use with the CDD program.

D. Objectives (Outputs) for PRITECH Activities

1. National CDD Program Management

a. To assist the MCH division in the PHC Secretariat of the MOH of Zambia develop strategies for the implementation of a National Program for the Control of Diarrheal Diseases.

b. To develop a Coordination Unit in the CDD branch of MCH which will assume the responsibility of coordinating CDD activities through the various health delivery systems (both public and private) in Zambia, and will assist the MOH in the integration of CDD throughout all PHC efforts in a horizontal fashion.

c. To assist the MOH in developing linkages between and among all CDD activities, currently on-going and those to be established, so as to strengthen CDD programs.

d. To ensure the successful development, implementation, and evaluation of the national Zambia CDD program through the promotion of a nation wide awareness of proper ORT through public education & training of health personnel, including community workers and the medical practioners. The staff training

efforts will take place at provincial, district, and peripheral levels as well as the central national level.

e. To involve the members of the community in the CDD program through the promotion of self-reliance in the delivery of health & other services for the control of diarrheal diseases.

f. To help the MOH improve the strategies in the CDD program delivery system for both the prevention & treatment of diarrheal disease.

g. To promote efforts for the cooperation with UN agencies (expecially UNICEF) & other donor organizations (especially SIDA) in the implementation of a national CDD program as one of the leading components of PHC services in Zambia.

2. Training and Education Activities

PRITECH is especially interested in the training and education activities which will be supported by the MOH and and UNICEF. For a description of the strategy and specific program proposals see Appendix C.

a. Target Audience for Training and Communications

1. Primary Audience: Low literacy mothers and other persons who take care of children under five.

2. Secondary Audience: Medical and paramedical personnel, community health agents, literacy training personnel, agricultural extension agents, women's groups.

b. Expected Outcomes

1. Primary audience should be able to:

° Prepare and administer prepackaged ORS salts and/or salt and sugar solution to the child.

° Seek outside help if the child does not improve.

° Continue breast feeding, provide child with appropriate instruction.

2. The secondary audience will teach and support the primary audience by:

° Using ORT in medical facilities and showing mothers how to prepare and administer ORS, and by providing positive reinforcement for positive behavior.

° Non-medical members of the secondary audience will approve and support mothers and help them and/or them about ORS.

° Schools will teach children how to prevent diarrhea and how to administer ORT to younger siblings.

° Rural extension workers will teach about ORT and help deliver packages.

E. Roles of Donors

1. UNICEF

UNICEF is the sponsoring agency for PRITECH's activities in Zambia. UNICEF has close working relationships with the Ministry of Health at all levels. UNICEF is a strong supporter of primary health care activities, especially MCH programs. UNICEF headquarters recently approved a five year project for "accelerated

universal child immunization for child survival and development in Zambia." UNICEF will provide $7.0 million towards a total program of $10.5 million. Many of the activities proposed will be directly supportive of the CDD program, especially in the areas of education, training and program management. UNICEF is in the best position to support development of the CDD program as part of an integrated primary health care effort.

2. SIDA

The Swedish development assistance program for health is a broad scale sector effort of long standing. The sector support program began in the early seventies. The 1986 budget is more than $3.5 million, supporting activities of fundamental importance to the CDD effort: health planning, training, logistics and drug supply, transport, nutrition. As the CDD program is implemented, the SIDA program activities and the numerous SIDA advisors planning, drug supply, nutrition and transport will be coordinated through the CDD Working Committee and the Policy Committee.

3. WHO

With SIDA funding WHO has assigned a resident expert for EPI and CDD to work directly with the head of MCA in the Ministry. The resident expert, newly arrived, is already a key participant in the formulation and guidance of the EPI and CDD programs. He will play an important role in getting the CDD program underway; it is essential that his current contract be extended beyond one year to ensure continued WHO support for the program, and exceptionally able assistance to the head of MCH and the Ministry.

4. USAID

USAID is currently devoting its resources to agricultural development, and is not supporting health activities in Zambia. The Mission has no objection to PRITECH operating in Zambia at the request of the MOA and under the sponsorship of UNICEF.

5. OTHER

Other bilateral donors and private organizations such as Save the Children Foundation will be involved in the CDD effort through the CDD Working Committee.

VI. Feasibility

A. Economic/Financial

Any new large scale public sector program in Zambia that requires recurrent expenditures is in jeopardy because of insufficient funds. The scope and duration of a national CDD program cannot be assured until Zambia's financial condition improves; substantial improvement is unlikely in the foreseeable future.

Once the CDD program is established, it will be integrated, imbedded in the systems of primary health care. CDD program activities are at the core of PHC services. As long as PHC services are being provided, CDD should endure.

The major continuing cost will be for ORS packets, whether produced by GPL or elsewhere. UNICEF or another donor will have to subsidize the supply of packets until the GRZ reallocates its funds for drug procurement to fully finance needed ORS packets. There is considerable potential for sale of packets, given the substantial amounts that seem to be spent on less effective traditional treatments for diarrhea.

The incremental costs of establishing the program - training, educational materials, transport for program organization and supervision will certainly exceed MOH resources. Donor funds - mainly from UNICEF, SIDA and WHO will be necessary to support these costs. We believe that these incremental costs can be handled through use of funds already being allocated for primary health care programs by these donors.

B. Managerial/Administrative

Appendix B presents a suggested national management structure for the CDD program. At the policy level, the Director of Medical Services and the Assistant Director for Primary Health Care would play the leading roles. At the working level, the Director of MCH programs, currently Dr. J. Banda, would have primary responsibility. The proposed structure is intended to strengthen and support their roles. These individuals have within their charge all the elements of the primary health care system, and can bring to bear the capabilities of other ministries and institutions as well as the cooperation of the private sector and the donors.

On a day-to-day basis, Dr. Banda will have a heavy burden administering the CDD program. She will need both administrative and technical assistance, since CDD represents only a portion of her extensive MCH program responsibilities. The Ministry has stated its intent to augment Dr. Banda's staff support. One possibility discussed with the team was assignment of a public health nurse to Dr. Banda's staff as the CDD Program Manager, who would handle some of the administrative tasks of organizing and implementing the national CDD program. If this assignment can be made, PRITECH would be able to hire a PRITECH representative as a working counterpart to the CDD Program Manager. PRITECH is assuming that the very able WHO Resident Expert for CDD/EPI programs will continue his current assignment. Appendix B presents a suggested list of CDD job responsibilities for the Director of MCH, the CDD Program Manager and the PRITECH Representative.

The National CDD Program Working Committee under Dr. Banda's leadership would bring together the key participants needed to implement the CDD program. Working with this committee, the Director of MCH should produce a program plan and a draft implementation plan for the national program which assign responsibilities and identify sources of funding. Some preliminary ideas are presented above in Section V. The program plan and related budgets should be reviewed and approved by the National Program Council for CDD. On the basis of this approval, the working committee should prepare a final implementation plan. Within the framework of these plans and the budget, the Director of MCH should manage a CDD Program Account established by contributions from the MOH and donors such as UNICEF and SIDA. The Director of MCH would request allocations of funds from donors and would authorize expenditure of funds from this account.

The MCH Director and the Working Committee would report semi-annually to the CDD Program Council on implementation progress and problems.

VII. Implementation Plan

A detailed implementation plan, especially for first year activities should be prepared by the CDD Program Manager and the PRITECH Representative as soon as they are assigned to their positions.

APPENDIX A

CONTROL OF DIARRHOEAL DISEASES PROGRAMME

ZAMBIA

PLAN OF OPERATION

MINISTRY OF HEALTH
P.O. BOX 30205,
LUSAKA.

ABBREVIATIONS USED IN THIS PLAN OF OPERATION

DPS	=	Director of Pharmaceutical Services
ADMS	=	Assistant Director of Medical Services
A	=	Administration
PHC	=	Primary Health Care
P & D	=	Planning and Development
EPID	=	Epidemiology
MCH	=	Maternal and Child Health
RN	=	Registered Nurse
RM	=	Registered Midwife
ZEN	=	Zambia Enrolled Nurse
ZEM	=	Zambia Enrolled Mid-wife
HI	=	Health Inspector
HA	=	Health Assistant
CHW	=	Community Health Worker
ZFDS	=	Zambia Flying Doctor Service

1.0. INTRODUCTION

The diarrhoeal Diseases, constitute one of the major health problems in Zambia. And it is among the top causes of morbidity and mortality in young children.

The problem is complicated by poor hygiene due to lack of adequate safe water and sanitary facilities.

1. Policy Review

Until 1981 there was no specific policy with regard to Diarrhoea Diseases Control, but the Government's policy on health as a whole was to develop preventive health services particularly in rural areas.

Some of the objectives emphasised in the 3rd National Plan were:-

(a) to develop basic health services in rural areas
(b) intergration and expansion of preventive and curative services.
(c) contribution to the nutritional well being of the population with particular attention to the vulnerable groups.
(d) to use health education to educate and mobilise people to participate in promotion of their health and prevention of disease.

The global control of diarrhoeal diseases (CDD) Programme which started as a result of World Health Assembly in 1978 urged among other things member states including Zambia to identify diarrhoeal diseases as a major priority area for action and to apply known effective measures for management and control of these diseases in the context of Primary Health Care.

In 1981 Zambia adopted a strategy for the implementation of Primary Health Care to make essential health care accessible to the entire population. The fundamental requirements for CDD being:-

(a) Active community participation
(b) Coordination and cooperation between all sectors enganged in community development.
(c) Expansion of services to the rural areas; and
(d) Training of health workers at different levels.

/.....

1.2. Health Planning Review

The present plan is to carry out a massive country wide wi programme of making popular the use of oral rehydration salts on home treatment basis. To bring down morbidity and mortality due to diarrhoea, preventive measures of proper sanitation and water supply have been instituted.

The Control of Diarrhoeal Diseases activities will be integrated into general health services especially, health education, maternal and child health services including child spacing, and Expanded Programme of Immunization.

1.3. Demographic and Social Data

1.3.1. Topography

Zambia is a land-locked country in Southern Africa with an area of 752 614 sq. km. It has boundaries with Zaire and Tanzania in the North, Malawi in the east, Mozambique, Zimbabwe, Botswana and Namibia in the south and Angola in the west.

1.3.2 Economy

Total Domestic Product	- 4733.3 million (1984)
Total National Product	- At current prices 4.358.0 million (1984) at current prices
Per capita National Income	- 609.1 (1984) at current prices
Number of employment	- 368,000 (1982)
Production Index (1973-100)	
Mineral	- 84.4 (1983)
Manufacturing	- 95.0 (1983)
Electricity	- 384.8 (1983)

In addition to Copper, Zambia has deposits of cobalt, manganese, silver, iron, lead, zinc, vanadium, lime and coal. Zambia's economic system is divided into modern and traditional sectors. Modern mining, manufacturing farming. Traditional - subsistance agriculture fishing and animal husbandry.

35% of available land is under cultivation. Main produce are maize, tobacco, sugar cane, cotton, sunflower, groundnuts, barley, milk, cattle, pigs and fish. Over 9% of total land area in the country is forest. There are /.....

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152,000 hectares of open lakes, rivers, swamps and flood plains

1.3.3. Education and Culture

A total of 1,182,044 students were enrolled in Primary Schools, secondary schools, teachers trainign colleges and the University of Zambia between 1964 and 1984. There are 78 tribes in Zambia which speak different languages. The main ones are: Bemba, Nyanja, Tonga Lozi, Lunda, Kaonde and Luvale. English is the official language.

1.3.4. Population (1984)

Area	752,614 sq. km.
Total Population	6,431,000
Urban Population	2,829,640 = 44% of total pop.
Rural Population	3,601,350 = 56% of total pop.

The use of the 1980 age structure on 1984 data yields the following results:-

No. below 1 year 225,085 = 3.6% of total population
No. 1 to 4 years 919,633 = 14.3% of total population
No.5 to 14 years 1,961,455 = 30.5% of total population
No. of women
15-45 years 1,311.924 = 20.4% of total population
65 years and over
173,637 = 2.7% of total Population.

1.3.5. Population by Province (1984)

Province	Population (Mid 1984)	Area (sq. km.)	Density (Persons per sq. km)
Central	583,000	94,390	6
Copperbelt	1,464,000	31,330	47
Eastern	713,000	69,110	10
Luapula	457,000	50,570	5
Lusaka	882,000	21,000	40
Northern	730,000	147,830	5
N.Western	334,000	125,830	3
Southern	750,000	85,280	9
Western	518,000	126,390	4

56% of total population is im the rural areas (3,601,360) /.....

1.3.6 Vital Statistics (1984)

Crude birth rate (per 1000)	- 48
Crude death rate (per 1000)	- 17
Natural growth rate	- 3.2%
Infant mortality rate (per 1000 live births)	- 115
Child mortality rate	- 20
Maternal mortality rate	- 10 per 1000 admissions (1983)
Life expectancy at birth (both sexes)	- 48.3 years
Life expectancy at birth, males	- 46.7 years
Life expectancy at birth, females	- 50.0 years
Total number of beds and cots	- 21,668
Number of beds and cots per 1000 population	- 3.5 (5.8 urban-1.7 rural)
Average of new illness per person/year	- 2
Health institution deliveries	- 43% of total births
Population with access to safe water	- 48%
Trained Traditional Birth Attendants	- 1,200
Total fertility rate	- 6.9

1.4. Health Services

The concept of decentralisation has been accepted by the Party and its Government. In 1980 the Decentralization Act was passed by Parliament. The Ministry of Health follows the same pattern and ... the organisational structure is as follows:-

MINISTER

MINISTER OF STATE

PERMANENT SECRETARY

UNDER SECRETARY — DIRECTOR OF MEDICAL SERVICES

DPS | ADMS (A) | ADMS (PHC) (PHC SECRETARIAT) | ADMS (P & D)

EPID. | LEPROSY | MALARIA | ENV. HEALTH | MCH | H. EDUCATION | T. MEDICINE

CDD | EPI | NUTRITION | FH | SCHOOL HEALTH

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ADMS (PHC) is overall in-charge of Control of Diarrhoeal Diseases Programme. He is assisted by a Programme Manager who in turn is assisted by functional committee at the central level.

Provincial Level

The Provincial Medical Officer is overall in-charge of provision of health services in his respective province. He is a member of the Provincial Council which is responsible for intersectoral planning, development and cooperation.

There is a Provincial Health Management Team which works closely with other related sectors. The day to day running of CDD Programme is done by the Senior Medical Officer (Preventive) in each province.

District level.

The district medical officer is in-charge at this level. The District Council has similar responsibilities as the provincial council but at district level, there is a district health management team. An integrated approach is stressed at this level. Majority of training of staff for CDD take place at this level.

RHC Level

The clinical officer is in-charge at this level, assisted by a health assistant and midwife, for delivering services to the community in his catchment are. The majority of training staff for CDD will take place at this level.

Community Level

The community Health Worker is our link with the community and is supported and supervised by the staff from rural health centres. He is responsible for CPD at this level.

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4.2. Health Manpower

NUMBER OF OCCUPIED POSTS (JANUARY 1983)

PROVINCE	Physicians	Nurses (RNS)	Midwives (RMS)	Enrolled Nurses (ZEN)	Enrolled Midwives (ZEMS)	Clinical Officers (CO)	Health Inspectors (HI)	Health Assistants (HA)	Community Health Workers (CHWs)
Central	47	63	60	238	102	123	8	47	127
Copperbelt	347	444	145	1382	264	212	3	25	94
Eastern	38	53	48	223	50	119	7	80	42
Luapula	28	41	29	162	4	106	7	46	75
Lusaka	255	246	70	425	88	149	13	21	-
Northern	41	74	21	183	31	144	10	56	177
N. Western	26	68	13	188	30	75	5	98	98
Western	32	34	19	222	30	97	6	55	111
Southern	66	78	49	405	82	157	8	94	198
TOTAL	880	1101	454	3428	681	1182	67	531	983
For occupied posts: rate per 10,000 Population	1.4	1.8	0.7	5.5	1.1	2.3 P	0.1	0.9	1.6

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1.4.1. Facilities (December 1984) by Province

PROVINCE	HOSPITAL	URBAN HEALTH CENTRES	RURAL HEALTH CENTRES AND Z.F.D.S.	MOBILE CLINIC LEPROSARIAS
Central	6	5	57	3
± Copperbelt	17	122	15	5
± Eastern	9	2	86	2
Luapula	6	1	78	13
Lusaka	4	35	27	3
Northern	8	2	82	1
± N. Western	10	2	90	12
Southern	11	17	87	1
Western	11	2	85	10
Total All Zambia	82	198	627	50

1.5. The Diarrhoeal Disease Problem .

Diarrhoea is one of the most critical health problems in Zambia and is a leading cause of morbidity and mortality in children under 5 years of age which constitutes nearly 18% of the total population. 52 districts out or 57 identified diarrhoea diseases as one of the major health problem in their district. In 1982, diarrhoea accounted for upto 13.5% of total admissions, 19.20% of total out-patient visits and 13.2% of total deaths in Rural Health Centres. It was also responsible for 7.8% of total admissions, 17.31% of total outpatient visits and 8.6% of total deaths in the hospitals.

Diarrhoea Morbidity, Mortality and Fatality among under (15) years in Hospitals

YEAR	ADMISSIONS	DEATHS	% OF TOTAL DEATHS	FATALITY RATE
1978	19,574	1,278	10.2	65.3
1979	20,978	1,282	11.3	61.1
1980	22,788	1,251	10.5	54.9
1981	22,710	1,104	9.5	47.7
1982	25,389	1,211	9.6	48.7
1983	-	-	-	-

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TABLE II: Diarrhoeaoutpatient attendances among under 15 years in Hospitals and Health Centres

YEAR	CASE TREATED	% OF TOTAL ATTENDANCES
1978	670,067	11.9
1979	672,902	11.8
1980	748,502	11.9
1981	777,613	11.6
1982	828,348	12.8
1983	-	-

An integrated approach in the provision of health services in the area of eight elements of PHC has been the main thrust as from 1981. At the same time the teaching of home made sugar and salt solution was introduced at the community level, but the unavailability of the sugar at certain times in homes has made its use very limited. In the Mines Health Sector prepared rehydration sachets are being dispensed from all its hospitals and clinics. In the Ministry of Health plans are underway to start the production of Oral Rehydration Salts.

Objective and Targets.

The main objective is to reduce the morbidity and mortality from diarrhoeal diseases, with emphasis on children 0-5 years.

1.6.1. Specific Objective

(a) to improve the environmental and sanitation of all communities and provide safe water supply.

(b) to make ORS available

(c) to increase community participation through training of community health workers and traditional birth attendants

1.6.2. Targets.

- Children 0-5 years
- All areas affected by cholera and typhoid

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1.7. Strategies

1.7.1 Case Management

Case management of diarrhoea cases will involve restoring and maintaining fluids by oral rehydration and in few cases IV therapy. In certain cases improving or maintaining nutritional status by appropriate feeding during and after diarrhoea, also treating fevers and other complications with appropriate treatment.

The oral rehydration salts recommended by WHO, UNICEF and that, which will be produced by (Zambia) General Pharmaceuticals for diarrhoea treatment will be used as it contains the three essential salts needed. At the on set of diarrhoea diseases commonly available in the homes such as weak tea, juice etc. will be encouraged to be given to children. Salt and sugar solution prepared by mixing with a recommended amount of water will also be used. Further to achieve the above, education of promotional messages about the benefits of breastfeeding and feeding during and after diarrhoea and other preventive measures will be encouraged.

1.7.2. Epidemic Control

In case of epidemic control it is hoped that a system of collecting and analysing data on diarrhoea morbidity and mortality will be strengthened. To achieve this both administrators and health workers will need to be trained in collecting and interpretation of data.

1.7.3. Maternal and Child Health Care

Promotion of breastfeeding, proper weaning practice, and good hygiene will be emphasised in all MCH activities.

1.7.4. Environmental Health Practices.

Since many of diarrhoea diseases are spread by feacal contamination of food and water, proper environmental health practices on long term basis will be employed.

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This will include:-

(a) provision of safe water by:-

I) construction of new protected wells

II restoring of old wells

III) provision of piped water where possible

(b) health education on proper methods of refuse disposals

(c) mobilizing the communities to participate in the construction and use of pit latrines in their villages.

1.8. Personnel and Delivery Systems

The best approach is to integrate CDD with other health activities within the context of PHC and coordinating with other sectors. In this context the following system will be utilised.

1.8.1 Health facilities

These include hospitals i.e. central, district and health centres which are already providing treatment and preventive services in such fields as MCH, EPI etc. Under this category providers will include doctors, nurses, clinical officers, primary health care coordinators, midwives and family health nurses.

1.8.2 Mobile Teams.

This group includes specific times when teams from static visit a number of out-posts for such activities as MCH or immunizations. It is intended that this field workers will be used to teach mothers and pregnant women to use of ORS including the utilisation of locally available fluids and the salt and sugar solutions.

1.8.3 Community level

The village health workers (CHW & TBAs) will be trained in the use of ORS and will also teach communities on basic environmental health aspects. The CHW/TBA will be supplied with ORS sachets together with the usual simple drugs that they receive.

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1.8.4. Commercial System

Although ORS is currently given free of charge through health institutions it is hoped that as more packets become readily available private practitioners and pharmacies will be allowed a limited amount for sale at a subsidized price.

Providers under this system will be Pharmacists and provate physicians.

1.9. Activities and Scheduling

The main strategies to be employed in the CDD Programme in Zambia are:-

Case Management .
Epidemic Control
Maternal and Child Health Care Practises
Environmental Health Practises.

A number of activities will be carried out to realise these strategies as shown in the following charts:-

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Strategy: Case Management.

ACTIVITY	DESIRED OUTCOME
Production/Development	
Establish ORS Production facility	. 1 in the country
Produce ORS Packets	. 3.5 million annually
Produce I.V. Fluids and Equipment (giving sets)	. 175,000 packets with equipment
Establish use of ORS therapy in health facilities	. All health facilities
Establish use of ORS therapy in homes	. All homes in contact with CHWd TBAs or health workers
Produce training/Promotional materials for:-	
a) health family personnel	. 5000 copies of guidelines for trainers of health workers
b) CHWs and TBAs	. 5000 manuals for CHWs TBAs
c) Mothers	. 2000 pamphlets for extention workers
d) Extension workers	
Develop training course for:	
a) Health workers	. 4000 trained
b) Community health workers	
Traditional Birth Attendants	. 5000 trained
c) Mothers	. 100,000 mothers trained
d) Extension workers	. 2,000 trained

ACTIVITY	DESIRED OUTCOME
DISTRIBUTION	
Selected storage and delivery points	. 1 central storage facility 9 provincial and 57 districts . Delivery points at rural health centres
Selected distribution system	. Written description of distribution system
Distribute packets and training materials	. Regular supply and arrival in satisfactory condition
TRAINING	
Continue training of health staff and CHW/TBAs	. Train 2,500 HSC staff . Train 2,500 CHWs . Train 2,500 TBAs . Encourage use of ORS therapy by health personnel in hospital
EDUCATION/PROMOTION:	
To train mothers in preparing and administering ORS therapy and in relation to health care practices	. 600,000 mothers to be trained
EVALUATION	
Monitor quality of ORS produced	. Monthly checking of production facility by coordinator of CDD programme.
Monitor flow of ORS and materia from production to delivery points	. Quarterly checks of distributior by comparing requested to receipts
Determine the number of facilities CHWs and TBAs receiving adequate amounts of ORS	. Quarterly review of health facility records, including reports from CHWs and TBAs

Epidemic Control

ACTIVITY	DESIRED OUTPUT
Production/Development	
Develop and produce training materials on data collection and the control of epidemics for CHWs, TBAs and health personnel	. 5,000 copies of each
Establish adequate supplies for for epidemic investigations	. At all central, provincial and district hospitals
Establish adequate supplies for response to epidemics	. At all provincial centres and district hospitals
Establish reporting sites	. All district, general and central hospitals
Distribution	
Distribute data collection forms to all reporting sites	. All districts, general and central hospitals
Collect completed forms from reporting sites	. Monthly returns to provincial[2] and district, central level
TRAINING	
Train data collectors to collect the required information	. All CHWs, TBAs and health personnel
Train personnel in procedures for responding to epidemics	. 5,000CHWs, 2,500 TBAs 2,500 HHC staff trained
Production/Education	
Describe the value of surveillance for epidemic control to (a) data collectors (b) health administrators	. 5,000 CHWs, 2,500 TBAs 2,500 health centre staff and 250 general and central hospitals 600,000 families to be informed.
Inform people of ways to avoid infection during epidemics	
Evaluation	
Monitor collection data	. Monthly checks of reporting of diarrhoea cases, as well as deaths
Monitor completeness of reporting	. Regular submission reports
Evaluate response to epidemics in terms of spread and cases treated, case fatality rates etc.	. 90% of reporting epidemic will receive appropriate response within 48 hours of reports. OR To reduce case fatality rates

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Maternal and Child Health Care Practices.

Activity	Desired Output
Production/Development	
Develop and produce educational/ promotion material on MCH practices for mothers	5,000 posters on promotion of locally available weaning foods supplementary feeding when necessary, immunisation
Develop and produce training materials for health workers and CHW/TBAs	5,000 pamphlets on MCH practices
Distribution	
Distribut education/promotional materials on MCH practices	To all districts and RHCs
Training	
Train Health personnel to promote MCH practices (CHWs and TBAs)	5,000 CHWs 2,500 TBAs 3,500 MHC staff trained 500 Hospital staff
Education/Promotion	
Teach mothers about health care practices such as breastfeeding, proper weaning foods	600,000 mothers trained
Encourage mothers to adopt recommended MCH practices	50% of mothers encouraged to adopt.
Evaluation	
Monitor extent to which MCH practices are being promoted	Monthly checkes of numbers of women tought by supervisors at each level.
Monitor appropriateness of messages	Twice a year interview of mothers receiving MCH messages.

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ACTIVITY	DESIRED OUTPUT
Production/Development	
Develop and produce educational/ promotional materials on correct use and maintenance of water supplies and proper excreta disposal	1,000 diarrhoeal posters in English plus 500 poster in each of 7 local languages
Establish and maintain relationship with Ministry of Agriculture and water development	Intersectoral committee at each level plus joint projects
Distribution	
Distribute and produce education/ promotional materials to health facilities, CHWs, TBAs and staff from other sectors e.g. Agriculture and Education	5000 diarrhoea posters distributed
Training	
Train RHC, district and hospital staff to explain and encourage correct use and maintenance of water supplies and proper excreta disposal practices	5,000 CHWs, 1,000 teachers + extension workers trained
Education/Promotion .	
Teach and encourage the public to adopt proper sanitary practices	60 radio talks in English 180 radio talks in local languages on proper sanitaty practices 100 diarrhoea posters displayed in health facilities and public places
Evaluation	
Monitor the distribution of Education/Preomotional materials	Quarterly checks of distribution of materials at all levels
Monitor the appropriateness of messages	Interview of samples of people receiving the messages by staff from health and other sectors

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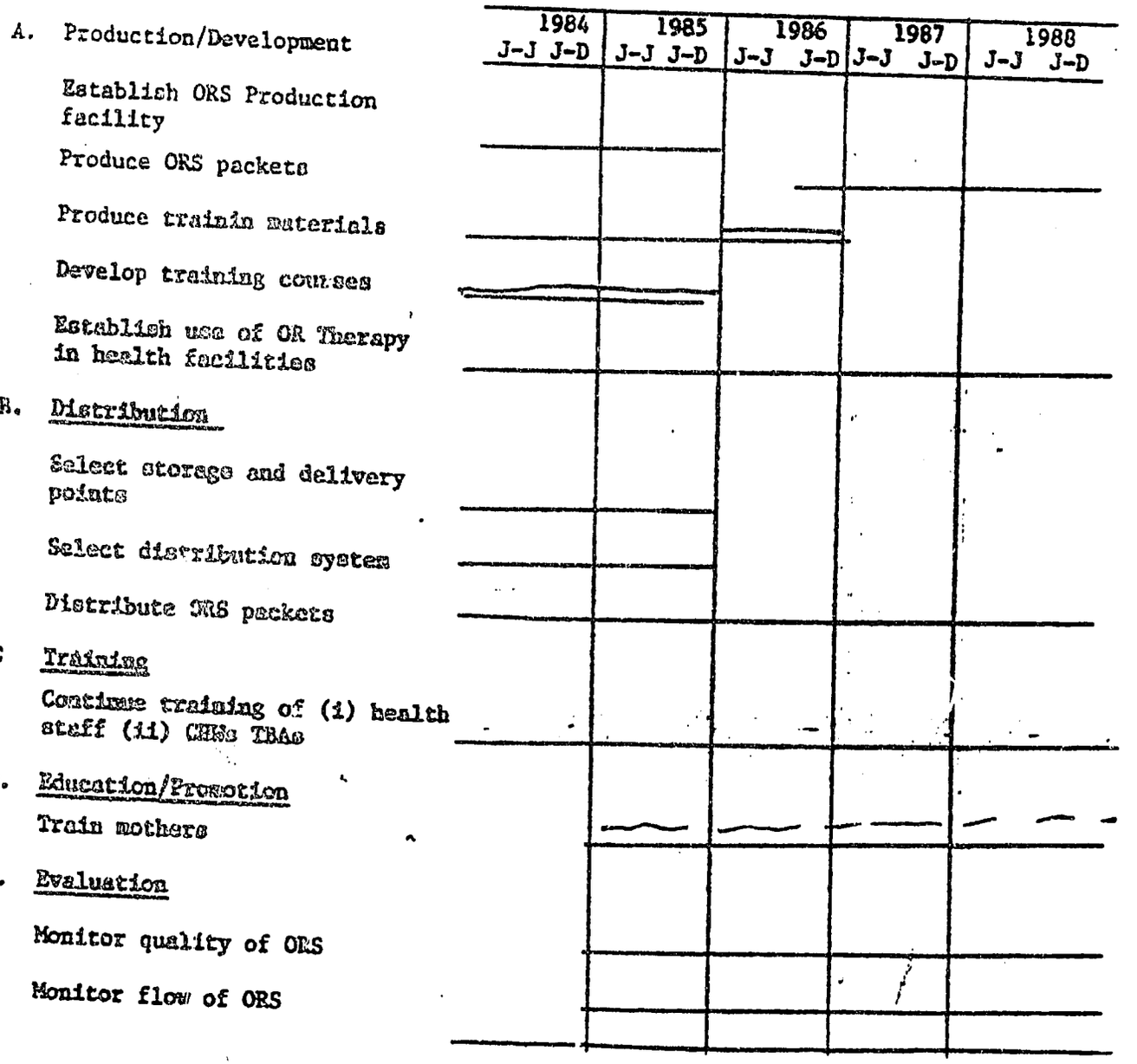
Activity Schedules

Case Management



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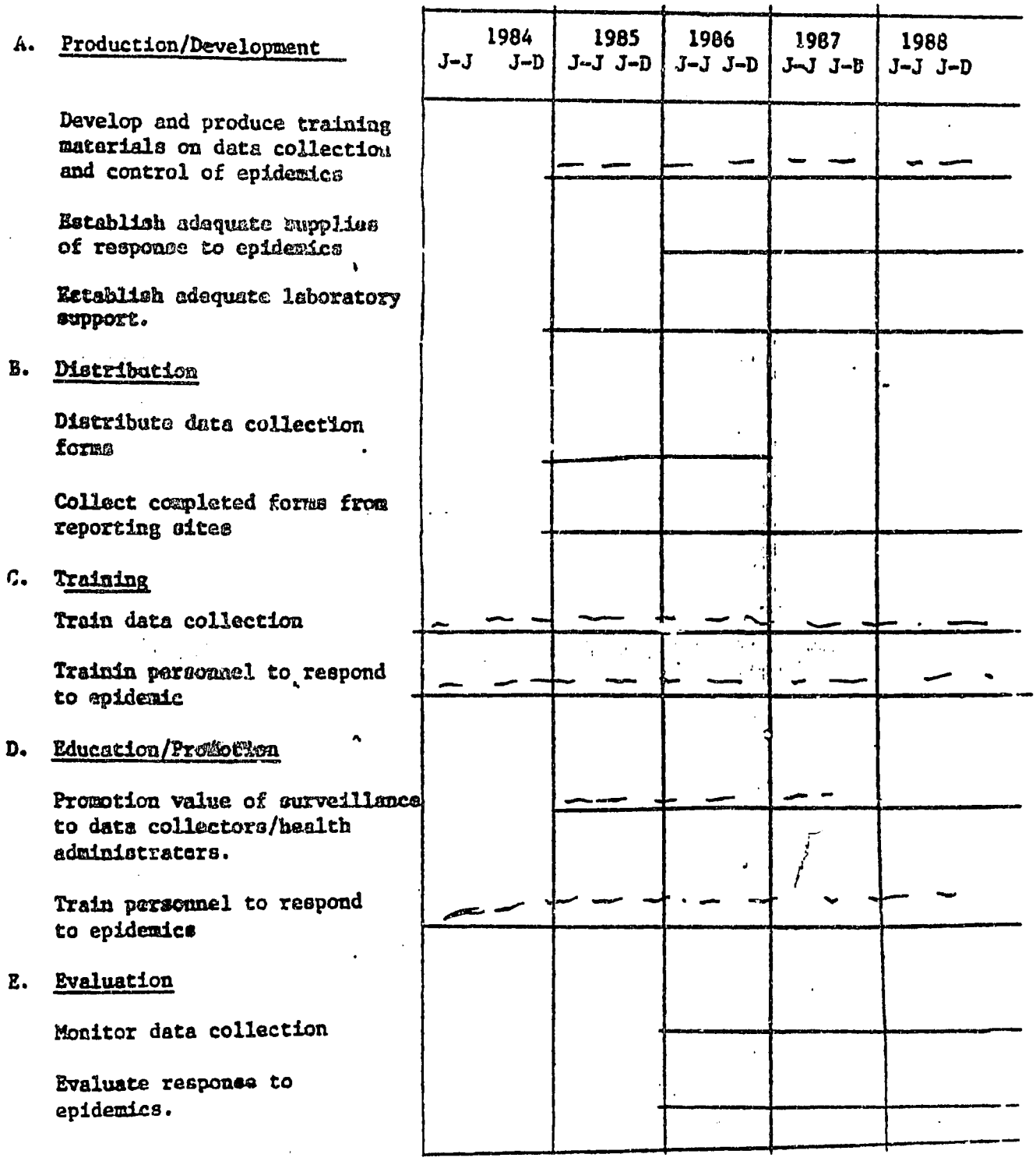
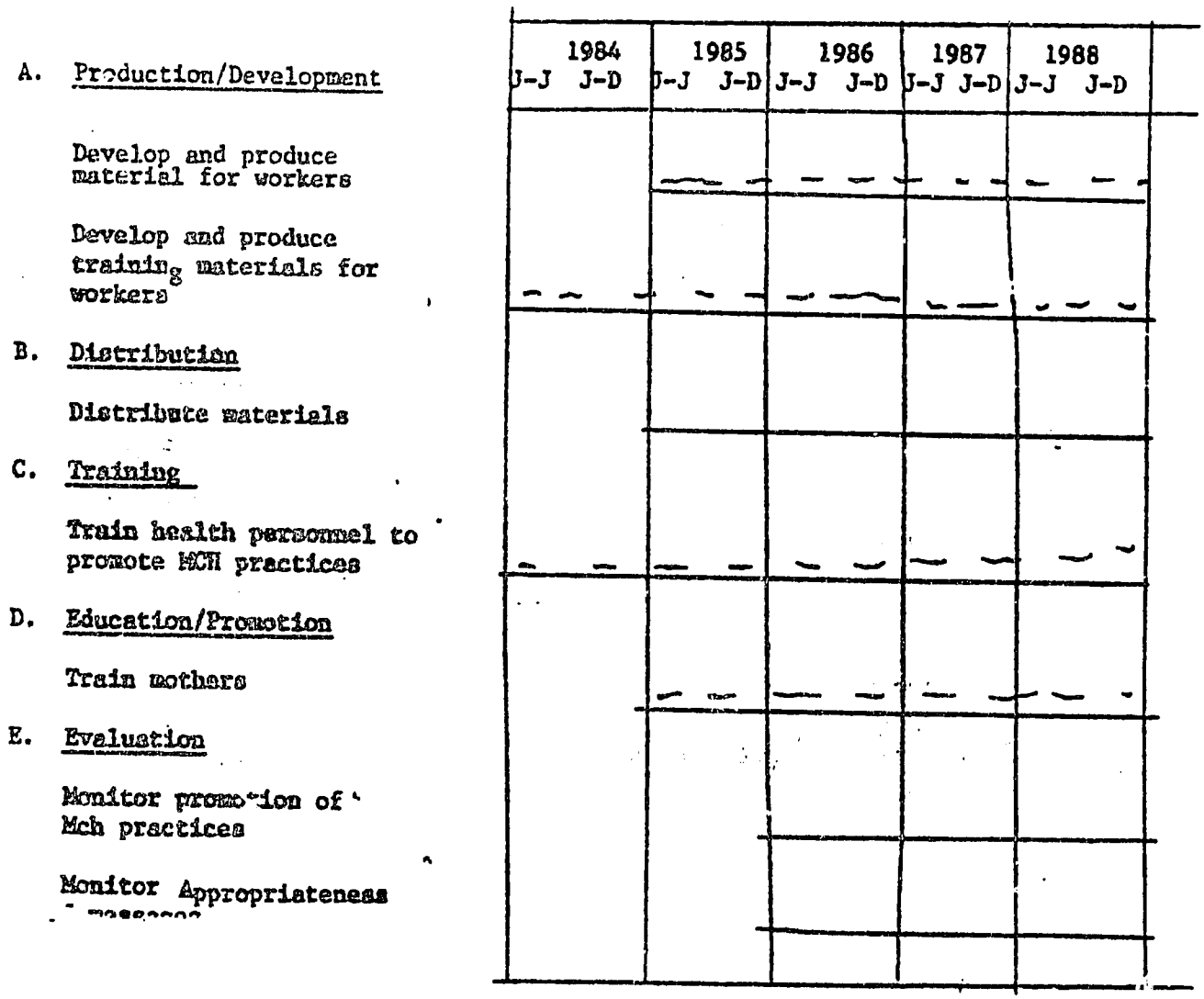
Eidemic Control



Maternal and Child Health Practices



Environmental Health Practices

A. Promotion/Development

Produce and develop education/promotional materials

Establish and maintain realtionship with related sectors

B. Distribution

Distribute materials

C. Training

Train health personnel
Train CHWs, TBAs, and staff from other sectors

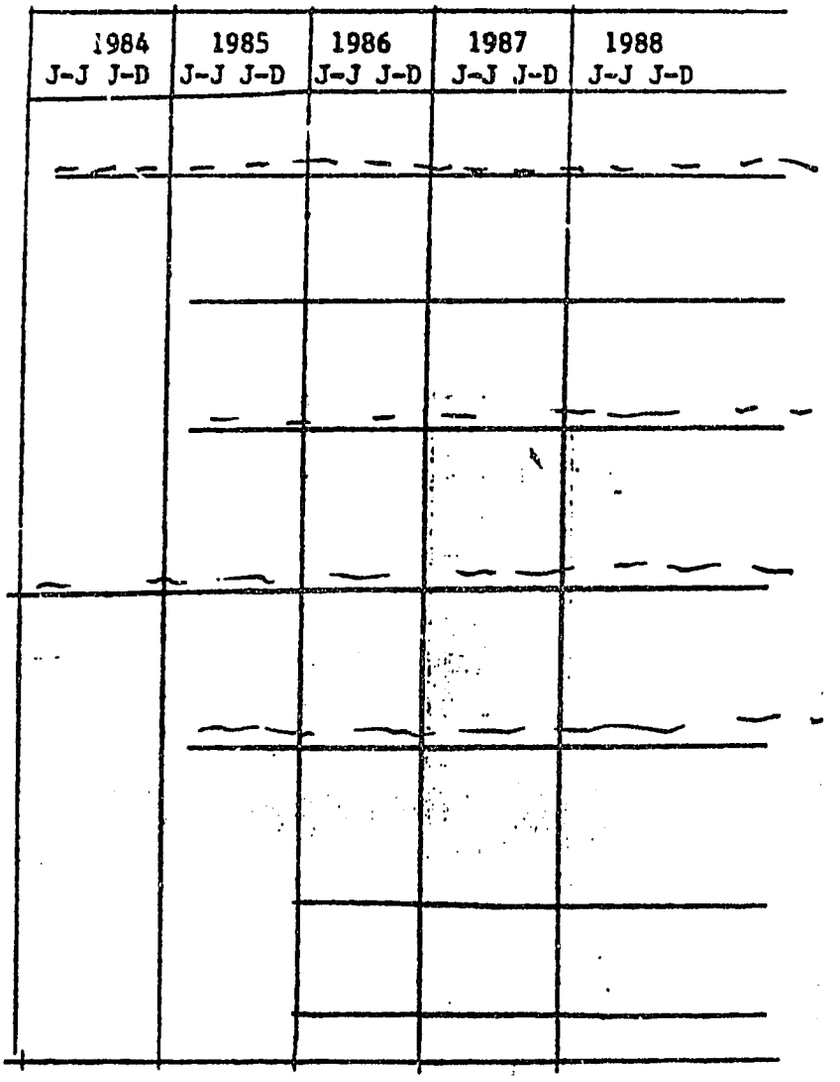
D. Education/Promotion

Public Education

E. Evaluation

Monitor distribution of materials

Monitor appropriateness of messages.



1.9. Evaluation of the Diarrhoeal Diseases Control Programme

Evaluation will form an important component of the CDD Programme. Evaluation will be done on a continous and regular basis at each level as one of the activities of the CDD Programme. This evaluation will be useful to help decide whether the activities of the CDD Programme are appropriate and sufficient to meet the pre-established goals. A final evaluation will be conducted at the end of the five year period to answer the following questions:-

i) have the specific objectives been met?
ii) has it been worth it in terms of money, time and personnel?

The results of the evaluation will be disseminated to the following:-

i) Ministry of Health
ii) Health personnel
iii) Extension workers
iv) CHWs and TBAs
v) related ministries like Agriculture and Water Development Education and Social Development.
vi) The general public.
vii) Other interested parties

The results will be disseminated through reports, workshops journals and the mass media.

1.10. Budget (Yearly)

Internal input

Personnel, seconded from normal establishment

- Programme Manager/Coordinator
- Assistant Programme Manager
- Provincial Coordinators
- District/RHC Supervisors
- Others, CHWs, drivers etc.

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1.10.2. Equipment and Supplies.

- vehicle (LRSW) seconded from pool
- treatment charts (5,000)
- educational posters (various) 10,000
- teaching aids
- jugs (graduated (1,000 mls) 5,000
- teaspoons - 5,000
- Mugs (250 mls) - 5,000
- Provision of storage facilities
- fuel and lubricants
- per diem for supervisory tours

1.10.3. External Inputs

1.10.3.1. Personnel - The need for external help has been minimised greatly having four nationals trained outside. A two weeks consultancy was however necessary at the start of the programme. Short term consultant - 2 weeks - 5,000 US $
local travel expenses - 1,000 US $

1.10.3.2. Equipment and Supplies

- vehicles (2) to supplement the old landrover - 2 x 10,000 US $
- teaching modules (supervisory skills) in sets of 7 x 90
- teaching aids
- jugs (graduated)
- posters
- leaflets

ZAMBIAN NATIONAL DIARRHEAL

DISEASE CONTROL PROGRAM

National Management Structure

Overall authority and direction of the program will be provided by a National Program Council for Control of Diarrheal Diseases (CDD):

Chairman	Director of Medical Services
Vice-Chairman	Assistant Director of Medical Services for Primary Health Care
Members	National Development Planning Council Ministries of Education Higher Education Social Development Information and Culture National Food and Nutrition Council National Medical Council Churches Medical Association of Zambia
Participants	UNICEF SIDA WHO
Executive Officer	Director of MCH

Working within the framework of program plans approved by the National CDD Program Council, implementation actions will be approved and directed by a National CDD Program Working Committee:

Chairman	Director of MCH
Vice-Chairman	National CDD Program Coordinator
Members	MOH Primary Health Care Advisor CMAZ Military Health Services Mining Health Services Health Education/MOH Statistics/MOH Director of Pharmaceutical Supply Dept. of Pediatrics, UTH
Participants	WHO Resident Expert UNICEF SIDA PRITECH Representative
Executive Officer	CDD Program Manager

JOB RESPONSIBILITIES FOR MANAGERS OF THE ZAMBIAN NATIONAL CDD PROGRAM:

Director of MCH

1. Executive Officer for the National CDD Program Council

2. Chairman of the National CDD Program Working Committee

3. Manage national level CDD program activities.

4. Prepare the National CDD Program Plan for approval by the National Council.

5. Prepare the Annual CDD Program Implementation Plan for approval by the Working Committee.

6. Manage a CDD Program Account to be established by contributions from the MOH and donors such as UNICEF and SIDA. Authorize expenditure of funds from this account. Request from donors allocations of funds to the program account.

7. Initiate planning and organization of CDD program activities through assistance to Provincial Medical Officers, CMAZ, and to health services administered by the mines and the military.

8. Assess CDD program progress and report semi-annually to the Program Council. In June 1988, the Director of MCH and PRITECH will prepare a progress report.

CDD Program Manager

1. Assist the MCH Director with planning and organizing CDD program activities.

2. Coordinate CDD program information among the program managers in the MOH, CMAZ, the military and mines health systems and the Provincial Medical Officers to ensure rapid and uniform program implementation.

3. Coordinate integration of CDD with other PHC/MCH programs.

4. Coordinate cooperation among donors to the CDD program.

5. Identify problems and obstacles to achieving national CDD program goals.

6. Administer allocations of funds from the CDD Program Account. Prepare program and financial management reports.

7. Work with provincial health organizations to help plan and to organize provincial CDD programs.

8. Manage technical services contracts, for example for operations research or surveys.

PRITECH Resident Representative in Zambia

FUNCTIONS:

1. Administer PRITECH program activities in Zambia.

2. Work with the CDD Program Manager to organize implementation of the National CDD Program.

3. Facilitate integration of CDD with other PHC/MCH programs.

4. Facilitate cooperation among donors.

5. Identify problems and obstacles to achieving national CDD program goals.

6. Organize and support activities of PRITECH consultants.

7. Prepare program and financial management reports for PRITECH.

SUPERVISION: The PRITECH Representative will be supervised by the MOH Director of MCH, and by the PRITECH Program Manager, to be designated.

SPONSORSHIP IN ZAMBIA : UNICEF

ADMINISTRATIVE SUPPORT: Office and transport to be provided by PRITECH. A four-wheel drive vehicle will be purchased, maintained and administered by PRITECH for use in the CDD program. At the end of PRITECH activities, the vehicle will be transferred to the MOH/Director of MCH for use in the CDD program.

APPENDIX C

ZAMBIA NATIONAL DIARRHEAL DISEASE CONTROL PROGRAM: TRAINING AND COMMUNICATIONS STRATEGY

ASSGN. NO: DC 160

APPENDIX C

TRAINING AND COMMUNICATIONS STRATEGY

I. Introduction

The suggested strategy is based on information available and does not reflect research about the target audience as such. It is process oriented and could/should be changed to reflect target audience research which will be carried out.

A. Target Audience Research

Prior to the development of specific strategies based on the effectiveness of various communication channels, it is necessary to find out which channels (1) reach most mothers and others who take care of children and (2) the degree of effectiveness of each channel in (a) disseminating information (b) changing attitudes and (c) changing actual behaviors.

There are two surveys which are currently being carried out by Dr. Juma E. Nyirenda, Centre for Continuing Education, University of Zambia, which will provide useful information: (1) knowledge, practices and attitudes (KAP) of mothers and fathers towards child health in Zambia, and (2) Radio Listening to Child Health and Nutrition Programmes in Zambia.

In addition to information which will be obtained in these surveys, it is important to find out at the community level (1) who actually cares for sick children; (2) what are the existing practices related to the treatment of diarrhea; and (3) what are the most important sources of information in child care matters and what impact they have.

B. Graphics and Broadcasting Staff

In order to continue, improve and strengthen its work, the Health Education unit needs a graphics artist and a radio broadcast producer.

MOH does not have enough funds to cover these positions; however, it could bring one staff member from the provinces to be trained on the job as a graphics artist. One of the Health Education staff members could be trained in Radio Broadcasting Production.

In order for institutionalization of graphics and broadcasting skills to occur, it is recommended that UNICEF fund these two positions for a limited period, i.e., one year renewable. This should be contingent upon Health Education assigning two of its permanent staff members to work with the graphics and broadcasting experts.

II. Suggested Strategy

A. Overview. The MOH Health Education staff is productive and has extensive experience with printed materials and radio and television programming. This unit is a capable and reliable resource for the CDD program; however, their capabilities are already over-extended. Support and assistance is available and being provided by UNICEF and by the Centre for Continuing Education at the University of Zambia. PRITECH would like to introduce methods for pre-testing materials and messages and assist with development of communications and training materials for the CDD program. To augment the capabilities of the Health Education staff and to increase the number and quality of educational materials available, the team recommends that training and communications materials be developed as part of the training programs. of central staff. As a result, the health workers who will be users of the materials and the messages can participate in their formulation, and then pre-test these materials directly with mothers. The Health Education staff and staff from the Centre for Continuing Education would participate in the training programs to guide development of the materials and messages, to develop their own skills of working with user groups and pre-testing materials, and to ensure that the trainees fully understand their roles as future educators of others.

Given the lack of funds, shortage of available trained personnel and the urgent need for action, this proposed approach

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seeks to build institutional capabilities while producing needed materials for service providers and the target group, i.e., mothers of children under five. The approach which will be followed throughout emphasizes the needs of the target group, constantly verifies whether these needs are being met and makes changes accordingly. Community participation and the need to put ORT in the hands of mothers and the community are a guiding principle.

Participants will also explore specific plans for utilization of materials, such as radio listening groups for radio programs, effective utilization of printed materials in interpersonal communications, etc. Training trainers/community facilitators is the other key ingredient of the proposed program, because of the large number of people to be reached, particularly at the lower level of the system.

B. Target Audience for Training and Communications

1. Primary Audience: Low literacy mothers and other persons who take care of children under five.

2. Secondary Audience: Medical and paramedical personnel, community health agents, literacy training personnel, agricultural extension agents, women's groups.

C. Expected Outcomes.

1. Primary audience should be able to:

- Identify when an infant/child has diarrhea
- Prepare and administer prepackaged ORS salts

and/or salt and sugar solution to the child.

- Seek outside help if the child does not improve
- Continue breastfeeding and provide child with appropriate nutrition - essential elements of ORT.

2. The secondary audience will teach and support the primary audience by:

- Using ORS in medical facilities and showing mothers how to prepare and administer ORS, and by providing positive reinforcement for positive behavior, including breastfeeding and other feeding.
- Non-medical members of the secondary audience will approve and support mothers and help them and/or teach them about ORS.
- Schools will teach children how to prevent diarrhea and how to administer ORS to younger siblings.
- Rural extension workers will teach about ORT and help deliver packages.

D. Media Communications

The extent to which resources and reliance should be placed on specific media will be determined by the audience research; however, data presently available suggest three main areas.

1. Interpersonal

Most evidence available on changes in behavior suggests that most people change because of interpersonal interactions; this seems to be particularly true for people with low educational levels.

The proposed strategy utilizes interpersonal channels in the health community and in other institutions which work directly with the target group such as the community health agents who are selected by the community, agricultural extension agents, etc. Ultimately, the emphasis is on enabling community members themselves, i.e., mothers, to teach others about ORT.

2. Mass Media

Radio was selected as the key mass medium because (a) it is widely available, (b) the Health Education unit of MOH is already broadcasting radio programs five times a week in English and local languages, and (c) it's low cost.

The emphasis will be on broadcasting in the major local languages. According to Mylton's (1974) study, Zambians prefer local language stations and only 7% of respondents stated that they understood English very well.

Arrangements will be made to secure the cooperation of well known broadcasters to increase the appeal of the ORT message.

3. Printed Materials

Printed materials will serve as reinforcement, "reminders," of messages transmitted through interpersonal and mass media

channels. Because the largest portion of the target group is illiterate, printed materials will be mostly visual. The radio messages and interpersonal messages will repeatedly explain these visuals.

All messages will be integrated among and reinforced by these three channels.

III. Training Activities

A. People to Be Trained

1. Medical Practitioners and Pharmacists

Physicians, registered nurses, enrolled nurses, clinical officers, pharmacists and traditional healers in their regular treatment and advice set the standards in Zambia for medical care. These professionals need to understand and have confidence in ORT, so that they will establish ORT as the standard treatment for diarrhea in Zambia.

Physicians need training in appropriate clinical management of infants and children with diarrhea. Physicians need to go beyond statements of symptoms as a basis for prescribing treatment for diarrhea. Proper case management requires the following:

a) a short history of the disease, including:

(1) description of stools, e.g. consistency, amount, frequency, color, odor, presence of blood, mucous, parasites,

(2) duration of complaint,

(3) associated cough, fever, vomiting, abdominal cramps, other,

(4) acceptance by the child of fluids, food, breast feeds, i.e., is the child hungry or thirsty?

(5) others in the family with diarrhea.

(b) an examination of the clinical status of the child for:

(1) sites of associated infection, e.g., tonsillitis, measles, etc.,

(2) signs of malnutrition, e.g., PEM such as kwashiorkor or nutritional marasmus,

(3) assessment of clinical dehydration (skin and mucous membranes) and estimated degree of dehydration: mild (25%), moderate (5 - 10%), serve (7 - 10%) in relation to bodyweight,

(4) estimate of pallor (anemia),

(5) presence of a large spleen (malaria).

c) therapeutic management:

(1) ORS fluid replacement;

(2) continue breastfeeding

(3) continue feedings/or more;

(4) other needs <u>on indication</u> only;

(5) instructions to mother as to self-management;

(6) use of yoghurt or sour milk (lacto-bacillus replacement).

d) preventive approach:

(1) future episodes of diarrhea;

(2) health education;

(3) nutrition education.

Because physicians are opinion leaders, special effort should be made at the beginning of the program to inform them about ORT; a seminar and refresher training at an oral rehydration unit at the teaching hospital are proposed. Physicans, nurses and clinical officers need opportunity for clinical training in ORT. The team strongly supports the proposal for an oral rehydration unit at UTH, and perhaps other teaching hospitals, to provide clinical experience. The medical and training schools need to incorporate ORT into the standard curricula for initial training and for refresher training at the provincial level.

Clinical officers can be reached through initial training and through in-service training. The teaching curriculum at Chainama College and District level in-service training should include training with regard to diarrhea:

- taking adequate medical histories;
- giving appropriate physical examinations;
- giving mothers instructions, and

- refraining from employing unnecessary medications, e.g., antibiotics and kaolin.

Traditional medical practitioners and pharmacists are large groups operating in the private sector. Because of their direct contact with families, they are important agents for the ORT program. A strategy for reaching these groups needs to be developed, perhaps beginning with seminars of representatives from these two groups during which participants will help determine the best approaches.

A working group of traditional healers could be formed during the coming national meeting of traditional healers planned by the MOH, for late 86.

Traditional treatments need to be investigated to determine which are:

- possibly beneficial and to be encouraged for diarrhea management;
- possibly harmful and to be discouraged, especially toxins used that are reno - or hepato - toxic;
- neither harmful or benefical and to be left alone.

2. Trainers of Health Workers and Other Community Agents

The professionals in the health system who train and supervise must have the capability to educate their subordinates about ORT and about how to instruct mothers and families about ORT. The objective is to train the community health workers (CHWs), traditional birth attendants (TBAs), literary workers, teachers, agricultural workers and other community agents who

will have opportunities for teaching families. To do so, the health professionals need materials for training others, they need training in how to use the materials and they need a plan of operation to carry out the training and supervision. Because of the large number of people involved spread across the nation, the training effort needs careful organization and supplementary funding.

The team recommends a step-by-step approach: first, organizing a training group at the central level under the auspices of the CDD Working Committee; second, planning and organization of training efforts in one province to develop the best approach; third, application of the approach to other provinces as funds and staff time permit. The objective should be to complete training nationally within a two-year period.

The standard training materials to be used -- instructional flyers about mixing ORS to be given to mothers, booklets for training health workers and community agents, and posters to promote ORT -- will be developed at workshops by this central training group and adapted to local conditions by provincial workshops.

3. Mothers and Other Family Members Who Provide Medical Care for Children

Mothers will have inter-personal contact with health workers at health facilities or alternatively with other community workers at health facilities or alternatively with

other community agents -- literary workers, agricultural extension agents. Since 25% of mothers are beyond walking distance to health facilities, contact through other community agents will be important. Promotion of ORT by traditional medical practitioners would also be an effective way to increase use of ORS. The roster of agents who can be recruited to reach mothers -- and the organizations through which these agents ca be involved -- should be determined at the provincial level. Even with all possible community agents involved, families in remote rural areas may not be contacted.

Radio may be able to increase coverage. Organization of radio listening groups would increase the effectiveness of radio messages and also increase the effectiveness of community agents -- in a mutually reinforcing way. But where there are no agents, the radio message will have to stand on its own among mothers who are not listening in groups. Radio broadcasts can also ensure that consistent, accurate messages about ORT are being delivered to mothers. [but if agents cannot reach 25%, there will be no groups among this 25%, and since radio is their only link, it must be able to be of benefit to people listening alone].

B. Proposed Training Activities

A detailed listing of possible training activities is presented at Table I. This listing needs to be reviewed by the Health Education Unit and the CDD Working Committee in their formulation of a Training Plan.

1. Seminar for Physicians

Seminars of the national and provincial levels will be attended by physicians working in MCH. Priority should be given to physicians with large numbers of low income patients under five.

Number of Seminars: 3

Duration: 2-3 days

Number of Participants:

A National Physicans Seminar will be held with the specific purposes of (1) lending credibility to ORT in terms of scientific evidence of ORT effectiveness, (2) stressing the need for patient assessment/diagnosis to minimize the use of medication on the part of both medical and para-medical personnel, (3) specifying ORT procedures; (4) sensitizing physicans to the need for direct involvement with patient education, and (5) discussing and proposing a training plan for physicans in the ORT unit to be established in the UTH.

Local and international experts will address the seminar in order to provide credibility to hospital/clinic based ORT.

In order to provide incentive for ORT research in Zambia, small research grants might be made available to physicians who present proposals for either original research or research based on secondary sources. All research should focus on ORT in Zambia.

2. Teaching Hospital Oral Rehydration Units

A training unit in ORT is being established at the University Teaching Hospital. In other countries, such units have provided

direct clinical experience with ORT for physicians, nurses and other health workers. The clinical experience has been essential to establishing confidence in the efficacy of ORT. This unit should be given high priority early in the program.

3. Workshops to Develop Training Materials for Health Workers

A national workshop will develop training materials for the "training of trainers" activities, adapting the existing WHO training manuals. These materials will be used for in-service training in Provinces and Districts down to the level of supervisors of CHWs and TBAs.

Participants: National and provincial members of the four main health service system-

Duration: Two weeks.

The CHWs and TBAs to be trained at Rural Health Centers or on-the job by field supervisors should learn the following skills:

- how to demonstrate preparation of ORS by packet and by home mix;
- how to teach mothers (i.e., communication skills) to use ORS correctly;
- how to instruct mothers about dehydration and ORT
- proper feeding practices during diarrhea.

4. Nurses and Clinical Officers -- Workshop on ORT Curricula

Participants: 3 trainers from 4 Nurse training schools and 17 ZEN training institutions.

Duration: Two weeks

Rationale: Since all future health service personnel, with the exception of physicians, will be trained at these schools, it is important to include appropriate ORS training in their curriculum. Although most programs include ORS in their curriculum, it is important to have a self-contained unit which specifically focuses on:

(1) The need to take adequate histories,

(2) Perform physical examination,

(3) (a) Give mothers specific instructions in easy language, if possible in the mother's language;

(b) show mothers how to actually prepare ORS and taste it.

(4) How to train rural health workers and other community workers.

5. Training of Trainers

Participants: COs and trainers of rural health/extension personnel.

Duration: 10 days

Number of Participants:

Since clinical officers will be responsible for training Rural Health Workers, this workshop will be designed to enable them and other trainers to transfer knowledge and skills related to ORT to C.H.W. During the first week clinical officers, based on interviews with representatives of their target group, our

information available in the ORT modules available, and on a core curriculum provided by the central training group, will adopt a training program that will be suitable to local staff yet consistent with national norms.

During the second week, each group will pre-test this training unit with Rural Health staff.

6. How to Train Mothers

Duration: 2 days

Desired Outcome:

° 4,000 health workers trained

° 5,000 community health workers and traditional birth attendants trained

Ultimately: 100,000 mothers trained.

Organizing workshops will take place in each district with the trainers prepared in the course described above. A plan will be developed for researching community workers, using matrials developed at the workshops and the trainers course.

Upon completion of training trainees should be able to:

a) demonstrate the preparation of ORS, both packet and salt and sugar.

b) teach mothers to use ORS, including ORS preparation and administration.

c) explain b. above in easy terms and reinforce mother's positive behavior (i.e., correct preparation).

d) teach the importance of breastfeeding and other continued feeding as essential to ORT.

C. Training/Organization of Mothers/Community

After each training workshop all participants will return to their locations with specific plans, back up materials, ORS salts and demonstration containers. Each participant will be in charge of starting mother's groups. Mothers who show capacity of leadership, i.e., influencing others to change behavior, will become community ORS distributors/teachers. A plastified poster with the ORT logo will be given to them to be placed in front of their houses, and a ORT flag with the logo will be placed on the roof as to be seen from a distance. Thus, these mothers will be recognized as community experts in diarrhea control. ORS supplies will be provided to these mothers as will various sizes of commonly available containers/cups marked to show the proper ORS mixture/solution. These ORT experts will visit homes to instruct mothers about how to mix ORS. If mothers do not have salt and sugar in the home they will be told to go to the ORT expert to obtain packages, if the clinic is too far. ORT experts should show mothers how to mix ORS using the size of containers similar to the one the mother has at home.

IV. Information, Education and Communications (IEC) Materials

A detailed listing of possible IEC materials is presented at Table II. This listing needs to be reviewed by the Health Education Unit and the CDD Working Committee in their formulation of a Communications Plan.

A. Development

IEC materials will be developed by the Health Education Unit (HEU), with technical assistance from the CDD Working Committee. The core messages will be those specified by the Working Committee out of all the possible messages that could be developed. Once the Committee has determined what the HEU should communicate, the exact method of communicating those specific messages remains to be determined.

The first step in doing this is a development investigation. The HEU needs to understand its audience in terms of diarrheal disease: How do Zambian mothers talk about diarrhea? How do Zambian mothers treat diarrhea? How do Zambian mothers perceive diarrhea - is diarrhea one disease or a complex of diseases? Do they understand dehydration? What resources do they have at home to learn and act upon CDD messages - containers, measures, salt, a radio, sugar, newspapers, literacy, time to give ORS? These questions, and other, can be addressed through focus groups or simple surveys.

On the basis of this information from the development investigation, IEC materials - print, audio, video, as appropriate - can be created by the HEU. Using local words and sensitive to local practices, the HEU can apply its experience and creativity to the production of materials. What they produce should be, therefore, a combination of the development

investigation and the skill of the HEU's artists and broadcasters.

This product is now ready for pre-testing. Again with focus groups and/or small surveys, the HEU submits its work to a sample of the target audience. Charity, appropriateness, simplicity, effectiveness - the IEC material needs to score high on all these measures before being distributed on a mass scale. It is quite likely that the pre-test will point out areas for improvement; these corrections will then be incorporated into the final product.

The development of IEC materials might mesh with the training of local health workers at this pretest stage. Particularly if the IEC product is a poster or program that the health worker will be called upon to interpret to her patients, participation in the development of that product can sharpen the health worker's grasp of the product and its message. At the same time, the health worker will feel psychologically more a part of the communication effort - not just a conduit for other people's ideas, but one of the formative elements in the communication design. Trainees could be part of the pre-test teams - a collaboration that will allow broader pre-testing while it involves the health workers more.

Another plus from this linkage of IEC development with training is that exposure it gives health workers to research - most importantly to the value of listening to mothers as a part

of the communication process. Health workers who might object to being left out of the IEC development process will also come to appreciate that mothers should not be left out either. Communication involves participation - listening and speaking by all relevant parties.

B. Utilization of Materials

1. Utilization Plan. Each group will develop a specific plan to foster participation on the part of the target group, including a feedback mechanism to assess impact of materials on the target audience.

Participants will take ORS packets and containers, cups, etc. for demonstration. Mechanisms for continuing distribution of packets will be discussed with MOH staff.

2. Radio Listening Groups. The link-up between radio broadcasts and personal communication has long been recognized as a potent synergy. Broadcasts are best at conveying information; person-to-person communication is best at convincing people to put new knowledge into practice. Radio listening groups have built on these strengths - witness the Canadian farm forums, the Latin American radio schools, or the animation groups of francophone Africa.

A concise story of radio listenership in Zambia will be useful in determining the pattern to follow in integrating radio and personal-communication channels. Trained community health workers, backed up by frequent radio messages and print

material, represent one approach. The actual formation of radio listening groups and subsequent discussions represents another. If people are accustomed to listening in groups, such a tactic may fit well in Zambia, with a minimum of organizations effort. If people listen alone, the organization of these groups will involve a great deal more, in terms of motivation and behavior change. These relative trade-offs must be weighed

3. Follow-up. MOH/Health Education staff will visit participants periodically, i.e., at least once during the first two months after their return and once every two months thereafter.

The purpose of this follow-up will be to provide support and recognition, to collect and assist with the compilation of pretest results, to collect materials developed, to help with the development of new materials and carry out other monitoring and supervision duties as needed, e.g., verify supplies of ORS, education materials, assist with radio listening groups.

C. Dissemination of Materials

1. Broadening Participation in the CDD Program. In order to ensure that IEC and training materials are disseminated throughout Zambia, representatives from various organizations working in the country, particularly in rural areas, should be invited to participate in workshops and seminars. These groups include the main systems of health delivery: MOH, Missions, Mines and Military. In addition, below is a list of additional resources which should be utilized in the ORT program:

Ministry of Agriculture
Rural Information Services

The Ministry of Agriculture has the most comprehensive outreach system for rural areas. In many locations there is previous history of cooperation between the Ministry of Agriculture and MOH.

- Ministry of Education and Culture
  Inspector of Schools

This Ministry is needed for formal education programs, i.e., child-to-child programs in public schools.

- Labor and Social Services
  Social Development Department
  Contact Person: Mr. Makando

The social Development Department has functional literacy programs which could incorporate ORT materials to its on-going programs.

Mrs. Kaukasa
Women's League
Central Committee, Party Headquarters
Freedom House
Lusaka

Education Broadcasting Unit
Lusaka

Zambian Broadcasting Services
Broadcasting House
Lusaka

In order to increase the effectiveness of materials, the Health Education staff will take advantage of on-going training programs to deliver appropriate materials to program participants and discuss with them how they should be used.

Local materials which have been pre-tested will be disseminated to appropriate areas and/or nationally. MOH will continue disseminating materials to Provincial District and Community levels and to cooperating institutions.

2. Decentralization of MOH Training.

The trained trainers will set up Provincial and District systems for (1) on-going materials development/improvement, (2) sharing of information about local program, including the utilization of "Bwino," (3) community mobilization and (4) organization of future activities in their areas. Through on-going training, a large pool of MOH staff at the Provincial and District levels will be able to develop or adapt materials appropriate to their target groups in local languages. For quality control, MOH National and Provincial staff will periodically collect materials and assist District and Community level personnel in pre-testing and revision of locally produced materials.

D. Workshops for Development and Pre-Testing of IEC Materials

This section describes one or more suggested workshops which can produce materials under the guidance of the Health Education Unit Staff.

Workshop: Design and Pre-test of Information, Education and Communication (IEC) Materials

Prerequisite: Results from KAP survey by Centre for Continuing Education "Practices of Mothers and Fathers Towards Child

Health in Zambia," currently underway. (Proposed completion: end of April 1986.)

Number of Participants: 30. National and Provincial Staff

Duration: 2 weeks

Outcome: 30 Participants able to develop and pre-test materials specifically designed for the target population.

This two-week workshop will enable headquarters and selected province personnel to design and pre-test IEC materials for the target group, low literacy mothers of children under five. Health Education staff will participate in order to learn the process and members from MCH will participate as content experts. The materials to be produced are:

a. an instructional flyer about how to mix ORS for use by mothers and families;

b. posters for promotion of ORT, for use at health facilities and stores that sell ORS;

c. prototype radio programs.

These materials would be prepared for each major language group, adapting a standard model which would ensure consistent and correct messages about ORT and mixing of ORS. Messages should describe ORS as "a special medicine for reducing and/or preventing dehydration." Messages should stress that ORS and feeding will not stop diarrhea immediately, but will improve the state of hydration and save the child's life.

Appendix C
Table 1

Zambian National Diarrheal Disease Control Program
POSSIBLE TRAINING PLAN

Type and Level of Activity	Persons to be trained	Trainers	Main Objective of Activity	Number of Programs	Duration	Output per year	Est. Cost	1986 4th	1987 1st	1987 2nd	1987 3rd	1987 4th
National Seminar for Physicians on ORT	50 Physicians	PRITECH UNZA WHO	°Establish credibility of ORT in the medical community °Disseminate research on ORT °Foster interest/development of lcal ORT research	3	2 days	150 Physicians		x				
Conference on ORS for pharmacists	Pharmacists 50 - 70	WHO MOH UNICEF	°To motivate pharmacists to recommend ORS for diarrhea instead of medications °To provide information about effectiveness and proper use of ORS	2	1 day	Trained Pharmacists		x				
Workshop 1 Development of training materials	MOH Nat'l and provincial (20) cooperating institutions (10)	UNZA UNICEF	°Develop capability in training materials development °Produce and pre-test training materials	1	2 weeks	30 trainers/ materials designers (6 modules)		x				
Worshop 2 Development of training materials	Staff 30 members 4 nursing schools 17 training institutions	Same as above	Same as above	1	2 weeks	30 materials designers ORT (6 modules)		x				
Oral Rehydration Unit at VTH.	°MDs °Nurses and other medical personnel	VNZA Experts, outside consultants	°Diagnose diarrhea °Select appropriate treatment °Teach mothers how to follow instructions.									

Type and Level of Activity	Persons to be trained	Trainers	Main Objective of Activity	Number of Programs	Duration	Output per year	Est. Cost	86 4th	1987 1st	1987 2nd	1987 3rd	1987 4th
Workshop: Design of low cost materials and traditional art forms	District level trainers (20) 10 from cooperating institutions	UNICEF UNZA	Train MOH and cooperating institutions trainers to develop low cost materials and use traditional art forms to teach about ORT	3	2 weeks	30 IEC materials designers 18 IEC materials		x				
#1 ORT training of Trainers #2	For nurses (30) For clinical officers (30)	MOH and outside facilitators	°Principles and practices °Utilizing the above, develop an ORT training program for Rural Health Workers	#1 - 2 #2 - 2	10 days	#1 - 60 Nurses able to train others 6 sets of materials #2 - 6 sets of materials 60 clinical officers able to train others	120 sets of WHO materialists 120 sets of WHO materialists + 11		x x			
Training on "How to Train Mothers"	Community Health Workers 30 Per Program / Traditional Birth Attendants TBA 30 per Program / ZENs 30 per Program	Nurses & Clinical Officers Outside Facilitators	°To enable participants to teach mothers 1)how to identify when an infant/child has diarrhea, 2) prepare and administster prepackaged and/or salt and sugar solutions to the child, 3) identify when child needs help and seek appropriate medical assistance, 4) feed child nutritional foods.	10 / 10 / 10	1 week	300 Trained CHW per year / 300 TBAs per year / 300 Trained ZENs per year		xxx xxx	xx			

Type and Level of Activity	Persons to be Trained	Trainers	Main Objectives of Activity	Number of Programs	Duration	Output Per Year	Est. Cost	86' End	1987 1st	1987 2nd	1987 3rd	1987 4th
Mother's Groups	Mothers	CHW TBAs ZENs	Upon completion of this activity mothers will be able to achieve objectives above Mothers will prepare ORS and taste it.		Once a week for 1-1 1/2 Hours							
Working Group "How to reach and appeal to traditional Healers	Traditional Healers (30)	°MOH Traditional medicine °Health Ed staff °Process consultants	°Develop specific plans of team approach to be followed to motivate traditional healers to teach about and "prescribe" ORT	1	3 days	A plan to reach traditional healters			x			

Type and Level of Activity	Persons to be trained	Trainers	Main Objective of Activity	Number of Programs	Duration	Output per year	Est. Cost	1986 4th	1987 1st	1987 2nd	1987 3rd	1987 4th
Workshop training and material design for traditional healers	Working Group: traditional medicine (MOH) (12) Traditional healers (6)	°MOH trainers °Outside facilitators °Graphic artist	°Develop and pre-test a short (2-3 hours) training unit for traditional healers. (This unit will be added to the Seminar MOH will have for traditional healers in September °86).	1	1 week	°A short training unit for traditional healers °Training communications materials for traditional healers	°This will be part of a conference which is actually planned ORT packets containers	x				

Type and Level of Activity	Persons to be Trained	Main Objectives of Activity	Number of Programs	Duration	Output Per Year	Est. Cost	1986 1st	1986 2nd	1987 1st	1987 2nd	1987 3rd	1987 4th
Child to child Programs	School Children	°Enable children to help prevent and treat diarrhea °Enable children to identify diarrhea and administer ORS correctly to their siblings.	On-going at schools starting in Lusaka spreading to 4 provinces after 2 1/2 years.	On-going	Children able to identify and treat diarrhea	To be carried out as part of Health Ed - and Dept of Education activities						

Type of Activity	Main Objectives of Activity	Responsibility	Outcome	Est. Cost	1986 1st	1986 2nd	1987 1st	1987 2nd	1987 3rd	1987 4th
ORT song contest	To promote ORT	MOH Health Education Staff	ORT Songs to be played on the radio	Prizes: #1 20.00 #2 15.00 #3 10.00 $45.00	x	xxxx				

Appendix C
Table II

Zambian National Diarrheal Disease Control Program
POSSIBLE INFORMATION EDUCATION AND COMMUNICATIONS (IEC) MATERIALS

Type and Level of Activity	Persons to be trained	Trainers	Main Objective of Activity	Number of Programs	Duration	Output per year	Est. Cost	86 4th	1987 1st	1987 2nd	1987 3rd	1987 4th
Workshop: Design and Pre-test of IEC Materials	MOH National and Provincial personnel (20) Reps. from cooperating institutions (40) T-30	UNICEF UNZA	°Capacitate personnel in Materials Development and pre-test. °Produce IEC materials °Organize group to coordinate activities in provinces and cooperating organizations	1	2 weeks	°30 IEC Materials °6 IEC Materials		x				

Type of Material	Purpose	Content	Cost	Responsibility	1986 1st	1986 2nd		1987 1st	1987 2nd	1987 3rd	1987 4th
Booklets for Mothers in Zambian Languages	°To be used at clinics for ORT instruction. °To serve as a reminder to mothers °To reinforce radio messages.	°How to identify diarrhea °The danger of loss of water (dehydration) °How to prepare ORS. °Use of ORS after each stool. °How to prevent diarrhea. °How to feed a child with diarrhea.	Design & pre-testing costs included in training program costs. Reproduction of 20,000 copies	MOH Health Education Graphics Artist		Pre-test Pre-test xx	Revise produce Revise produce xx	Dist. Dist. xx			
Posters in 7 Languages	°Reminder of ORT messages °To be placed in schools, health facilities and public places	°Preparation of ORS. °Preparation of salt-sugar solution.	Reproduction of 30,000	MOH Health Education Graphics Artist		Pre-test xx	Revise produce xx	Dist. xx			
Radio spots	°Disseminate ORT °Inform about ORT	°Explanation of danger of diarrhea and need for ORT. °Suggest that mothers go to health facilities to ask for ORS and explanation of how to mix it. °"Receipe" for salt/sugar solution.	Public radio	MOH Health Education Radio Producer		xx	xx	xx			

Type of Material	Purpose	Content	Cost	Responsibility	1986 1st	1986 2nd		1987 1st	1987 2nd	1987 3rd	1987 4th
Radio Drama	°Motivate mothers to find out more about ORT.	Discussion between mother and grandmother about how to care for a child with diarrhea.	Public Radio Radio	MOH Health Education Producer		xx	xx	xx			
	°Assure mothers that ORT is a medically recommended "medicine" for diarrhea.	Same as above however in this spot the mother is talking to a physician.									
Television	°Motivate mothers to use ORS. °Show mothers how to prepare ORS and salt/sugar mixtures.	°Mother and grandmother discuss diarrhea. Grandmother shows mother how to prepare ORS. Physician compliments them for their wise decision to use ORS. (Alternate programs between salt, sugar and ORS packed mix.)	Public TV US $500.00 development Grant	Chainama College and MSH Health Education		xx	xx	xx			
Training Video for medical staff	°To teach diagnosis, correct prescription and administration of ORS. °To motivate health personnel to "prescribe" ORS instead of medication/antibiotics when appropriate		US $500.00 Development Grant	Chainama College			xxxxxxx				

Type of Material	Purpose	Content	Cost	Respon-sibility	1986			1987			
					1st		2nd	1st	2nd	3rd	4th
	°To change attitudes of health personnel re: ORT and interaction with mothers										
Poster with ORT (5,000)	°To be placed on houses of mothers elected to become community experts in diarrhea control.	°ORT LOGO	UNICEF (?)				xx				
°ORT flag (5,000)	°To enable other mothers to see the flag from a distance and the poster on passing the house.										

Contact List: Training and Communications

Ministry of Health

A. Health Education Division
Spring bok House

Dr. Sinyangwe, Officer in Charge

Mr. Siatwinda
Mr. Nicholas Phiri
Ms. Dana Chirwa
Ms. Beate Maller Sorensen, Danish Volunteer/ graphics artist

B. C.D.D
Woodgate House

Mr. Frank Mambwe
Chief Health Inspector and Manager of C.D.D

C. Traditional Medicine
Spring bok House

Ible Mponda Mwanza
Officer in Charge
Traditional Medicine MOH

R. Chipeni Zulu
Traditional Medicine Unit MOH

C. Mbewe
Traditional Healer
Lusaka Province
Treasurer of the National Traditional Healers Association

Resource Persons:

Juma E. Nyirenda, Ph.D.
Director

Centre for Continuing Education
University of Zambia - Ridgeway Campus
P.O. Box 50516
Lusaka, Zambia
Tel: 251490 Telex: ZA44370

Consulting Fields:

Media Evaluation, Distance Learning, Radio/Television Production and Research, Mass Education Campaigns, Media and Education/Literacy

Dr. Nyirenda is carrying out two research projects which have implication for an ORT campaign: KAP study on child practices in Zambia and a radio listenership survey: "Radio Listening to Child Health and Nutrition Programmes in Zambia." The first study will be completed in April and the second in October 1986.

Billy Nkunika
UNICEF
Box 33610
Lusaka

Mr. Nkunika is a communications expert who has experience in developing and teaching others how to develop Information, Education and Communication (IEC) materials, including how to develop and use traditional drama/music to convey health/nutrition messages.

Dr. Paul Freund
Institute of African Studies
University of Zambia
P.O. Box 30900
Lusaka.

Researcher.

C. Osborn
Pediatrician in private practice in Lusaka formerly with VTH. Dr. Osborn was the narriator in a ORS video program produced by Chainama College and presently used for teaching ORS.

Dr. Unza
Department of Mass Communication
University of Zambia
Dr. Unza participated in the development of the ORS video tape produced by Chainama College.