PN-ABM-418

PRITECH PROPOSAL FOR SUPPORT TO THE MADAGASCAR NATIONAL PROGRAM FOR THE CONTROL OF DIARRHEAL DISEASE

A Report Prepared by PRITECH Consultant:
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During The Period:
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TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
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ABBREVIATIONS

AID/W	Agency for International Development in Washington
APPROPOP	Appui au Programme de Population--USAID Project
CDD	Control of Diarrheal Disease Program
CS	Child Survival
DTU	Diarrhea Training Unit
GOM	Government of Madagascar
IEC	Information, Education, and Communication
MCH	Maternal and Child Health
MSH	Management Sciences for Health, Prime contractor for PRITECH
ODIVA	Name of locally produced ORS product
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PRITECH	Technologies for Primary Health Care Project
R&D/H	Research and Development/Health Bureau of AID Washington
SSS	Sugar salt solution for rehydration
TOT	Training of Trainers
UNICEF	United Nations Children's Fund
USAID	AID mission in-country
WFP	World Food Program of WHO
WHO	World Health Organization

EXECUTIVE SUMMARY

The PRITECH Assistant Director of Operations, Ken Heise, and the PRITECH Senior Program Manager for Central, Eastern and Southern Africa, Agma Prins, visited Madagascar from April 12-27, 1992 to design the PRITECH/CDD component of the USAID APPROPOP project. This was a third planning visit for PRITECH following two earlier visits in 1990 and 1991.

The team held discussions with MOH, USAID and Unicef representatives, visited health facilities, ORT Corners and Diarrheal Training Units as well as the ORS/ODIVA Production Unit and local pharmacies. The team found that many of the observations made during the previous two visits remained valid, given the delays in implementation caused by the political events of the past year. Specifically, the team was impressed by the overall scope and range of CDD activities and the success of the National Coordinator in creating widespread awareness of and sensitivity to CDD issues, especially given the limited resources available to the program since its inception.

Nevertheless, significant problems still exist in the quality of case management of diarrheal diseases at health facilities, even those run by trained staff; in mothers' knowledge and practice of home management of diarrhea; in the production, distribution and acceptance of ORS, and in the quality and consistency of CDD training and IEC activities. In part, these lacunae are due to insufficient program planning and the lack of guiding strategies for most of the major program components.

PRITECH proposes, over the next 16 months, to assist the National CDD Program to consolidate past gains and to create a solid base for expansion of activities over the next five years under the aegis of the APPROPOP project. Specific PRITECH assistance will consist of both long- and short-term Technical Assistance and limited operational support aimed at improving the quality of health facility and home based case management, improving access to ORS in both public and private sectors and strengthening CDD program planning and management. PRITECH will target its assistance to the following programmatic areas:

* Long-term program planning and the development of overall policies and strategies.

* Strengthening of needed management and technical skills at the central level through short-term overseas and on-site training of members of the National CDD staff and their close collaborators.

* Design of and training in management information systems for program monitoring and implementation.

* Reinforcement of practical CDD case management training of health workers through the DTUs and ORT Corners.

* Improving the rational use of drugs for CDD

* Reinforcement of IEC activities.

* Strengthening of ORS production, distribution and promotion.

* Small-scale operations research and evaluation.

PRITECH activities and support will be funded by a USAID Madagascar buy-in to the PRITECH project using funds from the bilateral APPROPOP project.

ACKNOWLEDGMENTS

The PRITECH team wishes to express its sincere appreciation for the support and collaboration it received during this visit from the National CDD team, particularly Drs. Hanta Raveloson and Donat Rakotomanana. We are also grateful for the continued strong support and encouragement from Ms. Carina Stover and Mr. Gérard Rakotondrainibe of USAID.

I. INTRODUCTION

A team from PRITECH visited Madagascar from April 12-27, 1992, to develop a proposal to strengthen national efforts to reduce diarrhea-related morbidity and mortality among children under five in complement with ongoing efforts by UNICEF and WHO. The team consisted of Ms. Agma Prins, the PRITECH Regional Program Manager for Central, Eastern, and Southern Africa (CESA), and Mr. Ken Heise, the PRITECH Assistant Director for Operations. This visit built upon earlier consultations conducted by Ms. Prins in 1990 and 1991. Although these earlier visits identified potential areas of PRITECH support for the National CDD program, a variety of factors, including political unrest, funding uncertainties, and evolving donor priorities, have precluded the start up of PRITECH activities to date.

II. PURPOSE AND SCOPE OF WORK

The purpose of the PRITECH visit was to re-establish contact with USAID, the National CDD Program, and other donors and to jointly develop a proposal for PRITECH support and collaboration. The scope of work for the assignment was to:

1. Brief USAID, UNICEF, MOH and CDD staff on the support available through the PRITECH project.

2. Review existing plans (USAID, MOH, other) for CDD and Child Survival (CS) programs and identify ways in which PRITECH could contribute to their realization.

3. Discuss with USAID the types of interventions and expected outputs from a sustained CDD/CS program of three to five years duration.

4. Work with the National CDD staff and donor representatives to develop a detailed plan for PRITECH technical collaboration for the remainder of the PRITECH project (PACD 8/31/93).

5. Reach agreement on level of effort, funding mechanisms, and next steps for the start up of PRITECH activities.

6. As appropriate, interview potential candidates for the position of PRITECH country representative.

7. Prepare and present a draft report for review by USAID and the MOH.

USAID/Madagascar has indicated that it plans to support CDD activities for a period of six years through its new APPROPOP project, which has a likely start up date of early FY 1993. The PRITECH consultants agree that support over this length of time will be necessary to achieve significant impact in this critical area of child survival. However, it is important to note that the PRITECH II project, with its proposed extension, will terminate in August, 1993. Thus, the proposal presented here is essentially a one year proposal. While the R&D/Health Bureau of AID/W has stated its intention to develop a follow on project to PRITECH II, it is not clear at this point what level of funding it will have, which technical or geographic areas it will focus on, when it will come on line, or who the prime contractor will be. It is therefore not possible for PRITECH to commit to support of the National CDD Program beyond August, 1993.

III. ACTIVITIES CONDUCTED

The two week visit afforded the PRITECH consultants the opportunity to work closely and continuously with the National CDD staff, other divisions of the MOH, USAID and UNICEF, and private sector groups. The focus of the various meetings and discussions was the 1992 Workplan developed by the National CDD Program. By analyzing this plan the consultants and CDD staff were able to review and discuss national program priorities, determine which components were already assured of donor support, and identify areas of potential PRITECH support and collaboration. Perhaps just as importantly, the PRITECH consultants were able to provide positive criticism of the plan, discuss underlying assumptions, and share ideas, approaches, and experiences from other countries with the National CDD team. Throughout these discussions and the visits to the field described below, Dr. Hanta Raveloson, the Head of MCH Services, and Dr. Donat Rakotomanana, the National CDD Coordinator, were the primary counterparts for the PRITECH team. Midway through this consultation, Dr. Donat was informed that he had been promoted to the head of a separate division of the MOH (Pharmacopie Traditionelle) and would therefore no longer be a key player in the CDD program. Dr. Rakotomanana was replaced by Dr. Albert Razanamahery from within the MCH Division.

In addition to numerous meetings and discussions, the consultants and CDD staff were able to visit health centers, health posts, and hospitals in Antananarivo and surrounding areas. These field visits were useful as a means of understanding the problems and challenges faced by health workers. ORT corners were visited in several facilities to observe the interaction between health providers and health seekers, and to see how diarrheal disease was being evaluated and treated. Health facility records were reviewed to gain insights into the number of cases of diarrhea and the

course of treatment followed. The availability and use of IEC materials was also studied during the field visits, and an informal test of mothers' understanding of different posters and visual aides was conducted. The team also visited the Diarrhea Training Unit (DTU) in the Befelatanana Hospital to discuss its operations with the Director, Professor Roland Rakotoarimanana, and his staff, and to explore ways to increase its effectiveness.

A significant amount of time was devoted to addressing the issue of ORS production and promotion. The team visited the ORS production unit at the Central Pharmacy for discussions with the manager and production staff. The manager reviewed annual production levels, the quality control measures in place at the production facility, the availability of raw materials from UNICEF and the MOH, sales of the ORS packets (ODIVA) to the public and private sector, and the constraints to greater production. These are discussed in greater detail in the Principal Findings section of this report. To get a sense of the availability and popularity of ODIVA in private pharmacies, and to assess pharmacists' recommendations for the treatment of diarrhea, members of the National CDD team and the PRITECH consultants visited ten local pharmacies. The findings and observations from these pharmacy visits are described in some detail in Annex III to this report.

The findings and results from the meetings, discussions, field trips, and visits to the pharmacies were presented and discussed with USAID, UNICEF, the National CDD staff, the Director of Preventive Medicine, and the Secretary General of the Ministry of Health. Their comments and suggestions have been incorporated into the proposal which is included as Section VI of this report.

IV. PRINCIPAL FINDINGS

IV.1 GENERAL OBSERVATIONS

The findings described below are based on observations and discussions held during the current visit and during previous visits by the PRITECH Program Manager for the CESA Region. Many of the earlier observations still hold true as progress in the CDD program, as in most other activities in Madagascar, has been hampered by seven months of strikes and political unrest.

Despite limited financial and human resources, the National CDD program has made great strides in a relatively short period of time. Several hundred health workers have received theoretical training in diarrhea case management and prevention, while a considerably smaller number have received practical training in diarrhea case management. ORT corners have been set up and furnished in approximately 200 locations with assistance from Unicef, and Diarrhea Training Units (DTUs) have been established in nine hospitals. An ORS production unit is operational and, despite uncertainties over the continuing availability of raw materials,

the unit has been able to produce sufficient quantities of ORS packets (ODIVA) to meet current demand. IEC efforts are at an early stage of development, and there is great interest in improving and expanding the IEC program. The potential exists for a far more effective IEC component of the national program now that there is a health education/IEC unit at the MOH.

A new program plan has been developed for 1992, containing many of the same elements of the program plan for 1991. Perhaps in reaction to the frustrations and delays of the past year, the 1992 plan is very ambitious, perhaps overly so, both in the range and number of planned activities. The plan in its current format is essentially a list of activities with a calendar and a list of necessary resources. Funding for many of the activities is still undetermined. The plan lacks a description of the objectives, content and process of the planned activities. In addition, there is no long term plan which would incorporate this year's planned activities into the context of a longer term perspective. While it is true that long term planning has been difficult over the past few years of political change, the program would benefit in terms of consistency and, ultimately, sustainability if long term strategies were clearly spelled out. A positive development over the past year has been the incorporation of the CDD Program into the Division of MCH/FP. The head of this division is the previous Coordinator of the CDD Program. She is committed to the development of integrated strategies for CDD, ARI, Growth monitoring, nutrition, pre- and post-natal care and Family Planning services.

IV.2 PROGRAM PLANNING AND MANAGEMENT

The greatest constraint to the implementation of the National CDD Program has been and remains a lack of resources; human, material and financial. Unicef has been the main donor. Much of the Unicef contribution has gone toward the supply of raw materials for ORS production, although some money has been made available for the printing of health education materials and the implementation of training programs. WHO has also sporadically contributed funds, technical assistance and training materials, but this support has not been consistent. Government funding has been quite limited, due in part to the overall financial crisis.

Staffing for the program at national level has been limited to a single Program Coordinator. The Program Coordinator has been able to make up for this lack of central staff, to a certain extent, by decentralizing responsibilities for planning and implementation of activities to the Provincial level health staff. While this was a wise approach in many ways, it seems to have led to some inconsistency in the quality and content of training and other activities.

Partly as a result of this lack of manpower, the program has lacked many of the tools necessary for thorough program planning: there is no clearly spelled out and publicized case management policy; no overall guiding strategies for training and IEC; no management information system to guide programming (although some efforts have been made to collect information on the number of diarrhea cases and the use of ORS); no five year plan and no clear strategy for regular follow-up and supervision. Also lacking are standardized training materials at all levels.

IV.3 HEALTH FACILITY BASED CASE MANAGEMENT

Visits to hospitals and lower level health facilities during this and previous trips revealed numerous inadequacies in case management practices among both trained and untrained health staff: although ODIVA is available in most health facilities some of the time, it is not used to treat all cases of diarrhea; most health care providers prescribe a variety of antidiarrheals in addition to ODIVA for most cases of diarrhea; some health personnel are unsure about the quantities of ORS to provide; the rehydration status of the child is often not verified prior to leaving the treatment facility; education of the mothers appears scanty.

IV.3.1 Training

The 1992 action plan calls for the training of nearly 1750 public health personnel of all categories. Most of this training is in the form of "theoretical" workshops integrating CDD training into programs including ARI, nutrition, family planning and other elements of MCH/FP. The intention is to use WHO modules (eg. Supervisory Skills) for much of this training, but the CDD portion of the workshops is limited to only one day out of five. The training plan also calls for the practical training of about 450 health personnel of all categories in the DTUs during three-day workshops. Most of the intended trainers have received no previous training in pedagogical skills. There are as yet no standardized training materials for use in the DTUs nor for the training of lower level health workers. Sources of funding for most of this planned training remain unclear.

The plan includes the raising of awareness about ORT for approximately 100 private sector health personnel through a two day seminar. This is the only activity at this time for the training of private sector health workers.

The PRITECH team believes that the training plan is overly ambitious given the limited availability of staff and materials. Also, we are concerned that there is inadequate planning for the follow-up and supervision of such large numbers of trained health workers, including those who have already participated in CDD training courses. Finally, there may not be adequate mechanisms

for funding decentralized training to the extent that the plan proposes.

An additional concern is the quality of the training provided. At least 200 Médecins Chefs de Secteurs (see Annex VII) have already participated in Supervisory Skills Courses using the WHO Modules (1988 edition). Some lower level health workers have also received some theoretical training from these trained Chefs de Secteur. This training has largely not included practical exercises. Given the continued inadequacy of the case management practices of some of the trained Chefs de Secteur, it would seem unwise to ask these same individuals to provide training to other health staff until their own case management practices have improved.

A final problem is the fact that the supervisors of the Médecins Chefs de Secteurs, the Médecins Inspecteurs, have largely received no training in CDD and are therefore not always supportive of their personnel in this area.

IV.3.2 DTUs and ORT corners

Madagascar has 9 DTUs and over 200 "ORT Corners". The directors of the DTUs have all received CDD training overseas (Zaire, etc.). Training for the heads of the ORT corners has been less thorough. Case management practices at most of these services have not been adequately evaluated. Many ORT corners may not, in fact, be operational. None of the staff has had training in pedagogical skills. There are no standard training materials for the DTUs.

The ORT corners were established in 1989 and 1990. Unicef provided materials which were sent out before the staff had received any training. Training was provided later, but was largely limited to theoretical lectures and exercises. The 1992 action plan calls for the establishment of another 204 ORT corners this year.

IV.4 HOME-BASED CASE MANAGEMENT

IV.4.1 Current Practices

A 1989 community-based survey conducted by the National CDD Program showed that there are still significant problems in the area of home-based case management. Only between 25% and 38% of mothers (depending on the province) knew about ORS. Only between 3% and 9% had used it. A slightly higher percent of children with diarrhea had received home available fluids during their last episode but only between 33% and 66% of mothers claimed to have increased the amount of fluid they had given to their children with diarrhea, while between 8% and 28% said they had reduced their child's fluid intake. Between 28% and 55% said they had also reduced their child's food intake and between 44% and 50% said they had stopped breastfeeding.

There is as yet no clear national policy concerning home fluids. The national program promotes the use of sugar-salt-solution (SSS). No attempt has been made to evaluate mothers' ability to mix this solution correctly. A number of home available fluids have been suggested including coconut milk and Ranvola, a sort of dilute rice water, but there is little information available on mothers' perception or use of these drinks for sick children. No studies have been conducted on feeding of children with diarrhea.

IV.4.2 Information, Education, and Communication

The program has conducted numerous activities to raise awareness concerning home management of diarrhea and prevention. However, there is no overall IEC plan to guide the development of materials nor the implementation of activities. Skills in this area are apparently still limited in Madagascar, although the ministry has recently established a health education unit at central level and in the provinces.

Posters on home case management and prevention have been designed and distributed to health facilities. However, the posters were not field tested. Spot checks of mothers' understanding of these posters during this visit showed that there were significant problems in mothers' grasp of the intended messages. A video is currently in production. We were told that the target audience for this video was mothers. It is unclear how and where the video will be shown. There has been no attempt to evaluate the effectiveness of IEC materials to date.

IV.5 ORS PRODUCTION AND PROMOTION

The reader is referred to an extensive discussion of this subject in the trip report of the 1991 visit (see Annex IV). The key points can be summarized as follows:

1. The local ORS product, ODIVA, has been produced by a parastatal Production Unit since 1988. Unicef has supplied raw materials for the production of 2,000,000 packets since that time (see table in Annex V for details). According to the original agreement between Unicef and the government of Madagascar, Unicef was to supply enough raw materials for the production of one million sachets during the first year and enough for 500,000 during the two subsequent years. The Ministry of Health was to supply raw materials sufficient for the production of 500,000 sachets during years two and three. After that the unit was to become self sufficient. The government has supplied only very limited quantities of raw materials (this is perhaps due in part to the general shortage of funds). The Unit is not yet self sufficient.

2. Production at the Unit has never exceeded 400,000 packets in any one year. Total production since the beginning of

operations in 1988 to date has totaled approximately 1,108,000. Factors contributing to this low level of production have included constraints related to the number and qualifications of the personnel (the production crew is made up of nurses and midwives), the labor intensive production process, the low level of demand and perhaps other factors. Some of the production Unit staff need additional training to carry out their functions adequately (eg. the manager is a young pharmacist who has had no management training, some of the laboratory personnel may not be adequately trained to carry out their functions).

3. Current stocks of raw materials at the Production Unit are sufficient for the production of almost 900,000 sachets. Supplies of packaging materials are, however, enough for the production of only around 70,000 packets. Unicef is not planning to donate more materials. However, the Unit does have a fund of approximately 20 million Malagasy Francs from its sales to the private sector which could be used to purchase additional packaging materials.

In addition to the existing stock of raw materials there is a stock of 140,00 finished packets in the Unit and a stock of 200,000 finished packets which has recently been delivered to the MOH Central Pharmacy.

4. Demand for ODIVA remains low. Currently the public sector is absorbing about 200,000 packets annually and the private sector around 80,000. Low demand is related to numerous factors including pricing policy, the lack of active promotion and marketing, the lack of acceptance of ORS as the therapy of choice by many physicians and pharmacists, the low knowledge and use rates by mothers, the problems of distribution due to the vast distances, poor road conditions and lack of vehicles and a variety of other problems.

V. DISCUSSION AND RECOMMENDATIONS

The PRITECH team feels that the National Program should spend the coming year consolidating the significant gains achieved to date and preparing the way for an expansion and refinement of the program during the next five years, taking advantage of the anticipated support from the USAID/APPROPOP project.

1. In order to provide a framework for the program over the next four to six years, immediate priority should be given to the development of policies, plans and strategies, including: a case management policy, a training and supervisory strategy, an IEC strategy, an ORS distribution and promotion strategy and a five year plan based on these strategies.

2. In addition to these plans and strategies, the program should develop some standardized tools for program management and implementation: Training materials for all levels of health workers, a package of IEC and marketing materials, a simple management information system, supervisory checklists or similar tools.

3. The program should continue its reliance on provincial and other health staff to assist in the implementation of program activities, but should assure adequate follow-up of these decentralized activities so as to verify effectiveness as well as to provide technical guidance to provincial level planners and implementers.

4. The program should emphasize practical over theoretical training, integrating the two if possible. DTUs should be used initially to provide this training to doctors and medical and nursing students. Practical training for lower level health workers can be initiated in well-run ORT corners in a more decentralized fashion. The program manager should seek to verify that case management practices at training facilities meet national standards, that those responsible for the training are well trained technically and that they receive guidance and, if possible, training in pedagogical techniques.

5. The training of health workers should put more emphasis on the correct use of drugs during diarrhea, on the nutritional aspects of good case management, including breastfeeding, and on effective communication with mothers concerning home management and prevention, as well as on the evaluation of dehydration and the correct administration of ORS (including the quantities of ORS which should be given).

6. The program should consider strategies for ensuring adequate follow-up and supervision after training, especially during the initial months following the completion of training. These initial follow-up activities should be incorporated into the training plans.

7. A major push should be made to educate mothers about good case management in the home including the use of home fluids, continued breastfeeding and adequate feeding. The ability of mothers to correctly mix SSS should be evaluated (through mixing trials rather than simply asking mothers to repeat the recipe) and the promotion of SSS as a recommended home fluid should be reassessed based on the results of this study.

8. The PRITECH team recommends that production in the parastatal Production Unit be continued over the next year using available supplies of raw materials. We suggest that the Unit use its 20 million FM fund to purchase additional packaging materials as necessary. At the same time an intensive effort should be made to

raise the volume (rate) of production in the Unit while avoiding major capital investments. The strategy to do this will be developed after review of the current constraints with an expert in ORS production. At the same time the program should explore the possibilities, benefits and drawbacks of other methods of procurement such as importation or production by a local private manufacturer. After one year, the capacity of the existing production unit to produce a sufficient volume of ORS at a competitive cost while attaining economic self sufficiency should be reassessed and a choice should be made among available options.

9. During this next year an intensive promotional effort of ORS in both the private and public sectors should be undertaken in order to raise the level of demand sufficiently to make local production or importation viable and attractive.

VI. PROPOSAL

PRITECH proposes, during the next 16 months, to provide technical assistance and some operational funding to assist the National Program for the Control of Diarrheal Diseases to consolidate past gains and to strengthen the program's base for further expansion of activities over the next five years. This input will be in complement to other donor funding, including that provided by Unicef and WHO. The APPROPOP project will provide ways and means to cover other operational expenses once this larger project becomes fully operational around the middle of 1993.

VI.1 GOALS

1. Improve the quality of diarrhea case management in public and private sector health care facilities and in the home.

2. Improve access to ORS in both the public and private sectors.

3. Strengthen CDD Program planning and management.

VI.2 OBJECTIVES

1. Increase the number of public and private sector health care providers practicing good case management for diarrhea including consistent prescription of ORS in sufficient quantities, limited and appropriate use of drugs and procedures (ie. IV), integration of nutritional counseling and good communication with mothers with respect to home management and prevention.

2. Develop an IEC strategy and materials and develop local capacity in the area of IEC in order to improve health care workers' and mothers' knowledge and practice of good home management of diarrhea.

3. Increase ORS demand, production, and availability.

4. Increase the effectiveness and efficiency of CDD Program implementation, with an emphasis on improved program planning, monitoring, and evaluation.

VI.3 SPECIFIC ACTIVITIES

PRITECH will target its assistance to the following areas:

* Long-term program planning and the development of overall policies and strategies.

* Strengthening of skills at the central level through short-term overseas and on-site training of members of the National CDD staff and their close collaborators in needed technical and management skills.

* Strengthening management information systems for program monitoring and implementation.

* Reinforcement of practical CDD case management training of health workers through the DTUs and ORT Corners.

* Improving the rational use of drugs for CDD

* Reinforcement of IEC activities.

* Strengthening of ORS production, distribution and promotion.

* Operations research and evaluation.

Specific activities to meet the stated objectives include:

1. To improve good case management practices among health personnel:

* Publication and distribution of an official national policy on diarrhea case management.

* Development of an overall, long-term, training strategy and plan.

* Strengthening of the DTUs and ORT Corners.

- Development of a plan to revitalize the DTUs (discussion of problems, reach agreement on the content and process of training, training plan and logistics) through a one week workshop for the DTU Directors and other key collaborators (15-20 people maximum)

- Development of standard training materials in modular form to use during practical training in the DTUs and ORT corners.

- Training of trainers in pedagogical skills.

- Analysis and improvement of case management practices in the DTUs, to be carried out by a two-person expert team.

- Practical case management training in the DTUs for 120-150 Medecins Chef de Secteur and Medecins Inspecteurs.

- Analysis and improvement of case management practices in ORT corners by the Medecins Chef de Secteur and Medecins Inspecteurs already trained in the DTUs.

- Theoretical and practical training of lower level health workers with APPROPOP funding.

- Review and strengthening of the curriculum used in nursing and medical schools pertaining to the diagnosis and treatment of diarrheal disease.

- Establishment of a Documentation Center on diarrheal disease at the national level.

* Improvement of the rational use of drugs in the National CDD program

- Analysis of current practices, attitudes, and costs.

- Development and implementation of a plan of action.

2. To develop an IEC strategy and materials :

* During a workshop with appropriate MOH and CDD program staff, development of a global IEC strategy for the CDD program (objectives, strategies, target populations, messages, materials, distribution, etc.).

* Development of materials (design, test, finalize, print) aimed at health workers, mothers, and other groups (e.g. posters, brochures, aides-memoires, radio spots, etc.)

* Strengthening of local institutional capacity in IEC development through practical training during the development of the IEC strategy, during materials development and, if possible, through a special short course.

3. To increase ORS demand, production, and availability:

* Increase in the availability of ORS

- Study of the problems and constraints and development of a plan for increasing the efficiency and rate of ORS production at the ODIVA parastatal Production Unit (using existing raw materials and without major new investments).

- Supplemental management and technical training of Production Unit staff, if necessary.

- Implementation of the plan

- After one year, evaluation of the feasibility of continued local production of ORS (ODIVA) at the parastatal unit.

- Study of alternatives to continued local production (importation or production by a private pharmaceutical company). This study will be carried out concurrently with ongoing plans to increase production.

* Promotion of ODIVA and marketing in the public and private sectors.

- Development of a marketing plan, including costing and pricing.

- Development and printing of promotional materials.

- Training of ORS "promoters".

- Implementation of promotion and marketing plan.

- Implementation of awareness raising activities among pharmacists and other sellers of ORS.

4. To increase the effectiveness and efficiency of CDD Program implementation:

* Training of the National Coordinator in CDD Program management.

* Preparation of a five year implementation plan for the CDD program, including long term training, IEC, supervision, MIS and other relevant strategies.

* Development of a simple Management Information System for CDD and train the staff in computer skills to manage this system.

* Implementation of operations research and evaluation activities.

- Implementation of small-scale studies on locally available foods and fluids for home treatment of diarrhea.

- Implementation of other small practical studies to be determined.

- Collaboration with WHO to carry out the CDD mid-term program evaluation (mid-1993).

See Annex VI for calendar of proposed activities.

VI.4 PRITECH INPUTS

PRITECH will provide both short-term and long-term technical assistance in support of the activities described above. Short-term technical assistance will be used to complement the skills of the country representative and national CDD staff, as necessary. Together, it is anticipated that the short- and long-term TA may be needed in the following areas: Training, IEC, MIS, Rational Use of Drugs, ORS Production and Marketing, and Operations Research/Evaluation.

In addition to TA, PRITECH will provide limited funding for local costs associated with implementing the activities described above. Other activities, such as training costs for lower level health workers, will be covered under the APPROPOP Project when funding becomes available (mid-1993).

VII. NEXT STEPS

1. Review and approval of proposal by USAID Madagascar, MOH, PRITECH Washington, AID/W.

2. Recruitment of PRITECH country representative, interview in Madagascar if necessary and desired.

3. Submission of PIO/T by USAID to AID/W Office of Contracts.

4. Technical assistance visits in areas of ORS production and marketing and IEC.

5. Placement of country representative

6. Follow up visit by CESA or Washington staff and development of detailed workplan.

ANNEX I. LIST OF PERSONS CONTACTED

USAID

Mr. Donald Mackenzie, Deputy Mission Director
Ms. Carina Stover, Health/Population/Nutrition Officer
Mr. Gérard Rakotondrainibe, Assistant Health/Population/Nutrition Officer
Ms. Joan Johnson, Chief, Program Office
Ms. Lena Gurley, Executive Officer

MINISTRY OF HEALTH

Prof. Samuel Rakotomange, Secretary General
Dr. Ranjalahy, Director of Preventive Medicine
Dr. Hanta Raveloson, Director of Maternal and Child Health
Dr. Donat Rakotomanana, (outgoing) National CDD Coordinator
Dr. Albert Razanamahery, (incoming) National CDD Coordinator
Dr. Givance, Director of Medical Services
Dr. Roland Rakotoarimanana, Medical Director of Befelatanana Hospital
Dr. Andrianirina Raveloson, National Malaria Control Coordinator
Ms. Léa Ratsimbazafy, ORS Production Unit Head, National Pharmacy

UNICEF

Dr. Monique Traore, Primary Health Care Project Administrator
Ms. Gladys Martin, Senior PHC Officer, Nairobi Regional Office

COOPERATING AGENCIES

Mr. Philippe Langlois, Deputy Director, Population Communication Services
Ms. Elaine Rossi, SEATS Country Representative
Mr. Juan Schoemaker, Demographic and Health Surveys
Mr. Remko Vonk, CARE country representative for Madagascar

ANNEX II. SCHEDULE OF VISITS

Sunday, April 12

9:30	Arrival of consultants

Monday, April 13

8:30	Orientation and preliminary discussions with USAID Office of Health, Population, and Nutrition
11:00	Logistic and administrative details
14:00	Meeting with National CDD team
15:00	Meeting with Director of Preventive Medicine and National CDD team
16:00	Meeting with Secretary General of MOH and USAID

Tuesday, April 14

9:00	Overview of 1992 CDD Plan with National CDD team
14:30	Meeting with WHO Representative, Dr. Kassatsky
15:30	Meeting with UNICEF to review CDD plan and UNICEF support

Wednesday, April 15

8:30	Visit to ORT Corner at Itaosy Health Center
11:00	Visit to ORS Production Faciltiy at Central Pharmacy
14:30	Visit to DTU at Befelatanana Hospital in Antananarivo
16:00	Meeting (Heise) with National Malaria Control Coordinator
16:00	Meeting (Prins) with Director of Preventive Medicine

Thursday, April 16

8:30	Mini study of recommended treatment of diarrhea by pharmacies in Antananarivo and outskirts
14:00	Discussion of ORS production, marketing, and PRITECH support

Friday, April 17

9:00	Meeting with the Director of Medical Services
10:00	Review of National CDD Training Plan
16:00	Meeting with Director of Belefatanana Hospital and DTU

Monday, April 20 (National Holiday)

	Review of materials gathered and development of preliminary proposal

Tuesday, April 21

8:30	Visit to health post in the Circonscription Medicale of Imerina Ouest
9:30	Visit to Hopital Arivonimamo and meeting with Medical Director
11:00	Meeting with Director of Circonscription Medicale d'Itasy in Miarinarivo
14:00	Visit to Primary Health Care Center (CSSP) Antanetimboahangy "Alma Alta"

Wednesday, April 22

9:00	Meeting with USAID to discuss status of PRITECH proposal
10:30	Meeting with National CDD team to discuss PRITECH proposal
14:00	Continued discussions with National CDD team

Thursday, April 23

9:00	Debriefing with Director of Preventive Medicine
14:00	Meeting with USAID Execurive Officer
15:00	Refinement of PRITECH proposal with CDD team

Friday, April 24

8:30	Presentation of PRITECH proposal to Secretary General

10:30	Interview with prospective country representative candidate
11:30	Discussion with USAID Deputy Director
14:00	Report preparation

Monday, April 27

8:30	Final meeting with National CDD staff
10:30	Final debriefing with Unicef
12:30	Departure for Nairobi

ANNEX III: PHARMACY RECOMMENDATIONS FOR DIARRHEA TREATMENT

In Madagascar, as in many developing countries, private pharmacies represent an important source of supply of medicine and information for the populace. Many people who seek health care at public sector health centers are referred to pharmacies to have their prescriptions filled because of a general lack of drugs in public sector health centers. The products, instructions, and advice given out by pharmacies are therefore of great importance.

A problem common to diarrheal disease control programs around the world is the promotion and use of inappropriate, useless and/or dangerous drugs for the treatment of ordinary diarrhea. Doctors, nurses, and pharmacists all contribute to this problem by recommending a variety of antibiotics, antidiarrheals, and other products to stop or reduce stool output and vomiting. This practice is generally unnecessary, often expensive, and can entail significant risks to the patient. In most cases, rehydration with ORS or other appropriate fluids plus continued feeding and breastfeeding is the most effective treatment.

The ORS product made in Madagascar, ODIVA, is sold to pharmacies either through pharmaceutical wholesalers or directly by the parastatal Production Unit, the sole legal producer of ORS salts in Madagascar. The National CDD team and the PRITECH consultants were interested in how ODIVA was perceived by the pharmacists, whether and how it was promoted, and how it was priced. Also of interest was the type of questions asked of the client by the pharmacist about a diarrhea episode in children.

To get a rapid overview of these issues, a convenience sample of 10 pharmacies, 6 in Antananarivo and 4 in the outlying areas, were visited. No claim is made to scientific sampling, standardized information gathering, or statistical significance. Rather, we hoped to emerge with a general idea of the situation and demonstrate to the CDD team that simple methods exist for gaining a preliminary understanding of important programmatic issues.

To carry out the "study", a member of the CDD team entered the pharmacy alone, stated that his or her child had diarrhea, and asked the pharmacist what he would recommend. After this discussion had taken place, the PRITECH consultant would enter the pharmacy and join in the conversation and attempt to elicit additional information. Information from each visit was noted and discussed by the interview teams and by the group as a whole later in the day.

Several interesting observations emerged from the visits to the pharmacies:

1. All pharmacies visited had stocks of ODIVA available. The per packet price ranged from 200 to 300 FM, with most of the pharmacies charging 250 FM. Sales were estimated at between 20

and 50 packets per month in the city and at between 50 and 200 per month in the outlying pharmacies. Those in poor neighborhoods claimed to sell more packets than those in "wealthier" neighborhoods.

2. None of the pharmacies visited in the city mentioned ODIVA as the first or recommended treatment. However, three of the four in the outlying areas recommended ODIVA in conjunction with Lacteol. Several of the centrally located pharmacies failed to mention ODIVA at all and only when questioned specifically did they think to state its availability.

3. The treatments recommended most frequently by the pharmacies were Lacteol (restores intestinal flora), Ganidan (a sulfamide) and Ercefuryl (an antibiotic). In at least two cases, pharmacists indicated that Immodium was recommended to children, despite the national ban of that product. Several pharmacists said that pediatric Immodium was banned but they did not know why.

4. Most of the pharmacists asked the age of the child with diarrhea and usually the quantity of diarrhea or the mother's perception of the cause of diarrhoea (eg. what did the child eat?), but rarely the duration of the episode, the presence of blood in the stools, or whether the patient was already on any other medication.

5. ODIVA and Lacteol can be sold by the pharmacies without prescription, while the antibiotics require a doctor's prescription. We were unable to determine whether this requirement is strictly enforced.

6. Few of the pharmacists gave any instruction at all concerning the mixing or administration of ODIVA and several were unable to give accurate instructions concerning the preparation and use of ODIVA when specifically asked to do so. They seemed particularly unclear on the amount of fluid to give to the child.

7. Discussions with several pharmacists suggest that they make some attempt to determine the purchasing power of the client prior to making a recommendation on the treatment for diarrhea. These pharmacists tended to recommend Lacteol and ODIVA for their less affluent customers, while better off clients were sold antibiotics. One of the pharmacists told us that patients referred from the public sector tended to come to the pharmacy with prescriptions for a limited quantity of drugs (eg. so many tablets of something), while those referred by private sector health care providers tended to have prescriptions for the entire bottle of these drugs.

8. A wide range of prices was found for treatments other than ODIVA, from 1150 FM for Lacteol to over 10,000 FM for some

antibiotics. Sulfaguanadine and paragoric tablets sold for around 50FM per tablet, however.

Our observations also indicate that doctors (public and private) continue to prescribe unnecessary drugs for the treatment of diarrhea. While it is possible that drugs are prescribed only in the case of blood in the stools, this seems unlikely based on our observations of practices in public health care facilities where most patients received a prescription for an antidiarrheal drug with or without ORS. The reasons given for such prescriptions included that the diarrhoea had lasted more than 48 hours, lasted more than two weeks, was due to another illness (eg. malaria, otitis)-in which case no ORS was often prescribed, was accompanied by fever or mucus in the stools, as well as the appearance of blood in the stool. These practices are also well-documented from experiences in other developing and developed countries.

The National CDD program will need to make an effort to work with pharmacies in order to promote the correct treatment of child diarrhea. This might be approached through training or awareness raising seminars, the development of ORS promotional materials and/or displays, and other activities to increase the prestige and popularity of ODIVA. The perception that ODIVA is a lesser quality drug primarily for poor people should be addressed, perhaps through the production of a different packet for the private sector which could be sold at a higher price than is currently the case.

LIST OF DRUGS PHARMACIES HAD AVAILABLE FOR THE TREATMENT OF PEDIATRIC DIARRHEA AND SOME REPRESENTATIVE PRICES

ENTETRIX P.	17630 FM
ERCUFERYL SYR.	9751 FM; 10360 FM; 9200 FM
ERCUFERYL CP	
TIFOMYCINE SYR.	4860 FM; 5350 FM
TIFOMYCINE CP	2575 FM
ODIVA	200 - 300 FM
BACTRIM ENF.	4900 FM; 8460 FM
PHAPRIM ENF	2325 FM; 2320 FM
COTRIM ENF.	2220 FM; 2030 FM
LACTEOL CPS	1495 FM; 1150 FM
LACTEOL AB	6505 FM; 7610 FM
DIARSED	4170 FM
HORDENOL AB	6035 FM
SULFAGUANIDINE CP	50 FM/CP
PARAGORIQUE LIQ	
PARAGORIQUE CP	50 FM/CP
SACOLENE SACH PEDIATR.	7020 FM; 7950 FM
DIREXIODE CP	5400 FM
ACTAPULGITE SACH PEDIATR.	10055 FM
CONIMYCINE SYR. PEDIATR.	6850 FM
CONIMYCINE CP	10405 FM
CONIMYCINE INJ	2100 FM
COLICALM CP	3590 FM
CARBOPHOS CP	4305 FM
KAOMYCINE	6400 FM; 4790 FM

Annex IV
(From PRITECH Regional Program Manager's Trip
Report of February 26 - March 11,1991)

ORS PRODUCTION AND DISTRIBUTION IN MADAGASCAR

Overview

Since May,1988, the Central Pharmacy of the Ministry of Health in Madagascar has produced a citrate-based WHO-standard formula ORS for dilution in 1 liter of water. The production facility was equipped and prepared with Unicef and WHO technical (Hans Faust) and financial assistance. Production capacity is estimated at 1,000,000 packets annually. Unicef supplied raw materials for the production of that quantity of packets in the first year. The Ministry of Health is to supply half the raw material needs for the following three years with the complete phase-out of Unicef assistance scheduled to occur at the end of the calendar year 1991.

The product, called ODIVA, is "sold" to the Ministry of Health for distribution (free of charge) in public health facilities. The MOH is to "pay" for these packets by reimbursing the production facility with an equivalent amount of raw materials. In fact, though the MOH received 300,000 packets in the calendar year 1990, it has provided very few raw materials to the production facility as yet. The MOH does provide the salaries of all sixteen employees of the production unit.

ODIVA is also registered for sale to the private sector. At present, the ex-factory price of the ODIVA packets (140 FMG = about $.08 at current exchange rates) has been established as the per packet cost of production, not including labor costs, or the costs of machinery, repairs, and maintenance, and other recurrent costs. Last year, a total of 56,191 packets were sold to private pharmaceutical wholesalers (esp. Cofarma and "Somaphar"/Rhône-Poulenc) and private pharmacies (another 33,193 packets were distributed free of charge to both private and public sector clients in promotional efforts).

Production of ORS/ODIVA

The ODIVA Production Unit has not yet produced to capacity. In 1988, between May and the end of the year, 100,500 packets were produced, in 1989, 270,000, and in 1990 a total of 405,000. Production has been hampered by the initial lack of personnel: the production crew has recently been increased from eight to sixteen full tome employees, primarily made up of nurses and other paramedical personnel. In addition there have been problems with machinery breakdowns and lack of locally available spare parts. Finally, the packaging of the ORS product has been very labor intensive as the packet contains two polyethylene bags, one inside the other, with a flyer wrapped around the inside bag. The packets are cut,filled and sealed by hand. Unicef has recently agreed to

purchase an automatic dosage and packaging machine. However, the semi-automatic packaging machine installed at the ODIVA plant may be the same one which is currently being used in Ghana to produce 2,000,000 packets per year with two shifts of eleven workers each. It is, therefore, not clear at this time whether the low volume of production in the ODIVA facility is due to the insufficiency of the existing machinery or to organizational or other factors.

ODIVA is the only authorized ORS product available in Madagascar at this time. Yet, despite the current relatively low level of production, the ODIVA Unit has not been able to liquidate even its 1990 production. This seems surprising in light of the fact that the under five population of Madagascar is between 2,000,000 and 3,000,000 (pop. growth rate 3.2) with an estimated three to four annual diarrheal episodes per child according to a WHO 1989 survey.

Currently the ODIVA production facility has a stock of raw materials sufficient to produce 500,000 packets in 1991. This represents "left over" Unicef inputs from 1990. An additional stock of raw materials for the production of another 500,000 packets is expected from Unicef this year. This will be the last input of Unicef materials before the unit is expected to become "self-sufficient". Unicef would like to see the ODIVA Unit produce a million packets in calendar year 1991. However, given the currently low demand, this might not make sense as the Unit would then have to warehouse all the over-production. In addition, despite verbal reassurances to the contrary, it is not clear yet that the Government of Madagascar will be able to meet its obligation to supply the facility of raw materials equal to its consumption of packets. With private sector sales still underdeveloped, the production facility risks finding itself without sufficient materials or means to acquire them after current stocks have been used up.

Distribution of ODIVA

Distribution of ODIVA is currently limited to the public sector health facilities, a few private sector pharmacies in Antananarivo and two pharmaceutical wholesalers: Cofarma, a locally owned company, and Somaphar, a subsidiary of Rhône-Poulenc. Cofarma is the largest private distributor of ODIVA ORS, currently absorbing between 5,000 and 6,000 packets per month. This distributor has between 1,200 and 1,500 points of sale throughout Madagascar. Although they do not actively promote ODIVA due to the low sales volume and low profit-margin (15-18% at the wholesale level), the company Director, M. Michel Rakotondrainibe, indicated a potential willingness to collaborate in a future promotional effort using his four sales representatives. Somaphar claims 600 sales outlets nationwide and has sold 8,000 packets since last November.

Packets are currently selling in pharmacies for between 230 and 235 FMG (Malagasy Francs), a mark-up of 35% and 38% from the wholesale to retail level. Especially in urban centers, the full range of antidiarrheal drugs are also sold and apparently at much larger

profit margins, a serious potential constraint to increased sales of ORS.

Current price levels for ODIVA seem to have been established without basic market research. Although pharmaceutical profit margins are not set by government, the current ODIVA retail price may depend more on the ex-factory price, which is currently too low to sustain production, than on "market forces".

An analysis of household spending patterns and levels especially in relation to childhood illnesses will be useful to get a better idea of the potential (and ultimately necessary) price increase for ODIVA. A 1988 study conducted by the "Direction Générale de la Banque des Doneés de l'Etat" estimated that 6.1% of the family budget was spent on health care. In 1987 it was estimated that up to 45% of the households in greater Antananarivo earned less than 45,000 FMG (Unicef report: L'analyse de la Situation de l'Enfant et de la Femme à Madagascar,1989). Private and church-linked facilities do charge fees for health care. One Catholic health service in a poor area in Antananarivo charges 350 FMG per consultation, which entitles the client to necessary laboratory analyses as well as drugs. I was told that this amount represented the low end of the scale for such fees in church-linked health facilities. A recent doctoral thesis on traditional health care for diarrheal diseases estimates an average fee of 300 FMG per consultation with a traditional healer. These numbers suggest that there may be relatively little room for price increases as the per episode cost of treatment of diarrhea with ORS purchased in pharmacies already approaches 500 FMG or more per episode.

Demand for ODIVA

The current low demand for ODIVA is the apparent result of the interplay of a variety of factors:

1) Prior to 1989, Unicef continued to import large quantities of "Unicef ORS packets" in addition to supporting the local production of ODIVA. These packets were widely and unevenly distributed among public sector health facilities prior to any systematic efforts of training health personnel or education of mothers. As a result, large quantities of these packets were stockpiled throughout the country. Some are reportedly even now being used in a few health facilities. Unicef is not importing packets at present.

2) Many private sector health providers apparently do not use ORS in the treatment of diarrhea or use an ORS product other than ODIVA. One Catholic health service was using packets donated from the mother church in Italy (WHO formula, bicarbonate base, one liter packets). GTZ, the German technical assistance organization, may also be importing its own ORS. The army hospital was still relying heavily on antidiarrheals and had not had ORS of any kind in stock for

several years. The Lutheran health services are relying exclusively on sugar-salt solution (SSS) claiming logistical constraints as the main reason for this.

3) While significant progress has been made and substantial numbers of health personnel have received some training in CDD, this effort is still relatively young (the DTU's did not become operational until late 1990 for the most part). The majority of health workers have as yet received little or no practical training and thus may not be practicing good case management at their health facilities. Some provincial level Chief Health Officers ("Médecins-chef"), who control the public health budgets for their provinces and therefore decide how the government drug budget will be spent, are reportedly still hesitant to attribute a sufficient amount of these funds to the procurement of ORS. Private sector health care providers have not been systematically included in CDD training programs although some efforts in this direction have been initiated.

4) Efforts to educate mothers about home management of childhood diarrhea are also still relatively recent. The National Program Manager has made a great effort, with the assistance of the Unicef Health Officer, to execute a series of educational activities including national contests, radio programs, National Awareness Days, production and distribution of posters, etc.. The aim of these activities has been primarily to raise general awareness rather than to produce specific changes in behavior. The 1989 WHO survey showed that knowledge of ORS or ODIVA varied between 25% and 38% nationwide. Use of ORS for home management of diarrhea ranged between 3% and 9%, however.

5) The ODIVA production unit has not yet attempted to actively market ODIVA to the private sector. A letter was sent to wholesalers and private pharmacies informing them of the availability of the product and this resulted in the sales generated to date. No other promotional activities have been undertaken. Recently, however, the Production Unit has added two sales persons (délégués médicaux) to its staff. Transportation for these people poses a problem as the facility has only one vehicle, and it is not suitable for upcountry driving.

6) Channels of distribution other than the pharmaceutical wholesale and retail points of sale have barely been explored. These include potentially the church-based health facilities and NGO's, health facilities associated with private and public sector employers (e.g. the army), community level distributors currently being used to sell chloroquine (or similar community based distribution outlets...e.g. the Red Cross volunteers?) and non-pharmaceutical outlets (this would require a special dispensation for the sale of ORS through non-pharmaceutical channels). There may eventually exist the

possibility of linking contraceptive and ORS distribution systems in the private sector as USAID is planning a substantial family planning program including the sale of condoms and other contraceptives.

7) Logistical and managerial problems may be reducing sales even to potentially interested clients. The commercial director of Rhône-Poulenc, M. Ginot Andriamparany, complained that he had lost a potential sale of 100 packets the day before our interview because of the strict ODIVA policy of receiving payment before the delivery of goods even to these major wholesalers. The manager of the ODIVA production facility feels that one reason for the limited interest shown by mission hospitals in the purchase of ODIVA may be due to the excessive costs of transportation of the product to more remote outlying areas. Also, although church-linked health facilities do purchase some of their drugs from the local wholesalers, they may not be buying from the two (out of six or eight) which currently stock ODIVA. We were told, for example, that the Catholic dispensaries in Antananarivo have banded together to purchase some of their drug supplies in bulk locally. However, they purchase from two pharmaceutical producers (Ofafa and Pharmed) which do not stock ORS.

ANNEXE

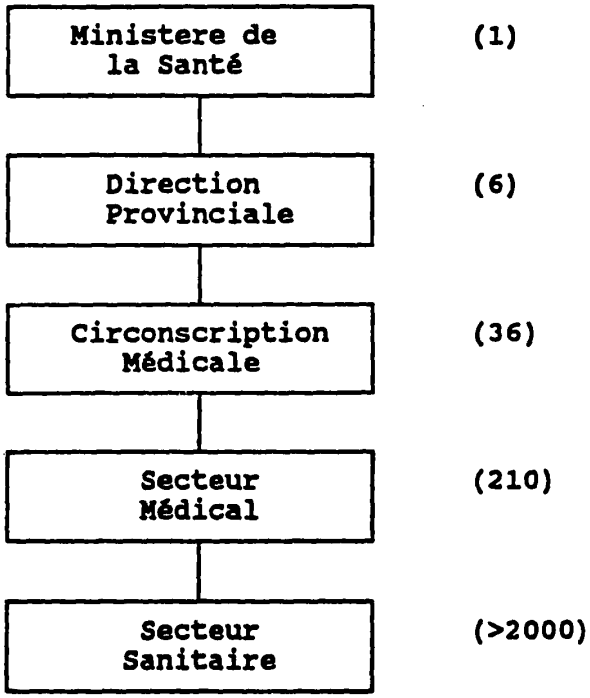
	1988		1989		1990		1991		1992	
	UNICEF	PCA	UNICEF	PCA	UNICEF	PCA	UNICEF	PCA	UNICEF	PCA
Matière Première										
Glucose Anhydre.	20 950 kg		10 000 kg			1000 kg	10.000 kg			
Chlorure de Sodium.	3.650 kg		1.750 kg				1.750 kg			
Citrate Trisodique.	3.100 kg		1.450 kg				1.450 kg			
Chlorure de Potassium.	1.600 kg		750 kg				750 kg			
Matériel de Conditionnement										
Etiquette	106.000		1.254.000							
Carton G.M.	1.800					700		583		
Boîte de Collection	21.250					2500		1000		
Gaine Externe.	210 kg		303,1 kg				481,84 kg	201,5 kg		
Gaine Interne.	200 kg		455,4 kg				641,7 kg			
Papier collant.	108			19		190		10		
Production:										
Quantité Produite	105.000		270.000		396.000		207.000		130.500	
Dotation Speciale.	1.100									
Formation S. publique.			25 942		215.921		200.000		200 000	
Formation S. Privée			3 631 880 FMG		30.228.940 FMG		28 000.000 FMG		28 000 000 FMG	
					53 191		17 550		23.600	
					7 446 740 FMG		10 857 000 FMG		3 304 000 FMG	
							Stocks P.F:		147.724 sachets	

	1988			1989			1990			1991			1992 1er Trimestre		
	Achats	Déchets	Stocks	Achats	Déchets	Stocks	Achats	Déchets	Stocks	Achats	Déchets	Stocks	Achats	Déchets	Stocks
Matière première															
Alcool	2.030	44kg	18.826kg	5405kg	75kg	13.351kg	2100kg	195.	15.955kg	4140kg		21.451kg	2470		19.245kg
Acl	355,25	3,25	3.298kg	945kg	14kg	2.341kg	2417kg		3.425kg	724,5kg		3.303kg	425,25		2.617kg
Tris.	294,35	19,61	2.785kg	793kg	5kg	1.937kg	1174kg		2.150kg	603,3kg		2.450kg	353,35		2.457kg
Cl.	153	0,75	1.446kg	405kg	5kg	1036kg	607kg		1500kg	310,5kg		1.400kg	182,25		1100kg
Acid Co.															
Chim.	203pcs		1.597pcs	540pcs	135.	922pcs	810pcs		881pcs	414pcs		588pcs	243		
Bouteille	2030pcs		19.170pcs	5400pcs	1217.	12.553pcs	8100		8133pcs	4140pcs		3580pcs	2430		
Vice.	101,512		2.916pcs	270,100pcs		954,50pcs	405kg 405.000		586,500	207,000pcs		374,500pcs	121,500		
ECT	101,512 kg 126.512pcs		13,8kg 13.818pcs	221,1kg		367,50kg	405kg 405.000			207kg 207.000					
TIT.	65,96 kg 101.512pcs		14kg. 22.524pcs	168,5kg		391,2kg	263,2kg 405.000		78kg 120.000	134kg. 207.000					

ANNEX VI

CALENDAR OF ACTIVITIES

ACTIVITIES	DATES
CASE MANAGEMENT	
Write and have signed the National Case Management Policy	June, 1992
Print National Policy	July, 1992
Distribute National Policy	August, 1992
Develop training strategy and plan	September, 1992
Workshop for DTU directors	September, 1992
Develop training materials	September-October, 1992
Training of trainers (Pedagogy)	October-November, 1992
Verify case management in DTUs	November, 1992
Case management training in DTUs	December-March, 1993
Verify case management in ORT Corners	January-March, 1993
Plan training in ORT Corners	October, 1992 and April-May, 1993
Case Management training in ORT corners	from August, 1993 APPROPOP funding
Strengthen EEMS training	?
Establish documentation center	from June, 1992
Analyze drug practices	1993 ?
Implement rational drug use strategy	1993 ?
IEC	
Develop IEC strategy	July-August, 1992 (?)

Develop IEC materials	From September, 1992
Train personnel in IEC	from July, 1992
ORS/ODIVA	
Study problems and develop plan	July-August, 1992
Supplemental staff training	from September, 1992
Implement production plan	from September, 1992
Evaluate continued production at Unit	July- August, 1993
Study supply alternatives	from October, 1992
Develop promotion strategy and plan	July-August, 1992
Develop marketing materials	from October, 1993
train promoters	October-November, 1992
Implement promotion plan	from November, 1992
MANAGEMENT	
Train National Coordinator	? depending on WHO schedules
Prepare 5 year plan	from September, 1992
Develop Management Info system	1993 ?
Home foods/fluids study	? depends on medical students schedules
Other studies	from September, 1992
Mid-term evaluation	September-October, 1993 under WHO direction

Annex VII: Health Administrative Structure