

RWANDA CCCD FND OF PROJECT EVALUATION

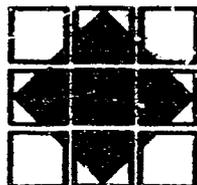
May 1988

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RWANDA CCCD END OF PROJECT EVALUATION

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Gratitude is also due to Maryanne Neill who helped us at the worst time for her -- as she was packing her whole family and preparing to leave the country, juggling our persistent questions with the demands of packers and administrative hurdles.

The staff at USAID/Kigali was also very helpful in coordinating our activities and providing needed information and other support. They were also overburdened at this time and we appreciated their time.

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The logistics and production support by Hilary Binder and the staff at Pragma were also crucial to our project.

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LIST OF ABBREVIATIONS AND ACRONYMS USED

AID	Agency for International Development
AID/REDSO	
AIDS	Acquired Immune Deficiency Syndrome
BCG	Bacillus Calmette-Guerin, tuberculosis vaccine
CCCD	Combatting Childhood Communicable Diseases
CDC	Centers for Disease Control
CDD	Control of Diarrheal Disease
CDSS	Country Development Strategy Statement
CMR	Childhood Mortality Rate
DPT	Diphtheria-Pertussis-Tetanus vaccine
EOPS	End-of-project status
EPI	Expanded Programme on Immunizations
GOR	Government of Rwanda
HC	Health Center
HCW	Health Care Workers
HE	Health Education
HEO	Health Education Office, MOHSA
HHC	Heads of Health Centers
HIS	Health Information System
H/MIS	Health/Management System
IMR	Infant Mortality Rate
KAP	Knowledge, Attitudes, and Practices
MCH	Maternal and Child Health
MD	Medical Doctor, Physician
MINEPRISEC	Ministry of Primary and Secondary Education (MPSE)
MINISAPASO	Ministry of Health and Social Affairs (MOHSA)
MIS	Management Information System
MLM	Mid-Level Management Course
MOH	Ministry of Health
MOHSA	Ministry of Health and Social Affairs
MPSE	Ministry of Primary and Secondary Education
NGO	Non-Governmental Organization
ONAPO	Rwandan National Population Office
OPHAR	Rwandan National Pharmacy
OR	Operations Research
ORS	Oral Rehydration Salts, Oral Rehydration Solution
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
RMD	Regional Medical Director
STC	Short-term Consultant
TA	Technical Assistance
TO	Technical Officer
TOPV	Trivalent Oral Polio Vaccine
TOT	Training of Trainers
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

I. Accomplishments

Project Activities

The Rwandan CCCD Project Agreement was signed July 1984 and began operations in December 1984 with the assignment of the Technical Officer. Complementing the efforts of UNICEF, WHO and other donors, the project was designed to enhance a major MOHSA initiative in EPI and to expand child survival efforts to cover malaria and ORT. The project was intended to strengthen institutional support for these interventions by developing an effective, simplified health information system, strengthen established training and health information efforts, reinforce systems of supervision, support operations research and other studies, and encourage the development of self-financing mechanisms. Over the three and a half years of operation the project provided major inputs of both long-term and short-term technical assistance in all program areas, provision of commodities, including chloroquine, fansidar, ORS, vehicles, refrigerators, and spare parts, as well as local operating costs for training, health education, HIS, supervision, and a variety of studies (KAP, in vivo, formative health education, etc.). The project phased its coverage of the country by first developing pilot efforts in three provinces, expanding in the second phase to cover four more, and finally, this year, covering all ten provinces.

This evaluation is an External End-of-Project Evaluation of the CCCD project in Rwanda. The evaluation team included an expert in public administration and health planning (Team Leader), a public health physician and a health educator on contract for the evaluation. Rwandan health officials on the team included two physicians who were not part of the CCCD project. These officials worked in the Kigali Hospital and were familiar with several aspects of the project. The malariologist from the CCCD project coordinated team activities and acted as a resource person. A Regional CCCD epidemiologist, a staff member of CCCD/Washington and the HPN Officer from A.I.D./REDSO were also resources for this field evaluation. As an external evaluation, the views expressed here are independent of the agencies involved in the project and are not official views or policy of any agency.

The evaluation team objectives were to assess the progress of the CCCD project in achieving the project objectives, evaluate the different roles of the MOHSA, GOR, USAID and CDC, and other donors, evaluate the potential for sustainability of project activities after the end of the project, and recommend future health activities that could be sponsored by A.I.D. or other donors.

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Sustainability of project components was defined as the continuation of project benefits and activities after the end of A.I.D. funding regardless of the source of future funding. Activities that would be funded by other donors therefore were considered sustainable.

The project's accomplishments have been impressive. Many of the initial institutional objectives have been achieved. By the end of the project MOHSA had established well-designed national plans for EPI, ORT, and malaria. A national system to coordinate EPI, ORT, and malaria activities has been established that includes an effective national level supervisory team with an innovative check-list approach to supervision and a management information system to monitor coverage and supervision and to provide feedback to regional and local levels. The project interventions have been integrated into several divisions at the national level, and these activities have effectively integrated and expanded the previously vertical EPI program into regional and local levels -- utilizing a polyvalent approach. However, administrative fragmentation and insufficient institutionalized coordinating mechanisms still present obstacles to project implementation.

An effective management information system currently provides yearly data on coverage and incidence of the three intervention areas. This system is to be complemented by a national HIS now being developed. The project has provided technical assistance to help develop the pilot HIS in one province and this system is to be expanded in a phased process to cover the whole country in 1989. This project has simplified the cumbersome reporting system and allowed for more rapid collection and analysis of data. A routine feed-back bulletin has been implemented in the pilot region.

In a support activity often insufficiently developed in other countries, the health education efforts have been particularly impressive. The health education office has utilized repeated short term technical assistance to develop a skilled team of experienced officials who have implemented formative studies, developed and distributed appropriate health education materials, and conducted an effective mini-campaign for EPI. Health education materials, health talks and home visitation are in evidence throughout the health centers of the country. A current pilot program is distributing and evaluating ORT messages which are likely to have a significant effect on the development of appropriate knowledge and practices in ORT.

Training programs developed by the CCCD project have trained heads of health centers and middle level managers. The training activities, however, have not reached sufficient numbers of heads of health centers, nor were the training sessions long enough for adequate development of skills and knowledge.

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Studies supported by the project provided baseline data on knowledge, attitudes and practices in EPI, ORT and malaria. In vivo studies helped identify appropriate treatment schedules for the national malaria plan. Formative studies guided the development of appropriate health education messages. In each of these areas, Rwandar officials are now capable of carrying on continuing studies.

The project failed to achieve its objectives of supporting operations research projects and developing self-financing approaches.

Impact

The results of CCCD activities, along with the provision of important commodities (transportation and cold chain equipment), have had demonstrable impact in the EPI portion of the project. The management information system has demonstrated impressive levels of vaccine coverage in all EPI areas during the life of the project. BCG coverage increased from 49% in 1983 to 90% in 1987, DPT3 increased from 36% to 79%, OPV3 from 25% to 79%, and measles from 53% to 75%. These coverage levels have resulted in a dramatic decline in measles, pertussis, polio, and diphtheria. Particularly striking were the rapid declines in measles and pertussis -- respectively a 52% and 87% decline over the project period.

The evidence for impact in control of diarrheal diseases is less clear. Hospital data do not show a decline in incidence or deaths from diarrhea. However, the indicators for diarrhea may not be sensitive enough to show impact so soon after the project was implemented. The lack of demonstrable impact, however, suggests that more efforts in training, health education and supervision would be appropriate.

For reasons beyond the control of the project, malaria incidence is increasing at an alarming rate. The first health priority of the country, malaria is appearing in populations previously uninfected and without natural immunity. Hospital admissions are dramatically increasing. Evidence of chloroquine resistance has been discovered. Project activities, which addressed monitoring, studies and treatment are insufficient to address the magnitude of this problem.

II. End of Project Constraints and Recommendations

Malaria

The priority area of malaria is in the most need of external support and is currently without alternative sources of external funding. A major effort to determine the causes of the current alarming rise in incidence through developing indigenous capacity to study the epidemiology and vector biology of the disease

should be supported by short term technical assistance from donors. MOHSA should use the equipment provided by CCCD project to establish a national malaria reference laboratory. These efforts should be designed to develop appropriate and cost-effective long-term policy. To cope with the immediate crisis, emergency funding for treatment and modest preventive efforts should be obtained from donors. Training and health education efforts should give priority to malaria treatment and prevention. Since other donors are already heavily committed to continuing other aspects of the project activities, A.I.D. support for malaria efforts (short-term consultancies for malaria studies and emergency relief for commodities) might be appropriate.

RECOMMENDATION

A major effort to determine the causes of the current alarming rise in malaria incidence should be initiated by MOHSA with technical assistance from donors. These studies should be designed to strengthen Rwandan capacities in epidemiology and entomology and to develop long-term approach to malaria policy. MOHSA should find a location for malaria reference laboratory using CCCD equipment in order to reinforce surveillance system.

Emergency funding for treatment and prevention should be sought from all foreign sources.

(Responsible Agencies: Division of Epidemiology, all donors.
Date: establish malaria laboratory, initiate studies and emergency funding immediately)

EPI and ORT

Many of the activities of the CCCD project other than malaria, can be successfully sustained by the national program that was put in place during the life of the project and by support from other donors -- especially UNICEF -- which had made collaborative contributions during the life of the project.

There still is a strong and effective role that A.I.D. can play in many of the project areas, building on the CCCD project activities and carrying them to higher levels of effectiveness, or completing activities that were initiated but have not been fully implemented (eg. HIS).

The team concluded, however, that one activity of the program-- EPI -- is so well established and has such a clear level of donor support from UNICEF, WHO and the World Bank that no additional A.I.D. support will be necessary. The EPI program, which will continue to receive other donor support for vaccines, vehicles, health education and training, supervision, and HIS, is in a particularly strong position.

RECOMMENDATION:

MOHSA and other donors continue to maintain the established integrated efforts in EPI.

(Responsible Agencies: MOHSA, other donors)

The ORT activities in place, however, have not had the anticipated impact. Additional efforts to improve training, health education, and supervision in this area are necessary. UNICEF is currently planning to provide support in these activities. As noted below, however, there is room here for continuing short term A.I.D. technical assistance in ORT support activities, as well as the priority area of malaria.

Administrative Issues

Despite successful integration of project activities, administrative fragmentation and inadequately developed coordinating mechanisms still plague project administration.

The EPI, ORT, Malaria interventions of the project should be administered under one administrative unit which is integrated into the rest of MOHSA primary health programs. The current structure which separates EPI from the other interventions has hampered effective administration of the project by requiring many administrative steps for approval of activities. It is important, however, not to isolate these interventions from other primary health care and family planning activities, but rather to promote coordinating and integrating mechanisms with sufficient authority to implement collective decisions. These considerations should be included in the current administrative reorganization plan before it is finally approved.

RECOMMENDATION:

MOHSA design its administrative reorganization plan in order to unite EPI, ORT and malaria in one administrative unit and integrate that unit into all other primary health care programs at the national level.

(Responsible Agency: MOHSA Date: prior to final approval of MOHSA reorganization plan)

While there is a functioning coordinating unit for EPI and ORT, there has not been a similar unit created for malaria. Since malaria is now the number one priority of the ministry, there is a pressing need to develop a coordinating unit to promote and sponsor the national malaria plan, develop the malaria laboratory, coordinate the inclusion of malaria control in supervision, training and health education materials. This committee should also coordinate donor activities in malaria.

RECOMMENDATION:

MOHSA establish a malaria coordinating unit to promote the malaria plan and coordinate surveillance, research, supervision, training, and health education in malaria activities.

(Responsible Agency: MOHSA, Department of Epidemiology.
Date: immediately)

Support Activities

It is in support areas (especially, supervision, HIS, training) that additional support from other donors and A.I.D. would be most important. While, as noted above, much has been accomplished in these areas, many of the initiatives are currently in an interim period, not yet fully institutionalized. While they may be sustained at their current levels, additional resources and technical assistance could have in place fully implemented systems which could be sustained largely with national resources.

HIS

The health information system is currently in three parts: 1) the national CCCD management information system which collects coverage and impact data, 2) the supervision information system, which provides status data on health center performance to the regional medical officers, and 3) the pilot HIS project which is programmed to be expanded to the national level over the next year. Each of these separate HIS activities need additional technical assistance in order to be integrated into a fully functioning national HIS. UNICEF and the World Bank will fund portions of this activity. A.I.D. could complement this support and provide continuity with relatively small investments of short-term consultancies, possibly through funding of the Family Planning II project to incorporate family planning information into the overall HIS.

RECOMMENDATION:

MOHSA and other donors, including A.I.D., continue efforts to establish a fully integrated and national level HIS which incorporates the CCCD management information system, the supervision information system and the pilot province project.

Supervision

Strengthening supervision may be the key to improving the impact of ORT and malaria programs. Although the project has made great strides in the development of a national level supervisory system with an innovative check-list approach that provides a means of

measuring performance progress, the system has not been fully implemented in all provinces. In order to be fully effective, supervision should also be strengthened at the regional level, where currently there are a variety of different regional systems, of varying effectiveness.

RECOMMENDATION:

MOHSA should convene a national seminar on supervision with all regional health officials and central level officials to discuss the different regional supervisory systems and the integration of regional and national level systems. This seminar should develop a plan for an operations research project to evaluate the different regional systems as preparation for the design of a uniform and integrated national and regional supervisory system.

Responsible Agencies: MOHSA, CCCD Office, Regional Medical Officers and Supervisors. Action dates: Seminar, October 1988, Operations Research Project, February 1989; National Plan, May 1989.

USAID seek centrally funded sources for short-term technical assistance for operations research for the development of the regionalized supervision plan and for training in supervision skills.

Responsible Agencies: USAID/Kigali, A.I.D./Washington. Action dates: same as above.

(Responsible Agencies: MOHSA, donors including A.I.D.. Date: seminar, October 1988; operations research, February 1989; national plan, May 1989)

Training

Training programs have not reached all the current heads of health centers, nor has the duration of training sessions been sufficient to develop essential knowledge and skills--especially for ORT, and training-of-trainers. However, there are so many different focused training programs that health workers are spending too much time in training sessions away from their daily service duties. Both these problems could be addressed by an appropriately designed integrated continuing education program which would schedule training activities so that they do not overburden health workers while at the same time giving priority to training in ORT, EPI, and malaria. Training in ORT needs particular development, since current knowledge and practices in this area need to be reinforced. It would be also important to enhance training capacities at the periphery by including more training-of-trainers in the curriculum of continuing education programs.

UNICEF and World Bank will be providing funding to support training activities. A.I.D. support may also be necessary.

RECOMMENDATION:

An integrated training program be developed in order to reduce the total training time for health center workers, while giving priority to CCCD intervention areas--especially ORT, and training-of-trainers.

(Responsible Agency: Division of Epidemiology and Division of Personnel Training, UNICEF, World Bank, USAID. Date: September 1988)

Health Education

Health education is one of the strongest support efforts that was sponsored by the CCCD project. The staff of the Health Education Office is sufficiently skilled to develop and test appropriate messages and to distribute them throughout the system. It will be receiving significant additional long-term technical assistance from UNICEF, as well as funding and materials. The training of health center workers, however, has not yet given sufficient attention to health education methodologies and interventions.

RECOMMENDATION:

Health Education activities should be included in training programs so as to develop health worker skills in providing health education.

(Responsible Agencies: Health Education Bureau, Division of Personnel Training, UNICEF. Date: September 1988)

While EPI and ORI messages based on the project's formative research have been developed, there has not been a concurrent development of malaria messages.

RECOMMENDATION:

Health education strategy for malaria be developed and implemented.

(Responsible Agencies: Division of Epidemiology, Bureau of Health Education, UNICEF. Date: September 1988)

Operations Research

The operations research projects which have been approved by the national review committee are worthy of support and resources should be obtained from donors for these studies. Operations research, however, has been too narrowly defined to focus on medical and public health issues to the exclusion of administrative and implementation issues. Operations research

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projects in supervision, training, health education should also be encouraged.

RECOMMENDATION:

The current national review process for operations research should be encouraged to include projects in administration, training and health education. Donor support for approved projects should be obtained.

(Responsible Agencies: National OR Review Committee, donors including A.I.D.. Date: existing approved projects funded by September 1988; administrative, training and health education projects approved by December 1988)

Self-Financing

The budgetary austerity of the GOR implies little additional national resources will be available to support child survival activities. Dependence on foreign donors should also not be encouraged. Therefore additional means of generating revenues for health services need to be explored. Such mechanisms would complement the current national program to promote development at the commune level. The CCCD-sponsored financing study recommended policies for charging for drugs and developing revolving drug funds. These recommendations should be considered in a general plan for developing self-financing mechanisms.

RECOMMENDATION:

MOHSA review self-financing proposals and develop a national plan for self-financing. Donors to provide technical assistance for evaluating alternatives and developing the national plan.

(Responsible Agencies: MOHSA, donors, including A.I.D.. Date for national plan: July 1989)

Donor Coordination

MOHSA has not developed an effective mechanism for coordinating overall donor activity, although separate coordinating committees for operational coordination of EPI and CDD activities have been implemented. The Coordinating Committee on Public Health, which is charged with overall coordination, has been inactive for over a year.

With the end of the CCCD project, the burden of support for child survival activities now rests heavily on one single donor, UNICEF, and some anticipated support from a World Bank loan. A donor coordinating committee should be convened by MOHSA with the central objective of defining priorities and phasing the integration of donor projects so that health sector activities do not become dependent on a single donor.

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The donor coordinating committee should also encourage integration of continuing and new projects, such as the family planning projects of both the World Bank and A.I.D., into MOHSA structures in ways that strengthen and build on the structures established by the CCCD project.

RECOMMENDATION:

MOHSA take the initiative to reactivate the Coordinating Committee on Public Health and develop a nationally defined integration plan for donor participation in the health sector.

(Responsible Agencies: MOHSA, all donors. Date: national donor plan by December 1988)

It might be useful for USAID/Kigali to review the situation of the CCCD project activities at the end of this year to determine how well project activities have been sustained by other donors and by national funds. Any redesign would have to take into account the changes that will have occurred in the interim. We expect that malaria will continue to be a major problem and are troubled by the increasing dependence of child survival activities on a single donor. We recommend that the future staff of USAID/Kigali carefully consider the following options for continuing support in the health sector.

Renewal and Redesign of CCCD Project. There are good reasons for returning to the CCCD project mechanism as a means to support the recommendations made in this report. The project has established a good working relationship with MOHSA, and the technical assistance available from CDC was well received. The continuity of personnel with knowledge and experience in Rwanda and good working relationships with MOHSA officials could be an invaluable benefit to future projects. In addition, the regional aspect of the CCCD project provides an excellent forum for interchange and comparison with other CCCD projects, which in the past has been particularly valuable for this project. Finally, with a need to provide renewed emphasis on malaria, CDC expertise and experience in Rwanda might be particularly valuable for the implementation of a CCCD project which emphasizes the malaria component.

Integration into Family Planning Project. A second option for continuing support in this area is to integrate the activities recommended in this report into the future Family Planning Project. The current project paper does not envision support for explicit health activities such as the CCCD activities. While there are some areas for building family planning on to the structures put in place by CCCD (supervision and HIS especially), it would be useful to develop a more integrated approach to family planning and health. An amendment in the future could provide funds for malaria and other activities recommended in

this report as a means of integrating health and population activities in the MOHSA. It is clear that a narrow definition of population activities ignores the effect on fertility that comes with declined infant mortality, and that it would be advisable to provide an integrated approach to addressing population issues.

Primary Health Care Project. There are two other areas where major project activities could be developed but which this team could not examine in detail. The first is the potential for the design of a major primary health care project which provides for institution building in the MOHSA and for the development of community-level health activities. The government has begun an initiative for commune development which could be the basis for a community-based health project. The MOHSA is currently exploring the feasibility of community pharmacies as an initial project at the commune level. Training of village volunteers in both family planning and primary health care activities could be done as an extension of both the family planning project and the CCCD project. Health financing recommendations in this report could also be pursued under the umbrella of a primary health care project.

AIDS Project. The final area for future consideration is AIDS. The growing problem in Rwanda is currently being addressed by a special office on AIDS which is focusing on health education. Both WHO and A.I.D. are providing some support for AIDS activities. UNICEF is currently planning to provide support for an education program for AIDS. The University of California, San Francisco has a research and service project for a significant A.I.D. bilateral program for AIDS at this time, USAID might consider developing a major project in this area--building on the CCCD health education expertise, and integrating distribution of condoms into the MOHSA logistics and delivery systems. The impact on population objectives of condom distribution for AIDS prevention might also be examined.

I. Introduction

Rwanda is a small, landlocked East African country of approximately 6 million people, with one of the highest population densities (230 per km²) on the continent. The population growth rate of 3.8% is among the highest in the world. About 95% of the population lives in the rural areas on small subsistence farms. Per capita income is about \$270. Most agricultural production is for subsistence, with only 5% of the land planted in export crops of coffee and tea. After a period of strong economic growth in the 1970's, the current economic situation is bleak. Geographic isolation, population pressure on the land and lack of alternatives to agricultural production are factors limiting economic growth. Since 1981 the government of Rwanda national budget has experienced little or no growth.

Health levels are low. Life expectancy is 47 years and infant mortality is estimated at 115 to 125 per thousand. Leading causes of death among children are malaria, diarrheal diseases and acute respiratory infections. Sexually transmitted diseases and AIDS are growing health problems. Malaria incidence is reaching alarming proportions in recent years. The CCCD project was designed to begin addressing health problems by selective interventions that could be integrated into the programs of the Ministry of Health and Social Affairs (MOHSA).

The Rwandan CCCD Project Agreement was signed in July 1984 and began operations in December 1984 with the assignment of the Technical Officer. Complementing the efforts of UNICEF, WHO and other donors, the project was designed to enhance a major MOHSA initiative in EPI and to expand child survival efforts to cover malaria and ORT. The project was intended to strengthen institutional support for these interventions by developing an effective, simplified health information system, strengthen established training and health information efforts, reinforce systems of supervision, support operations research and other studies, and encourage the development of self-financing mechanisms. Over the three and a half years of operation the project provided both long-term and short-term technical assistance in all program areas, commodities, including chloroquine, fansidar, ORS, vehicles, refrigerators, and spare parts, as well as local operating costs for training, health education, HIS, supervision, and a variety of studies (KAP, in vivo, formative health education, etc.). The project phased its coverage of the country by first developing pilot efforts in three provinces, expanding in the second phase to cover four more, and finally, this year, covering all ten provinces.

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II. Project Planning, Administration and Management

A. GOR and CCCD

The CCCD project objectives have been defined as priority areas for the government health programs for many years. The government had focused major program activities in EPI in previous years, with WHO technical assistance and UNICEF supplies providing a service, skill and administrative basis for the CCCD project.

The CCCD project was designed to strengthen and consolidate the on-going EPI program, to expand the focus of MOHSA activities beyond EPI into malaria and later diarrhea control, to integrate these activities into the normal health delivery program at the periphery, and to provide support for the program through training, health education, H/MIS and operations research.

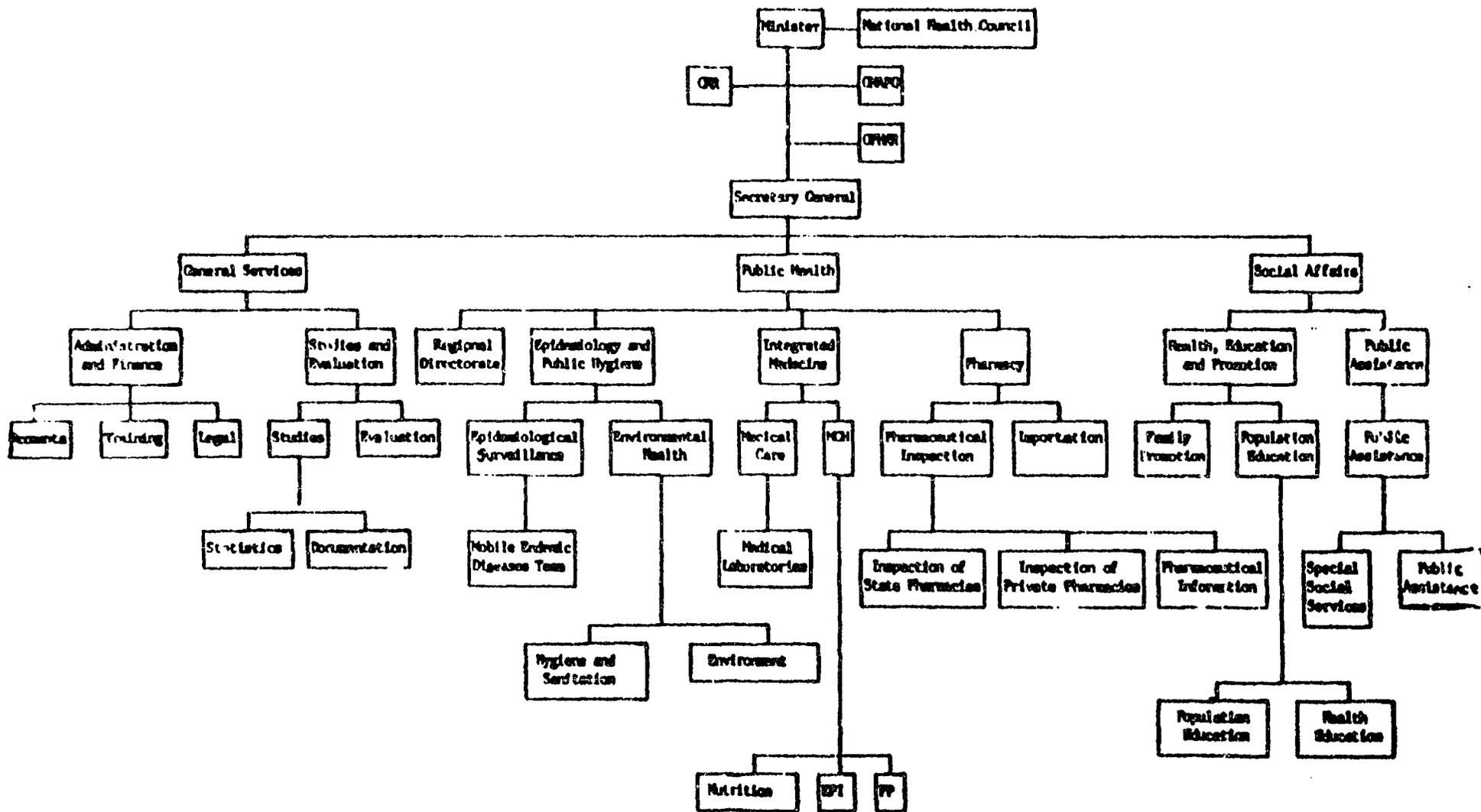
During the life of the project, the MOHSA structure itself was changed with the integration of the prior MINISANTE (Health Ministry) and the Ministry of Social Affairs, creating a single ministry, MINISAPASO, with three Directors General: Administration, Public Health, and Social Affairs. The CCCD project was assigned to the Directorate of Epidemiology, even though the core program, EPI had been transferred to the Directorate of Integrated Medicine and assigned to the Division of Maternal and Child Health, within that Directorate.

The project was slow in starting. The project agreement was signed in July 1984, however, the T.O. did not begin her assignment until December 1984. While the government was committed in principle to the project, it was not until the second year of the project (1986) that significant national resources were committed. The Technical Officer had to work initially with her counterpart, the Director of Epidemiology, who had many other pressing responsibilities, and a small administrative staff. Shortly before the mid-term evaluation in 1986, the MOHSA began to provide significant support to the project with the assignment of Dr. BUGILIMUFURA Laurent, a malariologist, and three medical assistants. Since that time, the government has demonstrated a high level of commitment and support for the project. Especially since the current minister assumed his post, bureaucratic obstacles have been routinely overcome and resources made available when needed. Conditions set by the mid-term evaluation were met with little delay. While MOHSA budgetary support has not reached the levels anticipated in the Project Agreement, the government has provided increasing support for gasoline and maintenance as recommended by the mid-term evaluation. (See Financing section) The chain of command from the Minister, through the Secretary General, Director General, as well as the other administrative units, has been strongly supportive of the project. All officials we interviewed noted the importance of the project and their disappointment that the resources provided by CCCD would not be continued. They felt that the termination would likely reduce the effectiveness of the project even with a high level of national commitment, given the government budgetary constraints.

MOHSA Administration

Despite the successful integration of CCCD activities into various administrative units of the MOHSA, the MOHSA administrative structure presented challenges and obstacles to the efficient operation of project activities. The CCCD project was assigned to the Directorate of Epidemiology and Public Hygiene. Many of its activities, however, are the operational responsibility of the EPI Bureau, in the Division of Maternal and Child Health, which in turn is part of the Directorate of Integrated Medicine. The Health Education activities are implemented by the Health Education Bureau of the Division of Popular Education, which is under the Directorate General of Social Affairs. Training activities are implemented through the Directorate of Health Education and Training. Health Information activities are the responsibility of the Bureau of Statistics. It appears that the CCCD office in the Directorate of Epidemiology increasingly took over de facto operational responsibility for many of the activities of the project -- especially the EPI, HIS, and supervision components.

ORGANIZATIONAL CHART OF THE MINISTRY OF HEALTH (MOHSA)



The wide dispersion of activities among different administrative units and the lack of clarity of responsibilities among these units caused considerable difficulties in the initial implementation of the project. It provided multiple opportunities for officials with different priorities and agendas to block key components of the project -- for instance, required approvals for vehicles and visits to regions could be held up in various administrative offices; training plans could be halted because some officials wanted additional topics added to the training program. However, by 1987 project activities appear to have been given priority over other administrative objectives, and in late 1987, a coordinating committee for EPI was created (including the Director of Epidemiology as president, Director of Integrated Medicine, CCCD, UNICEF, WHO 1987 and was quite effective in developing the "Accelerated Vaccination Campaign" in 1988.

Coordination with training and health education administrative units also had its tensions but these aspects of the project were implemented without major obstacles after mid 1986.

Finally, MOHSA is quite decentralized, with considerable power resting with the Regional Medical Officers. Decentralization has many advantages, however it also means that the effectiveness of centrally designed projects depends on the interest, skills and motivation of each Regional Officer. A few Regional Medical Officers appear to be less effective implementors of CCCD programs contributing to regional variation in implementation and effectiveness of project activities. All of the project activities required the authorization of each Regional Officer before the activity could be implemented -- including every supervisory visit. Only the Minister has authority to override Regional Health Officers' decisions.

It is a testament to the ingenuity, energy, negotiating skills and motivation of the officials involved in the project that the project has run as smoothly as it has since 1986. Some have described the coordination of activities as an exercise in "gymnastics". In such a centralized structure the ability of officials to perform these coordinating "gymnastics" usually requires significant high level commitment to the project objectives so that project needs are given priority over the routine demands of each separate office. It is clear that the commitment of the Ministers, Secretaries General and Director General who oversaw the project enforced the coordination necessary for EPI and other project activities.

The project has been notably successful in integrating activities into the ministry structure at several levels. Many parts of the central offices are involved in the project -- health education, statistics, MCH, Medicines, etc.. At the regional level, the relationships between CCCD central supervisors and the regional

supervisors has strengthened integration between regions and center, while at the same time improving the skills and status of supervision at the regional level.

The integration of CCCD activities into many different parts of the ministry may be a factor which will contribute to the sustainability of the project. Project activities are not centralized in a single office, but are instead shared by several administrative units. The project activities are not vertically run, but rather are well integrated into several levels of the ministry (eg. several central level divisions, regional offices, and all personnel in the health centers -- as well as other donors) Each of these units now has a stake in continuing the effective activities of the project.

Nevertheless, with the end of project funding and technical assistance it is likely that the coordination will be more difficult to achieve. Neither the material support of project funds for transportation, per diem, supplies, etc. nor the external administrative and diplomatic resources of the technical officer will be available to support the Rwandan health officials responsible for the continuation of project activities. It is likely that other demands on officials' time will begin to draw them away from project activities.

It would be useful to rationalize the organizational structure of MOHSA so that administrative responsibilities are clearly defined and coordinating mechanisms are institutionalized. Some activities will always have to be done by coordination of several organizational units, however, the successful continuation of project activities may require strengthening the central base for operational support.

MOHSA is currently developing a reorganization plan for presidential approval. The plan was not available to this team, but it may be useful for the MOHSA to consider how best to reorganize CCCD activities in its new plan. It is important that the effective level of coordination and integration that had been achieved be maintained and that some of the lines of authority be shortened and unified. All of the CCCD activities - - EPI, CDD, and malaria --should be integrated operationally under one authority and these activities in turn should be integrated into a major Directorate of Primary Health Care, separate from curative hospital services. There is no clear reason why these activities should, as they are now, be separated into two divisions. Unifying and integrating the intervention programs under one administrative division would reduce the number of official approval points and facilitate coordination and supervision. Support programs -- health education, training, and the health information systems -- should continue to be separate administrative units which coordinate with the Directorate of Primary Health Care, since they are responsible

for activities of other divisions as well.

It should be recognized that both efficiency and integration should be objectives of an administrative reorganization. Lack of integration is one of the central factors that undermines sustainability of projects.

RECOMMENDATION:

MOHSA establish clear administrative responsibilities among the units responsible for coordinating and implementing the activities sponsored by the CCCD project. Policy and operational responsibility for EPI, CDD, and malaria should be integrated into a single division responsible for all primary health care programs. Support activities -- health education, training and health information systems -- should not be unified into this division but rather continue to be coordinated with the Directorate of Popular Education and Personnel Promotion and with the Statistics Bureau.

(Responsible Agency: MOHSA, all administrative units involved in CCCD project. Date: integrate into current restructuring plan)

B. A.I.D./CDC Administration

This project is administered through an organizational agreement (PASA) between A.I.D. and CDC, by which administrative and technical functions are shared in a complex fashion that was not understood sufficiently by officials in Rwanda to assure a smooth operation of the project. CDC had technical authority for implementing the Rwanda project as part of the regional CCCD program in 13 African countries. At the same time, USAID/Kigali was administratively responsible for the project, as it is of all A.I.D. projects in Rwanda.

The core of the coordination among these separate administrative structures occurs in Rwanda where the Technical Officer is responsible for providing technical support for the project and is held responsible by CDC for effectively implementing the technical aspects of the project. USAID/Kigali has administrative responsibility for monitoring the project, managing the bilateral funding for the project, and negotiating with the government and other donors to encourage the effective implementation of the project activities and achievement of project goals.

In actual practice, it appears to be difficult to maintain the distinction between administrative (A.I.D.) and technical (CDC) responsibilities. It appears that the specific roles were not clear to the central officials in Kigali -- the Technical

Officer and the USAID/Kigali Project Officer, as well as the rest of the staff in USAID/Kigali. During certain periods of the project, the Technical Officer assumed more responsibilities for administrative tasks than she should have -- in part because there was no HPN officer for a year.

These are structural problems that appear to occur in several CCCD projects and should be addressed by CDC/Atlanta and A.I.D./Washington.

RECOMMENDATION:

CDC/Atlanta and A.I.D./Washington disseminate clear guidelines specifying responsibilities for each official (especially, T.O., USAID Project Officer and CDC/Atlanta supervisor), clarifying chains of command and required communications at all levels. Special efforts be made to reorient USAID missions when key officials change. Manuals and guidelines be developed for T.O.s and in-country USAID Project Officers, specifying responsibilities. T.O.s be given short-term management training program prior to assuming duties in field.

(Responsible Agencies: AID/Washington, CDC/Atlanta Date: Guidelines, September 1988, Training Program, January 1989)

Despite the friction caused by the lack of comprehension of roles, the Rwanda CCCD project was well managed and effective. Work plans, procurements, waivers, official relationships and donor coordination were all relatively well accomplished. There were no serious problems of lack of administrative support from any of the supporting units (USAID/Kigali, CDC/Atlanta, AID/Washington, AID/Nairobi). There were no pipeline problems and only minor problems with timely access to funds (with the possible exception of operations research project support). The bilateral fund of the project appears to be terminating with a most all of its obligated budget expended on time. This situation of AID/Kigali support contrasts favorably with the initial phase of the CCCD Burundi Project.

AID/Washington and CDC/Atlanta provided timely support for the project. Fifty four short term consultants were fielded during the life of the project, with CDC providing the bulk of this assistance. The consultants were well received by the Rwandan officials and lent stature to the project. Research in EPI and malaria as well as health education technical assistance was particularly highly regarded. Routine supervisory visits and routine monitoring by CDC/Atlanta were appropriate and supportive.

However, CDC/Atlanta and USAID missions might consider two policy changes: 1) schedule first year visits earlier so that at the

earliest point it is clear to the MOHSA that the T.O. has strong CDC backup; 2) CDC/Atlanta and USAID supervisor should coordinate more closely and routinely and meet to discuss T.O. performance.

C. Technical Officer

The Technical Officer in this project, as in all CCCD projects, bears the major responsibility for the effective implementation of the technical components of the project. The energy, initiative, ingenuity, and motivation of the T.O. were crucial to the successes of the project. It is the evaluation team's judgement based on interviews with project participants that the T.O. performed her role effectively and efficiently working well with her counterparts, with other donors, with short term consultants and with her supervisors.

While the T.O. may have taken a very direct and active role in initiating the project -- assuming responsibilities and making decisions rather than providing advice and ideas for her counterparts -- it is not clear that this was avoidable. The initial GOR commitment to the project was not clear. An energetic start-up can be effective in getting a project off the ground and demonstrating its worth to national decision-makers.

The crucial issue may be what happens once the national government clearly demonstrates its commitment by assigning more resources to the project. It is in this phase that a T.O. must begin to shift roles from initiator to supporter. This shift appears to have been accomplished gradually over the last two years of the Rwanda project. The Rwandan counterparts in the CCCD unit are capable of managing the continuing operation of the project activities with anticipated support from other donors for HIS, supervision, training and health education. While the T.O. will be missed, as would any effective manager, she was surrounded by excellent counterparts and she gracefully worked herself out of the central role she initially played. This shift in roles during the life of the project is important for the sustainability of projects and is likely to contribute to the continuation of many of this project's activities.

D. Project Design and Planning

The project was designed to be initiated in three pilot provinces in 1985. In a second phase (1986) it was expanded to four additional provinces. In 1987-88 the three remaining provinces were covered. This phasing process appears to have been effective in allowing the project to focus its efforts during the initial implementation phase and to develop appropriate methodologies for training, supervision, and health education. The process followed the basic plan and effectively resulted in nationwide coverage of most of the CCCD activities. The last phase, however, was not implemented in sufficient time to assure

that all activities of the project would be in place at the end of the project. The national-level supervision system was not able to cover all the health centers in the final three provinces. Training activities in these provinces were also more limited than in the first two phases.

Annual Project Work Plans were effectively designed to identify all major project activities and schedule them in manageable clusters. By 1986, when the Rwandan staff was enlarged, the Project Work Plans assigned individual responsibilities to each staff member, who in turn drew up her/his own personal work plan. A general monthly calendar of CCCD activities was also developed and appears to have been effectively utilized to anticipate major activities. The plans and calendars appear to have been effective management tools and should be continued by the Division of Epidemiology and other administrative units responsible for continuing CCCD activities. Other CCCD projects are reported to have utilized the Rwandan models. CDC should consider evaluating these workplans to see if they could provide the basis for a uniform model.

E. Donor Coordination

A Coordinating Committee for Public Health has been the formal mechanism for coordination of general donor policy in the health sector. Presided by the Director General of Public Health, the committee includes all the major multilateral and bilateral donors. The committee has not been particularly effective in developing clear guidelines for establishing national priorities for donor contributions. Indeed, it has not even been convened in the last year. Recognizing this weakness, the Director General plans to convene the Committee in June or July and to begin a periodic review of donor activities perhaps every six months.

Lack of this mechanism may have had some consequence for the CCCD project. A formal and routine coordinating committee under the control of the GOR might have provided a strong forum for the government to emphasize its priority for the CCCD project continuation. If all donor programs are subject to this kind of continuous monitoring and coordination, the implications of changes in one donor's policy can be clearly defined and opportunities for either changing that policy or adjusting the participation of other donors can be explored. Policy dialogue should work both ways between host government and donors, and a formal mechanism for donor coordination strengthens the host country's leverage in this dialogue.

The Ministry should take the lead in developing a national priority plan for donor activities which clearly defines the areas and activities for donor participation. This plan should give priority to distributing the areas in which donors

participate, so that no single donor is responsible for all activities in an area, and so that follow-on support can be developed for projects which are terminating.

Of immediate concern for donor coordination is the integration of the World Bank Family Health Loan and the A.I.D. Family Planning Project which is in the process of approval. Coordination among donors and between MOHSA and ONAPO should be well defined and integrated at the policy level. Opportunities for integrating CCCD activities and family planning activities should be explored in this forum.

RECOMMENDATION:

The Coordinating Committee on Public Health meet and develop a routine schedule and agenda for coordinating the donor activities under MOH initiatives and priorities.

MOHSA establish a detailed priority plan of action for donor activities and present that plan for discussion and approval by the Coordinating Committee for Public Health.

Review of integration of CCCD and family planning project activities of donors should be explored in this forum, and a coordination plan established at the policy level.

(Responsible Agencies: Director General of Health Services, Health Planning and Evaluation Unit, ONAPO and A.I.D. and other Donors. Date for Priority Plan: August 1988)

Despite the lack of a formal mechanism for donor policy, it is clear that the donors have been made aware of each other's programs and policies and that a loose and informal coordination does occur. Particularly important has been the coordination between CCCD and UNICEF, which while not always smooth, has effectively divided the labors and provided timely and appropriately complementary mutual support.

UNICEF has given complementary support throughout the life of the project, providing vaccines, vaccination equipment, ORS, cold chain equipment, and some training support. In addition, since 1987, with Noted Funds from the Italian government, UNICEF has promoted a major effort in EPI, the accelerated strategy. Under this program, UNICEF has provided materials, training and technical assistance for the EPI program, with special emphasis on social mobilization. They have also begun a major support effort for ORT. Their plans for the 1988-92 period are to provide continuing support for most of the activities that have been initiated under the CCCD project, with the notable exception of malaria.

In addition, WHO complements CCCD by providing some support for

overseas professional training and technical assistance to support the Family Health Project funded by the World Bank. WHO has also provide limited funding for cold chain support, seminars and other training activities.

The World Bank has provided a \$10 million loan to the GOR for a Family Health project which was designed, among other things, to provide funding for construction and reconstruction of health centers, technical assistance and equipment for in-service training of health center workers, support for the development of a national HIS, and the integration of population programs in the MOHSA. This project is behind schedule, but could in the future provide funding for the training and HIS activities that have been part of the CCCD project. The Family Health project is also to be coordinated with the proposed A.I.D. Family Planning project.

Since November 1987 the day-to-day coordination of donor activities occurs in the Coordinating Committee for EPI which has been particularly effective tool of donor coordination for CCCD, UNICEF, and WHO, as well as a means of coordinating different GOR administrative units. This committee meets on average once a month, although it does not have a routine meeting time. A Coordination Committee for CDD has recently been created and had its first meeting during the evaluation period.

III. Program Components

A. EXPANDED PROGRAM ON IMMUNIZATIONS

1. Progress toward Objectives

The EPI component of the CCCD project was the most effective in reaching the specific objectives of the Project Agreement.

The first objective was to provide immunization services with DPT, measles, polio and BCG vaccine to children throughout Rwanda. Explicit targets were that by the end of 1987 the project achieve the following coverage among children 12-23 months of age: OPV 80%, DPT 80%, measles 80%, BCG 85%.

Survey results in 1988 show that the vaccination coverage targets for OPV, DPT, and BCG are being met, although coverage for measles is slightly lower than the target at 75%. (See Table One, "Immunization Coverage of Children, Survey Results")

TABLE ONE**Immunization Coverage of Children, Survey Results**

Vaccine	1983 (30 clusters)	1986 (30 clusters)	1987 (300 clusters)*
BCG	49%	86%	90%
DPT-1	63%	92%	93%
DPT-2	---	89%	91%
DPT-3	36%	81%	79%
OPV-1	57%	92%	93%
OPV-2	---	88%	91%
OPV-3	25%	81%	79%
Measles	53%	74%	75%
Completely vaccinated	21%	55%	59%

* 30 clusters in each of the ten districts

Sources: MINISAPASO, Rapport de l'Evaluation International de la Vaccinale au Rwanda, du 15 au 22 Septembre 1986. Projet de l'Evaluation de la Couverture Vaccinale au Niveau des 10 Regims Sanitaires du Pays.

The second project objective was to provide immunization for neonatal tetanus prior to delivery to pregnant women throughout Rwanda. The project was to achieve a vaccination coverage of 25% of pregnant women with 2 doses of tetanus toxoid by the end of 1987.

A 30-cluster survey in 1986 found that 24% of pregnant women had 2 doses of tetanus toxoid. This analysis, based on the total number of doses of TT2 administered and the estimated number of pregnant women, found that 32% had 2 doses of tetanus toxoid in 1987. The vaccination coverage target for TT2 has been met as measured by either technique.

The third project objective was to decrease morbidity and mortality caused by the EPI diseases. The target was to decrease measles, pertussis, tetanus and polio morbidity among children less than 5 years of age by 40%, by the end of 1987. The mortality target was set at a decrease of 30% for the same diseases.

Based on routine reporting from outpatient facilities, there was a 54% decrease in measles morbidity, an 85% decrease in pertussis morbidity, and a 41% reduction in polio morbidity during the years 1984-1987 as compared to the years 1980-1983.

Based on record reviews from 7 hospitals, the decrease in measles mortality during the years 1984-1987 was 26% when compared to measles mortality during the years 1980-1983; the decrease in pertussis mortality was 90%, and the decrease in tetanus mortality among all age groups was 6%.

The general objective to decrease by the end of 1987 infant and childhood mortality by 25% in areas where the CCCD project was implemented could not be evaluated. Reliable low-cost methods to measure mortality change have not been developed in the project in Rwanda. The infant mortality rate in Rwanda, based on the 1978 census, was 144/1000 live births, and the childhood mortality rate was 233/1000. The World Bank estimated the IMR at 137/1000 in 1985, and ONAPO estimated the CMR at 120/1000. A population census this year will establish comparative mortality rates. Accurate data on current mortality will be available only after the 1988 census.

2. Activities

2.1 Immunization services

2.1.1 Immunization Schedule, Primary Series

TABLE TWO

Immunization Schedule, Primary Series

Vaccine	Number of Doses	Target Group
BCG	1	birth
Polio	4	birth, 6 weeks then 2 more doses at 30 day interval
DPT	3	6 weeks, then 2 more doses at 30 day intervals
Measles	1	9 months
TT	2	Pregnant women

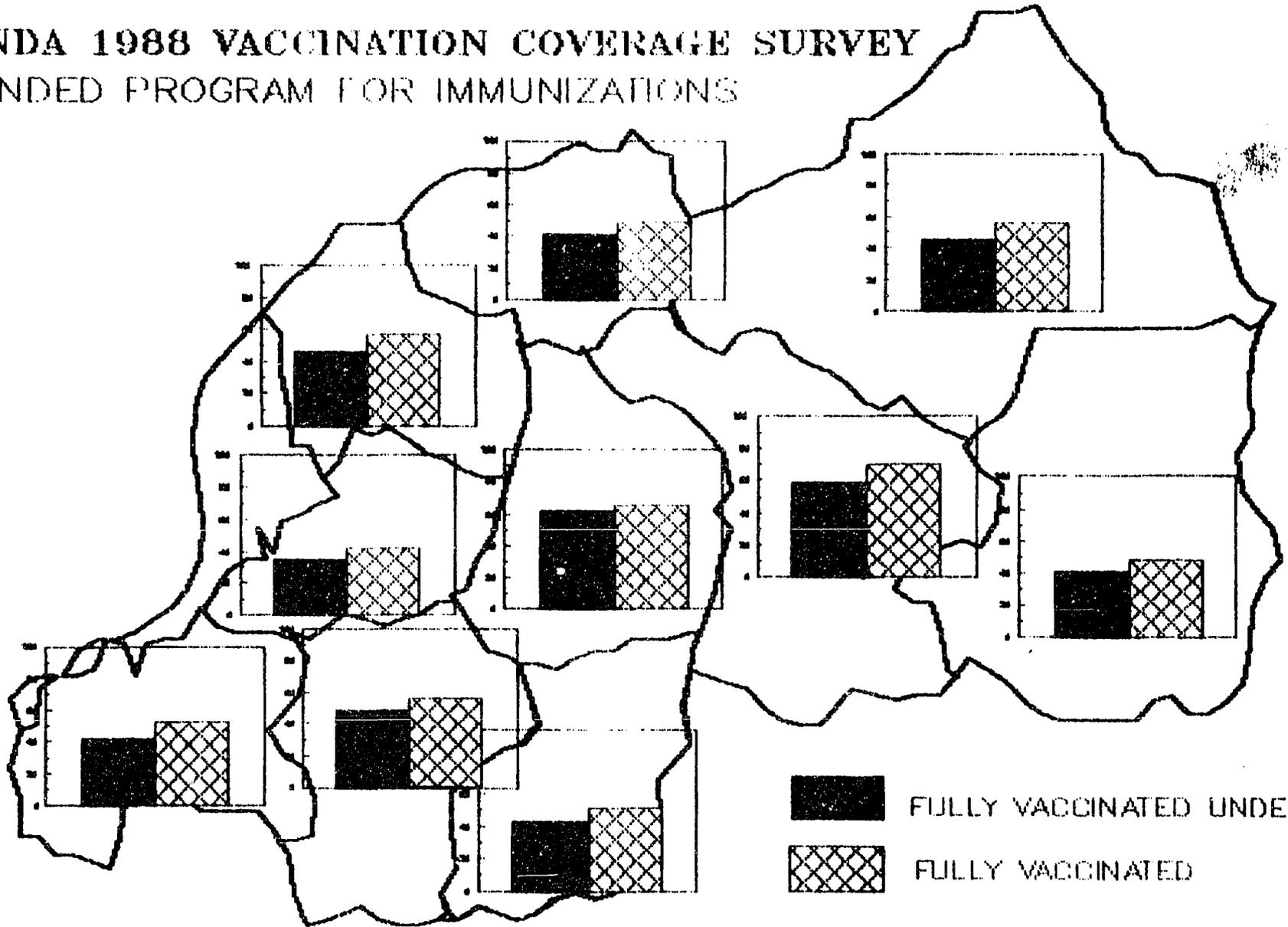
2.1.2 Delivery Strategy

The national delivery strategy for EPI is based on UNICEF's global Accelerated Immunization Strategy, which promotes integration of vaccination with other PHC services at fixed facilities. The strategy also promotes the establishment of outreach activities and the vaccination of sick children. Vaccination services are performed nationwide. (See map, "1988 Vaccination Coverage Survey") At the health centers vaccinations are given 2 to 3 times a week for children and once to twice a week for pregnant women. The strategy of providing immunizations at fixed centers every day has not yet been achieved because of reluctance on the part of health center personnel to open a vial for only one child, in order to avoid wastage and insufficient vaccine stock. This is especially true for BCG vaccine, which comes in 10-dose vials. However, this problem will be addressed with the increased supply of vaccines in the current (1987-1990) plan of operations.

Chart Two - Map "1988 Vaccine. Coverage Survey"

RWANDA 1988 VACCINATION COVERAGE SURVEY

EXPANDED PROGRAM FOR IMMUNIZATIONS



Implementation of the fixed strategy has contributed to the significant increase in coverage, since children brought to health centers and hospitals for other services are vaccinated at the same time. Outreach services require that vehicles from the regional level be sent to local level health centers to transport local health center staff to provide immunizations at locations away from fixed facilities. These outreach services are provided once a month to match schedules for DPT and TOPV. This approach reaches children in remote rural areas as well as children whose parents are unable or unwilling to travel to health centers. On the other hand, outreach services are expensive because staff must be paid for extra time and expenses, and vehicles with adequate fuel supplies must be available. Adhering to outreach schedules is further complicated by poor road conditions and weather. Since vaccinations are done only once a month in each outreach site, the vaccination load per session is immense. The presence of only one vaccination technician per session makes it doubtful that proper sterilization is carried out during these sessions. It is also questionable whether proper education of mothers can be carried out with such limited staffing. Intensive social mobilization is a crucial component of the Accelerated Strategy which will hopefully encourage families to take the responsibility for bringing children to fixed centers.

2.1.3 Vaccine Procurement and Distribution

Vaccines are procured by UNICEF and the Rotary International and stored in the central cold room. When necessary, vaccines are sent for quality control testing to CDC/Atlanta or WHO/Geneva. Adequate quantities of in-date vaccines were available at all health facilities visited, and none reported shortages.

Once a month Regional CCCD Supervisors come to Kigali for the vaccines, which are transported to the regional level in cold boxes. From the regional level, the vaccines are taken to the health centers in cold boxes.

2.1.4 The Cold Chain

The central-level cold chain equipment consists of two walk-in cold rooms, seven refrigerators, and ten freezers. There exists a sufficient stock of spare parts for the cold chain, and a six-month stock of kerosene. A generator has been installed to prevent electricity outages, and another back-up generator will be bought in the near future. The refrigerators were maintained at temperatures between 0 to 8 C, and the freezers at -20 C. The regional level cold chain has predominantly kerosene refrigerators and a few electric refrigerators. The health center refrigerators are essentially stationary cold boxes with refrigeration units attached which can operate on kerosene or

electricity.

Almost all refrigerators and freezers checked during field visits were operating at appropriate temperatures. Temperatures had been checked twice daily and recorded on the temperature monitoring card. All the vaccines were arranged in the correct refrigerator compartments, i.e. measles and polio vaccines in freezers, and BCG and DPT vaccines in the refrigerators.

At the local health facility level also, the evaluators noted that vaccines were kept cold during vaccination sessions by placing them on ice packs, and only one vial of each type of vaccine was opened at any time.

2.1.5 Sterilization Techniques

All vaccination sessions visited used the one-needle/one-syringe per child vaccination strategy. Forceps were also used at all times to handle needles. Each HC has been provided two single-rack steam sterilizer kits, which can handle a total of 84 syringes. Since the majority of vaccination sessions were noted to have around 100 vaccinations per session, and it is uncertain whether health personnel really have the time to sterilize the needles and syringes properly during the vaccination sessions, it would be advisable to supplement the sterilizer kits with one syringe kit. All syringes and needles at health facilities visited were boiled for the required 20 minutes. Timers were provided to monitor boiling times. The team also noted plastic syringes being sterilized and used in addition to sterilizable glass syringes. It was not clear whether the plastic syringes were the multiple-use sterilizable types or the single-use disposable ones.

2.2 Assessment of immunization coverage

Regular assessment of immunization coverage has been performed by two methods: 1) the reported number of doses of vaccines administered compared to estimated target population, and 2) results of surveys using cluster sampling. A 300-cluster national vaccination coverage survey was done in early February 1988. The results are presented in Table One, "Immunization coverage of children, survey results" (see page 14).

Register reviews during field visits revealed that children are being vaccinated at the correct ages according to the immunization schedule. It was noted that 90% of measles vaccinations in health facilities visited were given at 9 months, the earliest recommended age. This might be the result of the 1986 and 1987 mini-campaigns to promote vaccinations (see section on health education).

Based on coverage survey results, it was noted that the drop-out

rate of DPT and OPV rose slightly from 12% in 1986 to 15% in 1987. Health personnel feel that a major reason is parents' lack of knowledge about when and where vaccinations are offered, and about what vaccinations children need. Good communication and clearly designed vaccination cards are elements being employed to overcome the problem. The new UNICEF vaccination cards being used are excellent. Another major problem is that health personnel in many facilities still do not vaccinate sick children. Health personnel are currently trained to be sure that eligible children have been checked for vaccination need at every contact, and that those requiring vaccination are vaccinated except for those who require hospitalization because of severe illness.

The drop-out rate for the second dose of tetanus toxoid among pregnant women decreased from 67% during the years 1980-1984, to 37% during the years 1985-1987, thought in large part due to improved health education at prenatal encounters.

2.3 Other Activities

2.3.1 Supervision

There is regular supervision of the following aspects of (EPI e.g. number of sessions per week, social mobilization activities, one-syringe/one-needle per vaccination, cold chain, children of correct age being given proper vaccines and adequacy of vaccine stock).

2.3.2 Training

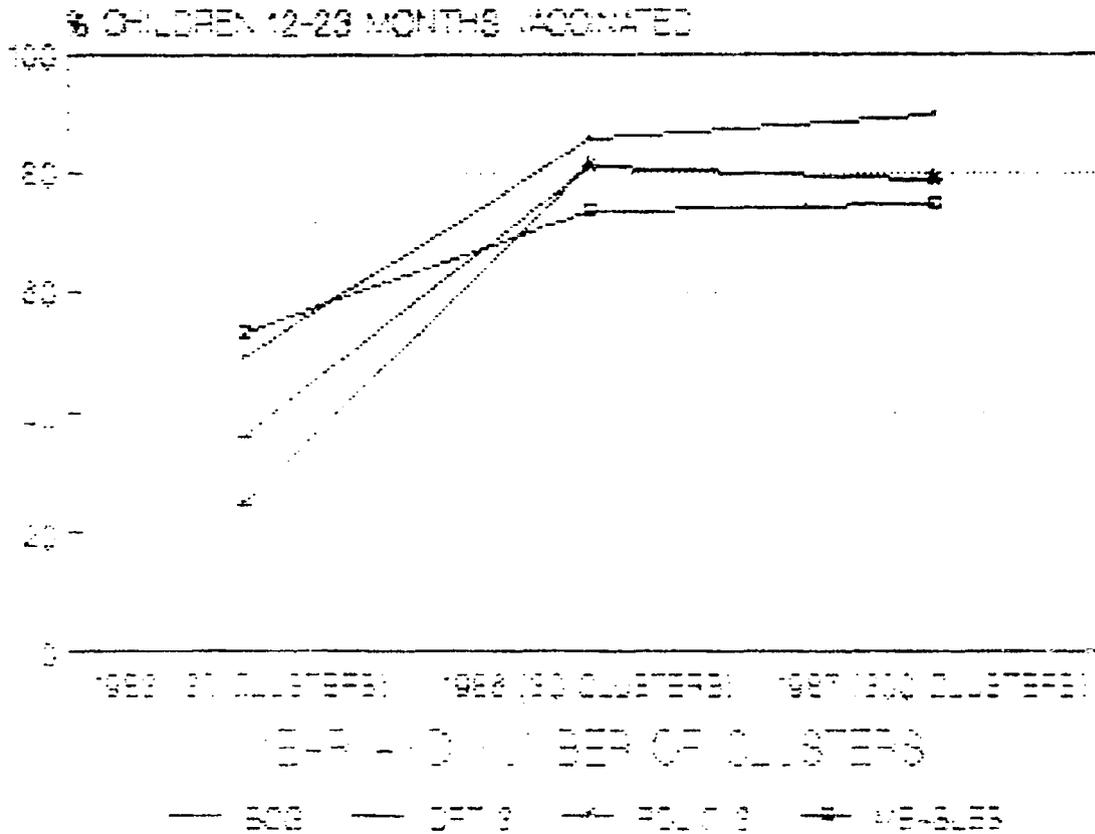
Training in EPI activities is based on WHO modules. In addition, a refrigerator repair course has been developed to teach the CCCD/EPI supervisors basic equipment maintenance and repair. (See also section on training.)

3. Impact of EPI interventions

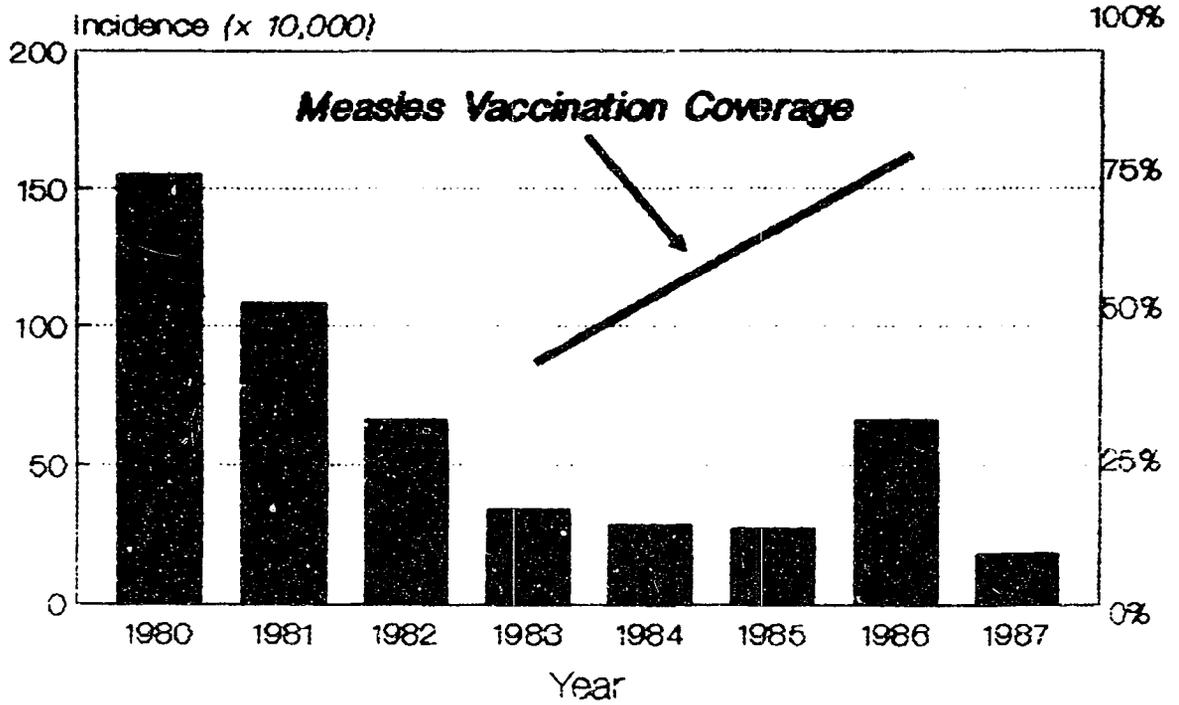
Vaccination coverage levels throughout the country have exceeded the national eighty percent targets except for measles which is slightly under target (see Graph One, Vaccination Coverage).

With increased coverage, disease incidence which was falling prior to the initiation of CCCD support has continued to fall (see Graphs Two, Three, Four, and Five, Incidence of Measles, Pertussis, Tetanus, and Polio).

VACCINATION COVERAGE, CHILDREN 12-23 MONTHS OF AGE, CLUSTER SURVEYS, RWANDA, 1983-1987

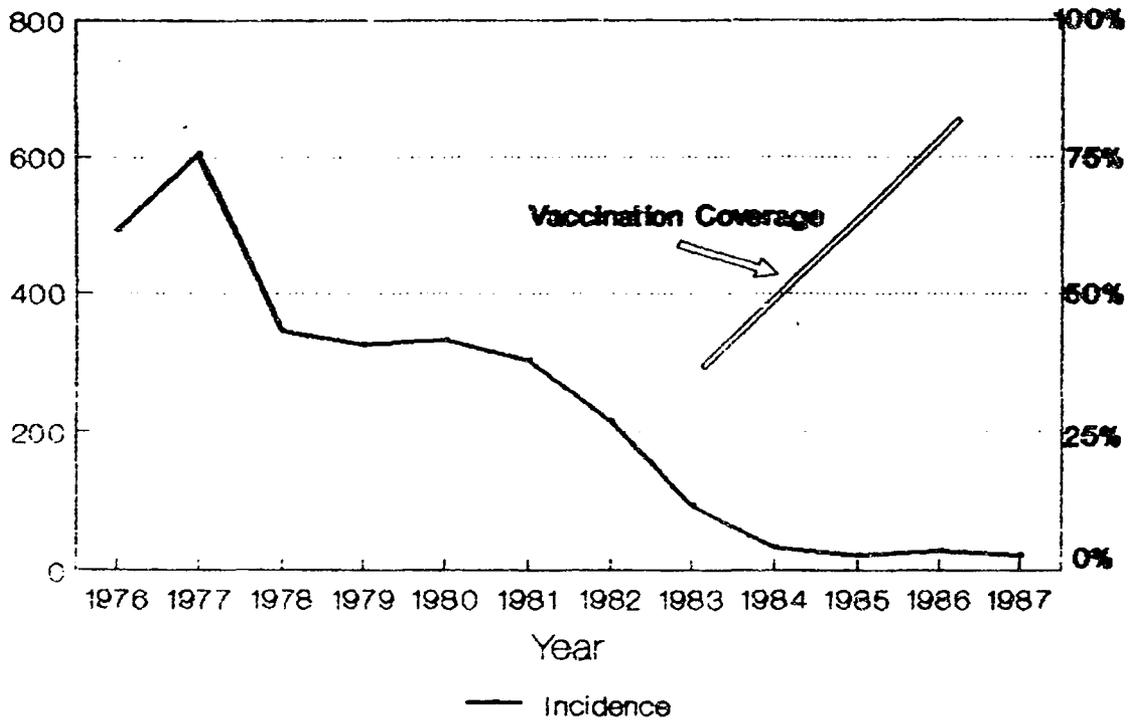


Measles Incidence Reported by Year and Vaccination Coverage, RWANDA



Measles Vaccination Coverage Figures
from National Coverage Surveys 1983, 1986

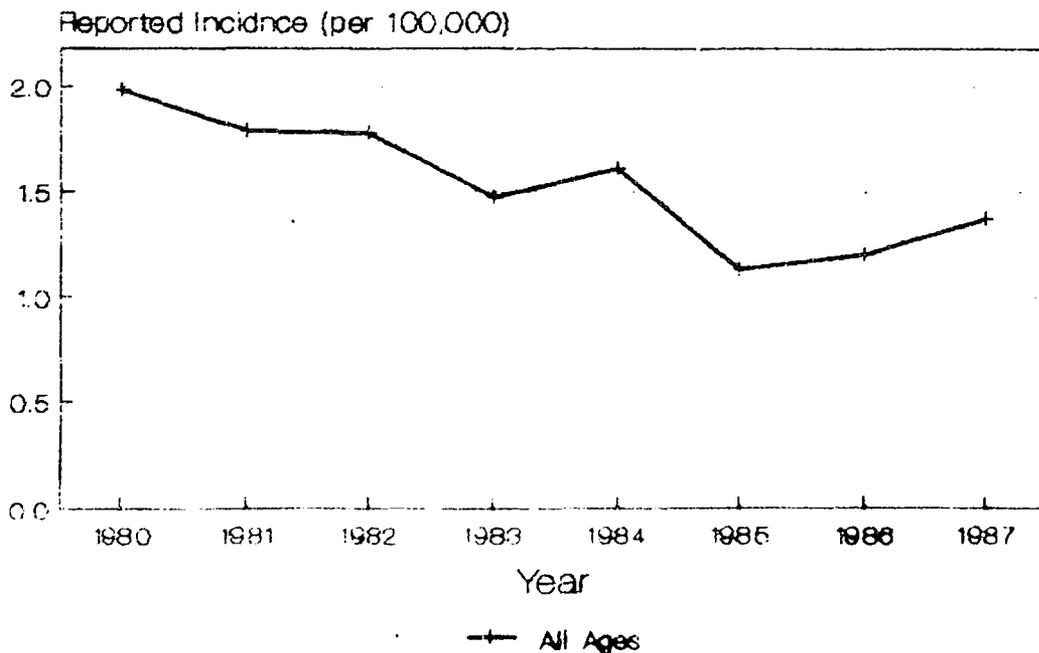
Pertussis Incidence Reported by Year RWANDA



Source: Rwanda 1987 MIS Report

GRAPH FOUR

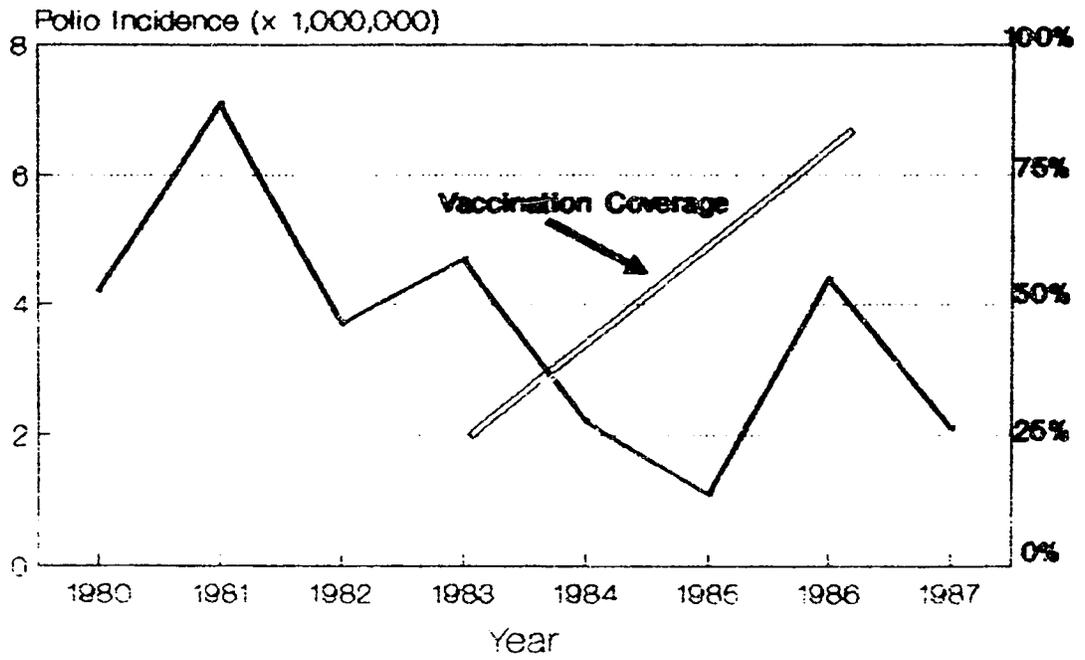
Tetanus Incidence Reported by Year RWANDA



Source: Rwanda 1987 MIS Report

GRAPH FIVE

Polio Incidence Reported by Year RWANDA



Source: Rwanda 1987 MIS Report

Morbidity reduction goals for the CCCD Rwanda project were established at forty percent. This target has been exceeded for measles, pertussis, and polio. The mortality reduction goal was thirty percent. This target has only been exceeded for pertussis.

Significant numbers of EPI target diseases are being prevented. Sixty-two percent of expected cases of measles, sixty-five percent of expected cases of pertussis, nineteen percent of expected cases of neonatal tetanus and sixty-five percent of expected cases of polio were prevented in 1987 due to EPI interventions. Calculations were based on estimated disease incidence, known vaccination coverage and estimated vaccine efficacy.

Conclusion: EPI targets are being achieved but a major future challenge will be to insure that the progress made is maintained. The GOR appears firmly committed to EPI and has skillfully worked with its major EPI donor UNICEF to assure adequate vaccine and logistic support. CCCD has played the major role in training, supervision, health education and in strengthening the disease surveillance system to provide data necessary to determine project impact. It will be important to continue to emphasize motivational health education so that the families will take the responsibility of bringing their children to fixed vaccination sites. This will decrease the need for expensive outreach activities. Social mobilization campaigns sponsored by UNICEF have benefitted from the formative research conducted by CCCD and MOH/HE during 1986 and 1987. These campaigns are expected to motivate families to take advantage of services provided. At the same time, UNICEF and Rotary International should ensure provision of sufficient vaccine supply to meet increasing demands.

While additional A.I.D. support for EPI would be useful in order to reduce Rwandan dependence on a single donor, the team felt that there was sufficient momentum and support in this program for it to continue without additional A.I.D. resources. It might be useful for USAID to review the EPI program in the future to evaluate its progress during the next six to twelve months in order to determine if additional support would be necessary.

RECOMMENDATION:

MOHSA and UNICEF continue to support and maintain the current EPI program.

(Responsible Agencies: Division of Epidemiology, EPI Office, UNICEF)

B. CONTROL OF DIARRHEAL DISEASES (CDD)

1. Progress Toward Objectives

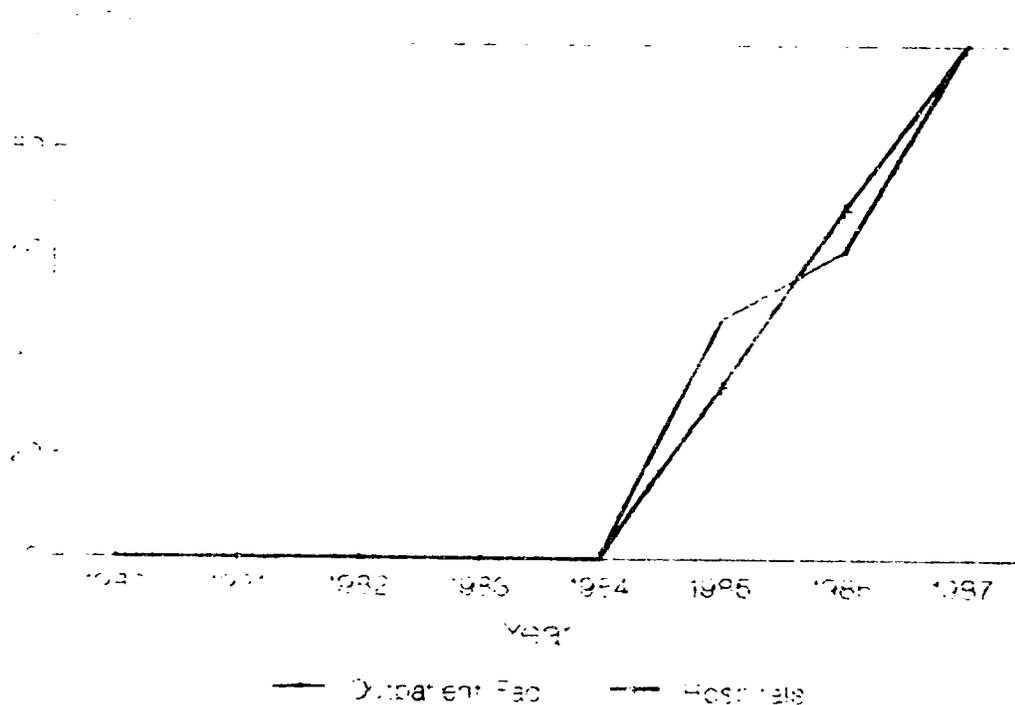
The first objective was to increase the utilization of ORT (oral rehydration therapy) as primary therapy for diarrhea with dehydration. The project target was to establish ORT as the primary treatment for diarrhea with dehydration in 80% of health facilities by the end of 1987.

This target was achieved. ORT is now the treatment of choice for diarrheal diseases and ORS packets are available in 100% of the health facilities throughout Rwanda (see Graph Six, ORT, ORS Use in Health Centers).

Graph Six - ORT, ORS Use in Health Centers

GRAPH SIX

**ORT,ORS Use in Health Centers,Hospitals
RWANDA**



Source: RWANDA 1987 MIS Report

The second objective was to increase utilization of appropriate home prepared ORS to prevent and treat dehydration caused by diarrhea. The target was to have 25% of children with diarrhea receive appropriate home-prepared ORS.

This target could not be evaluated. The November 1985 KAP survey revealed problems related to the preparation of sugar salt solutions (SSS) at home, due to absence of standardized measurements. Thus, activities for achievement of this target were discontinued. However, other possibilities, such as cereal-based gruels, are now being considered. (See section on Activities - Case Management of Diarrheal Diseases)

2. Activities

2.1 National Diarrheal Strategy

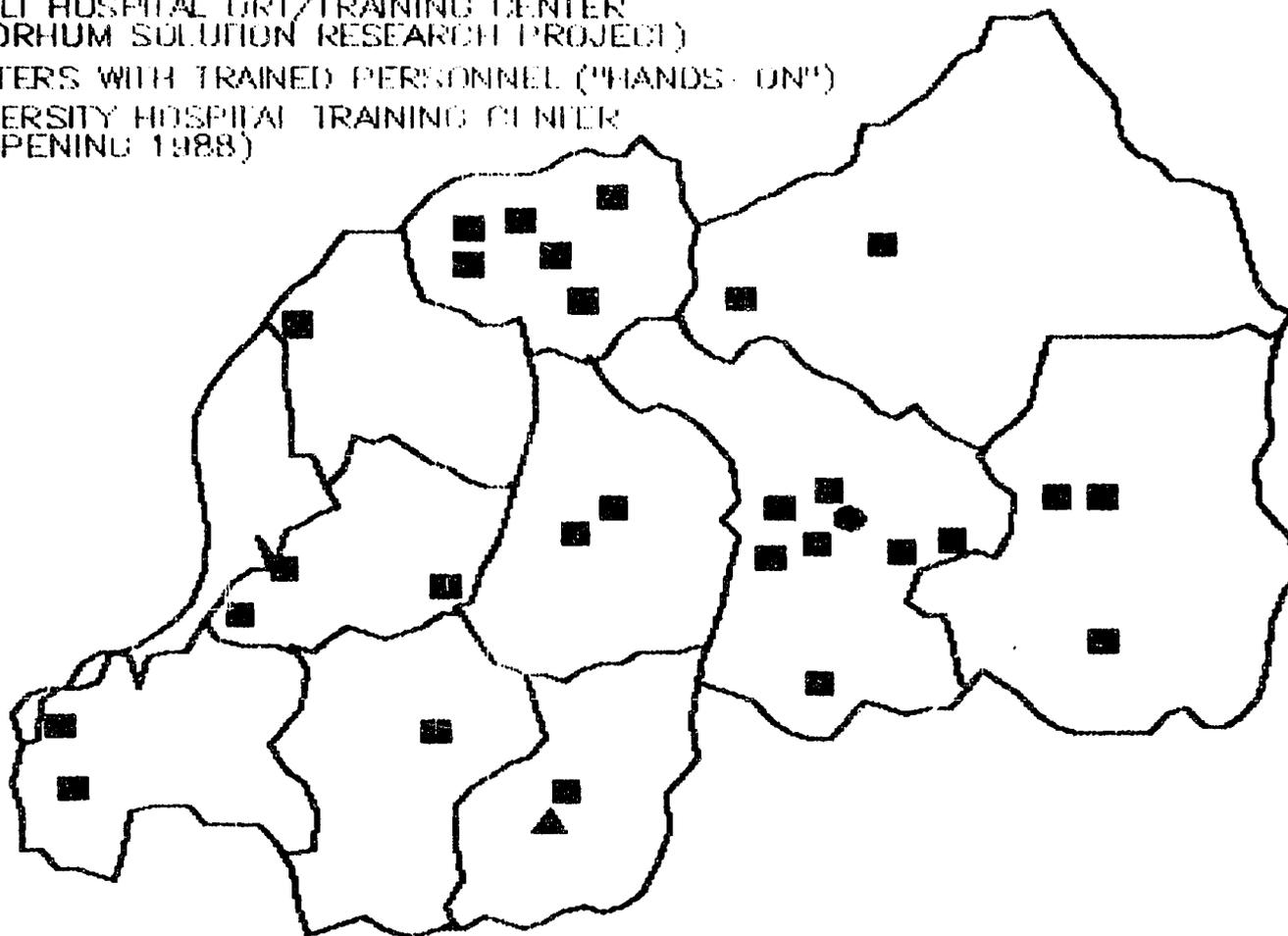
The national strategy has been developed and the national CDD policy has been established. The standard WHO treatment poster has been translated into Kinyarwanda and distributed. The plan of operations for the CDD program is comprehensive and contains strategies for provision of ORS packets, treatment according to degree of dehydration, health education, training, creation of ORT units, community participation, intersectoral collaboration, resources and evaluation.

2.2 ORT Units

An ORT unit which serves as a training and treatment unit has been established in Kigali. Another ORT training center has been set up at Butare at the University Hospital. (See Section on Training) Eighteen health workers have been trained in ORT during two weeks of on-the-job training at the Kigali training unit. At the end of the two week training, the personnel return to their regions and set up their own ORT units. Over 20 ORT units have been opened nationwide (see map - Oral Rehydration Centers). Only mild or moderate dehydration cases are treated in these units (including the Kigali ORT training unit) and all severe dehydration cases are transferred to the nearest hospitals.

ORAL REHYDRATION CENTERS

- KIGALI HOSPITAL ORT/TRAINING CENTER (SORHUM SOLUTION RESEARCH PROJECT)
- CENTERS WITH TRAINED PERSONNEL ("HANDS-ON")
- ▲ UNIVERSITY HOSPITAL TRAINING CENTER (OPENING 1988)



In the course of the evaluation, the team noted that not all ORT units visited had materials (filters, cups, spoons, containers for mixing) to give practical demonstration of ORS packet preparation to mothers. The method of preparation was verbally explained only. There was also the problem of inaccessibility of safe water sources. In addition, there still exists a lack of standardization of measurements for ORS preparation. For example, some HCWs use Martini bottles, some use whiskey bottles and some use Primus (the local beer) bottles. The correct measurement would be to use one bottle of Primus plus one bottle of Coke to prepare ORS solution from a packet which requires one litre of water. To solve this problem, UNICEF has ordered 700,000 ORS packets adapted to the Primus beer bottle(72cl). CCCD and UNICEF have translated the packet instructions in Kinyarwanda and created pictures that instruct correct dilution using the beer bottle. The new packets will greatly simplify and standardize the ORS preparation.

2.3 Case Management of Diarrheal Diseases

The project has been training HC personnel at the national and regional levels using the WHO recommended treatment schedules for diarrheal episodes based on the hydration status of the child at the time of the first clinical examination. The importance of maintaining good nutrition during diarrheal episodes is also emphasized in the training.

In addition, the project has trained HCWs not to use antibiotics and antidiarrheal agents in simple diarrheal cases. From registry reviews, the team noted no prescription of antibiotics for simple diarrheal cases, and all HCWs interviewed said they reserve the use of antibiotics for cases of dysentery confirmed through laboratory examinations. However, the accuracy of laboratory diagnosis is doubtful. Unlike malaria smear preparation, this lab activity is not supervised during supervisory visits. All health facilities visited had laboratory capabilities for microscopic stool examinations.

Regarding pathogenic agents causing diarrhea, a laboratory has been set up by a French team based at the Gisenyi Regional Hospital and bacteriology, virology and parasitology services are available. This laboratory can be used by the CDD program for agent identification. It is noteworthy that the most common bacterial pathogens responsible for diarrhea in children 0-36 months is Campylobacter jejuni and in children over 3 years, Shigella and Salmonella predominate. The most common viral pathogen responsible for diarrhea in children 0-36 months is Rotavirus.

A joint CDC/WHO team visited Rwanda to investigate the possibilities for shigella research, in order to better

understand and control the problem of bacillary dysentery which has been causing high morbidity and mortality for the past several years. At the end of the visit, it was concluded that the dysentery epidemic had abated substantially. The team recommended development of oral rehydration centers, improvement of diarrheal disease surveillance, improvement of water systems and sanitary facilities and development of a laboratory-based nationwide surveillance network for bacillary dysentery using sentinel health centers and a central reference laboratory. These recommendations need to be followed up.

Regarding home-prepared sugar/salt solution advocacy for treatment of diarrhea, this practice has been discouraged. The emphasis is now on the exclusive management of diarrheal episodes with ORS packets. Distribution of two ORS packets to families with under-five children is planned for the future. To promote ORT in the home, two national ORT songs have been produced and a sorghum-based ORS research study is underway at the Kigali Hospital. (Sorghum gruel is found in most homes and is a future home fluid possibility.)

Reviews of outpatient registries for children treated with ORS revealed that not all of the health facilities routinely recorded patient hydration status (including body weight) on arrival and at time of discharge; important information that would permit an assessment of the correctness of ORS dosage administered. There is no standardized diarrheal disease reporting form as yet, but this problem will be solved with the national extension of the new HIS.

2.4 ORS Supplies and Distribution

ORS packets adapted to the 72 cl PRIMUS beer bottle to correct the problem of incorrect ORS preparation has been ordered by UNICEF and will be distributed in the near future. USAID is the other ORS donor. LABOPHAR, the national pharmaceutical factory also produces five litre packets of ORS for use in hospitals. The project regions receive ORS supplies through the project's EPI/ORS network which stocks all ORS packets in the warehouse and distributes them to project regions. Storage of ORS packets at the central warehouse is in a dry shaded room and the cartons are stacked on a wooden platform. At the regional level, they are stored in regional depots which are generally windowless. All health facilities visited had adequate supplies of ORS packets and none of the facilities reported shortages in stocks in the preceding 12 months.

Diarrhea episodes in the project regions can be estimated to be 1,024,200 based on estimates of the number of children 0-5 years of age in Rwanda in 1987, the percentage of diarrheal episodes seen at health centers per year, and access to ORT estimated at 95%.

Reported ORS use throughout the program during last complete year, 1987, was 917,000, so 74% of diarrhea cases were treated with ORT, which indicates adequate utilization for effective case management of diarrheal episodes.

2.5 Other CDD Activities

2.5.1 Supervision

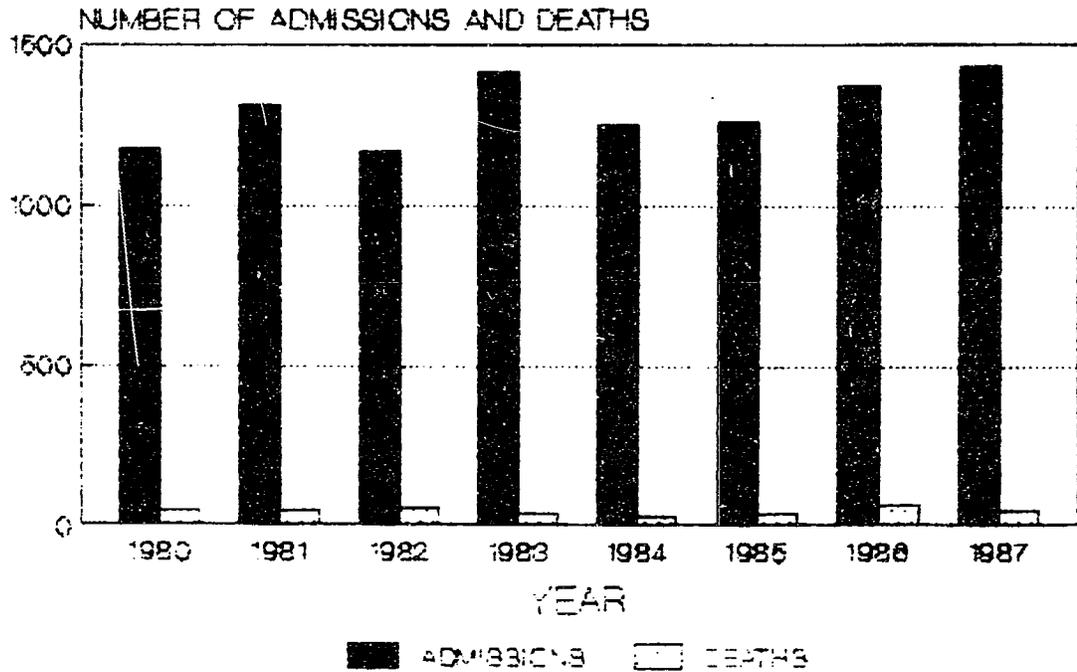
Supervision of the following activities is done routinely: weighing of infants before administering ORS, quality of clinical examination of a diarrheal case, evaluation of the degree of dehydration, health talks, correct dilution of ORS packets, and adequacy of ORS stock.

3. Impact of CDD Interventions

Based on reports from 6 regularly reporting hospitals, there has been no decrease in mortality from diarrheal diseases during 1984-1987 as compared to 1980-1983, and no decrease in the number of diarrheal cases admitted to hospitals for these same periods. (See Graph Seven, "Diarrhea Admissions and Deaths".) In these same hospitals, the case fatality rate for diarrheal diseases was 4% during the years 1980-1983, and remained unchanged during the years 1984-1987. As a cause of hospital admission among children under five, diarrheal diseases ranked second to malaria in 1987. Based on routine outpatient reporting, there was also no decrease in the incidence of diarrheal diseases during the years 1984-1987 when compared to the incidence during the years 1980-1983.

GRAPH SEVEN

**DIARRHEA ADMISSIONS AND DEATHS,
CHILDREN UNDER FIVE, RWANDA, 1980-1987,
RECORD REVIEW AT SIX MAJOR HOSPITALS**



By 1987, however, 100% of fixed health facilities had ORS packets available. Since 95% of Rwanda's population has access to a fixed health facility (lives within 8 kilometers of a fixed health facility), approximately 95% of Rwandan children under the age of 5 years have access to ORS. During the period January to November 1987, based on a special recording system in 5 regions, 99% of a total of 40,143 children with diarrheal disease and treated as outpatients were given ORS as the first choice of treatment. Based on a practices survey conducted in 1987 in two regions, 69% of mothers of 928 children with an episode of diarrhea in the preceding two weeks had used some form of oral rehydration therapy in the home, usually a dilute porridge made of sorghum.

Conclusion: ORT is practiced throughout the country, both in the home and in fixed health facilities. ORS packets are accessible to 95% of the population, and other ORT services are in place. To the end of 1987, no impact on diarrheal diseases admissions to the hospital nor on hospital mortality has been detected. The failure to detect an impact may be due to improper use of ORS by health staff just gaining experience in ORT. During supervisory visits, it is important to assess what is being done, and not just what the health personnel know should be done. It is important to determine that the correct quantity of ORS has been administered and that there has been correct monitoring of rehydration prior to discharge. On the other hand, the failure to detect an impact may be due to the fact that the health information system is not sensitive enough to detect the slight changes in hospital admissions and deaths which occur early in a CDD program. Further support to the government both in training in ORT and in monitoring the quality of ORS use are required, in addition to continued work on refining the surveillance of diarrheal diseases so that reliable reporting is assured.

UNICEF will be providing significant project support for ORT after the end of the CCCD project. It will assist in supplying ORS, training, and social mobilization. While continuing A.I.D. support for ORT would be welcome, we conclude that this support should come as part of the supervision, HIS and training activities that are suggested below. There is, however, a specific role for technical assistance from CDC or independent contractors to assist in the development of a refined surveillance system to monitor the impact of CDD interventions.

RECOMMENDATIONS:

MOHSA and UNICEF continue the current ORT program with special emphasis on providing all health facilities with necessary materials for demonstration of ORS preparation. They should also intensify supervision for correct quantity of ORS administered and for correct monitoring of weight

gained.

(Responsible Agencies: Division of Epidemiology, UNICEF)

Technical assistance should be provided to refine surveillance data on diarrheal diseases and deaths in order to provide data required to monitor CDD interventions impact.

(Responsible Agencies: USAID/Kigali, A.I.D./Washington
Date: September 1988)

C. MALARIA CONTROL

1. Progress toward Objectives

Unlike the EPI and ORT interventions there were no specific objectives and targets for malaria control explicitly stated in the Project Agreement. However, the objectives implied in the activities that were to be sponsored by CCCD contributions in malaria aimed to: 1) develop a national malaria control plan with guidelines for implementation and evaluation, 2) assure prompt and effective treatment to high-risk groups with malaria (e.g. children less than 5 years of age and pregnant women), 3) control malarial infection in pregnant women by prophylactic drug use, principally to reduce the risk of low birth weight infants, 4) maintain surveillance on malaria treatment by monitoring clinical and parasitologic response to therapy, and 5) create a national malaria reference laboratory. With the exception of the last objective, the project effectively addressed these areas as noted below.

2. Activities

2.1 National Malaria Strategy

A national malaria strategy was developed and a national treatment policy established. A malaria treatment poster was distributed nationwide to reinforce the new policy. (See map for CCCD project regions with malaria control activities and in-vivo studies.) Implementation of the national treatment policy is also being done through intensive supervision.

The strategy plan is comprehensive and includes presumptive treatment schedules for fever, malaria treatment schedules (by weight, by age), chemoprophylaxis of pregnant women, logistics, distribution of anti-malarial medicines, vector control activities, health education, community participation, surveillance, multisectorial collaboration, evaluation and feedback.

2.2 Malaria Treatment Practices

To assure prompt and effective treatment to high risk groups with malaria, the following malaria treatment policy is being used.

First line presumptive treatment (without malaria smear): 25 mg/kg chloroquine or amodiaquine over three days

Second line treatment for patients with continued fever after 72 hours (with malaria smear positive): Fansidar single dose (1 tablet/20 kg)

Treatment for persistent fever after 72 hours (with smear positive): Oral quinine 20 mg/kg/day in 3 divided doses for 7 days

Treatment for pernicious malaria for conscious patient:
Oral quinine

Treatment for unconscious patient:

Comatose: IV quinine

Convulsions without coma: IV quinine followed by oral quinine

In our field visits, the team found that all health facilities had received the malaria treatment poster, and that the national malaria policy was being followed in the majority of health facilities. Based on 1987 data from outpatient reporting forms, of children under 5 with fever, 17% were seen at health centers and received presumptive malaria treatment in Cyangugu region, 5% were seen and treated in Gikongoro region, 32% in Kibungo, 18% in Gitarama, 5% in Byumba, and 6% in Kigali.

However, problems still exist. In some health centers visited, the standard protocol was not being followed. The theoretical knowledge exists and all workers were able to interpret the chart, but the recommended practice on the chart was not being followed.

There are several reasons for the failure of the national malaria policy to be fully implemented. The first problem observed in some centers is the lack of knowledge among personnel about the efficacy of the different malaria medications: chloroquine, amodiaquine, and Fansidar. Health workers themselves are not convinced about the efficacy of chloroquine or amodiaquine as first line treatment drugs. One means of addressing this problem

would be to disseminate the results of in-vivo studies, which

demonstrate the effectiveness of the treatment protocol.

The second problem is improper self-medication with chloroquine at home before coming to the health center with persistent fever. At the health center, the health workers opted to begin therapy for such cases with quinine injection. The health workers skip the sequence established in the national protocol because Fansidar is not available at most health centers. Quinimax (injectable quinine), however, is available at the local pharmacies and is also the preferred choice of the population. In one health center visited in Kigali Region, children who came in with fever and diarrhea were routinely treated with intramuscular Quinimax. Also, none of the health facilities visited had oral quinine tablets, although it is the recommended treatment for post-Fansidar persistent fever with a positive malaria smear. The root of this second problem is unavailability of Fansidar at the health centers.

All health facilities visited had laboratories equipped to perform malaria smears, and supervision now includes laboratory checks on microscopic diagnosis. (All health facilities have been instructed to keep the last five slides, which are checked during supervisory visits.) Still, health center personnel at facilities visited by the evaluation team expressed their desire for training in correct laboratory techniques and interpretation of results.

Reviews of health facility registries showed records of presumptive malaria cases, the treatments given, and thick smear results for each patient. The proportion of presumptive malaria cases in under-fives actually treated with chloroquine, quinine and other antimalarials (Fansidar, amodiaquine) can be seen in Table Three, "Treatment of malaria cases in under-fives, 1986-1987". A comparison of 1986 and 1987 cases shows dramatic increases in chloroquine utilization, which also indicates dramatic increases in malaria cases.

TABLE THREE

Treatment of Malaria Cases in Under-fives Rwanda 1986-1987

Region	Total No. of cases		Cases treated with Chloroquine		Cases treated with Quinine		Cases treated with other entimalauls	
	1986	1987	1986	1987	1986	1987	1986	1987
Cyangugu	8681	14775	(90%) 7874	(93%) 13674	(6%) 494	(2%) 266	(4%) 339	(5%) 364
Gikongoro	3413	4653	(96%) 3265	(95%) 4457	(4%) 134	(4%) 355	(0.4%) 14	(1%) 85
Kibungo	23503	28845	(96%) 22471	(91%) 26313	(4%) 995	(6%) 1593	(0.5%) 132	(3%) 883
Gitarama	5229	18024	(82%) 4306	(83%) 14806	(6%) 332	(9%) 1609	(2%) 111	(5%) 900

Source: CCCD 1987 Activity Report

2.3 Chemoprophylaxis in pregnant women

The CCCD project recommends chemoprophylaxis in pregnant women, using 300 mg of chloroquine weekly. The standard procedure is to have pregnant women come for prenatal visits once a month, at which time they are given twelve 100mg chloroquine tablets to be taken over the subsequent four weeks. A prophylactic dose of 300 mg per week is given until 2 months post-delivery. This recommendation has been shown to be difficult to implement and may not be as effective as previously thought. Follow-up studies on the actual compliance rate are not available, so the level of compliance is unknown. It is not known whether the chloroquine is taken regularly once a week or whether the dose taken is correct. In addition, probably because of the immunosuppression during pregnancy, malaria infections in women in their first and second pregnancies (those who are most affected by placental malaria infections) respond less well to chloroquine than those in non-pregnant women or in women in later pregnancies. Thus malaria chemoprophylaxis of women has been abandoned by MOHSA except in four experimental regions (Cyangugu, Gikongoro, Gitarama, and Kibungo). It is important that MOHSA do follow-up studies on the efficacy of chloroquine prophylaxis during pregnancy in terms of prevention of low birth weight (a major risk factor for increased infant mortality) in these experimental regions.

2.4 Chloroquine Supplies and Distribution

Chloroquine supplies for CCCD have been available through USAID and UNICEF. The GOR has not contributed chloroquine specifically to CCCD. It does, however, distribute chloroquine to all regions through OPHAR (Rwandan Pharmaceutical Office), which either imports it or purchases it from the national pharmaceutical laboratory (LABOPHAR) in Butare. USAID looked into the possibility of supporting local chloroquine production by this laboratory. When evaluated by the US Food and Drug Administration, it was found that the same machinery was used for the production of chloroquine and antibiotics. This problem still exists, thus USAID has been unable to support the local production.

Project-procured chloroquine is intended for children under five and for chemoprophylaxis of pregnant women. Therefore, the CCCD-distributed chloroquine is administered only to the target population, and the OPHAR-distributed chloroquine is administered to the remainder of the population. Thus, health facilities receive two supplies of chloroquine for two different populations. The 1986 midterm evaluation recommended that the chloroquine supply system be uniform throughout, but this situation still continues. This has created a complicated supply

management system at the level of the health facilities.

During the course of the evaluation, inventory records of chloroquine supplies were reviewed at the health facilities visited. None of the health facilities visited reported shortages of chloroquine. Antimalarials other than chloroquine, however, were not available in any of the health facilities visited. Nevertheless, the lack of free second and third line drugs has not inhibited the use of non-chloroquine antimalarials by health care personnel. When the drug is not available at the health center, the patient is given a prescription to purchase the drug (most commonly injectable quinine) at a local pharmacy.

Recently USAID and the GOR procured Fansidar for over \$10,000 (equalling 38,000 tablets of 525 mg) to use as second-line treatment. This drug will soon be distributed to health centers and may result in a decline in the use of quinine.

2.5 In-Vivo Studies

In November 1987, a CCCD team carried out a study on the sensitivity of P. falciparum to chloroquine, amodiaquine and Fansidar. A comparison of 1986 results to 1987 results showed that the antimalarial sensitivity remained relatively stable. The 1986 study concentrated on children under 5, and the 1987 study included all patients presenting with fever. In response to this study, the malaria treatment policy was developed, with chloroquine or amodiaquine as first-line treatment, and Fansidar as second-line treatment.

Two long-term sentinel laboratory/health facilities have been established in the Kibungo and Gitarama regions to monitor chloroquine resistance through continued in-vivo studies, and 18 health workers have been trained in-vivo techniques.

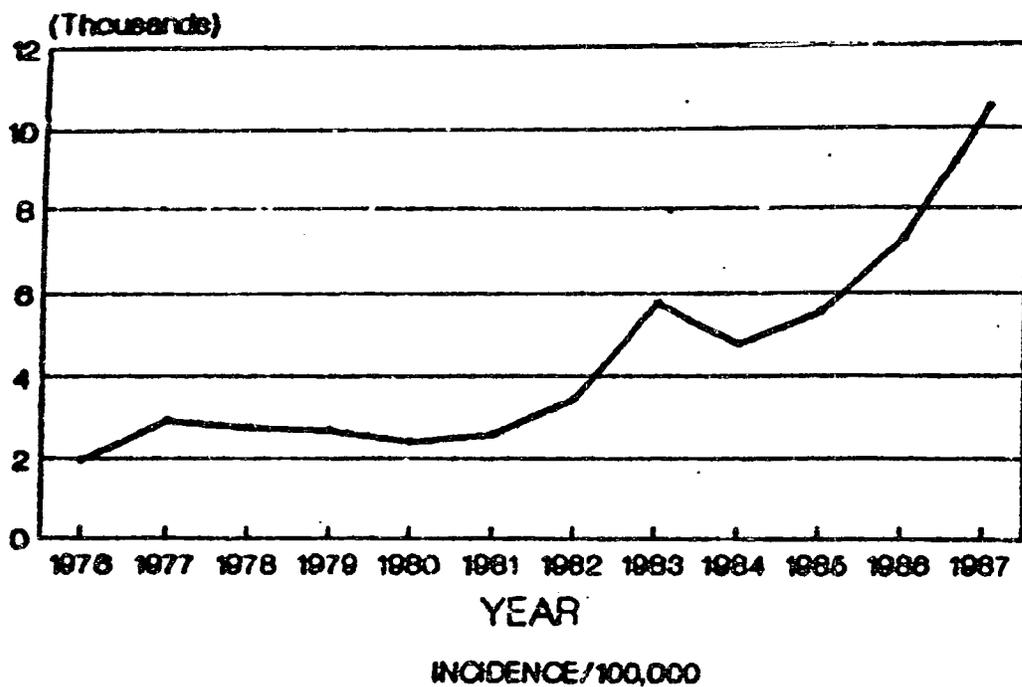
2.6 Other Activities

2.6.1 Malaria Outbreak Investigation

At the request of MOHSA, a CDC Malaria Branch specialist visited Rwanda to review the epidemiological data in six regions. This technical assistance was to assess the severity of the increasing malaria problem. Based on data collected in the investigation, it was noted that malaria morbidity and mortality has dramatically increased in Rwanda. Since 1984, reported incidence has increased by 96%, and in one calendar year, 1986-87, incidence has increased by 28%. (See Graph Eight, "Malaria Incidence, Rwanda, 1976-1987".)

Graph Eight

MALARIA INCIDENCE, RWANDA 1976-1987



2.6.2 Supervision

The supervisory system established at the central level for CCCD has included routine checking of malaria treatment at the health centers. Supervisors check for correct weighing of children to determine treatment dose; adherence to treatment policy; correct thick smear preparation and interpretation; and determination of adequacy of chloroquine stock. Since there is still a lack of clear adherence to the malaria protocol, supervision of malaria practices should be given priority attention and more efforts in on-the-job training for malaria should be part of supervisory visits by both central and regional supervisors. (see section of supervision for description of supervisory process)

2.6.3 Training

A malaria component was included in the general CCCD training activities. As will be discussed in the training section of this report, the training courses were too short for sufficient development of skills and knowledge. (See section on training)

The project trained four central level officials in a malaria course in Kinshasa. These officials participated in vivo studies and as supervisors are providing continuing education to laboratory workers and other health care providers in health centers.

2.6.4 Health Education

There has not been a specific health education campaign for malaria, although the health education talks given each morning at health centers often do include discussions of malaria. (See section on health education)

2.6.5 Malaria Reference Laboratory

The CCCD project has supplied microscopes and other equipment for the establishment of a malaria reference laboratory. The laboratory will be used for in vivo surveillance and to train health workers in malaria laboratory techniques. A poor translation of the Project Agreement led the government to believe that the project would build the physical facilities to house the laboratory; however, there were no project funds for such an undertaking. A location in the Kigali Hospital was identified, but the required approvals have not been obtained to date. The equipment is now stored in the CCCD office and is used on occasion for in vivo studies in the regions.

3. Impact of Malaria Control

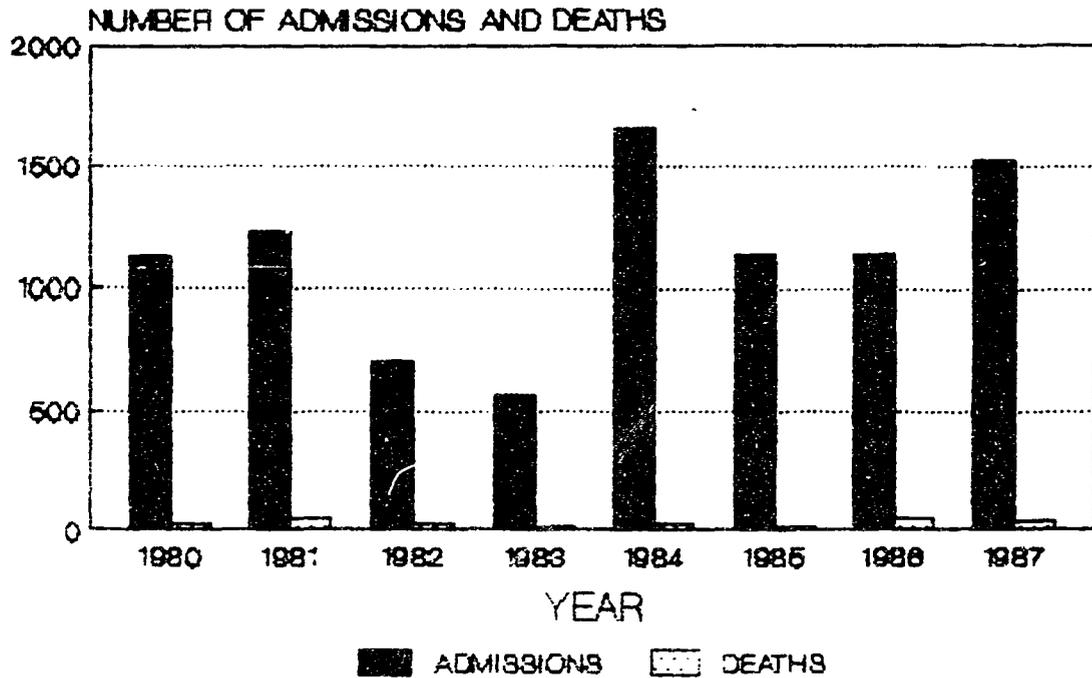
For reasons beyond the control of the CCCD project, malaria incidence has been growing at an alarming rate over the life of the project. It is still unclear what is causing the malaria crisis. Some of the CCCD studies have helped identify aspects of the problem, and the surveillance system put in place has been monitoring the increase in incidence. People trained by the project have been effective in developing skills at health center level in laboratory identification of parasites.

Chloroquine-resistant P. falciparum was first detected in Rwanda in 1986, and numerous studies of in-vivo response to antimalarial drugs have been conducted since then. Results of this testing confirm that chloroquine retains its clinical efficacy in over 90% of children under five with P. falciparum infection. The results have also served as a basis for selecting alternative antimalarials for use in those infections which are clinically resistant to chloroquine.

Based on record reviews in 5 major hospitals in Rwanda, there has been a 26% increase in mortality due to malaria during the years 1984-1987, as compared to the years 1980-1983, and a 57% increase in the number of hospital admissions for malaria. (See Graph Nine, Malaria Admissions and Deaths, Children under Five, 1980-87.) In these same hospitals, the case fatality rate for malaria was 3% during the years 1980-83, and remained unchanged during the years 1984-87. As a cause of hospital admissions among children under five, malaria ranked first in 1987.

GRAPH NINE

**MALARIA ADMISSIONS AND DEATHS,
CHILDREN UNDER FIVE, RWANDA 1980-1987,
RECORD REVIEW AT FIVE MAJOR HOSPITALS**

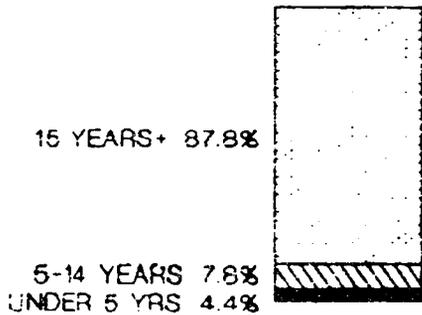


Based on routine outpatient reporting, there was a 98% increase in the incidence of clinical malaria during the years 1984-87 when compared to the incidence during the years 1980-83. 100% of health facilities had been provided with posters outlining the correct presumptive treatment for malaria by 1987, and during the period January to November 1987.

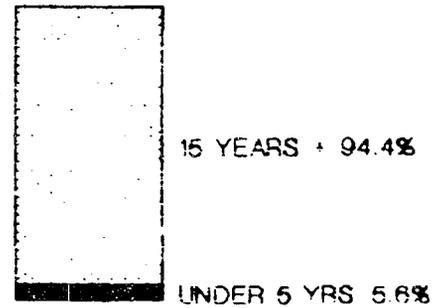
Starting in 1986, malaria reports were received from highlands regions which had not previously reported malaria. The age group of individuals with malaria in these regions is not typical of endemic malaria; in the first quarter over 70% of cases were reported as occurring in adults over the age of 15 years, suggesting either that non-immune adults travelling outside of the region are developing malaria after their return (imported malaria from endemic regions), or an unusual pattern of transmission which selects adults over children. However, as the increase became more dramatic in the third quarter of 1987 throughout the country, the percentage of cases occurring in the under-five population increased from 4% in the first quarter to 32% in the third quarter, suggesting possible transmission in the highlands of the country. (See Graph Ten, Hospitalized Malaria by Age Breakdowns in the High Elevations, 1987.)

An increase in cerebral malaria in this region, again among adults over the age of 15 years, has also been observed. Transfusions for anemia caused by malaria have also increased dramatically. The percentage of all transfusions given for anemia caused by malaria in endemic regions is around 5-8%, whereas in the high elevations, where there is little immunity, 50% of all transfusions given were for anemia caused by malaria. Malaria in this region required continued monitoring to better determine the epidemiology of the disease and to determine whether it becomes endemic.

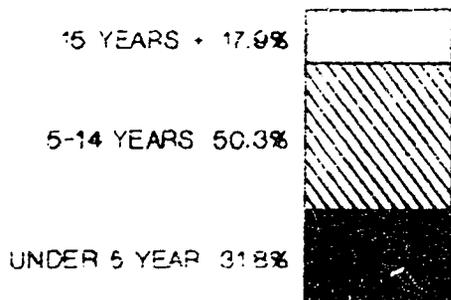
HOSPITALIZED MALARIA BY AGE BREAKDOWN IN THE HIGH ELEVATIONS, RWANDA 1987



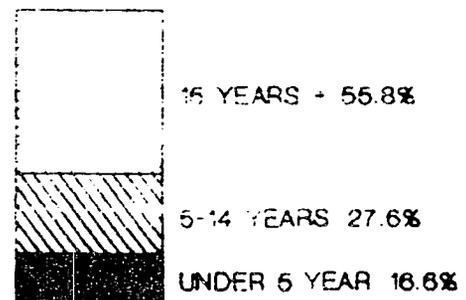
I QUARTER



II QUARTER



III QUARTER



IV QUARTER

(Source Malatre, et al. NYUNDO, GISENYI)

Conclusions: There is an increase in malaria incidence and hospital admissions, and a corresponding increase in malaria-associated mortality in all age groups throughout the country. This increase coincides with, though is not necessarily due to, the development of chloroquine resistance which occurred at the same time. In-vivo testing has determined which antimalarials are effective in Rwanda, and health facilities have been advised of the current best treatment for malaria. Malaria appears to have recently been introduced to highland regions of the country which have not previously reported malaria.

Future Activities and Recommendations

The priority area of malaria is in the most need of external support and, unlike the areas of EPI and ORT, is currently without alternative sources of external funding.

To cope with the immediate crisis, emergency funding is necessary. The CCCD project provided a significant proportion of the first line treatment chloroquine. With the end of this project there is currently no alternative source. As noted above, one of the reasons the official malaria treatment protocol is not followed is the lack of second line drugs and the unavailability of oral quinine tablets. Efforts should be made to assure that these drugs are available in all health centers in the country. All donors should consider the magnitude of this problem and find immediate means of providing supplies of chloroquine and second line treatments at least to maintain the current level of supplies necessary for the malaria protocol. In addition, campaigns to intensify personal protection measure (such as bed nets) and vector control activities should be explored.

In addition to emergency funding, a major effort to determine the causes of the current alarming increase in incidence through developing indigenous capacity to study the epidemiology and vector biology of the disease should be supported by short term technical assistance from donors. These efforts should be designed to develop appropriate and cost-effective long-term policy.

MOHSA should use the equipment provided by CCCD project to establish a national malaria reference laboratory. Short term technical assistance could be provided to assist in setting up the laboratory.

Supervision should give priority to adherence to the national treatment policy and assure correct thick smear preparations and interpretation of results. (see recommendations for supervision)

Training and health education efforts should give priority to

malaria treatment and prevention. Regional level training courses for field laboratory technicians should be designed to improve laboratory techniques and result interpretations. (see recommendations for training and health education)

The current efforts to monitor resistance with long-term in-vivo studies and disseminate the results to local level health care delivery personnel promptly should be maintained and improved. These studies should be supplemented with studies to assess efficacy of chloroquine chemoprophylaxis in pregnant women as well as to identify those pregnancies at greatest risk, follow-up studies to determine compliance with treatment guidelines and their impact in the regions experimenting with malaria chemoprophylaxis, and entomological studies to determine seasonal fluctuation of mosquito breeding and transmission patterns, and to better define the malaria situation in the highlands. All these research areas could be supported by short term technical assistance from CDC or other contractors through A.I.D. centrally funded projects.

Since other donors are already heavily committed to continuing other aspects of the project activities, A.I.D. support for malaria efforts (short-term consultancies for malaria studies and emergency relief for commodities) would be appropriate.

RECOMMENDATIONS:

Emergency funding for treatment and prevention should be sought from all foreign sources.

A major effort to determine the causes of the current alarming rise in malaria incidence should be initiated by MOHSA with technical assistance from donors. These studies should be designed to strengthen Rwandan capacities in epidemiology and entomology and to develop long-term approach to malaria policy. MOHSA should find location for malaria reference laboratory using CCD equipment in order to reinforce surveillance system.

(Responsible Agencies: Division of Epidemiology, all donors, including A.I.D.. Date: establish malaria laboratory, initiate studies and emergency funding immediately)

D. HEALTH INFORMATION SYSTEMS

1. Progress toward Objectives

The HIS objective was to improve the national health information system for more effective management and evaluation of the CCD Project. The target of this objective was to establish by the end of 1987, the baseline morbidity and mortality data relevant to CCD.

This target was achieved. Using the WHO methodology and surveillance data and data from the CCCD National Annual Report, baseline data relevant to CCCD was established. The established 1980-1983 baseline data was used in this evaluation to determine program impact during the years 1984-1987 when the CCCD project was implemented.

2. Activities

The national HIS in Rwanda has consisted of weekly and monthly outpatient reports of communicable diseases, inpatient reports of hospitalizations and deaths from communicable diseases and noncommunicable conditions, and reporting of vaccine use through the Expanded Program for Immunization. The main problems encountered with the current national health system was that each health facility had to prepare approximately 115 reports each year to different services in the MOHSA. The quality of these reports was satisfactory, with over 80% of reports received at the MOHSA, where data is analyzed on an annual basis. Delays occur at the central level in data analysis and interpretation. There are four individuals assigned to the Statistical Unit at the central level, but no national coordinator/manager is currently in charge of coordination and supervision. The Chief of Statistics is currently in a training program in Paris and should be given full authority over the HIS coordination and supervision when she returns. Work has been largely done by the regional health team in conjunction with a CCCD staff member. The average delay for transmission of the weekly epidemiology report is 8 weeks. This delay is not compatible with a weekly alert system with the purpose to control epidemics. In addition, no standard definition of disease or activity exists in the system. Information on the age distribution of cases is not routinely collected either.

A second information system for CCCD supervision has been developed. This system utilizes the supervisory check-list for evaluating and comparing performance of each health center that has been supervised. The information system provides feed back to the Regional Medical Officer. (see section on supervision)

In 1987, a modified HIS was developed by a joint UNICEF and CCCD team. The MOHSA began a pilot field trial of the modified system in one health region (Gitarama). The modified system consists of one monthly report per health facility, which includes epidemiology and activity reporting. The revised outpatient and inpatient reporting forms collect more specific information including age groups. For example, for malaria, the new HIS forms will monitor slide-confirmed malaria and cerebral malaria morbidity and mortality data by age group in hospitalized cases, and in outpatient forms data on confirmed malaria and presumptive malaria is available. Revised forms were also developed for MCH

services and immunization services.

A weekly "alert system" for seven diseases--cholera, cerebrospinal meningitis, acute poliomyelitis, measles, salmonellosis, shigellosis and epidemic typhus--has also been instituted, which places more responsibility at the regional level and allows more time for MOHSA to act accordingly. At the central level, a new and more rapid computerized system has been setup to produce reports and monthly feedback bulletins to each health center. These feed back bulletins have been well received by health personnel at all levels. Two computers have been installed--one at the statistical unit and one at the Epidemiology Direction. Supervision was intensified to encourage proper reporting. If the revised reporting forms are considered more useful than those of the national HIS and their use is considered feasible in other regions, the system will be expanded on a national basis.

The evaluation team visited the Gitarama Region to discuss the revised system with the regional health personnel. In particular, the team was interested in learning: whether the new forms were considered useful at the facility and regional level, whether completing the forms in the health facility was an overburden, whether the system provided regular useful feedback. It was found that overall, the regional team was very much in favor of continuing the system, and to expand it to other regions. The regional team did not feel that the new monthly report forms are a burden to complete. Indeed, since this form replaced several different reporting forms it actually reduced the workload for reporting. Furthermore, the regional team had input into the format of the reporting forms which have been modified based on their suggestions. One drawback, however, appears to be that data is not analyzed and used as much as it should be at the regional level, a problem which can be easily remedied by training of regional personnel in basic epidemiology, monitoring, evaluation methodologies. Concerning that, a reference and training manual has already been drafted.

In looking at the revised outpatient reporting forms, it was noted that there still appears to be a problem in obtaining the age specific information about diarrhea and malaria necessary to monitor morbidity impact through CCCD, though EPI disease age groups are collected on a supplemental form. In discussing the absence of age specific information about diarrhea and malaria in the new forms, it was pointed out that such information could be collected from one or two sentinel sites but that collecting it from all health facilities was too cumbersome for the health center staff. Inpatient forms, however, collect the information needed by age group and should permit continued monitoring of hospital admission rates and mortality from CCCD diseases.

The pilot HIS in Gitarama has now been functional for 9 months.

Two evaluations have already been done, but more evaluations are necessary before national extension can be initiated.

The health information system is currently in three parts: 1) the national CCD management information system which collects coverage and impact data, 2) the supervision information system, which provides status data on health center performance to the regional medical officers, and 3) the pilot HIS project which is programmed to be expanded to the national level over the next year. Each of these separate HIS activities needs additional technical assistance in order to be integrated into a fully functioning national HIS. UNICEF and the World Bank will fund portions of this activity. A.I.D. could complement this support and provide continuity with relatively small investments of short-term consultancies.

RECOMMENDATION:

MOHSA and other donors, including A.I.D., continue efforts to establish a fully integrated and national level HIS which incorporates the CCD management information system, the supervision information system and the pilot province project.

The Chief of Statistics be assigned to supervise and coordinate HIS activities at the central level before further extension of the new HIS.

Further technical and financial assistance will be necessary to assure training in (basic epidemiology, data analysis, interpretation, monitoring, evaluation) and development of training materials required for national extension of the HIS.

(Responsible Agencies: Statistics Unit, Division of Epidemiology, other donors, including A.I.D. Date: on going)

E. OPERATIONS RESEARCH

The formal Operations Research component of this project failed to achieve its goals of five operations research projects of under \$10,000 each. No operations research project received funding from the \$50,000 set aside in the Bilateral Fund for this purpose. One operations research project (on measles vaccination) was funded by regional funds approved according to the initial CDC procedures which required review of the projects by a CDC regional epidemiologist. The policy of CDC review then changed, requiring the creation of a National Review Committee (including three officials of the MOHSA in 1986. This committee, with the assistance of Dr. Francois Dabis, a former CDC

epidemiologist, considered four major research proposals and approved two with minor revisions. CDC/Atlanta also approved (a requirement of the grant) and A.I.D. approved the content of the budgets submitted. However, with the end of project fast approaching, the funds were not approved in time for disbursement during the life of the project. USAID/Kigali has requested additional funding from A.I.D./Washington, however, at the time of this evaluation, no funding had been obtained.

This process was one of considerable frustration for all involved. It would be important for A.I.D. to assure alternative funding mechanisms for supporting the two projects which made it through all the hurdles. The skills and preparation and motivation of the officials and researchers involved seem to be quite high and should be encouraged.

USAID might also consider direct grants for operations research at the University at Bitare in order to promote University's research capacities. CDC/Atlanta might be able to provide technical assistance in the design of such projects.

RECOMMENDATION:

A.I.D. seek alternative sources for funding the two operations research projects that were formally approved by the review process established by CCCD.

Responsible Agencies: USAID/Kigali, A.I.D./Washington.
Action Date: June 1988.

The projects that have been considered for operations research have taken too narrow a definition of the scope of topics that would be useful for project implementation. MOHSA should consider seeking funding for operations research projects in supervision, training and health education areas. It would be useful to invite operations experts with experience in these areas to present a seminar which describes successful operations research projects as examples for Rwandan officials and university researchers to consider for their own research.

There are a variety of sources in A.I.D. for support for operations research activities, including PRICOR, which has considerable experience in operations research for supervision, training and other support areas.

RECOMMENDATION:

Additional funding be sought to continue the activities of the National Operations Research Committee for CCCD. This committee should consider additional topics in supervision, training and health education and promote the development of proposals in these areas.

(Responsible Agencies: National Operations Research
Committee, all donors. Date: December 1988)

IV. Supervision

One of the major achievements of this project since the mid-term evaluation has been an innovative development of a supervisory system which utilizes a carefully designed protocol and checklist for the central level supervisors. The four central level supervisors and the T.O. have been using this checklist supervision system to promote and monitor progress in all health centers in the project areas. For the seven provinces that were in the project over one year, health centers have received at least two visits, allowing demonstration of progress in provision of services over time. The three provinces in the final phase of the project, however, were not covered by the national level supervisors.

The national supervisors were trained in supervisory techniques and developed the check list with the assistance of the T.O., using a modification of WHO supervisory guidelines. The national supervisors visit two to five health centers a day when they make a regional supervisory visit, spending around one hour in each center -- depending on the necessary travel time. They review practices of EPI, OKT, malaria and the information system, assigning a positive or negative (1 or 0) value to each of 30 check-list items on a single form. They evaluate these items through observation, inspection, review of registers and interviews with the health center staff. At the end of their review, they discuss their findings with the health center staff. The check-list is used later to enter data in the supervisory information system and a report is prepared evaluating the performance of all health centers visited in a region. This report is then sent to the Regional Medical Officer, with charts comparing the performance of all centers and identifying problem areas.

The national level supervisors are usually accompanied in each visit by the province's regional supervisor and they work together to check the central activities of EPI, CDD, malaria, and HIS which are on the checklist. In this process, the national supervisors provide training to the regional supervisors in effective means of supervision. Regional supervisors and in many cases, their Regional Medical Officer perform routine monthly cycles of supervision and can follow up on the national level supervisory's feedback recommendations.

In those regions where the national supervisors have been able to visit health centers more than once, their numerical checklist allows evaluation of a health center's progress in improving practices. The system has not yet developed a reporting system

which would assign a total grade to each health center as a motivating incentive for improvements.

As noted above in each component section, the impact of CCCD project is likely to be in part due to the improvements in supervision that this new system has achieved. This monitoring has identified weaknesses in provider practices which the regional health officials appear to have attempted to address through on-the-job training, and correcting deficiencies in logistics and supply.

Not to take anything away from the achievements and effectiveness of this innovative and important system, it is important to note that the system is still in need of considerable improvement and expansion.

It is not a replacement for basic training or continuing education. Except for the few cases where supervisors can spend a whole morning or whole day in a health center it is unlikely that sufficient time is available for two central aspects of supervision: 1) careful observation to determine if the staff is actually doing what they say they do, or what is expected; and 2) careful, hands-on, on-the-job training with discussion of why practices must be changed. The program allows central level supervisors to visit a health center often for less than one hour, sufficient time to identify the most apparent problems and to discuss means of correcting them, but insufficient for observing key activities (vaccination practices, ORT demonstrations, etc) unless, by chance the supervision takes place when that activity is occurring. Then, of course, there is little time for effective discussion of why the observed practice is wrong and what is the best approach, and then observation of whether the health worker will actually revise the practice.

The central level supervisors, of course, could not visit all health facilities in the country, if they spend sufficient time in each to provide observation of practices and lengthy on-the-job training. It would be useful if the system were extended to the ten regional supervisors, so that they can utilize the basic checklist in their routine monthly visits. This regionalization of the supervisory system to the Regional Supervisors was one of the proposals that the CCCD office (T.O. and counterparts) prepared for the project renewal.

Complicating the regionalization of the national system of supervision is the variety of different regional models for supervision. Some provinces have divided their regions into separate zones which are supervised by physicians from the hospitals. The Regional Medical Officer may be responsible for his own separate zone, or may supervise the whole region along with the Regional Supervisor who is, like the national

supervisors, a medical assistant. Byumba, for instance, has five zones, four of which are supervised by hospital physicians and one by the Regional Medical Officer and Regional Supervisor. The time spent in each health post varies with the tasks, physicians often doing consultations as well as supervision.

One of the most impressive regional supervisory system was established in Gitarama province. The Regional Medical Officer and his full staff all visit one center for a full day. They participate in all tasks of the center, observing and offering on-the-job training throughout the day. Then they hold a seminar on their evaluation of the health center discussing problems and ways to correct them. A Supervision Notebook is filled out with the conclusions of the evaluation and is kept in the health center for reference and review on subsequent supervision visits. At the end of the year, the notebooks are collected for a contest for the best health center of the year.

This intensive model of regional supervision is laudable, however, it imposes quite a time burden on the regional staff, which during the first two years of the system visited each of 30 health centers once a trimester. During the last year this pace has not been continued because of other duties.

The variety of supervision systems at the regional level makes integration of the national and regional supervisory systems difficult. It would be useful for the regional officers and the national level supervisors to hold a seminar to evaluate the different regional models and begin designing a uniform model for integrating national and regional supervisory systems. Operations research projects comparing several existing regional systems might provide a basis for developing the new system.

A.I.D. could provide support for a systems analysis and operations research to evaluate supervision systems through centrally funded PRICOR project, which has current operations research projects in supervision.

RECOMMENDATIONS:

MOHSA should convene a national seminar on supervision with all regional health officials and central level officials to discuss the different regional supervisory systems and the integration of regional and national level systems. This seminar should develop a plan for an operations research project to evaluate the different regional systems as preparation for the design of a uniform and integrated national and regional supervisory system.

Responsible Agencies: MOHSA, CCCD Office, Regional Medical Officers and Supervisors. Action dates: Seminar, October 1988, Operations Research Project, February 1989; National

Plan, May 1989.

USAID seek centrally funded sources for short-term technical assistance for operations research for the development of the regionalized supervision plan and for training in supervision skills.

Responsible Agencies: USAID/Kigali, A.I.D./Washington.
Action dates: same as above.

The national CCCD supervision system also provides an opportunity for integrating A.I.D.'s proposed Family Planning project into the MOHSA. Currently family planning supervision is carried out by a separate system at both the national and regional levels. It might be useful to consider having ONAPO supervisors join the CCCD supervisory teams and develop family planning criteria to be added to the checklist. In the development of a uniform and integrated national and regional supervisory system it would be useful to incorporate family planning supervision in the rest new system.

RECOMMENDATION:

Integration of family planning and CCCD supervisory systems should be explored as part of the proposed A.I.D. Family Planning Project.

(Responsible Agencies: MOHSA, ONAPO, Regional Medical Officers, USAID/Kigali Date: October 1988)

V. Training

Objective

The training objective cited in the Project Agreement was to strengthen GOR capability to control communicable diseases by training senior MOHSA staff, supervisors, and other health care workers in CCCD and primary health care activities. The target was to "complete, by the end of 1987, training of 40 senior MOHSA staff, 400 health facility and nutrition center supervisors, and 600 health workers."

This target has not been met. The project has, however, had a number of significant accomplishments in its training component. It should be noted that the target was an ambitious one, aiming to train close to half the country's health care workers. In addition, part of the target would have been impossible to meet, since the country had only 349 total health facilities, including nutrition centers, in 1986.

A national CCCD training plan was prepared and approved as part

of each of the disease-specific intervention plans in 1986. The plan provided for training health care workers in each region during the year that project interventions would be phased in for that region. Numbers of health care workers to be trained were not specified, but it was assumed that all heads of health centers would be trained in each region as project services were being phased in. The training plan makes no provision for evaluation of performance, nor was a training needs assessment conducted. However, the 1985 health facilities survey did provide data on treatments given by health care workers for fever and diarrhea. In addition, visits by central-level supervisors, using a job performance checklist, have been conducted on a quarterly basis since 1987. These checklists provide facility-by-facility quantifiable data on job performance, and can be used to target problem-specific training to a region or to a particular health center. There was, however, only limited information available on health care workers' practices as a basis for planning early training.

One of the three medical assistants in the CCCD office was assigned responsibility for coordinating training. He must work through the medical directors of each region to establish training needs, schedules, numbers of workers to be trained, and training objectives. Decisions on training schedules are ultimately up to the regional medical director.

Training materials were procured from WHO and adapted to local needs. WHO training modules were used for MLM courses and regional health worker training. The WHO diarrhea treatment chart based on dehydration level was translated into Kinyarwanda as a training and job aid for health care workers. A 21-page manual on establishing and managing ORT units/corners was developed for health care workers doing 2-week training rotations at the Kigali and Butare hospitals' ORT units. A 4-page guide for health care workers described the purposes and use of EPI mini-campaign materials, gave the new EPI immunization schedule, and provided guidance on mothers' educational needs. A poster showing the malaria treatment schedule in flow chart form was developed as a job aid and distributed to all health centers. Job aids have been developed for training ORT promoters and health care workers, to assist them in teaching ORS preparation to mothers, but these are still being tested and must be piloted during the ORT promotion study in summer 1988 before they can be distributed nationally.

By July 1986, a total of 78 persons from central, regional, and peripheral levels (representing 7 of the 10 health regions) had received 10-12 days of Mid-Level Management training. Those trained in the national MLMs then carried training skills and content back to their regions, where with CCCD central-level support, they organized regional courses of 3-5 days for heads of health centers in their own regions. A total of 88 heads of

health centers in 4 regions were trained in regional courses. This training used the WHO modules for all three CCCD target disease areas, as well as those for community health education and epidemiologic surveillance. The module on training used in MLM courses was dropped during these shorter courses. It should be noted that in the four regions brought on in the project's second phase, only very limited numbers of staff were trained, and there were no CCCD-sponsored regional workshops. All in all, 278 health care workers and physicians were trained in national and regional courses and in the Kigali ORT training unit.

Thus, to some extent, training has been decentralized to the regions; after regional supervisors, the Regional Medical Officer, and certain heads of health centers were trained at an MLM, they became responsible for training other heads of health centers and health care workers in their region. In addition to the 3-day seminars on CCCD, this training is provided during regional one-day meetings of heads of health centers and during supervisory visits.

During the MLM courses in June 1985 and July 1986, a total of 13 doctors (central and regional level) were trained as MLM facilitators, and were found to show good training skills. The 60-65 supervisors and heads of health centers trained at the MLM courses also spent a half day on the WHO module which covers the training process, and they were expected to apply this when they conducted regional and peripheral training for health care workers and other heads of health centers. Most, however, feel their training as trainers was not adequate when compared with the more in-depth training of MLM facilitators, which reached a more limited number of staff, all physicians. The training consultant who conducted both MLMs felt further TA for training was unnecessary, but suggested that those facilitators and MLM participants who showed promise should be provided with further opportunities to develop these skills through a generic (non-clinical) training of trainers. This training has not yet been organized.

Predictably, peripheral training receives the most criticism among the various levels of training. Most MLM participants felt the course was quite well-organized, very useful, and readily applied. They were frustrated, however, when forced to condense the same material into three-day courses for heads of health centers and health care workers in their regions who had less training and experience, and thus needed more time and practice to master the same skills. The limited staffing in most centers makes it difficult to send even one staff member (usually the heads of health centers) for a 5-day or 10-day training, whether regional or national. Patient needs remain the same whether or not training is going on, and neither the local political authorities nor MOHSA will allow a center to close down or reduce services for an extended period.

Those who participated in regional 3-day seminars felt that too much information was covered in too short a time, allowing little opportunity for supervised practice, skills-building, and problem-solving. Those trained at the peripheral level by their head of health center or by regional or central-level supervisors felt they were not adequately prepared to perform the tasks introduced. Staffing limitations and patient loads are such that only in larger centers do heads of health centers find the time to work closely with staff to assist them in mastering new skills and treatment protocols. In the smaller centers, which often have the least experienced staff, on-site training time is much more limited.

Nor do heads of health centers necessarily see training as a major work role. Most have received no specific training themselves to enable them to assume the role of heads of health centers; in some cases they have never worked in a health center before becoming responsible for one. There is a critical need to emphasize training as a major role of the heads of health centers, and to prepare heads of health centers for this responsibility by providing TOT and supervised practice as trainers. Peace Corps Volunteers assigned to work with regional supervisors could provide this TOT and work with heads of health centers to ensure mastery of training skills and supervision of the training sessions which heads of health centers would organize in the health centers. (Volunteers might also be recruited who could meet other training needs still unfilled, such as: an entomologist who could conduct studies on malaria while training MOHSA staff to continue these; a lab technician to provide long-term training and supervision for malaria lab work; a computer programmer with training background to support the extension of the new H/MIS.) CCCD Projects in Liberia, Togo and Zaire have effectively incorporated Peace Corps Volunteers into project activities where they work well with health officials.

While UNICEF and World Bank are providing funding for training, past experience with CCCD training suggests that A.I.D. contribution would provide continuity here.

RECOMMENDATION:

MOHSA request donor support and technical assistance to provide training of trainers for all current heads of health centers, and conduct annual TOT courses for newly assigned heads of health centers, so that technical training of heads of health centers will be effectively transmitted to other peripheral health care workers who cannot attend regional or national inservice training.

MOHSA request Peace Corps Volunteers to serve as itinerant technical trainers, working as counterparts to regional CCCD

supervisors.

(Responsible Agencies: MOHSA/Personnel Training Division, UNICEF, World Bank, USAID/Kigali, A.I.D./Washington, Peace Corps. Date: plan TOT by September 1988, conduct in 1988-89; request Peace Corps Volunteers by September 1988)

Integration of new CCCD policies and treatment plans into the curricula of medical and paramedical schools is a problem which has not yet been resolved. Most of these schools are not under MOHSA's direct authority. The medical school at the national university in Butare, which graduates some 20 physicians a year, is under the Ministry of Higher Education and Scientific Research. There are 10 paramedical training schools in Rwanda, training different types of health workers, with a total of about 100 graduates annually. The paramedical schools, except for MOHSA's new school for nurses' aides, are under the Ministry of Primary and Secondary Education (MPSE). MOHSA's Personnel Training Division acts as a liaison with the MPSE Pedagogy Office to coordinate changes in curriculum. MPSE Pedagogy Office staff are medical and paramedical personnel with health center and hospital experience who have specialized in education and training techniques. Most of the medical and paramedical staff who teach in the paramedical schools have no teaching background, but the MPSE Pedagogy Office does provide them with some inservice on teaching techniques. The lack of instructional materials in the schools is a problem. The Pedagogy Office sets basic curriculum for these schools, but gives only basic outlines of what should be covered; it is up to instructors to flesh out the specific lesson materials. This allows them to keep their course content up to date as MOHSA develops new policies and treatment protocols. This assumes, however, that the instructors themselves are kept up to date. In older schools this seems to be the case. But during this team's field visits it was found that some instructors in recently-established schools are not convinced that newer MOHSA policies are appropriate, and continue to teach, for example, the old malaria treatment schedule, or to recommend IV therapy for moderate dehydration. At one school it was suggested that CCCD provide inservice training and WHO modules for instructors in the schools, and that short practical courses for students during vacations would also be welcome.

The Kigali Hospital has an ORT unit. Established primarily as a treatment unit, it does serve as a training unit, though for small numbers of health care workers thus far. The unit, begun in 1984 by a Belgian pediatrician, functioned until 1987 as an outpatient unit due to lack of staff. Round-the-clock staffing acquired through WHO sponsorship has allowed an increase in patients seen daily, since the unit now accepts patients from afternoon consultations. The unit is now seeing around 1200 patients annually, still a fairly low daily average.

As for its training function, the unit is seen more as a means of perfecting the skills of health care workers already using ORT, enabling them to open ORT corners in HCs, than as a means of introducing the technique. Regional Medical Officers have been informed of the unit, and CCCD has provided per diems for peripheral and regional staff who come to the unit for two weeks of training. Eight of the ten regions have sent one or more heads of health centers for training there. Of the 18 health care workers trained in the unit, ten have gone on to establish "ORT corners" in their own facilities. CCCD has developed a 21-page manual on how to establish ORT corners, and the project also provides unit-trained health care workers with all the materials needed to begin an ORT corner. It is up to the region and/or the community to provide the furnishings and space needed, and this seems to be a barrier to applying the training received at the ORT unit. The health care workers do, however, return to their posts with a better grasp of treatment plans and common complications.

The University Hospital at Butare recently began an ORT corner under the direction of a Rwandan pediatrician. CCCD funds were used to improve a hospital building and furnish the unit with medical equipment and educational materials. The unit received its first patient on the day of the evaluation team's visit. As this is the hospital attached to the medical school in Butare, all doctors graduating after 1988 will have been exposed to ORT and have clinical experience in its use as part of their basic training. There is also a private paramedical school in Butare, graduating 15-20 medical assistants annually, all of whom will be trained to use ORT through the Butare ORT unit. As yet, not all of the hospitals associated with paramedical schools have established ORT units, and this needs to be encouraged so that all new health care workers will receive adequate clinical practice in ORT. A problem for both of the ORT training units has been staffing during the early phases to allow for 24-hour functioning as a unit separate from other pediatric ward activities. Once medical and paramedical students have received basic training at the Butare unit, for instance, they can assure the overnight functioning of the unit with a hospital doctor for backup. But the unit needs an adequate patient load in order to provide this training, and patient loads stay low when the unit can only receive patients in the morning. Funding was requested to supplement the unit's staffing with 3 nurses' aides for the first months of the unit's functioning, but questions remain as to what funding will be available with the CCCD project ending. UNICEF may pick up these personnel costs temporarily.

Thus, overall, there are two major training problems to be resolved. First, the training schools for doctors and nurses need to be assisted in providing up-to-date instruction and supervised clinical practice in the CCCD intervention areas. This can be accomplished by providing inservice training to

instructors, involving them as trainers for health care worker inservice, and supplying instructional materials for use in the training schools. Secondly, given the limited time and funds available for regional and peripheral training, and the limited numbers of health care workers being trained, heads of health centers must be assisted to provide ongoing training to staff in their centers. This can be accomplished by providing more in depth technical training of the heads of health centers themselves to ensure their mastery of CCCD intervention skills, and by giving them TOT and TA from Peace Corps volunteers to develop their skills and experience as trainers. Only to the extent that training is supported by TOT, and that hands-on training is seen as a responsibility of supervisors at every level, can health care workers master the growing range of complex skills required of them.

VI. Health Education

Objective

One health education objective was cited in the 1984 GOR-USAID project agreement: "To improve health education to increase participation in CCCD programs," with a target of developing by the end of 1987 "a coordinated strategy and workplan for health education to implement the CCCD Project." This objective has been met.

Activities and Accomplishments

Health education activities have been an important focus for CCCD/Rwanda, providing valuable support for project interventions. Health education in the context of CCCD plays several roles:

- increasing symptom recognition
- improving home treatment for fever and diarrhea
- expanding awareness of the vaccination calendar
- improving utilization of the CCCD health care services.

Through technical assistance and logistical support for field work, the project has significantly improved the capabilities of the MOHSA Health Education Office (HEO). Training for regional-level staff in health education strategies and methods, along with the provision of graphic materials and specific messages, has enhanced the ability of peripheral health care workers to provide community and patient education. KAP studies of both mothers and health care workers for all CCCD components have provided formative data to guide health education planning and health care workers training, and may provide a baseline for future evaluation of health education activities. Monitoring of HE activity coverage has allowed CCCD and HEO staff to make midterm adjustments as needed, and evaluation and reporting have

provided lessons from completed health education activities which can be applied to the planning of future activities.

Technical support has been provided for health education since early in the project. CDC's IHPO health education specialist made a pre-programming visit to Rwanda in May 1985 to assist in developing a HE strategy and workplan. The HE specialist has made a total of 4 visits to provide TA to CCCD/Rwanda, and 6 other STCs have provided TA for formative research, HE planning, or campaign evaluation. The head of MOHSA's health education office (HEO) was designated as CCCD's health education liaison in May 1985, and has worked closely with the CCCD central team throughout the project. Several other members of the HEO staff were involved in CCCD HE activities as needed.

HEO staff have benefitted tremendously from this close collaboration, which allowed them to become more competent in several skills areas: questionnaire development, survey methodology, interviewing techniques, data analysis and interpretation, message development and pretesting, communications strategy, campaign planning, and campaign monitoring and evaluation. HEO staff are currently applying these skills to health education planning for other problem areas outside CCCD: the former chief of the HEO has been assigned to the national AIDS project to develop an education campaign; HEO staff collaborated with UNICEF IEC staff in developing a social mobilization campaign for EPI in 1988; UNICEF and HEO staff are now working together to plan an ORT social mobilization campaign. HEO staff were among the CCCD/Rwanda participants who presented papers at the 1988 CCCD Conference in Ivory Coast. They co-authored an article describing the integration of qualitative and quantitative field research methods, published in the International Journal of Community Health Education.

It is clear from the initiatives taken by HEO staff and the competency being demonstrated that well-planned, sound health education activities should continue to be developed for MOHSA programs, including those conducted by the Direction of Epidemiology. What is not clear is who will provide the logistical support--previously provided by USAID--needed for formative research, message pretesting, and HE monitoring and evaluation to continue. Without vehicles, gas, and per diem, it will be difficult for HEO staff to conduct programs as effective as those they have prepared for the CCCD project.

In addition to the institutionalization of sound health education programming through technical assistance and logistical support, a second major CCCD input to health education has come in the form of improved patient and community education. This was brought about in two major ways: provision of graphic materials and message development, and training of health care workers.

Educational messages and materials have been systematically developed for two of the three project interventions. Diffusion has been slower than development, though, and only EPI messages and materials have been widely diffused to date; ORT messages and materials are now being tested through an operations research study on ORT promotion, and will be diffused nationwide based on study results. Development of malaria control messages and materials has lagged significantly behind, due in part to the slow acceptance by health care workers and physicians of the national malaria control plan.

The following HE graphic materials have been developed and distributed:

- a poster for health centers to remind health care workers to tell the mother when to return for further immunizations,
- a small flyer to remind mothers of the protection immunizations provide,
- a poster in Kinyarwanda showing health care workers the WHO treatment plan for diarrhea according to severity of dehydration,
- a poster illustrating in flow chart form the newly adopted malaria treatment schedule.

The materials development process included formative research to determine KAP and the messages needed to change these, and pretesting of the materials being developed to ensure comprehension and audience appeal. This process is now routinely used by HEO staff when a program requests their support.

During the team's field visits it was found that CCCD posters are visible in all centers, and that they are often used for health talks since flipcharts and flannelgraphs are not generally available. Health talks are seen as an important part of the centers' activities and are conducted daily for up to 30 minutes in most centers. Most centers do not have guides outlining the talks' content, but in some centers staff meet to develop themes and rotate the responsibility for the talks. Many centers also conduct home visits, but these are often rapid inspection visits rather than being seen as a time for individual education. Staff collaborate with local authorities to provide community education and social mobilization in support of CCCD activities.

Training of health care workers has accompanied the diffusion of public information materials, helping to maximize the impact of these materials. During the 1986 and 1987 EPI mini-campaigns, health care workers training was shown to be a critical element in the campaign's success in different regions. Training of health care workers in the use and purpose of the materials was provided at the time of distribution. A 4-page guide summarized

the messages to emphasize, discussed mothers' learning needs and barriers to consider, and suggested ways to use the materials being distributed. In addition to giving out the guide, some health regions also conducted a brief training session on the EPI campaign as part of a regular meeting of titulaires.

In addition to materials-specific training provided as a part of HE campaigns, some health care workers have received more general training in the purposes and methods of health education through MLM courses and regional training workshops. The same RMD facilitated presentation of the Community Health Education module at MLM courses in both June 1985 and July 1986, reaching a total of 78 central-level staff, RMDs, regional supervisors, and heads of health centers. The WHO training module on community health education was also used in several regional training courses held in 1986-87, reaching a limited number of health care workers, mostly heads of health centers. Unfortunately, this is only a small minority of those responsible for conducting health talks in the centers, providing individual patient education in clinics and during home visits, and working with large groups during community meetings.

RECOMMENDATION:

MOHSA make training in the methods and strategies of health education, along with program-specific information on KAP and educational objectives and messages to convey, a regular part of basic health care workers training and inservice training.

(Responsible Agencies: Personnel Training Division, Health Education Office, by September, 1988)

Meaningful health education cannot be conducted without information about people's current behaviors, the attitudes, beliefs, and environmental factors behind those behaviors, what behaviors are desired in order to meet program goals, and what inputs will facilitate behavior change. This information is provided by formative research. Formative research has been conducted for all three CCCD intervention areas: for malaria in November 1985; for CDD in November 1985 and again in July 1987; and for EPI in July 1986 and again in February 1987. Though the data collected has been useful in planning health education interventions, there is as yet no complete data base for evaluating the impact of health education.

The November 1985 KAP study used WHO's cluster sample method and collected data on mothers' knowledge, attitudes and behaviors concerning fever in their children. There has been no systematic message development for the public concerning malaria. Nor have any follow-up studies been conducted to assess changes in fever-related KAP which might have developed as a result of changes in

service availability or treatments provided through the health facilities. A post-project KAP study using the same methodology and questions drawn from the 1985 study would give some measure of the project's impact, but it would be impossible to separate the impact of health education inputs from the impact of CCCD service increases.

In addition to fever-related KAP, the 1985 KAP study also looked at home treatment and care-seeking for diarrhea. Besides the KAP study, there is another set of formative data relating to diarrhea, collected in July 1987 as baseline data for a study of ORT promotion through community-based educators. However, the methodologies of the two studies are too widely divergent to permit any conclusive comparisons of the two data sets. While the 1985 KAP study followed the WHO cluster sample method and covered the entire country, the 1987 survey covered only 4 communes, those where interventions were planned, and these were selected based on convenience factors. The questions in the two studies are not similarly worded. Thus not until the final evaluation of the ORT promotion study (planned for fall 1988, after interventions during summer 1988) will data be available to assess the behavioral impact of ORT educational interventions.

The EPI mini-campaign conducted in fall 1986 used a 3-prong communication strategy of face-to-face health talks and individual patient education by health care workers, radio broadcasts and spots to reinforce the face-to-face messages, and graphic materials as reminders to health care workers and mothers. The HEO staff, with TA from Atlanta, conducted formative research on mothers' beliefs and radio listenership, which guided campaign planning and the development of 8 core messages on measles and on EPI in general. Midterm evaluation showed delays in local-level campaign implementation and led to a one-month extension, with efforts made to bring health care workers up to date and get the campaign on track in several regions. TA was provided for the final evaluation, which included a quantitative survey of health care workers, covering campaign organization, usefulness of materials, local campaign-related activities. A quantitative survey of mothers used WHO's cluster sample methodology and assessed the source, receipt and recall of campaign messages, as well as mothers' knowledge regarding vaccinations. It did not, however, assess mothers' vaccination behavior or behavioral intentions. The additional fact that the formative research used focus group interviews, and thus is not quantitative, precludes drawing any firm conclusions on the impact of this HE campaign. Vaccination coverage cannot be used as an impact indicator for the educational campaign per se, since increases in coverage may be related as much to vaccine availability, advanced strategy implementation, or an increased number of vaccination sessions in most sites, as to changes in maternal behavior.

Due to problems encountered in implementing the 1986 campaign, the CCCD office decided to benefit from the research done and lessons learned, and repeated the campaign in fall 1987. A comparison of measles vaccine recipients before and after the second campaign shows that a larger proportion of those receiving the measles vaccine after the campaign were under age one, a more appropriate age. This measure of maternal and health care workers behavior can be used as an indicator of the health education campaign's success, apart from service inputs.

The measles mini-campaign is currently the strongest example of health education interventions through CCCD. There is currently no national public information campaign on ORT. Development of a public information campaign for ORT is not being neglected, however. A treatment plan poster in Kinyarwanda has been developed for the guidance of health care workers. Songs promoting the use of ORT have been developed and recorded by local groups and will be used when an overall communications strategy is laid out. Education of mothers in the correct preparation and use of ORS is recognized as a critical element of the CDD program. But health care workers themselves use a variety of measures, often giving an incorrect dilution, and explanations of ORT preparation are much more common than actual demonstrations for mothers by health care workers. A pilot study on the promotion of ORS home treatment is being conducted with CCCD logistical, financial, and technical support. The study seeks to determine which of three groups of community-based workers (teachers and primary students, CCDFP leaders, or party officials) have the most impact on mothers' awareness of and ability to correctly prepare and use ORS. A baseline KAP survey done in July 1987 provides formative data for the development of promotional messages and skills training. Promoters in 4 study zones will be trained in June 1988, and a follow-up survey will be done by fall 1988 to determine changes in mothers' knowledge and skills. In addition, HEO staff have been collaborating with UNICEF in the preparation of a second social mobilization effort, this one on CDD. The lessons learned from the ORT promotion study will be applied in planning this campaign, as the same HEO staff are involved in both.

Thus both EPI and CDD are receiving adequate attention in the planning of HE strategies and materials development. However, malaria has received next to no attention. The national malaria program coordinator has written two articles which were published in local-language newspapers, and a few radio spots were done, but without significant input from HEO staff to ensure that the message/materials development process, including pretesting, was followed. No monitoring of the impact of these messages was done. A particular hurdle in the provision of health education relating to malaria treatment seems to be that many health care workers, particularly physicians, and especially in Kigali,

neither like nor follow the new malaria treatment plan. It will be difficult to convince the public of the importance of early care-seeking and of compliance with the treatment plan, if health care workers themselves are not convinced. And with noncompliance come perceived treatment failures, reinforcing health care workers' attitudes towards the treatment plan. So educational strategies concerning malaria treatment must target both health care workers and the public. In addition, there is the ongoing development of malaria control strategies besides chemotherapy, and this is tied to research which is not yet completed. Thus health education strategies for malaria will have to develop as the control strategy itself evolves.

RECOMMENDATION:

MOHSA develop a health education program for malaria control, using messages and materials developed in reference to the 1985 KAP study and the current malaria treatment plan, and employing multiple communication channels as in the EPI mini-campaign to ensure that health care workers are reached and persuaded along with the public.

(Responsible Agencies: Directorate of Epidemiology and Health Education Office, Date: by September, 1988)

Overall, the health education component of CCCD has been soundly based, carefully planned, and well-monitored. It has provided valuable support to the program, with inputs designed to increase understanding of the CCCD target diseases and interventions, promote appropriate home treatment, and enhance utilization of the services provided in the context of CCCD. Messages, materials and strategies for two of the three target disease areas have been prepared and will continue to be useful. Health care workers have been trained to effectively utilize these inputs. CCCD/HEO collaboration has led to the development of a body of KAP data which will be invaluable to future programming for child survival. The TA and logistical support provided have strengthened national capacity for HE planning and evaluation.

With continued logistical support from MOHSA, HEO staff can be expected to continue making valuable contributions to CCCD as well as other MOHSA programs. They should be involved in all further HE programming for the project, and particularly in the preparation of a malaria HE strategy as soon as possible. Basic and inservice training of health care workers, including physicians, in the methods and strategies of HE and in the use of specific materials as they are developed, will ensure the effective use of HE inputs for CCCD and other programs.

In summary, though firm data are not available at this time to evaluate the HE component of the CCCD/Rwanda project, this component can be considered as one of the project's strongest

supports. The work done to strengthen the overall project through health education inputs, and to strengthen the process and the human resources through which health education is developed and provided in Rwanda, compare favorably with other CCCD projects.

VII. Financing

Project Funding

The CCCD Project was designed to provide \$1,072,000 in grant funding for commodities and local costs from A.I.D., with an anticipated GOR contribution of \$810,402 in commodities and repair and maintenance. In addition, technical assistance was provided by a sub-allocation from CDC/Atlanta and A.I.D./Washington which funded the T.O., CDC supervision, short-term consultants.¹ The following analysis focuses on the Bilateral Grant Fund. Management of this fund is the responsibility of USAID/Kigali, and the investment and recurrent costs from this fund will have to be assumed by GOR or other donors.

The bilateral fund provided funds for commodities (\$571,190 for ORS, chloroquine, vaccination supplies, cold chain equipment, vehicles) and for local costs (\$500,810 for fuel, laboratory, health education, health information, training, and operational research). By the end of the first quarter 1988, all but \$204,793 had been expended, and most of that had been obligated by mid-May. According to our analysis, \$760,938 (or 88% of total expenditures) was for recurrent costs (including commodities, fuel, training, health education, etc. -- assuming that the investment costs of training and health education were part of the technical assistance provided by the CDC/Atlanta sub-allocation and that the training sessions and further development and distribution of health education materials would have to be continued by future projects).

In general, the USAID bilateral fund contributions to the CCCD Project were provided in a timely and efficient manner and were close to the anticipated budget lines established by the Project Agreement. However, by shifting funds that had been assigned to commodities, the project did spend more in local costs than had been anticipated. In the last year of the project several problems did arise, including the lack of timely monitoring, which resulted in delays in shifting funds from commodity lines

¹. We could only estimate the salary of T.O. and her sub-allocation which came to an average of \$119,161 per year. Her benefits, the supervisory back up given by CDC/Atlanta, and the short term consultants would also have to be calculated to gain a full picture of CCCD support for this project.

to local cost lines, and in failure to fund Operations Research Projects in time for their completion before the end of project. While routine status reports of the bilateral budget were provided to the T.O. early in the project, these reports were not routinely provided after April 1987, making it difficult for her to program bilateral funds. Future projects should ensure that both the USAID project manager and the T.O. receive monthly status reports on the project budget.

The spending pattern of the bilateral fund was fairly steady during the first three operational years of the project; however, there was a marked acceleration in the first quarter of 1988.

BILATERAL FUND ANNUAL EXPENDITURES

1985	\$237,217
1986	178,305
1987	274,633
1988 (First Quarter)	177,052

Source: Controller's Office, USAID/Kigali. Figures are for calendar years.

This pattern of expenditure makes the termination of the project all the more difficult for MOHSA. Expenditure patterns should reflect a declining pattern of USAID contributions and an increasing assumption of project costs by GOR (or other donors) so that these sources are in place when the project ends. It is not clear where funding for several crucial components of the project will come from in the immediate future. The project has funded chloroquine and Fansidar as well as per diem costs of supervision. UNICEF, which is expected to fund many of the other components of the project, has no current plans to fund malaria drugs and has not yet agreed to assume supervision costs. Future projects should assure a phasing down of USAID spending and a plan for GOR and other donors' assumption of project costs during the final year of the project.

There was no regular accounting system established to routinely account for GOR contributions to the project, and requests for special reports appear to have included double counting of GOR and other donors' contributions, among other irregularities.

The latest GOR report, which was prepared specifically for this evaluation and appears to be more accurate than previous reports, suggests that the GOR total contribution (1985-88) to the project was \$795,461, of which \$461,497 was in salaries of central, regional, and local personnel who worked on project activities. The Project Agreement called for a GOR contribution of \$810,402, exclusive of salaries. The GOR provided only \$49,209 of the anticipated \$181,984 for chloroquine and none of the \$480,000 for vaccines. It did provide more gasoline, repairs and maintenance

than required by the Project Agreement (\$189,615 vs. 125,000).

MOHSA has been hard pressed to provide support for CCCD activities since the government austerity program has been in place. The increasing contribution of UNICEF would have made GOR contributions in some commodities redundant. The GOR appears to have made a good faith effort to provide the major commodity that other donors are reluctant to assume: gasoline and maintenance of vehicles. Major contributions in this area occurred after the 1986 mid-term evaluation, which recommended that the GOR assume more of this burden.

Financial Sustainability

If the figures available for GOR, A.I.D., and UNICEF -- the major contributors to CCCD activities -- are indicative of the actual contributions, then each contributed about a third of the average yearly recurrent costs of the project between 1985 and first quarter of 1988. ²

AVERAGE ANNUAL CONTRIBUTIONS TO CCCD RECURRENT COSTS

1985-1988

GOR	\$244,757
USAID	234,135
UNICEF	254,150
Total	735,129

Sources: UNICEF, MOHSA, USAID/Kigali

These figures suggest that the total recurrent cost of the project would be 5.4% of the 1988 MOHSA budget of \$13,613,688, and the USAID contribution would be only 1.7% of the MOHSA budget.

While these figures are not high, they would mean significant burden in the MOHSA budget at the current time. The MOHSA budget has reportedly been cut by 20%, meaning that the CCCD project would have to compete with all other health services for shrinking public funding. In addition, MOHSA will be burdened in the next few years with two new public hospitals -- one a 200-bed modern hospital in Kigali, funded by Saudi Arabia. These hospitals will place a tremendous demand on the recurrent budget

²WHO assistance could not easily be assigned to CCCD project activities. Only approximately \$50,000 per year could be directly attributed to recurrent costs.

of MOHSA, further eroding the funding available for CCCD and other primary health care activities.

It is likely that the only sources of additional recurrent-cost funding will be external donors and cost recovery from patients and the community.

UNICEF is the other large donor currently providing funds for CCCD activities. UNICEF's 1988-1992 Plan anticipates an average annual contribution of \$1,246,200 to EPI and CDD activities and an additional \$671,140 for essential drugs and AIDS. Most of this funding is from "Noted Funds" which is not as sure a source as UNICEF's "General Resources". UNICEF, however, does not anticipate problems in obtaining these funds. If UNICEF assumed USAID's current contribution to CCCD, it would account for 21% of UNICEF's anticipated average annual contribution to EPI and CDD activities.

UNICEF estimates for the 1988-1992 plan are extremely optimistic in projections of GOR contributions -- with obvious double counting of GOR salaries and other line items. Given the anticipated shortage of GOR funds, it seems unlikely that the GOR will be able to contribute more than it currently does. If UNICEF were simply to assume the current USAID yearly contribution, it would be contributing more than two thirds of the costs of the program, an extremely high level of dependence on a single donor.

The World Bank Family Health Project will provide funds for some CCCD activities such as training and HIS. It is unclear, however, how much will be assigned; since the GOR will have to pay the loan back, World Bank loans tend to be used only after grant sources cannot be found. The current USAID yearly contribution to CCCD would account for 14.8% of the World Bank projected yearly average budget.

It seems unlikely that other major donors will provide additional funding. The Belgian contribution to health care in Rwanda is large, but most of this contribution is in the form of medical care provided by Belgian physicians. A significant program in Maternal/Child Health and Family Planning for Kigali Region has contributed roughly \$90,000 per year. While the current program is to be renewed and expanded to general primary health care activities, it is not anticipated to be a national program on the scale of CCCD.

USAID may be able to fund at least some of the CCCD project activities in the future. Were USAID to continue funding the project at current levels, the annual burden would be 4.5% of the \$6 million annual ceiling of USAID/Kigali.

RECOMMENDATION:

GOR develop a national donor coordination plan to establish funding priorities and balance donor funding and national funding sources for health activities. This plan should coordinate donor funding so that no sector is dependent on a single donor and so that complementary funding sources are phased in as donor projects terminate.

(Responsible Agencies: MOHSA, Ministry of Finance, Ministry of Planning, Ministry of Foreign Affairs, and all donors.
Date: December 1988)

Cost Recovery

The CCCD project did contribute to the development of cost recovery by funding a short-term consultant team to evaluate several potential self-financing schemes at MOHSA health centers (Shepard, Carrin and Nyandagazi). The report suggested that additional revenues could be raised through charging for drugs at government health centers. The study included a household survey of populations around four health centers. The health centers included both public services, which do not charge for drugs, and private services run by missions, which do charge for drugs. The study suggests that the private facilities are able to generate significant proportions of operating costs -- up to 59% -- through charging for drugs. This additional revenue, along with the external charity support, allows the private facilities to have complete stocks of pharmaceutical, while the public facilities often run out of prescription medicines.

The study found that if the government charged for drugs, patients would have to pay 86% more out-of-pocket than they are paying now; however, this figure would represent only a 4% rise in their total health expenditures (9 FRW out of 191 FRW) -- not an unreasonably high burden. The study found that 91% of the households studied were willing to accept higher fees to ensure availability of drugs, and 79% were interested in some form of prepayment or insurance scheme to spread the risk.

The study recommended that a revolving drug fund be established, fees be charged for chloroquine and ORS, and a feasibility study of prepayment schemes be initiated. None of these recommendations has been acted on to date. The CCCD project officials were fully engaged in the other activities of the project and decided that they could not take the time to promote the recommendations of the report.

The Malaria Coordinator also noted that charging for chloroquine might not be advisable from a technical point of view, since even with free distribution to children there is a strong possibility

that full dosages for individual patients are not utilized -- tablets often are shared with others in the household who have malaria symptoms. Charges for chloroquine might be a further disincentive to proper dosage use, leading to potential increases in chloroquine resistance.

The World Bank has commissioned further self-financing studies, and there appear to be discussions within MOHSA and other agencies of the GOR about self-financing. The current government initiative to promote development and self-sufficiency at the commune level has meant consideration of self-financing schemes and of community pharmacies with revolving drug funds. However, to date, there has been no clear decision to initiate self-financing schemes.

It is clear that the GOR needs to find additional revenue sources for health care in general and CCCD activities in particular. The current scarcity of national government funding and the alarming dependence on foreign sources of assistance suggest that additional national sources are necessary for sustainable health activities. Some scheme of self-financing should be adopted in the near future.

RECOMMENDATIONS:

Donors provide technical assistance to GOR for development of self-financing schemes.

(Responsible Agencies: USAID/Kigali, A.I.D./Washington, World Bank, WHO, UNICEF. Date: September 1988)

GOR initiate tariff revisions and revolving drug funds, study the feasibility of prepayment schemes, and develop a national plan for self-financing.

(Responsible Agency: MOHSA, Ministry of Finance. Date: Tariff revisions and drug funds, December 1988; National Plan, July 1989)

VIII. Sustainability

This project, like other CCCD projects, was designed with sustainability of project outputs in mind. Sustainability has been defined in a variety of ways. In the Team Leader's recent studies of sustainability of U.S. government funded health projects in Central America, sustainability has been defined as the continuation of the benefits and activities that have been achieved during the life of the project for a period of at least three years after the project funding has terminated. The CCCD project focused on developing Rwandan capacity to continue project activities, and avoided adding sizable components which could not be continued without foreign assistance. The project

built on the already-established EPI program, rather than initiating a wholly new activity. It focused on training of human resources at the periphery and middle levels of the MOHSA, and on the development of a core of health officials who could continue project activities at the central and regional levels. Many of the major purchases were investments which had at least a five-year productive life -- computers, vehicles, health center equipment. Other purchases made during the life of the project -- drugs -- were useful for immediate purposes of the project and are likely to be supported by other donors in the future; in any case these were not such large quantities as to pose a major burden on the MOHSA budget if the GOR could not find alternative sources of financing.

The project also funded studies which, while many were designed to produce baseline data or, like the malaria studies, suggest the need for continuing future studies, do not of themselves have to be repeated in order for the MOHSA to continue providing the benefits and services that had been put in place during the life of the project. In some ways, the achievements that this project is able to demonstrate (through the studies and information system established) have the character of a demonstration project, and these have already been influential in the design and implementation of CCCD projects in other countries -- an indirect "sustainability" of the project.

The recent studies of the sustainability of health projects in Central America suggest that several factors contribute to the sustainability of project activities. It is important for the project to have national commitment -- a general consensus on the high priority of the project goals and objectives. The project should be negotiated with the host government in a mutually respectful manner, with give and take by both parties. The project should be well integrated into the normal structure of the MOHSA administration, not managed as a vertical program in a fragmented and divided implementing organization. Finally, the project should be perceived by the host government as an effective project that achieved its goals.

Evaluating the CCCD project by these sustainability factors, we find that it is likely that many of the project activities will continue at least three to five years after the life of the project. There has been and continues to be a strong national commitment to the project objectives. Unlike family planning, which is the subject of intense internal debate, there is general consensus among all major officials and interest groups that the child survival activities are a national priority. The project was designed by a team of nationals and consultants who worked out the objectives, administrative design, and activities together. While the CCCD projects tend to follow a similar model from country to country, there was considerable choice for negotiation, and the evaluation team did not perceive a feeling

that this project was imposed by A.I.D. or CDC. Integration of project activities was well achieved, with many administrative units in the ministry developing a stake in project activities, and with most of the skills and programs integrated into the day-to-day activities of all health workers in the periphery. Finally, the project is proudly seen as one of the most effective projects in Rwanda, and in a recent meeting of all African CCCD projects was generally recognized as one of the most effective in Africa. Indeed, one of the reasons given by USAID/Kigali for not renewing the project is that it successfully achieved many of its objectives.

It is important to note, however, that the definition of sustainability we have used does not require that national sources of funding be responsible for the continuation of project benefits and activities. Other donors may assume responsibility where A.I.D. leaves off. In Rwanda it is clear that UNICEF, supplemented by the World Bank loan for Family Health Project and by WHO, will provide the bulk of the financing for the activities that had been initiated under the CCCD project. With this large support it is unnecessary for the GOR to fund the project activities, except in the areas, such as malaria, where other donor support is lacking. However, it does seem unlikely that the current national budget will be able to provide additional resources to support project activities.

In conclusion, it seems likely that much of what was achieved during the life of the project will be sustained. Many of the activities sponsored by the project in EPI, ORT, supervision, training, health education, and HIS will be funded by national and other donor sources. It is only for malaria control, which is in a crisis not anticipated at the time of the project design, that project activities are in jeopardy.

However, there are strong reasons for not taking such a narrow view of sustainability in evaluating this project. While the project may have achieved much during its life, it is currently on the verge of achieving much more than was originally envisioned, and there is a clear problem in sustaining the malaria component.

While all the activities put in place by CCCD for malaria are likely to be continued, they are insufficient to address the growing problem of malaria. As noted above, a major initiative is necessary in this area, and emergency funds are needed to supply first and second line treatment.

The ORT activities in place also have not had the anticipated impact. Additional efforts to improve training, health education, and supervision in this area are necessary. UNICEF is currently planning to provide support in these activities. As noted above, however, there is room here for continuing short-

term A.I.D. technical assistance in support activities which could be focused on ORT.

It is in support areas (especially supervision, HIS, and training) that additional assistance from other donors and A.I.D. would be most important. While, as noted above, much has been accomplished in these areas, many of the initiatives are currently in an interim period, not yet fully institutionalized. While they may be sustained at their current levels, additional resources and technical assistance could help set in place fully implemented systems which could be sustained largely with national resources.

The core innovation of this project is the establishment of an effective central-level supervisory system which can provide on-the-job training and measure progress of health facilities in improving the delivery of service. This system is likely to continue in some form. Supervisors are now skilled and experienced, and their transportation costs are covered by the government. Per diem costs will be provided by UNICEF. However, for the supervisory program to become fully effective, it could have been regionalized by providing training and forms to the regional supervisors and linking them into the supervisory information system. Less than an additional year of funding could have ensured that a complete national and regional supervisory system was developed, and a phased assumption of per-diem costs would have meant that at the end of the project, there would be no question about funding and national capacity to continue the supervisory system.

The health information system is currently in three parts: 1) the national CCD management information system which collects coverage and impact data, 2) the supervision information system, which provides status data on health center performance to the regional medical officers, and 3) the pilot HIS project, which is programmed to be expanded to the national level over the next year. Each of these separate HIS activities needs additional technical assistance in order to be integrated into a fully functioning national HIS. UNICEF and the World Bank will fund portions of this activity. A.I.D. could complement this support and provide continuity with relatively small investments of short-term consultancies.

Finally, it is important to note that many of the activities that were sponsored by CCD will now be dependent on UNICEF contributions of commodities, training, and technical assistance. UNICEF has agreed to take over several CCD activities in EPI, ORT, supervision, and HIS. It is clear that a single donor is becoming the central supplier of foreign assistance in this area. Rwandan dependence on UNICEF alone should be troubling to all involved.

IX. Future Projects

It was made clear to the members of this evaluation team that MOHSA and the other donors had hoped that the CCCD project would continue and would welcome any continuing support from A.I.D.. They all viewed the project as particularly successful and had high regard for the CCCD technical assistance provided by CDC. The project generated extensive good will for US participation in the health sector, and the decision not to renew the project was met with dismay. Continuing A.I.D. short-term support for the activities in this project might be effective in rekindling the good will and enthusiasm that are useful for other A.I.D. project activities.

There are a variety of approaches to continuing A.I.D. support for CCCD project activities. One option, the renewal and redesign of CCCD project was not adopted and was not a viable option at the time of this evaluation. USAID/Kigali decided that, at the present time, it was not managerially possible to support a project redesign at the same time that a major Family Planning project was being designed. The CDSS defined family planning as a mission priority. USAID/Kigali was also under pressure to limit the number of its staff in Rwanda. All the principle members of the present staff at USAID/Kigali, however, are scheduled to be replaced during the coming year, and they have suggested that this evaluation might be useful to the future USAID staff in considering major project activities in health to support future program objectives. Thus, one possible future option could be renewed investments in health and child survival.

Above we have suggested a variety of separate activities that could be initiated by USAID using centrally funded support for technical assistance in malaria, supervision, and HIS, and emergency funding for malaria treatment needs. We have also suggested ways that the proposed Family Planning project could build on and provide modest support for some of the CCCD project activities. While all these activities could be supported by separate project funds, in the future there might be an opportunity to provide an umbrella support under one larger project in health and child survival.

APPENDIX A

PERSONS CONTACTED

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Manyagiro Health Center

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Kabarondo Health Center

Mukarange Health Center/Nutritional Center

Munyiginya Vaccination Post

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Gisenyi Health Region

Gisenyi Dispensary

Gisenyi Hospital

Gisenyi Maternal Child Health Center

Mudende Health Center

Kora Health Center

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Peace Corps/Rwanda

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APPENDIX B**LIST OF DOCUMENTS REVIEWED**

ACSI/CCCD 1986 Annual Report

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EVALUATION OF ACSI-CCCD PROJECT

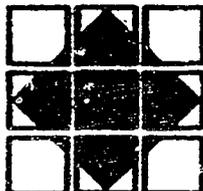
CÔTE D'IVOIRE

May 18-June 3, 1988

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Countries

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EVALUATION OF ACBI-CCCD PROJECT

CÔTE D'IVOIRE

May 18-June 3, 1988

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The Evaluation team wishes to thank the Minister of Public Health and Population, the Honorable Alphonse Djedje Mady, and his staff for their valuable assistance. The frank, helpful, and friendly manner of those responsible for the major activities carried out under the project greatly facilitated our work. The responsible officers' views on the progress, problems, and possible future solutions were invaluable and made it possible to complete the evaluation of the ACSI-CCCD project in the Côte d'Ivoire in the short time available.

The CCCD National Coordinator, Mr. Blah Toh, and the CCCD Technical Coordinator, Professor Guessend were particularly valuable in their briefings, and in arranging for the meetings, field trips, and debriefings.

The team also wishes to thank Dennis Kux, the U.S. Ambassador to Côte d'Ivoire; Arthur Fell, Director of USAID's REDSO/WCA office in Abidjan; Dr. Charles Debose, REDSO/WCA Regional Health Officer; and Dr. Modupe Broderick, CCCD Program Specialist (REDSO/WCA); for their strong interest and help. Robert Weierbach, CCCD Technical Officer, resident in Abidjan, backstopped the team, and greatly facilitated the team's work by sharing his multi-faceted in-depth knowledge of the project, and primary health care in the Côte d'Ivoire. Jean Roy, who served as the team's resource person from CDC/Atlanta's IHPO office, was of great help and was always available to help facilitate the team's work.

While the team's conclusions and recommendations were greatly influenced by the briefings and advice of those contacted, we made our own final judgements and accept full responsibility for the conclusions and recommendations presented.

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LIST OF ACRONYMS

ACSI	African Child Survival Initiative
CCCD	Combatting Childhood Communicable Diseases
CDD	Control of Diarrheal Diseases
CHU	Central University Hospital
DSPP	Direction de la Santé Publique et de la population
DPSS	Direction de la Planification et de la Statistique Sanitaire
EPI	Expanded Program of Immunization
GOCI	Gouvernement de la Côte d'Ivoire
IH	Institut d'Hygiene
IHPO	International Health Program Office
INSP	Institute National de Santé Publique
MCH	Maternal Child Health
MLM	Mid Level Management
MOPHP	Ministry of Public Health and Population
MSPP	Ministère de la Santé Publique et de la Population
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PDRI	Project Development and Regional Implementation
PHC	Primary Health Care
REDSO/WCA	Regional Economic Development Service Organization West and Central Africa
SNES	Service National d'Education Sanitaire
T.O.	Technical Offices
VHW	Village Health Worker

UNICEF

United Nations Children's Fund

WB

World Bank

WHO

World Health Organization

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1.0 Purpose and Methodology

1.1 Purpose

The objectives of the ACSI CCCD evaluation were to:

- 1.1.1 Evaluate CCCD activities through consultations, collection and analysis of data on CCCD management and operations at the central and peripheral levels.
- 1.1.2 Assess the extent to which CCCD Activities have been integrated into existing Côte d'Ivoire Primary Health Care Structure.
- 1.1.3 Offer a series of recommendations to reinforce the expansion and delivery of CCCD services (EPI, CDD, Malaria, and Yaws) including training, health education, the health information system, and operational research, and to accelerate their integration into the primary health care system.
- 1.1.4 Advise on the desirability and feasibility of improving project progress by preparation of a second phase that would include redesign of the project and extension of its completion date.

The full Scope of Work prepared by AID/W is contained in Annex A.

1.2 Methodology

The team carried out its mandate through a series of briefings, consultations, and field trips and study of pertinent documentation. It worked in the Ivory Coast from May 18 to June 3, 1988 (See Figure 1 - Map of Health Services in Côte d'Ivoire). The team was composed of Vincent Brown, Health Management Advisor and team leader, and Professor Arthur Reingold, Epidemiologist from the School of Public Health, University of California (Berkeley). Jean Roy, from CDC/Atlanta, IHPO Office, served as the team's CDC resource representative.

In addition to briefings by AID/Washington, CDC Atlanta, the U.S. Ambassador to Côte d'Ivoire, REDSO/WCA, and the CCCD technical officer resident in Abidjan, meetings were held with the Ivorian Minister of Public Health, the National CCCD Coordinator/Director of Planning and Statistics, the CCCD Technical Coordinator/Director of Public Health, the Director of the Institute d'Hygiene, the Director of the

Institute of Public Health, and members of their senior staffs charged with carrying out the major CCCD interventions: Expanded Program of Immunization (EPI), Control of Diarrheal Diseases (CDD), Malaria Control, Health Education, Training, Health Information systems, and Operational Research.

Field visits were made to Primary Health Care facilities in Abidjan, and to the Rural Health Sector of Azope (100 kilometers north of Abidjan). The team met with the Chief Medical officer, doctors, nurses, technicians, and other primary health care health support personnel. Annex B contains a listing of personnel contacted and their titles.

The team also reviewed relevant documents related to the CCCD project in the Côte d'Ivoire and its Primary Health Care Program. (See Annex C for a list of principal documents consulted.)

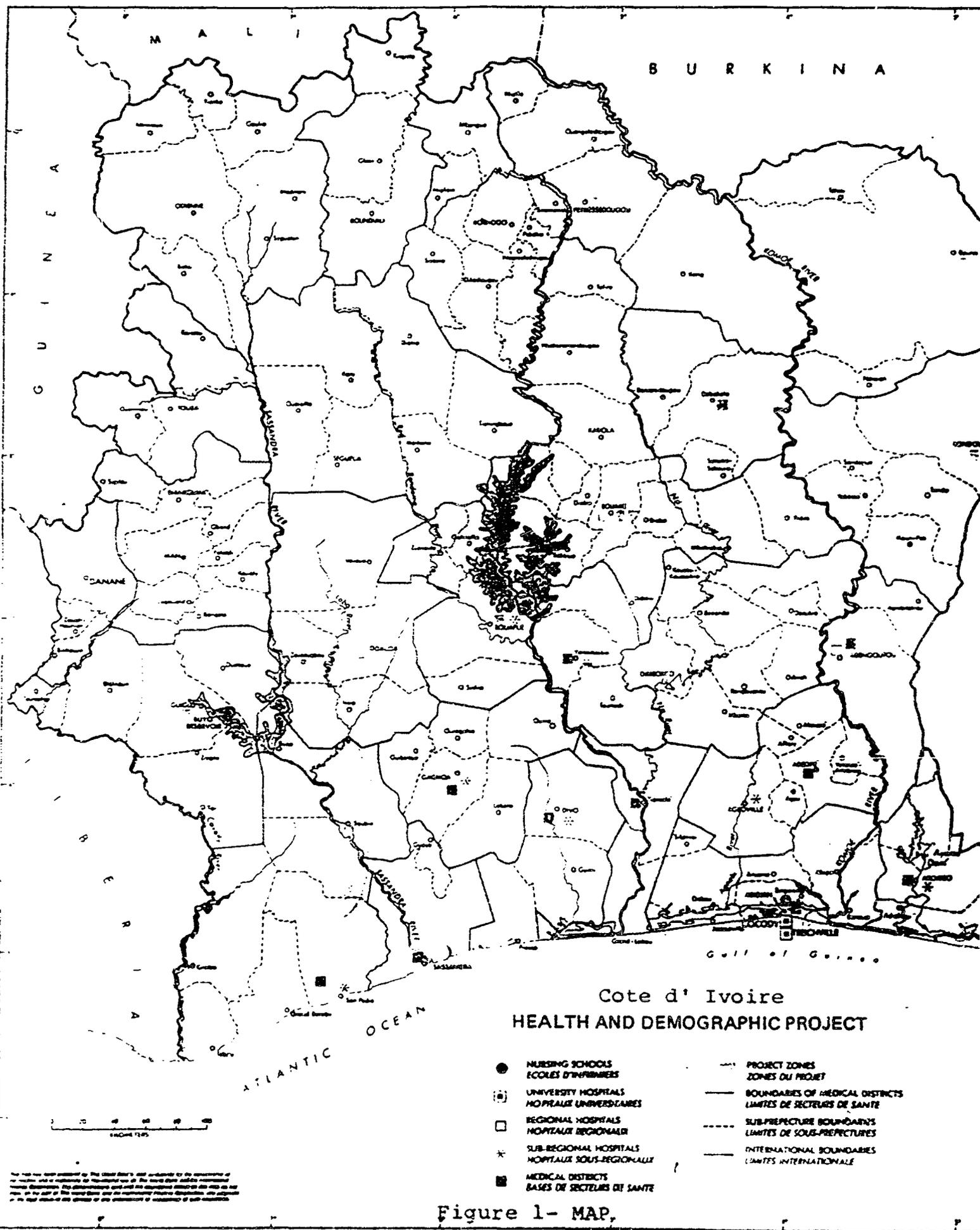


Figure 1- MAP,

Source: World Bank: Health and Demographic Project Paper, 1984

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2.0 Project Planning, Administration and Management

Progress in planning, administration and management to date has been positive but modest. A solid foundation has been laid for substantial advances in the future for the principal CCCD interventions.

While the government's public declarations and stated commitment to primary health care are clear, apart from the successful national vaccination campaign, concrete actions on other major child survival/primary health care interventions have been slow in coming (e.g. combatting diarrheal diseases--construction of an ORT Demonstration and Training unit at CHU Treichville, implementing a malaria program, and utilizing primary health care support services--training, health education and health information systems).

On June 29, 1987 Acting REDSO Director Handler sent Project Implementation Letter number 7 to Professor Alphonse Djedje Mady, Minister of Public Health and Population proposing that the following five specific actions be completed by 31 May 1988:

1. "A National Malaria Policy has been adopted";

Status 5/31/88: The National Malaria Policy was signed by the Minister in early 1988, and the appropriate Ministry services are preparing plans to implement the policy.

2. "A National Diarrheal Disease Policy has been adopted";

Status 5/31/88: The draft CDD policy is circulating in the Ministry. Unofficial comments indicate it will require some revision before official approval. Progress on this activity was delayed by the highly successful National Vaccination campaign, which took place in summer and fall of 1987.

3. "A Oral Rehydration Therapy demonstration and training unit has been established at the CHU Treichville and four units have been established at regional hospitals";

"Unfortunately, the most recent year for which data could be obtained was 1986. Thus, data from the system cannot be used to evaluate the impact of CCCD activities on vaccine-preventable diseases or other targeted conditions (malaria, diarrheal diseases and yaws)."

Mission Comments: Morbidity and mortality data for 1987 is now available from health centers throughout the country. REDSO/WCA would like added to the report a recommendation that the redesign team Epidemiologist be requested to evaluate this data.

Status as of 5/31/88: The Minister of MOPHP reaffirmed his government's agreement to go ahead with the demonstration and ORT training center at CHU Treichville at a meeting with the evaluation team on June 3, 1988. At that time, the Minister scheduled a meeting on Tuesday June 7 at the CHU hospital with the REDSO/Director, Regional Health officer, and CCCD to select the building site for the ORT Training Center.

4. "Two additional Mid-level Management (MLM) courses have been held";

Status as of 5/31/88: The two MLM courses were postponed because of the National Vaccination campaign, and new dates have not been set.

5. "A Practice Survey has been undertaken"; and

Status as of 5/31/88: The practice survey was carried out in Abidjan in early 1988, and revealed the urgent necessity of doing something to increase the vaccination coverage of the new children coming of vaccination age -- e.g. the survey showed that for measles vaccination the coverage level for this new group was only 25% in Abidjan.

6. "A statistics course for the Chief Medical Officer in the field has been held".

Status as of 5/31/88: This course has not been held or scheduled.

As can be seen from the above, actions taken on the above mentioned points to date have been mixed. The national vaccination campaign in 1987 (for which the MOPHP provided leadership) required an enormous effort that virtually stopped all other primary health care activities for a period of six months. This explains in part why action on some of the points was delayed. Section 5.0, "Assessment of Major CCCD Components", which follows, discusses in more detail the specific actions referred to above.

President Houphouet-Boigny was one of the first heads of state to ratify the "Charte de Développement Sanitaire de la Région Africaine d'Ici à l'An 2000" (January 19, 1981), which approved the concept that Primary Health Care

constituted the health care strategy needed to reach the social objective of "health" for all by the year 2000. However, it was not until February 1, 1986 that a coordinator was named --the deputy director in charge of Epidemiological Disease Control in the Directorate of Public Health. The first Inter-Ministerial Committee for Primary Health Care meeting was held in late August 1986.

The team has been informed that the government's commitment to providing primary health care services (including the principal CCD interventions) is reaffirmed in the government's draft five year National Public Health plan for 1986-1990 now in clearance. When the team met with the Minister of Public Health and Population, he stressed the high priority attached by the Government to Primary Health Care and more specifically the CCD project interventions -- EPI, CDD, and Malaria.

2.1 Development and Adequacy of Operational Plans to Govern and Support Field Activity

The general situation in the Côte d'Ivoire regarding operational plans for the CCD interventions is that they either do not exist or are in the process of development. A positive first step in this process has been for the government to approve policy statements for major primary health care interventions -- e.g. the government recently approved a policy document setting forth its policies and goals in the field of malaria. A similar statement is currently circulating in the MOPHP for Control of Diarrheal Diseases. The EPI policy is already established, and this intervention is further along than the other CCD activities. The Institute d'Hygiene is concentrating on establishing operational plans for EPI activities. In sum, specific operational plans are just now being developed for the three primary interventions under the CCD project.

As noted above, the EPI program is furthest along with sixteen of the Chief Medical Officers in the 25 public health sectors in Côte d'Ivoire having responded to a request for the workplans for 1988, including a description of the needs in personnel, medical supplies and equipment, vehicles, logistic support, etc. While these requests do not contain budgets, they are specific enough for the most part to allow costing at the central level. UNICEF, as part of developing their next five year program (1990-1994), is working jointly with the government to develop a time phased plan and budget outlining the government's intentions and priorities for EPI.

UNICEF is also working with the Ministry in evaluating the CDD/ORT activities to date, with a view to developing an ORT action plan for the next five years. The MOSPP's policy statement on Malaria Control was signed recently by the Minister; however, operational plans to implement these policies have not yet been developed. This is an area where the CCCD project inputs have been particularly helpful to the Ministry.

The team feels operational plans for the major interventions are an absolute necessity and that this exercise should be treated as a process. The CCCD project is well positioned to help facilitate the process. The plans should be as simple as possible. For example, at the outset, they might contain three things: a review of last year's activities, a plan for this year's program, and a detailed projection of next year's needs. It is hoped that the EPI operational plans now being prepared can serve as an example and facilitate the work of those working in the other interventions.

2.2 Capacity of Government Management and Administrative Structures to Administer the CCCD program

The basic primary health care structure is in place and functioning with eight regions, 25 health sectors--excluding the city of Abidjan--and some 800 health facilities (i.e. basic health centers, dispensaries, Maternal Child Health centers, etc.), of which about 50% are equipped to handle vaccinations. Essentially the administrative structure is there. What is needed is basic primary health care planning, establishment of workplans reflecting Ministry priorities, provision of adequate training and supervision, and provision of the necessary logistical support --transport, gasoline, bottled gas, spare parts, other equipment, etc. (See Figures 2, 3, and 4 dealing with the Côte d'Ivoire Public Health Organization.)

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Cote d' Ivoire

HEALTH AND DEMOGRAPHIC PROJECT

MINISTRY OF PUBLIC HEALTH AND POPULATION

ORGANIZATIONAL CHART (May 30, 1984)

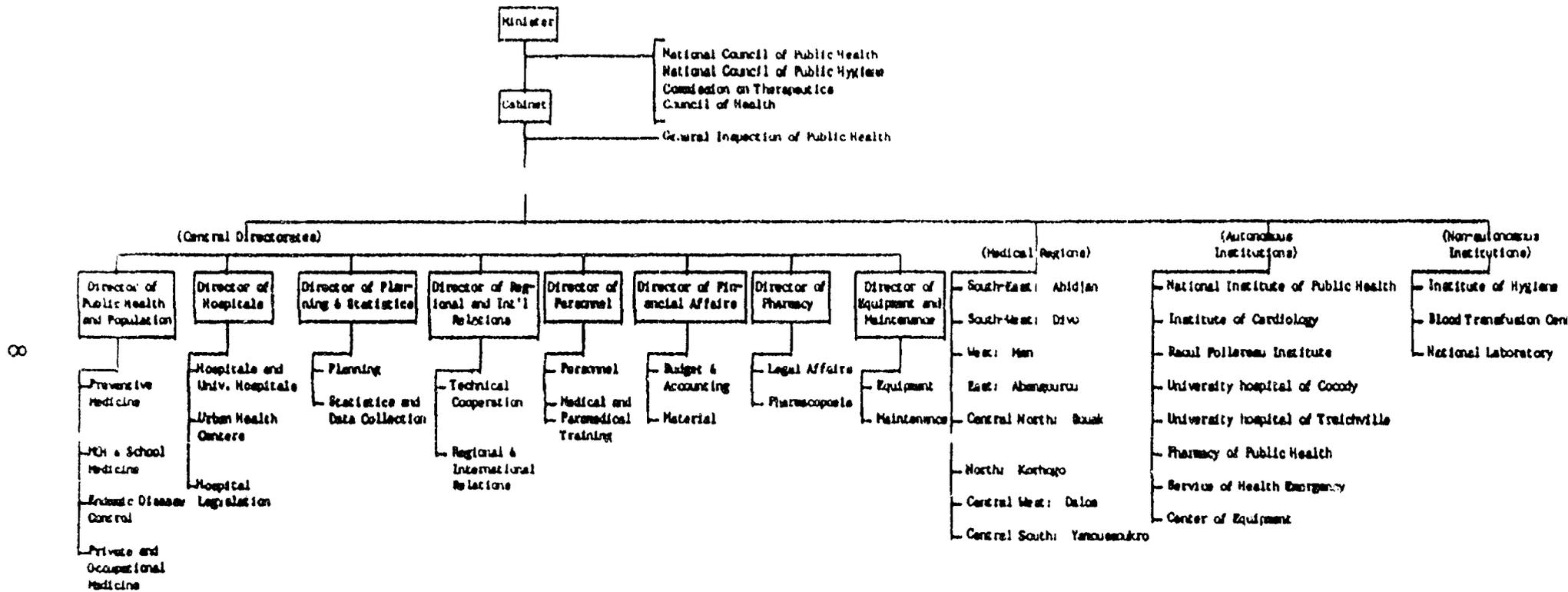


Figure 2 - Organizational Chart

Source: World Bank: Health and Demographic Project Paper, 1984

NATIONAL HEALTH PYRAMID

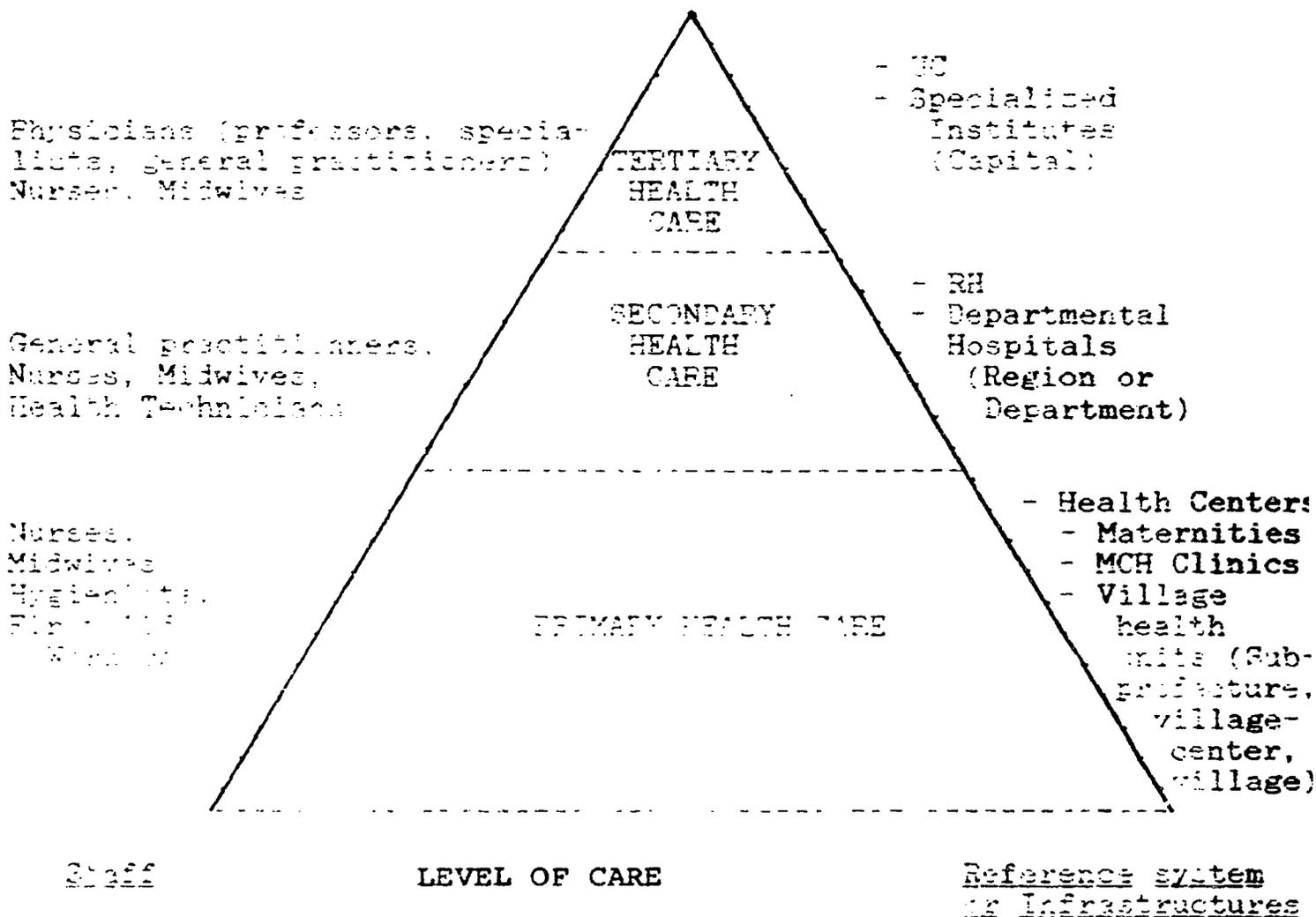


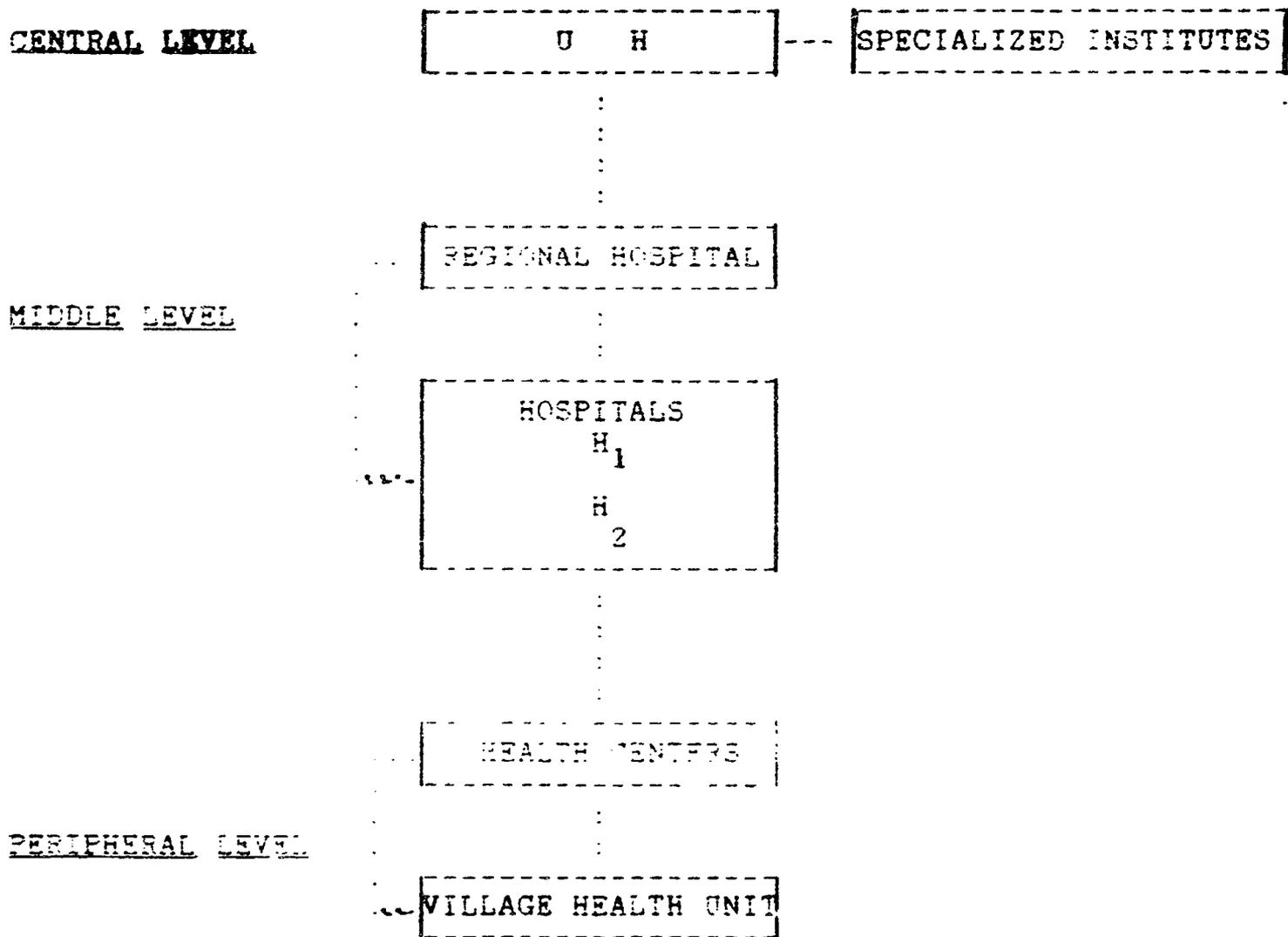
FIGURE 3

Source: IMBOUA-BOGUI (G)

Les Soins de Santé Primaires et l'Approche Sociale des Prestations Sanitaires, INSP, 1981
(Primary Health Care and Social Approach for Health Deliveries, INSP, 1981)

Best Available Document

REFERENCE SYSTEM CHART



Job Contents and Descriptions

Primary Health Care National Coordinator

Under the authority of the Director of Public Health and Population and in close collaboration with the other officers of health services or other organizations, the Deputy-Director of Major Endemic Diseases, appointed as the National officer for Primary Health Care, collects and centralizes all the necessary information for implementing the national primary health care program as defined by the Minister of Public Health and Population.

Figure 4

Source: Direction of Public Health, MOSP, Côte d'Ivoire, briefing document for First Meeting of National Committee for Primary Health Care, 8/28-29, 1986.

While budgets and plans are not yet activity oriented (i.e. EPI, CDD, Malaria, etc.), they already exist from a functional standpoint, i.e., for the operational costs of personnel, maintenance, travel, and logistic support for both hospitals and public health care facilities. Doctors, nurses, paramedics, are in the system and have received solid basic medical schooling. However, many have not had specific training in primary health care --more specifically in the CCCD interventions (EPI, CDD, and Malaria). Many who have received initial training need recycling. Therefore, the Evaluation team has concluded that the potential capacity is there.

At the CCCD National Coordinator level, there have been coordination difficulties and some confusion in sorting out lines of authority for CCCD interventions that are interdepartmental within the Ministry of Public Health and Population. In addition, support is required from time to time from other Ministries (e.g. primary education).

Experience has demonstrated the need to modify the CCCD coordination arrangement somewhat in order to involve those responsible for operating the CCCD programs more directly. The evaluation team's suggestion to name a Technical Coordinator in addition to the National CCCD Coordinator is based on consultations with the CCCD TO, the National CCCD Coordinator, the Director of Public Health, and the Minister of MOPHP. It is hoped that this change will help facilitate the coordination of CCCD activities in the future.

Much needs to be done over the next several years to make the existing primary health care structure more productive. The MOHP has made it clear that it would like CCCD help with planning and in the supervisory, management, and training aspects involved in the delivery of these health care services.

2.3 AID and CDC Administrative Performance in Support of Project, Adequacy of Procedures Established for This Purpose

Overall the total REDSO/WCA, AID/W, CDC administrative performance has been satisfactory, although there have been administrative delays along the way. Some equipment and supplies are still arriving even though they were ordered well over a year ago.

While the CCCD Technical Officer was strongly supported from a technical standpoint by CDC/Atlanta and AID/W, the same level of support was not apparent on general health management and organizational problems. The team had the impression that the situation had improved over the last six to nine months, especially in terms of REDSO support.

The REDSO Program Specialist for CCCD affairs paid for by the project, who was brought on board in the fall of 1987, was fully operational and devoting 100% of his time to the CCCD project. In February 1988, the backstop responsibility for the project was moved within REDSO to the Regional Health Officer, bringing improvements in both technical and management support. The REDSO Director also has met with the Minister of Health and Population to resolve important CCCD policy and operational problems.

The team understands that REDSO is prepared to continue this support in the future. As recommended in the technical section of this report, since the resident Epidemiologist position has been eliminated, strong backstopping support will be required from CDC/Atlanta assuming the project is extended as recommended by the Evaluation team.

The new Technical Officer (hopefully on board by October 1988) should be off to a fast start, since the CCCD project is fully operational and a good foundation has been laid with key Ministry officials responsible for the principal CCCD interventions by the present TO, who leaves in June 1988.

2.4 Conclusions

For the reasons given above on the planning and administrative support side and in the technical sections below, the evaluation team is convinced that a substantial extension of project closing date or second phase will be required if the objectives of the project are to be achieved. Based on its in-depth conversations with the Ministry of Health and Population and international donors (UNICEF, World Health Organization, and the World Bank), and their strong support for continuing the CCCD project, the evaluation team feels an extension of the CCCD project is warranted. However, given the magnitude and the importance of the three major CCCD project interventions (EPI, CDD and Malaria), the team feels a short extension would be of no particular value and that an extension until September 1991 is highly desirable.

If a second phase is approved, the CCCD project needs to be redesigned jointly with the Ivorian government, drawing on the experience to date, to make it more productive and responsive to changes that have taken place over the last three years, in line with Ivorian priorities and commitments to providing primary health services.

The preparation of the second phase should be considered as a joint process, not a single action -- i.e. it should involve a series of time phased administrative and program

steps to be taken by both the Ministry of Public Health and USAID/REDSO that will clarify the priorities, define the operational structure, and specify the actions to be taken by both entities.

As noted earlier, the Ministry of Public Health and Population values highly the contribution of the CCCD project to date and has made clear its desire that the project be extended and redesigned as necessary to make it more effective. The Evaluation team strongly endorses this position.

2.5 Recommendations

1. The evaluation team recommends that the following actions be completed prior to the call forward of the redesign team (see section 7.0 below) in early September 1988:

The status of the plan to appoint the Director of the Public Health Directorate as the Technical Coordinator for the CCCD project should be clarified before the arrival of the redesign team. If this proposal is adopted, the division of duties and responsibilities between the National CCCD Coordinator and the CCCD Technical Coordinator should be written up and approved by the Minister of Health and Population.

The CCCD Technical Coordinator should then be confirmed as responsible for the following activities and assure that a responsible officer is named for each of the activities:

- Expanded Program on Immunization (EPI)
- Malaria Control
- Control of Diarrheal Diseases (CDD)
- Health Education
- Health Information Systems (HIS)
- Training

For each of these activities, the Technical Coordinator should be authorized to obtain the support of the following technical and logistic services:

- Institute d'Hygiene for EPI
- National Institute for Public Health (INSP) for Malaria
- Directorate of Public Health for CDD
- National Institute for Public Health (INSP) for Health Education

- Directorate of Planning and Statistics for the Health Information Systems (HIS)
- National Institut for Public Health (INSP) for Training

Action by the Ministry to move ahead on the proposal (approved by the Inter-Ministerial Committee on Combatting Diarrheal Diseases) to build a central ORT training facility at CHU Treichville. The Evaluation team strongly recommends that the construction be financed from CCCD project funds.

Submission by the CCCD National Coordinator of the accounts for the first 100,000 liters of gasoline used in the vaccination campaign, agreement on a system for future accountability, and release by REDSO of a second 100,000 liters for supervisory/ follow up EPI activities.

Submission by the CCCD National Coordinator of the justification for the first and second cash advance of \$156,250 (54 million CFA), submission of a plan for use of the next advance, and release by REDSO of the third cash advance.

Submission by the CCCD National Coordinator of the remaining outstanding CCCD quarterly reports and their review by REDSO.

2. The Evaluation team recommends that the extension, or second phase be through September 1991. No additional funds would be required initially, since as of May 20, 1988, uncommitted funds amount to \$876,000 or about CFA 251 million (\$1.00=287CFA).
3. Replacement of the current CCCD Technical Officer, who is scheduled for transfer in mid-June, is an absolute necessity for the successful continuation of the project. He should be replaced as soon as possible (i.e. early to mid-October).

It is highly desirable that new Technical Officer (designate) participate as a member of the redesign team before beginning his or her assignment.

4. Continued strong support from REDSO (including the REDSO Director, and the Regional Health officer), will be required during the second phase proposed above. Given the regional responsibilities of the REDSO staff, the present full time local hire REDSO CCCD program specialist (financed from regional CCCD project funds) should be continued -- at least through the first two years of the extension.

5. Identification of an epidemiologist at IHPO, CDC/Atlanta who will serve as the source of ongoing epidemiologic support to the project for the next 3 years. This individual must speak French, be available for in country consultancies 3 or 4 times a year, and, if at all possible, should be a member of the redesign team.

2.6 Donor Coordination

2.6.1 Context

MOPHP has no formal arrangement for coordinating donors in the field of primary health care or for the CCCD project. When the national vaccination (EPI) campaign was held in 1987, the Minister chaired adhoc meetings of donors to assure that resources were provided as needed in a timely manner. This coordination effort was very successful. The ~~team~~ feels that the government might want to consider the establishment of a donor coordination committee, chaired by the Minister of Health and Population or his representative, which would meet annually and more often as needed. One important objective would be to focus donor support on government priorities in primary health care.

The CCCD project has excellent working relationships with UNICEF. This close cooperation should be continued, especially in the major CCCD interventions of EPI and CDD Oral Rehydration Therapy. Cooperation with The World Health Organization Representative, who has also been closely involved with the CCCD activities designed to support the government's primary health care program, should be continued.

The World Bank is interested in Public Health Care beyond its current loan to the Côte d'Ivoire for Nurses Training, Census, and Health Management. When the World Bank Representative met with the Evaluation team, he stressed the Bank's growing interest in the Human Resource sector concentrating on Education and Public Health (Primary Health Care).

The WB representative also underlined the importance he attached to the CCCD activities, expressed the hope that the project would have a second phase, and stated his desire to cooperate with the CCCD project as the Bank's activities in the Social sector move forward.

2.6.2 Recommendations

1. The Ministry should consider the creation of a donor support committee for the government's primary health care activities to coordinate the multi faceted activities involved in PHC activities and to assure that they represent the most efficient use of resources in meeting primary health care objectives in the Côte d'Ivoire.
2. In addition to maintaining their excellent cooperative working relations with UNICEF and WHO, the CCCD REDSO program specialist and the CCCD Technical Officer should keep the WB Representative abreast of its CCCD activities with a view to future cooperation.

3.0 Measurement of CCCD Project's Impact on Lowering Morbidity, and Mortality, and/or Increasing the Availability of Health Care Services

3.1 Examination of Relevant Epidemiologic Statistics

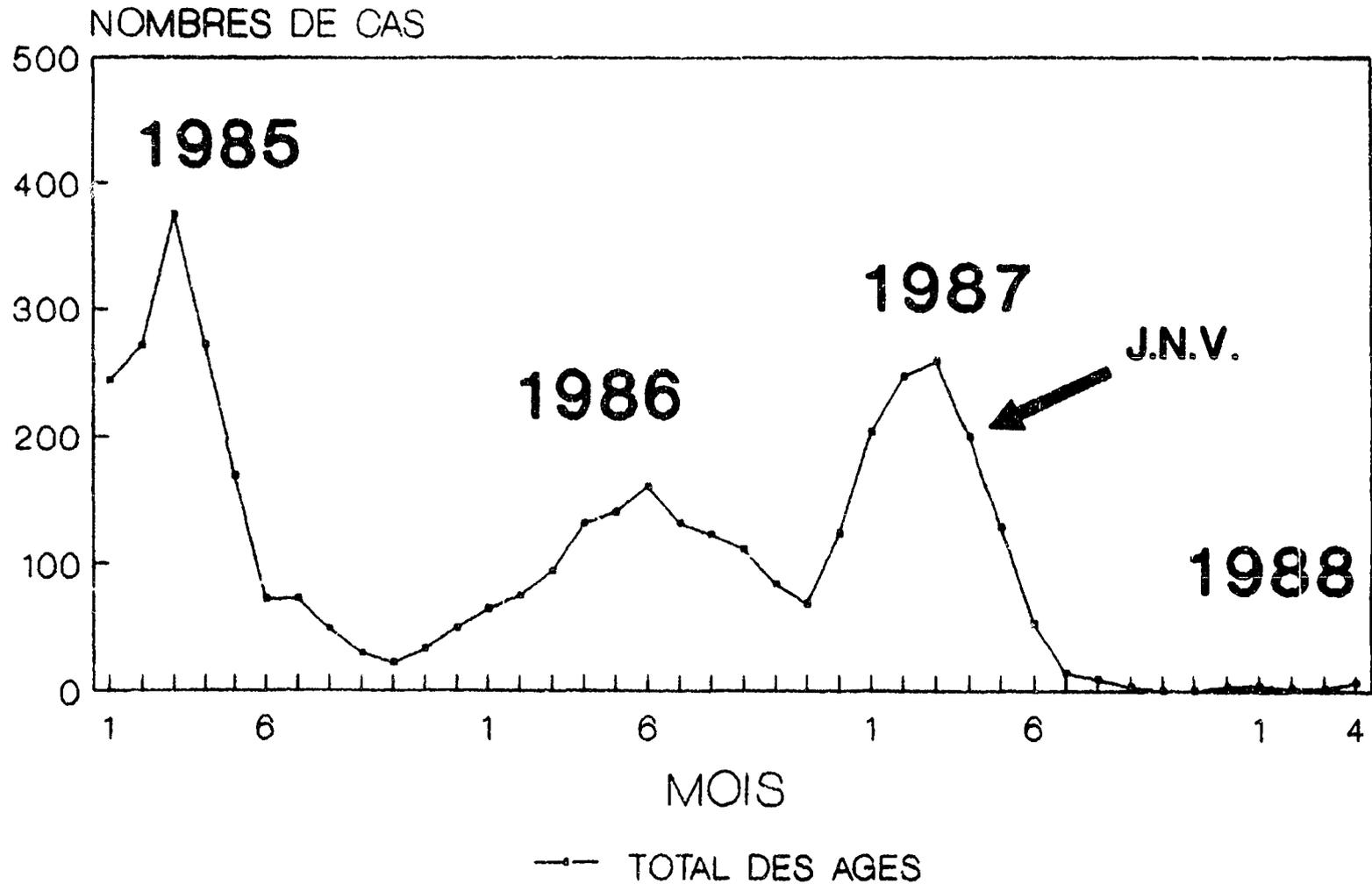
3.1.1 Vaccine-Preventable Childhood Diseases (EPI)

Data concerning the number of cases of measles, tetanus, polio, etc. are collected routinely at government health centers, which are supposed to submit monthly reports categorizing the patients seen by age and type of illness. Unfortunately, the most recent year for which data could be obtained was 1986. Thus, data from this system cannot be used to evaluate the impact of CCCD activities on vaccine-preventable diseases or the other targeted conditions (malaria, diarrheal diseases, and yaws). However, data from the University Hospital at Treichville in Abidjan (Figure 5) demonstrate that the number of cases of measles occurring in 1988, following the mass vaccination campaign, is dramatically lower than in previous years. Unofficial figures for the total number of measles cases in Abidjan during the first ten weeks of 1988 show a similar sharp decline from 1987 (37 cases in 1988 vs 425 cases in 1987) (Report of Dr. Siguiforta Ouattara, Director of EPI, Ivory Coast, See Figure 5).

A similar decline in cases of both measles and pertussis is seen in data from a sentinel surveillance project in Boundiali (Figures 6 and 7). Similar data from other parts of the country or for other EPI-diseases are not available.

CAS DE ROUGEOLE CHU TREICHVILLE 1985-88

(Measles Cases at University Hospital Treichville)



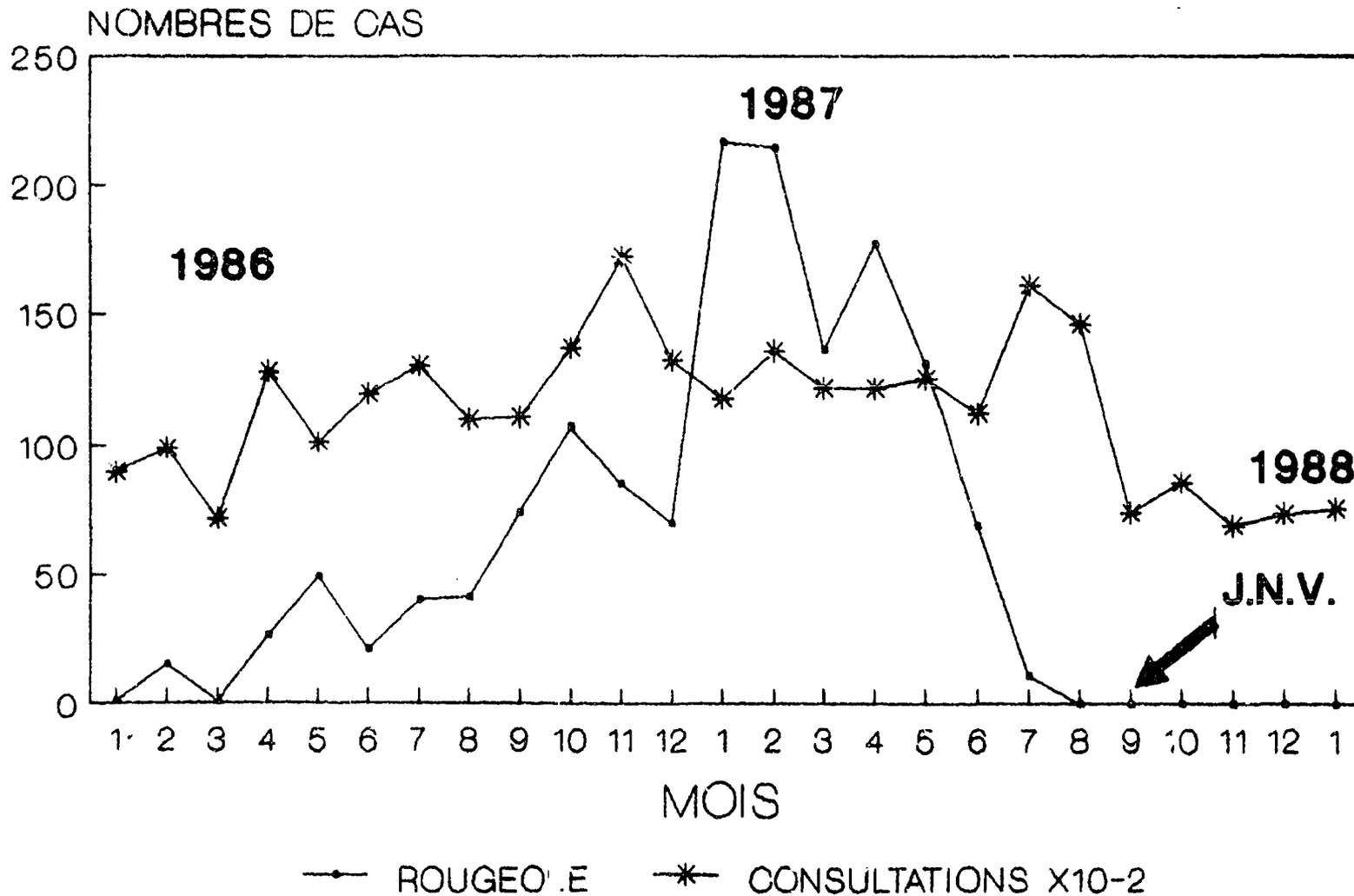
ACSI-CCOD COTE D'IVOIRE

Source: CCCD/Abidjan 6/88

Figure 5

CAS DE ROUGEOLE SSR BOUNDILAI 1986-88

(Cases of Measles at Regional Hospital Boundilai)



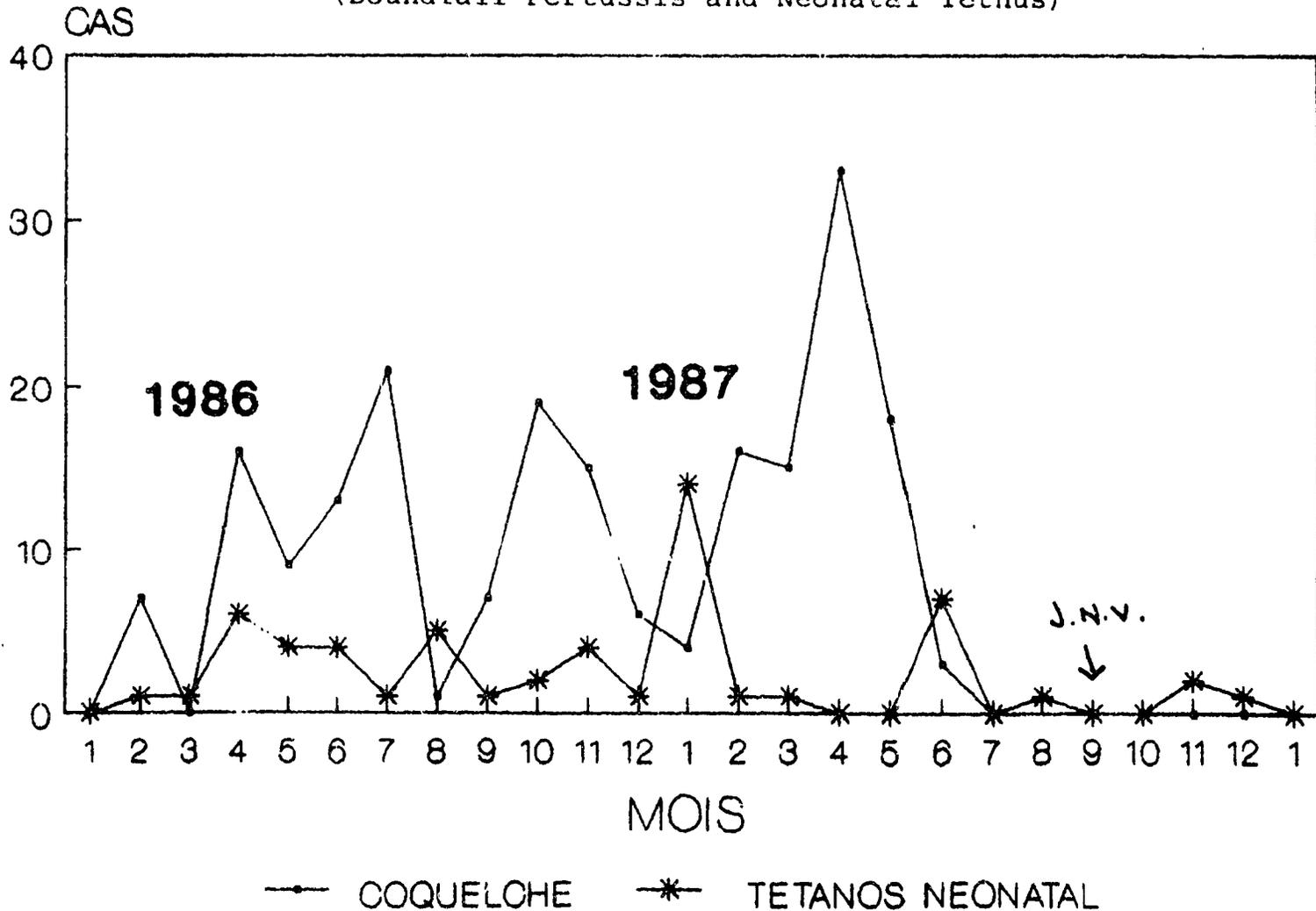
Source : CCCD/Abidjan 6/88

Figure 6

DONNEES DE LA BASE DE SSR

BOUNDIALI COQUELCHE ET TETANOS NEONATAL 1986-88

(Boundiali Pertussis and Neonatal Tetnus)



DONNEES DE LA BASE DE SSR

Source: CCCD/Abidjan

Figure 7

Data concerning the number of patients hospitalized with various conditions and the number of those patients who died have been collected in the past. While a new hospital-based data collection system currently is being designed, no data are available for 1985-87. Thus, information concerning the number of hospitalizations and deaths due to EPI-diseases for the time period of interest is unavailable.

3.1.2 Malaria

For the reasons outlined above, no malaria morbidity or mortality data are available for 1987. A health practices survey of mothers in Abidjan in January 1988 revealed that 28% of 1,953 children less than 5 years of age had had fever within the previous two weeks. In a study conducted in March-May 1986 in Agboville, 90 km from Abidjan, 42 (22%) of 191 children less than 5 years of age with fever seen at an MCH clinic were parasitemia at levels >1000 plasmodia/ mm^3 (Report of Dr. G. Imboua-Bogui and M. Diawara).

3.1.3 Diarrheal Disease

Again, no overall morbidity or mortality data are available for 1987. Data from the health practices survey mentioned above revealed that 28% of children less than 5 years of age also had had an episode of diarrhea during the preceding two weeks. A retrospective study of admissions to four large hospitals (2 in Abidjan, 1 in Bouaké, and 1 in Korhogo) in 1986 showed that 1,746 (11.7%) of 14,964 children less than 5 years of age admitted had diarrhea, of whom 179 (10%) died (Report by A. Coulibaly and others). Of the 85 children treated at the ORT unit at CHU Treichville in January-March, 1988, 56 were class A, 28 class B, and 1 class C; none died. However, the most severe cases of diarrhea accompanied by dehydration are admitted to the hospital directly and are not included in these tabulations.

3.1.4 Yaws

Again, no country-wide data are available. During the national vaccination campaign in September-December 1987, a survey of the most heavily infected subdistricts of the 3 rural districts thought to be most seriously affected showed that 2,825 (7%) of the total population of 39,031 had yaws (Report of the Ministry of Public Health and Population).

Mission Comments: Morbidity and mortality data for 1987 is now available from health centers throughout the country. REDSO/WCA would like added to the report a recommendation that the redesign team Epidemiologist be requested to evaluate this data.

3.2 Examination of Health Services Statistics

Data permitting an assessment of whether or not the availability of specific CCCD-related health care services has increased are limited. The number of health facilities offering routine childhood vaccinations has increased throughout the country as a result of vaccination equipment and vaccines being distributed during the mass vaccination campaign. According to Dr. Ouattara, approximately 415 of 800 health facilities in the country now are vaccinating children routinely, compared with only 265 before the campaign. At the same time, the proportion of health centers using oral rehydration therapy (ORT) reportedly has increased from approximately 50% in December 1986 to approximately 98% at the end of 1987, although only 80% of facilities have received ORS packets. (Facilities Survey, December 1986 and Evaluation of the Distribution and Utilization of ORS packets, Report by Professor Assi Adou and others). The availability of services for malaria and yaws has not changed.

3.3 Adequacy of Health Information Systems, Current and Planned, to Provide Data Needed to Measure Project Impact

The current health information system is limited in its ability to provide data needed to monitor impact of CCCD interventions, although it has improved since 1985. Monthly reports from government health centers are now received in a more timely manner, and over 90% of such centers now submit reports on a regular basis. However, outpatient clinics at hospitals have yet to be incorporated into this system. Reports from health centers are received and data entered reasonably promptly, but distribution of summaries of the data is being delayed by financial and administrative problems. Thus, the 1986 summary has yet to be duplicated and distributed. Data concerning hospital admissions and deaths are submitted irregularly in a nonstandardized manner, making it impossible to compile summary statistics. Furthermore, the data from 1985-87 have yet to be collated.

Sentinel surveillance for measles has been established at 14 health facilities in Boundiali, which report weekly to the Mèdecin-Chef. Attempts are currently underway by CCCD personnel to revive a sentinel measles surveillance system at 5 health facilities in Abidjan, although when this system was in place for 3 months in 1987 only 1-4 facilities submitted data in any given week (Report of Dr. Davis, June 1987). The data collection form to be used in Abidjan will

collect information concerning prior vaccination status, and is intended to make possible subsequent case-control studies of vaccine efficacy. It is expected that these sentinel measles surveillance systems will be maintained.

Surveillance concerning the use of ORT and the outcome of such treatment could not be evaluated fully. A form for monitoring ORT results, which is thought to have been devised in 1985 when ORS packets were first introduced, was in use in Adzopé. This form included information on the number of children of various ages receiving different forms of therapy for diarrhea with or without dehydration at a given facility in a given month. The Médecin-Chef said that he routinely received such forms from his health centers, but it remains unclear to what extent these forms are used in other sectors, to whom they are submitted, or who is responsible for data collation, entry and analysis and dissemination of results. The CCCD technical officer was unaware that these data were being collected and was doubtful that the system was widespread. Such data are routinely collected and analyzed at the ORT unit at CHU Treichville.

Similarly, surveillance for in vivo chloroquine resistance was being done in Adzopé, which had been the site of previous malaria studies. It appeared, however, that an insufficiency of laboratory materials and personnel time and a very heavy burden of cases of malaria required that this activity be undertaken irregularly. To date, in vivo resistance has not been detected.

3.4 Conclusions

The impact of routine CCCD activities in Côte d'Ivoire on morbidity and mortality from its targeted conditions is open to question. In the area of EPI, the mass vaccination campaign clearly succeeded in vaccinating a large number of children and increasing vaccine coverage rates dramatically. As a result, the number of measles cases in 1988 is down markedly. At the same time, the number of health centers equipped to offer ongoing vaccination activities increased, as did the number of health workers with at least minimal training in this area. However, it is difficult to attribute this public health success to ordinary CCCD activities. The CCCD philosophy is to build and expand the capacity for giving EPI vaccines within the existing health system and, in general, to avoid mass campaigns. In fact, the mass campaign, while increasing vaccine coverage, availability of vaccination equipment, and awareness among the people of the need for vaccinations, tended to inhibit all other CCCD activities for at least six months. While

CCCD made many important contributions to the mass campaign, it remains a debatable point whether or not to attribute the resultant decline in measles cases (and, presumably, other vaccine preventable diseases) and the expanded capacity for ongoing EPI activities to "CCCD".

Data concerning morbidity and mortality from diarrheal disease during the time period of interest are unavailable. Thus, any impact of CCCD in this area is unmeasurable. However, the availability of ORS packets and the use of ORT have expanded markedly, due to the combined efforts of CCCD and UNICEF. In malaria and yaws, no CCCD activities that have occurred to date would be expected to have had an impact on morbidity and mortality from these conditions or on the quantity or quality of services available.

4.0 Program Operation/Delivery Systems

4.1 Overview of Delivery Systems (current and proposed) for CCCD Services

As indicated earlier, the primary health care facilities are in place --eight health regions, 25 health districts or sectors plus Abidjan, and 800 plus health facilities. In addition, there are district, regional level and university national reference hospitals for referrals of cases requiring further treatment. The CCCD interventions (EPI, CDD/ORT, and Malaria) are all part of the Ivorian Primary Health Care (PHC) system. However, there are serious problems with the implementation of the health services protocols and procedures connected with providing these services to the public in both the rural and urban settings. The following section describes some of the specific areas in which the CCCD project can be helpful.

4.2 Review of Specific Elements

4.2.1 Supervision/Personnel Coverage

Personnel would appear adequate. The principal problem appears to be the need for training and refresher courses (recyclage) in the CCCD interventions, and lack of supervision. Both needs are urgent.

For example, in some districts, little or no supervisory help is provided from the district centers to the basic health facilities because of lack of gasoline and per diem to allow existing supervisory personnel to monitor and train field staff in the rural areas. This situation also affects urban supervision in urban areas like Abidjan.

Training of both supervisory and operational personnel and development of supervisory checklists is a high priority and is discussed in Section 5.6 below.

4.2.2 Logistics and Supply

Under the present arrangements, vaccines and other medical supplies for the 25 districts are obtained directly from the central health facilities, and pharmacies in Abidjan. Generally speaking, the vaccines and ORT packets needed in the field are available, and the system works fairly well. Some vaccines, syringes and needles are available--left over from the 1987 national campaign. However, immediate steps need to be taken to assure that the vaccines and equipment needed to sustain the coverage are available in the coming months. In addition to government funds, resources can also be obtained from UNICEF and the CCCD project. (See also the section 5.1 on EPI below)

There are some plans for decentralizing the supplies and vaccines to regional centers that are closer to their respective health districts. However, there is no immediate plan for action in this area.

There appear to be sufficient vehicles available in most districts, albeit some are very old and require substantial maintenance. As maintenance costs increase, the chief medical officers in the districts are finding it harder to find the necessary funds within their budgets to keep the vehicles running.

4.2.3 Communications

Communications in the Côte d'Ivoire are better than in most sub-Saharan countries. Major hard topped roads link all of the provincial urban areas. Even so there are some areas which are isolated during the rainy season. The telephone system is very effective, but not without problems. A good percentage of the population is literate, thus facilitating training and health education (e.g. village health workers can be found who read and write).

4.2.4 Control of Funds and Supplies (inventory)

Government procedures appear adequate in both categories. However, the difficulty is that these procedures are not followed, and the operating entities are very slow in submitting the justification for past purchases. These delays in turn make it difficult for the CCCD National Coordinator to request further cash advances, additional gasoline coupons, or other resources available under the

CCCD project. In June 1988, the CCCD project made arrangements for some accounting help to the CCCD National Coordinator that should help him in meeting the project accountability requirements.

One administrative "detail" that requires urgent attention is the government's delay in justifying the first advance of gasoline coupons (100,000 liters). This is holding up the release of the remaining 200,000 liters in gasoline coupons REDSO already has in hand. An additional problem is that the coupons (bons d'essence) are valid for a limited period of time. So if this problem is not resolved soon, the remaining stock of coupons could become invalid.

4.3 Recommendations

1. The responsible officers managing the principal CCCD interventions (EPI, CDD, and Malaria), and the support activities (training, health education, health information systems and operations research), in developing their annual operational and multi year programs and plans, should include realistic time phased estimates of personnel, training, supervisory, logistic, and budget/cost requirements. The project redesign team working with their Ivorian counterparts should explore these aspects in depth, and make specific recommendations for moving ahead in these areas.
2. As recommended in the Planning, Administration, and Management section (2.5), the National Coordinator needs to complete the accounting for the previous gasoline provided under the project, so additional amounts already in hand can be made available.

If necessary, the validity date on the remaining gasoline coupons (bons d'essence) should be extended to assure adequate time for use in the field.

5.0 Assessment of Major CCCD Project Components

5.1 E.P.I

5.1.1 Assessment

The mass vaccination campaign in 1988 was highly successful in raising vaccination levels across the country. Well done coverage surveys following the campaign demonstrate that vaccine coverage among children 12-23 months of age ranged from 71 to 96% by antigen (e.g. >80% for measles and yellow

fever and >70% for 3 doses of DTP and OPV) and that 63% of pregnant women received at least 2 doses of tetanus toxoid. Other beneficial outcomes of the mass campaign include greater awareness among the population of the importance of vaccinations, an increased proportion of health centers with vaccination equipment, and more health workers with at least some training in vaccination-related activities. In addition, there is heightened interest and receptivity on the part of officials in the Ministry of Health and Population in developing new strategies for maintaining high vaccination levels. Thus, the campaign has set the stage for making major strides in this CCD component area.

The need for CCD assistance in developing a system capable of maintaining high vaccination levels is made evident by the following:

1. Even after the campaign, only a little over 50% (415 of over 800) government health centers are equipped to continue vaccination activities. Virtually all of those not so equipped do not have electricity.
2. At those health centers that are equipped to offer vaccinations, vaccination activities usually are limited to one morning a week.
3. The health workers "trained" during the campaign received only two days of training, which was largely devoted to vaccination techniques. Thus, many health workers throughout the country require training or retraining in all EPI-related activities (vaccination techniques, cold chain maintenance, etc.). Although only 2 health centers were visited by the team (one near Abidjan and one in Adzopé), a number of deficiencies in EPI activities were evident that further support the need for additional training. At neither center were records kept of refrigerator/freezer temperatures, nor was there awareness of the importance of doing so. In both centers, vaccines in the refrigerators were in a completely disorganized state, making it difficult or impossible to ensure that vaccines with earlier expiration dates are used first. Neither center vaccinated children being seen for minor illnesses or mothers of young children. Vaccination technique in one center was poor, with tetanus toxoid being given to pregnant women subcutaneously and using the same disposable syringe for 4 mothers. Out of date BCG was received by one of the centers a few days before our visit.

4. The health practices survey in Abidjan in January 1988 demonstrated that vaccination coverage since the campaign is falling even in Abidjan. Among children born after the vaccination campaign and at least 2 months of age at the time of the survey, it is estimated that only 50-60% have received a first dose of OPV. Among children reaching 9 months of age after the campaign, only 25-30% appear to have received measles vaccine. Similarly, coverage with yellow fever vaccine among children reaching one year of age since the campaign has fallen sharply. Of 85 children treated for diarrhea at the ORT unit at CHU Treichville in the first 3 months of 1988, only 28 (33%) had been fully vaccinated. The situation outside of Abidjan is unknown, but is likely to be no better, if not worse.

Both the Ministry of Health and Population and UNICEF recognize the need for developing the capacity to maintain high vaccination levels via expanded fixed vaccination sites, and both are planning major activities in this area in the next 5 years. For example, UNICEF currently intends to equip an additional 15 health centers a year for vaccination activities.

Previous collaboration between the Ministry of Public Health and Population and CCCD/UNICEF has resulted in a number of discernible improvements/ changes in the area of EPI:

Surveillance/Monitoring of Impact - As noted above, sentinel surveillance for measles has been established in two locations. In addition, collection of morbidity data from government health centers has been made more complete and more timely (see above).

Planning - The Institute of Hygiene currently is attempting to assess needs in each sector for improving the routine delivery of vaccination services and maintaining vaccine coverage rates of 70% (first dose of DPT and OPV in children less than 1 year of age) in 1988. To date, 16 of 25 sectors have returned plans outlining their needs. While the planning form used has several shortcomings (e.g. insufficient detail concerning training needs, no advance planning for future years, etc.), there is clearly an interest in beginning to plan for future needs.

Financing - During the mass campaign, vaccination cards were sold for 100CFA in Abidjan and 50CFA elsewhere. Health cards are being sold for 155CFA.

However, major deficiencies that will hamper future efforts to expand the availability of routine vaccination activities continue to exist. In particular, there is a large, as yet unmet, need for adequate training and supervision at the peripheral level.

5.1.2 Conclusions

Impressive vaccination coverage rates were achieved by the national campaign in 1987, but they are not being sustained by the current system. Vaccines and vaccination equipment left over from the campaign are available, but they are insufficient to expand vaccination activities to all existing health facilities and beyond, as is the number of trained health workers. While UNICEF will be playing a major role in future vaccination activities, there will be a continuing need for substantial CCCD assistance in the areas of training, supervision, surveillance, evaluation, and auto-financing.

5.1.3 Recommendations

- 1. Coordinate all CCCD EPI-related activities closely with UNICEF.**
- 2. Focus CCCD efforts on improving and expanding training and supervision.**
- 3. Assist in maintaining and expanding sentinel surveillance (e.g. measles) and surveys (e.g. polio and neonatal tetanus) designed to monitor impact of EPI activities.**
- 4. Assist in a post-mass campaign global evaluation of the deficiencies of the existing EPI program and infrastructure and in the development of a multi-year action plan for correcting those deficiencies. Include in the evaluation a WHO- like assessment of missed opportunities for vaccination.**
- 5. Assist in developing auto-financing schemes in EPI.**

6. Consider supporting operations research studies of missed opportunities for vaccination and of the costs and utility of increasing the number of vaccination sessions per week at health facilities.

5.2 Oral Rehydration Therapy

5.2.1 Assessment

Progress in developing and implementing a national ORT program has been slow and erratic. The policy initially developed included the use of ORS packets and three other ORT solutions (sugar-salt, rice water, and guava leaves), apparently for both preventing and treating dehydration due to diarrhea. Health education materials were developed accordingly. Because it was felt that recommending three alternative ORT solutions was potentially confusing, a decision was made subsequently to promote only the use of ORS packets and sugar-salt solution. More recently, concerns have been raised about encouraging the use of sugar-salt solution because a CCCD-supported study has demonstrated that 30% of mothers were making potentially dangerous solutions one day after receiving much more intensive education than is likely to be possible in most health centers (Report by Dr. E. Shaw and others). Furthermore, a second CCCD-supported study showed that 74% of households did not have sugar available routinely. Thus, at the moment, there is confusion concerning the appropriate role of various alternative ORT solutions. In addition, there are differences of opinion about whether ORS packets should be used for all cases of diarrhea or only those in which dehydration is present. For example, in the health facilities survey conducted in December 1986, approximately half the health centers (48% in Abidjan and 52% outside Abidjan) reported using ORS packets to treat all cases of diarrhea, with or without dehydration.

ORS packets have been donated by UNICEF and CCCD, and they are now widely distributed. As noted above, almost 100% of health centers claim to be using ORT and 80% have received ORS packets, although only 55% report being resupplied regularly. ORS packets are also available in many pharmacies. At one pharmacy visited in Adzopé, ORS packets were available at a cost of 145CFA (\$0.50)

At the health center visited near Abidjan, ORT was being used to treat an estimated 5-10 children a day. Children with diarrhea and no dehydration were sent home with ORS packets, those with mild and moderate dehydration were treated with ORS at the center and then discharged with additional ORS packets, and those with severe dehydration

were referred to CHU Treichville. Intravenous fluids were not available. Health workers at the center had received minimal training in ORT at the center itself. Mothers are given a verbal description of how to use the ORS packets, a handout describing all 3 alternative ORT solutions, and instructions to return the next day to have the child checked. A log of all patients treated with ORT was being kept, including age, sex, pre- and post-treatment weight, stage of dehydration, amount of ORT received, and any associated illnesses.

In Adzopé, all the 30 health centers reportedly had ORS packets, and were using them to treat all cases of diarrhea. In theory, cases of diarrhea without dehydration were dispensed 2 or 3 ORS packets for use at home (1 per day), and cases of diarrhea with dehydration were referred to the hospital for ORT or, if severe, IV therapy. A sample of the ORT records being maintained, however, revealed that, of 45 children seen recently for diarrhea, 16 without dehydration were to be treated at home with rice water, 27 with mild dehydration were treated with ORS packets, and 2 with moderate dehydration were treated with ORS packets. Thus, there appeared to be a discrepancy between local official policy and practice in the area of treating diarrhea without dehydration.

Observation of practices at 2 health facilities is obviously inadequate to judge the current state of affairs concerning ORT. A UNICEF-sponsored survey of ORT practices in 250 health centers around the country is in progress and should yield useful information in this area. However, information from the health practices survey in Abidjan suggests that very few episodes of diarrhea are benefiting from ORT at present. Of 544 children less than 5 years of age with diarrhea during the 2 week interval before the survey, only 85 (16%) received any form of ORT. Of the 24 mothers using ORS packets, only 16 were judged to have mixed them correctly, while only 1 of 25 mothers using sugar-salt solution was judged to have mixed it correctly.

Training and supervision of health personnel and education of mothers in the proper use of ORT has been minimal thus far. While over 1000 health workers have participated in educational seminars concerning ORT, very few have been given "hands on" training. A major impediment to training health care workers has been the lack of an ORT demonstration unit designed to give such "hands on" training. The existing unit at CHU Treichville is inadequate for this purpose. Plans to replace the existing unit with one that is adequate in terms of size, equipment, and staff have been delayed due to administrative problems

finding an appropriate site on the hospital grounds. Once such a site is identified, permission from AID/Washington to use CCCD funds for construction will have to be sought.

In addition to the above problems, little attention has been given so far to the problem of auto-financing in CRT. At present, ORS packets are dispensed at no charge in health centers or can be purchased at a relatively high price in pharmacies. There are, at present, no plans for manufacturing ORS packets in Côte d'Ivoire or for making them available at a cost roughly equivalent to the cost of production and distribution.

5.2.2 Conclusions

ORS packets have been distributed widely to health facilities. However, a consistent, coherent national policy concerning the treatment of diarrheal disease has not been established, direction of this program is diffuse, and there is confusion concerning the appropriate treatment for diarrhea at home and in health facilities. The use of ORS packets to treat diarrhea without dehydration is costly and perhaps unnecessary. The appropriate role in Côte d'Ivoire of various home solutions (e.g. rice water, sugar-salt solution, etc.) for diarrhea with or without dehydration remains uncertain. Training of health workers in the appropriate use of ORT has been hampered by the inadequacy of the only existing ORT demonstration unit at CHU Treichville, as well as by the absence of a unified, coherent policy.

5.2.3 Recommendations

1. Construction, staffing, and opening of a new ORT demonstration facility at CHU Treichville should be a high priority and needs to be expedited. The government of Côte d'Ivoire should make a commitment to finding an appropriate site for this unit before the redesign team arrives.
2. ORT activities need to be re-organized under a single coordinator within the Ministry of Public Health and Population. This coordinator should work with the Director of the Central Pharmacy to develop a distribution plan for ORS packets, as well as a reporting system.
3. The ORT coordinator should work with the existing technical advisory committee, CCCD personnel, and the redesign team to formulate a coherent ORT policy for formal approval and distribution.

4. In formulating the national policy, strong consideration should be given to limiting the use of ORS packets to cases of diarrhea accompanied by dehydration, de-emphasizing the role of home ORT solutions (e.g. sugar-salt solution, etc.), and emphasizing the role of continued breast-feeding and increased intake of fluids normally consumed in the treatment of diarrhea without dehydration.
5. Once an ORT policy has been established, appropriate revisions should be made in any existing training, supervisory, and health education materials.
6. Planning of additional regional ORT demonstration facilities should begin as soon as possible.
7. Additional appropriate health workers should be made available by the Ministry of Public Health and Population for interim training at the WHO ORT Demonstration Training Unit in Kinshasa, Zaire. Such training should be supported by CCCD.
8. All CCCD activities in diarrheal disease control should be coordinated closely with UNICEF.

5.3 Malaria

5.3.1 Assessment

In the area of malaria, CCCD progress to date has been held up by the delay in issuing a formal policy statement concerning appropriate treatment and prevention measures. The need for such a statement was more than adequately demonstrated by studies in 1986 that showed that a substantial proportion of children with suspected malaria were receiving inappropriate medications and/or incorrect doses of antimalarials. The statement, which was officially signed and issued earlier this year, contains appropriate information concerning the treatment of malaria and chemoprophylaxis in pregnant women. At the same time, needed changes are reportedly being made in the purchase and supplying of antimalarial medications. Unfortunately, the document issued contains a statement that those who wish to give weekly chemoprophylaxis to young children should continue to do so.

While the statement concerning chemoprophylaxis in children is meant to be "permissive", it was clear upon visiting the two health centers to which the team went that this statement is being interpreted differently. The practice at

both health centers is to give mothers of newborn babies prescriptions for prophylactic chloroquine (10mg/kg/week) for the baby. Doctors at both centers believed that, given the statement about chemoprophylaxis in the official policy, they were obliged to continue this practice.

As noted above, the health practices survey in Abidjan in January 1988 found that 28% of children less than 5 years of age had had fever within the preceding two weeks. Of those with fever, 81% received medication(s) for fever, although only 52% (281 of 544) received an antimalarial drug. Among those receiving chloroquine, the mean duration of treatment was 2 days and the mean total dosage received was 12mg/kg.

Two possible problems in the treatment of malaria or presumptive malaria (i.e. fever) became evident during the visits to the health centers. The first problem concerns whether to give chloroquine to all children with fever, even if signs and symptoms of another possible cause of the fever are present (e.g. to give children with fever and a measles-like rash chloroquine), or to wait and see if fever persists after the other signs and symptoms abate. Practices in the two health centers differed in this area. The second problem concerns whether to dispense all three doses of chloroquine needed for the 25mg/kg regimen or to dispense only the first dose and give a prescription for the last two doses. Both of these are areas in which it would be worthwhile to arrive at a consensus and give guidelines to health care providers.

In the December 1986 survey of health facilities, 42% of facilities in Abidjan and 68% of those outside Abidjan indicated that they routinely prescribed malaria chemoprophylaxis for pregnant women. Both centers the team visited routinely prescribed chloroquine chemoprophylaxis (300mg/kg/week) for pregnant women. The level of compliance was unknown. However, in the health practices survey conducted in Abidjan, only 177 (36%) of 497 women reported taking chloroquine during their most recent pregnancy, and only 93 (18%) reported having taken it weekly.

At the highest levels within the Ministry of Public Health and Population there appeared to be disagreement about what the national malaria policy should be. This disagreement is most evident in the area of chemoprophylaxis for young children. However, there also appear to be differences of opinion concerning the need to switch to a 25mg/kg dosage schedule at this point in time. As a result, there were varying levels of concern about whether an individual with suspected malaria received the second and third doses of

chloroquine. These areas of disagreement need to be resolved if a coherent malaria and prevention program is to be promulgated and widely accepted.

5.3.2 Conclusions

Progress to date has been limited to the provision of technical assistance in techniques for monitoring chloroquine-resistance and the approval by the Minister of Health and Population of a malaria control policy. Inclusion in future technical documents of the permissive statement concerning chemoprophylaxis in children found in the malaria control policy will create confusion.

5.3.3 Recommendations

1. A coordinator of malaria activities within the Ministry of Public Health and Population should be appointed before a redesign team arrives in Abidjan.
2. A malaria technical advisory committee representing appropriate components of the Ministry of Public Health and Population should be selected to advise and work with the malaria coordinator.
3. The issue of providing chemoprophylaxis to children under five years of age should be reconsidered before its inclusion in technical guidelines for malaria control activities.
4. CCCD should assist the malaria coordinator and technical advisory committee in the development of a multi-year action plan for implementation of the malaria control program.
5. CCCD should assist in the planning and establishment of sentinel surveillance for in vivo chloroquine resistance.
6. CCCD should support operations research studies focused on how to achieve high levels of compliance with chemoprophylaxis among pregnant women and on the effect of various drug dispensing schemes on compliance with chemotherapy.

5.4 Yaws

5.4.1 Assessment

As yet, no yaws treatment/control activities have been undertaken by CCCD. Lack of activity in this area has resulted from the initial submission of an unacceptable protocol by the Ministry of Health and subsequent difficulties in agreeing upon and scheduling a consultant in this area. In October 1987, in order to pave the way for implementing a control program, a survey was conducted in the most heavily affected subsectors of the three rural sectors thought to have the worst problem with yaws (Gagnoa, Divo, and Sassandra). The prevalence of yaws in the 33 villages/local areas studied ranged from 1.4-21.4%, and was 7% overall among a population of 39,031. An intervention plan has been developed, but not officially submitted to the CCCD National Coordinator. The plan, as currently written, calls for an evaluation of the impact of the intervention 2 years later, but offers no details concerning the design, cost, etc. of the evaluation.

5.4.2 Conclusions

Convincing evidence of a serious yaws problem in selected subsectors of 3 sectors has been amassed and a plan for a reasonable control strategy developed. However, no details concerning an evaluation of the control strategy have been put forward, and the plan has not been formally submitted to CCCD for consideration.

5.4.3 Recommendations

1. The Direction of Public Health and Population should formally submit the yaws control plan to the CCCD National Coordinator.
2. CCCD should release funds for the proposed yaws control project in the designated subsectors of the 3 sectors.
3. CCCD, via a consultant with expertise in yaws control, should assist in the planning of an evaluation of the control project. Consideration should be given to combining this evaluation with future EPI coverage surveys or activities.

5.5 Operations Research

5.5.1 Assessment

CCCD has supported a number of studies intended to provide information of use in planning strategies to reduce morbidity and mortality among children less than five years of age:

- 1) Purging practices
- 2) Ability of mothers to make ORT solutions
- 3) Treatment practices of mothers for children with fever/malaria
- 4) Proportion of infants less than 9 months of age with antibodies to measles
- 5) Epidemiology and etiology of bacterial meningitis in a region with known meningococcal disease
- 6) Characteristics of children hospitalized with diarrhea.

Assuming that the primary purpose of supporting these studies has been to develop strategies for reducing morbidity and mortality, some of the studies would appear to be of more immediate applicability than others. For example, the study of how well mothers can make a safe ORT solution at home, which showed that approximately 30% of mothers made a potentially dangerous solution just one day after receiving detailed and lengthy instruction, is of immediate importance in trying to determine the optimal strategy for ORT use. Similarly, understanding what mothers do when a child develops fever is important in formulating strategies for ensuring that children receive appropriate malaria treatment. On the other hand, it is difficult to believe that the study of measles antibody levels in infants less than 9 months of age would, by itself, have led to change in the age at which measles vaccine is given in Côte d'Ivoire, particularly given that well-designed trials of a new dosage schedule of the existing vaccine and of a new vaccine currently are underway elsewhere. Similarly, it is unclear how the studies of meningitis or hospitalized diarrhea cases, at least as designed, were likely to have resulted in new strategies for decreasing morbidity and mortality from these diseases.

At the same time, there is a great need for operations research studies within the CCCD program in Côte d'Ivoire. A few priority areas in which such studies are needed include:

- 1) How to achieve high rates of compliance with chloroquine chemoprophylaxis among pregnant women
- 2) The effect on compliance with chloroquine chemotherapy of various schemes for dispensing medications (i.e. giving a single dose and a prescription vs giving all 3 doses at the health center)
- 3) Further studies of which ORT solutions should be recommended in which locations
- 4) How to reduce the use of purging by mothers for diarrhea
- 5) Whether or not increasing the number of vaccination sessions offered per week at health centers increases the number of vaccinations given

Because a full time CCCD epidemiologist will no longer be stationed in Abidjan, however, it will be more difficult in the future to ensure that research studies proposed for funding are appropriate in terms of scope, focus, duration, expense, and study design. Thus, careful thought must be given to how to oversee these activities in the future. It is likely that the back-up epidemiologist for the Côte d'Ivoire CCCD project in Atlanta will have to play a major role in helping the project officer with this task, as will other technical resource persons at CDC.

5.5.2 Conclusions

Operations research studies conducted to date under the auspices of CCCD have been uneven in their quality and usefulness in addressing operational problems. Now that a CCCD epidemiologist is no longer available in the country on a full time basis, the operations research component of the CCCD project will be much harder to oversee and coordinate, and the appropriateness, utility, and adequacy of future studies more difficult to ensure. Therefore, serious thought must be given as to how to ensure that operations research projects are limited to those that are simple in design, short in duration, inexpensive, and narrowly focused on definable operational problems.

5.5.3 Recommendations

1. Limit the operations research component of CCCD in Côte d'Ivoire to small, simple studies and develop a mechanism for ensuring the quality, scope, and appropriateness of future studies.
2. Consider adding studies of how best to introduce and/or encourage auto-financing schemes in CCCD priority disease control programs. The evaluation team recommends that a financial consultant visit Côte d'Ivoire in November, 1988, to conduct a review of the auto-financing or cost recovery schemes presently in use, and to develop a preliminary design for discussion with MOPHP. The preliminary design could be presented to the medecin chefs at their annual meeting in December 1988. The medecin chefs' agreement, cooperation, and involvement are crucial to any further development of auto-financing schemes in Cote D'Ivoire.

5.6 Training

5.5.1 Assessment

While a number of individuals have received various types of training under the CCCD program in Côte d'Ivoire, and the training unit in the Ministry of Public Health and Population appears ready and able to do additional training, there continues to be an enormous unmet need for training. At the central level and the level of the Médecin-chef, there is need for additional mid-level management training, as well as training in how to interpret and use health data to set priorities and monitor the impact of programs. In addition, there is a need for training in supervisory techniques and for the development and testing of supervisory checklists. The greatest unmet training need, however, is for training and retraining of peripheral health care workers in the activities required for the CCCD interventions. In order to meet this need, it will be necessary to re-orient the current approach to training. In the future, training activities must be decentralized, based on needs assessments, and incorporate evaluations of effectiveness. Meeting this training need also will require training substantial numbers of trainers and developing a wide range of training materials for use at the peripheral level.

5.6.2 Conclusions

While CCCD and others have provided several different types of training over the past few years, the need for training of health care workers at all levels remains enormous. Furthermore, training provided in the future must be decentralized, incorporate evaluations of effectiveness, and be based on needs assessments if large numbers of health workers are to be trained efficiently and effectively. Training-related needs include: mid-level management courses covering all CCCD interventions for regional medical officers as yet untrained; training of trainers courses to expand the training capacity of rural health sectors; training and retraining of health workers so as to expand the number of health facilities offering routine vaccinations and to ensure appropriate treatment of malaria and diarrhea; development of training materials to be used in training health workers in rural health sectors; and establishment of demonstration oral rehydration therapy centers.

5.6.3 Recommendations

1. Give two additional mid-level management courses for sector medical chiefs and other appropriate sector personnel as soon as possible.
2. Develop training materials covering the CCCD interventions and train trainers for training health workers in rural health sectors.
3. Continue with plans to establish an ORT demonstration center at CHU Treichville and begin planning two or more additional ORT demonstration centers in other sectors.
4. Coordinate EPI and ORT training with UNICEF.
5. Strengthen the role of decentralization, evaluation of effectiveness, and the use of needs assessments in all future training activities.

5.7 Health Education

5.7.1 Assessment

There has been consistently good progress in the area of health education in the CCCD project in Côte d'Ivoire. With the assistance of outside consultants, Ivorian health educators have produced, aired, and evaluated the impact of radio spots concerning the importance of measles

vaccination. The evaluation of impact, carried out in 6 villages in 2 sectors, demonstrated that most of the respondents had encountered messages about the importance of measles vaccine, although those who had heard the messages on the radio were relatively few in number and unequally distributed. In addition, planning and work on similar radio spots in other CCCD intervention areas have begun. At present, two difficulties are inhibiting further progress in this area. The first difficulty involves financial/administrative problems in paying for the production of the radio spots by the National Radio. The problems in this area must be resolved before any additional radio spots can be produced. The second difficulty, which affects only those radio spots dealing with diarrheal disease, is that there is uncertainty about what information to try and communicate. In particular, there is appropriate concern that attempting to educate mothers about the use of sugar-salt solution over the radio may be potentially dangerous. There is continuing need in the area of health education for educational materials that can be used in the health center setting to inform and instruct mothers.

5.7.2 Conclusions

Good progress was being made in CCCD-supported health education efforts until financial/administrative difficulties led to a virtual cessation of these activities. Radio spots concerning the need for measles vaccination were developed and aired successfully, although it appears that they had uneven impact. Consideration should be given, therefore to including other mass media approaches in future health education efforts. The proposed plan to develop and air similar radio spots for diarrheal disease education, malaria treatment, and tetanus vaccination should be followed, although inclusion of instructions on how to make sugar-salt-solution (SSS) in the diarrheal disease spots should be reconsidered. Additional health education materials relevant to CCCD interventions for use in peripheral health facilities also should be prepared.

5.7.3 Recommendations

1. Resolve financial/administrative difficulties and continue the development of additional radio spots for CCCD interventions
2. Consider deleting instructions concerning preparation of SSS from radio spots concerning diarrheal diseases

3. Consider including other mass media approaches in future health education campaigns
4. Develop additional health education materials for use in health facilities

5.8 Health Information System

5.8.1 Assessment

As noted above, the health information system, while improved in some respects since 1985, continues to have its share of problems. The system for collecting morbidity data from government health centers has improved in its completeness and promptness of data collection. However, the system continues to collect information on a list of overlapping diseases, conditions, and symptoms originally designed to categorize 97% of all patients seen, making it unwieldy and needlessly complex. One result is that even after the data have been collated and tabulated, only a fraction of the information collected is ever interpreted or used in decision-making. The hospital-based system of collecting morbidity and mortality data is inoperative at present.

A number of barriers appear to be inhibiting progress in developing a unified, focused, functioning health information system, particularly administrative and financial problems. In theory, the INSP is supposed to assist in the development and testing of data collection forms, after which the Department of Planning and Statistics is supposed to use the forms to gather data. Effective transfer of the responsibility for the health center-based reporting system has been hampered by disagreements and deficiencies in the areas of personnel, equipment, training, and financial support. Similar problems have inhibited progress in the implementation of a new hospital-based information data system. Until these problems can be resolved, it is unlikely that further progress will be made in improving and unifying the health information system.

At a broader level, there appears to be only limited interest within the Ministry of Public Health and Population in making more sweeping changes in the whole approach to gathering and using health data. In 1986, consultants from the U.S. Bureau of Census made a number of useful recommendations for strengthening the health information system. Most important was the recommendation that health officials be given training in how to plan and use health information systems to determine priorities and measure progress in achieving objectives. Such training would be of

use not only to those at the central level responsible for setting policy but also to *médecin-chefs* in the periphery, who should be prepared to monitor important health indicators within their respective sectors. To date, many of these recommendations have not been followed, and the need for training of this kind remains undiminished.

Despite the above difficulties, it should be possible to monitor morbidity from vaccine preventable diseases using health center morbidity data, sentinel surveillance, and periodic special surveys. Measuring reductions in severe morbidity and mortality from diarrheal disease and malaria, however, will be difficult in the absence of a functioning hospital-based system for collecting morbidity and mortality data.

5.8.2 Conclusions

The key health information data collection systems are currently being redesigned. The health unit-based system, while improved since 1985 remains unwieldy and needlessly complex. The hospital-based system is not operative. Important recommendations made in an earlier consultation by the U.S. Bureau of Census have yet to be addressed. Most pressing is the need for training in how to design and use health information systems for program management.

5.8.3 Recommendations

1. Adequate input into the ongoing redesign of health information data collection systems from technical coordinators in each of the CCD priority diseases and from CCD staff must be assured.
2. At a minimum, either the redesigned health information systems or separate sentinel surveillance systems should be able to monitor deaths due to diarrhea and malaria, as well as the number of cases of measles, severe diarrhea, and severe malaria.
3. CCD should assist in designing and implementing a new hospital-based health information system. The CCD project should support this activity immediately.
4. CCD should provide initial funding for a quarterly bulletin summarizing and interpreting data concerning important public health problems. The bulletin should be produced jointly by the Direction of Planning and Statistics and the INSP, and it should be distributed widely within the Ministry of Public Health and Population and to health workers in peripheral sectors.

5. Recommendations from the 1986 U.S. Bureau of Census Consultation should be followed, particularly those that relate to training and to the strengthening of data collection systems. A follow-up consultation by the Bureau of Census should be scheduled immediately after the visit of the redesign team.

6.0 Finance

6.1 Sources and Amount of Funding for Current and Future Activities

The financial status of the CCCD bilateral project with the Côte d'Ivoire is as follows: out of the \$1.69 million obligated, 48 percent of the funds have been earmarked, 37 percent committed and 28 percent expended according to REDSO's Summary Project Financial report dated May 20, 1988. This leaves \$876,000 or 52 percent of CCCD project funds free to be earmarked or committed at this time. Therefore, should the project be extended for three years as recommended by the evaluation team, there is no immediate need for additional funding. The redesign team should develop detailed time phased cost estimates through September 1991 as part of its mandate.

Although not yet calculated, it is clear that the government of Côte d'Ivoire made a significant self help effort in terms of equipment, manpower and money in putting on the highly successful national vaccination campaign in 1987. While the 25 health districts and 800 rural health facilities could use additional support, financial support for staff and facilities to date has been impressive.

UNICEF has been a major factor in the support of EPI and ORT primary health programs and is developing with the Ministry of Public Health and Population (MPHP) a five year government/UNICEF plan (1990-1994) for EPI and Control of Diarrheal Disease/ORT. UNICEF has indicated that they have substantial resources that can be made available to assist the government in maintaining the follow-up and institutionalization of the government's national vaccination campaign. Additional funds are also potentially available to help expand the government's ORT activities.

As the Government's primary health care program progresses, the World Bank representative indicated that the Bank would be interested in cooperation in the public health sector at the proper time. A Bank mission is expected in June to work with Ministry on health sector financing.

6.2 GOCI Budget and Auto Financing of CCD activities

The Ministry's primary health care program already contains important self help components. For example, health cards for mother and children are sold for 155 CFA francs each. Vaccination cards are 100 CFA francs in Abidjan and 50 CFA francs in the rural areas. While initial doses of chloroquine are provided to mothers at the Health Center, the patient is expected to purchase the remaining tablets. Some pharmacies also carry ORS packets. There is some anecdotal evidence that families will purchase ORS packets when they are not used free at the nearest health facility. On the curative side, the patients are expected to pay for most medicines with their own funds, and are given prescriptions to fill at the local pharmacy.

Given the relatively higher per capita income in the Côte d'Ivoire, there is significant potential for the population to help by paying more of the costs of primary health care. The redesign team should look carefully into how the Ministry might proceed in this sensitive area.

6.3 Recommendations

1. The redesign team should develop detailed time phased cost estimates with the Ministry in terms of the resources required to operate the CCD project through September 1991.
2. The evaluation team recommends that the redesign team increase the emphasis on self-help and sustainability in its redesign.
3. The World Bank has arranged for a Health Sector Financing team, which is scheduled to arrive in June 1988. The results of this consultation should be made available to the redesign team.

7.0 Composition of the Redesign Team

7.1 Context

The following comments are based on the assumption that USAID and CDC/Atlanta will approve the recommendation of the Evaluation team that the project be extended until September 1991 without provision of any additional financing at this time, and that the Ministry will take the necessary steps set out in Section 2.5 to trigger the call forward of the redesign team.

(Note: If the extension suggestion is not accepted, the project will end in April 1989 as scheduled under the current agreements. Technical coverage will be required from time to time from CDC Atlanta once the current TO leaves at the end of June. CDC/Atlanta working with REDSO and the Ministry would then need to prepare a plan for an orderly phase-out of the project over the coming months, and the return to AID/W of the substantial funds not used.)

Assuming the go ahead is given, the CCCD National Coordinator, the CCCD Technical Coordinator and other appropriate Ivorian offices in the Ministry of Public Health and Population should be intimately involved in all steps of the phase two redesign. Only a cooperative effort involving joint dialogue will assure that the redesign represents Ivorian priorities and a realistic plan for the future.

Based on discussion with key Ministry officials responsible for primary health care activities and CCCD interventions, the Evaluation team feels the redesign team would be of most value if the epidemiologist could come from the CDC/Atlanta backstop staff since the Côte d'Ivoire no longer has a resident epidemiologist. The design expert should have health management/planning skills and be fully conversant with USAID regulation and local government procedures in francophone countries. Given the importance of future financing for the primary health care program and self help measures, the team should be assisted by an experienced health economist. In order to minimize the effects of the hiatus between the departure of the present TO and his replacement, it is urged that the new TO (designate) take part as a member of the redesign team. It should be underlined that all team members should be fluent in French.

Three to four weeks should be adequate to carry out the redesign. However, this phase should not start before early September, given the absence of key government personnel during the month of August. Any prolonged delay should be avoided in order to avoid losing the benefits of the work accomplished to date. REDSO backstopping and in particular the help of the REDSO CCCD Program Specialist will be vital in keeping the project moving until the new TO is on board on or about October 15, 1988.

7.2 Recommendations

1. The redesign team should have the following composition:
 - one epidemiologist (CDC/Atlanta backstop officer)
 - one design expert (Health Management)
 - one health economist (1-2 weeks), plus
CCCD Technical Officer (designate)
2. The team should stay in the Côte d'Ivoire for three to four weeks starting in early September 1988.
3. The CCCD National Coordinator and the CCCD Technical Coordinator should assure that appropriate officers are designated to work with the team to assure that the final design represents Ministry of Public Health and Population priorities, and sets practical realistic operational and program goals.

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AIDAC: ABIDJAN FOR REDSO, CDC FOR IHPO

E.O. 12356: N/A

SUBJECT: ACSI CCCD PROJECT THIRD YEAR EVALUATION

REF: A) ROSEBERRY-DEBOSE TELCON 5/10, B) STATE 126739.

1. AS DISCUSSED IN REF A, MR. VINCENT BROWN OF SUBJECT TEAM WILL ARRIVE EARLY (MAY 18) TO COMPENSATE FOR 2 DAYS HOLIDAY DURING WEEK OF MAY 23, 1988. MR. JEAN ROY, CDC RESOURCE REPRESENTATIVE, WILL ARRIVE AS PLANNED ON THE 22 OF MAY, WITH SECOND TEAM MEMBER, DR. REINGOLD. UNFORTUNATELY NEITHER MR. BROWN NOR DR. REINGOLD ARE AVAILABLE AFTER JUNE 3, 1988. REQUEST REDSO SCHEDULE REDSO AND MOH MEETINGS WITH MR. BROWN FOR MAY 19 AND 20 IF POSSIBLE. DUE TO LACK OF TRAVEL FUNDS AND PREVIOUS COMMITMENTS, AFR/TR/HPN SHEPPERD AND ROSEBERRY WILL NOT BE ABLE TO PARTICIPATE IN EVALUATION.

2. AFR/TR/HPN APPRECIATES WORKED PERFORMED BY T.O. WEIERBACH REGARDING SECRETARIAL SUPPORT. THESE MATERIALS HAVE BEEN FORWARDED TO MR. BROWN. PRAGMA WILL FUND ALL COSTS OF EVALUATION.

3. REGARDING TEAM'S ITENIRARY: WE SUGGEST A MAXIMUM 2 DAYS VIEWING SERVICE DELIVERY THE SECOND WEEK FOR REINGOLD AND ROY (BROWN MAY ACCOMPANY TEAM IF TIME PERMITS). WE SUGGEST A FINAL DEBRIEFING WITH MOH AND REDSO OCCUR O/A JUNE 3. BROWN AND REINGOLD WILL LEAVE BEHIND A DRAFT REPORT AND A FINAL REPORT WILL BE PRINTED IN WASHINGTON INCORPORATING MOH AND REDSO COMMENTS.

4. BOTH BROWN AND REINGOLD WILL RECEIVE ORIENTATION FROM AFR/TR/HPN AND IHPO BEFORE ARRIVING.

5. SCW FOR EVALUATION IS AS FOLLOWS:

OBJECTIVES OF EVALUATION:

A. TO EVALUATE ACSI-CCCD ACTIVITIES IN COTE D'IVOIRE THROUGH SYSTEMATIC COLLECTION AND ANALYSIS OF DATA ON ACSICCCD MANAGEMENT AND OPERATIONS AT THE CENTRAL, REGIONAL AND PERIPHERAL LEVELS.

B. TO MEASURE THE EXTENT TO WHICH ACSI-CCCD ACTIVITIES HAVE BEEN INTEGRATED INTO THE EXISTING COTE D'IVOIRE PRIMARY HEALTH CARE STRUCTURE.

C. TO OFFER A SERIES OF RECOMMENDATIONS TO IMPRESS THE EXPANSION AND DELIVERY OF ACSICCCD SERVICES (INCLUDING TRAINING, HEALTH EDUCATION AND HEALTH INFORMATION SYSTEM DEVELOPMENTS) AND TO ACCELERATE THEIR INTEGRATION INTO THE PRIMARY HEALTH CARE DELIVERY STRUCTURE GIVEN EVER PRESENT RESOURCES CONSTRAINTS.

D. TO ADVISE AID THE FEASIBILITY OF IMPROVING PROJECT PROGRESS VIA REDESIGN EMPHASIZING CHILD SURVIVAL AND PROJECT SUSTAINABILITY. IF REDESIGN IS FEASIBLE AND DESIRABLE, TO OFFER A SERIES OF RECOMMENDATIONS REGARDING DESIGN CHANGE.

METHODS OF EVALUATIONS :

A TEAM COMPRISED OF ONE HEALTH MANAGEMENT SPECIALIST AND ONE EPIDEMIOLOGIST WILL BE FIELDDED TO CONDUCT AN EVALUATION OF THE CCCD PROJECT IN COTE D'IVOIRE.

A. STUDY RELEVANT REFERENCE DOCUMENTS AT THE CENTRAL AND REGIONAL LEVELS.

B. VISIT SELECTED SERVICE DELIVERY UNITS AND OTHER HEALTH INSTITUTIONS IN RURAL AND URBAN AREAS OF A REPRESENTATIVE NUMBER OF REGIONS OF THE COUNTRIES.

C. REVIEW SURVEY DATA.

D. INTERVIEW RELEVANT PROJECT IMPLEMENTING AGENTS.

EVALUATION COMPONENTS :

PROJECT PLANNING ADMINISTRATION AND MANAGEMENT.

A. REVIEW THE DEVELOPMENT OF PLANS OF OPERATIONS AND THE ADEQUACY OF THOSE PLANS TO GOVERN AND SUPPORT FIELD ACTIVITIES.

B. DESCRIBE AND REVIEW THE CAPACITY OF GOVERNMENT MANAGEMENT AND ADMINISTRATIVE STRUCTURES TO MANAGE AND ADMINISTER A PROGRAM INCORPORATING IMMUNIZATIONS, ORT AND MALARIA TREATMENT.

C. REVIEW THE AID AND CDC ADMINISTRATION AND SUPPORT TO THE PROJECT AND ADEQUACY OF PROCEDURES ESTABLISHED FOR PROJECT SUPPORT.

D. REVIEW COUNTRY PROJECT EXECUTIVE MANAGEMENT STRUCTURE AND FUNCTIONS WITH PARTICULAR EMPHASIS ON RELEVANT CCCD PROJECT AND EXECUTIVE COMMITTEES, AS WELL AS DONOR COORDINATION ACTIVITIES.

PROJECT SUPPORT:

A. REVIEW EPIDEMIOLOGIC AND HEALTH SERVICES STATISTICS IN ORDER TO DETERMINE IF THE CCCD PROJECT HAS EXERTED AN INFLUENCE ON LOWERING MORBIDITY, MORTALITY OR INCREASING THE AVAILABILITY OR QUALITY OF PRIMARY HEALTH CARE SERVICES IN THE RESPECTIVE COUNTRY.

B. REVIEW THE ADEQUACY OF INFORMATION SYSTEMS CURRENT AND PLANNED TO PROVIDE DATA NECESSARY TO DETERMINE PROJECT IMPACT.

PROGRAM OPERATION:

A. REVIEW THE DELIVERY SYSTEM (CURRENT AND PROPOSED) TO BE UTILIZED TO DELIVER CCCD SERVICES, (SUPERVISION, LOGISTICS AND SUPPLY, COMMUNICATIONS, PERSONNEL COVERAGE, CONTROL OF FUNDS AND SUPPLIES).

EPI PROGRAM COMPONENTS:

A. REVIEW IMMUNIZATION POLICIES AND SCHEDULES.

B. REVIEW COVERAGE OF IMMUNIZATIONS AND REVIEW IMMUNIZATIONS PRACTICES WITH SPECIAL EMPHASIS ON STERILIZATION OF EQUIPMENT, IMMUNIZATION OF ILL CHILDREN AND FREQUENCY OF IMMUNIZATION CLINICS.

ORT PROGRAM COMPONENTS:

A. REVIEW NATIONAL ORT POLICY.

B. REVIEW POPULATION COVERAGE OF ORT.

C. REVIEW ORT PRACTICES WITH SPECIAL EMPHASIS ON CONTINUING USE OF I.V., ADEQUACY AND FREQUENCY OF USE OF ORS AND ADEQUACY OF PUBLIC INFORMATION REGARDING ORS.

MALARIA:

A. REVIEW NATIONAL MALARIA TREATMENT AND ANTIMALARIAL CHEMOPROPHYLAXIS POLICIES.

B. REVIEW POPULATION COVERAGE OF MALARIA TREATMENTS; AND

C. REVIEW MALARIA TREATMENT AND CHEMOPROPHYLAXIS PRACTICES WITH PARTICULAR EMPHASIS ON AVAILABILITY OF CHLOROQUINE, ADHERENCE TO NATIONAL POLICIES, AND FREQUENCY OF ANTIMALARIAL CHEMOPROPHYLAXIS IN PREGNANT WOMEN.

TRAINING:

A. REVIEW TYPES AND MAGNITUDE OF TRAINING PROVIDED.

B. REVIEW TRAINING MATERIALS DEVELOPED.

C. REVIEW NUMBERS AND TYPES OF PERSONNEL TRAINED AND EVALUATION OF THEIR PERFORMANCE; AND

D. REVIEW TRAINING PLAN OR REMAINDER OF PROJECT.

HEALTH EDUCATION:

A. REVIEW THE CURRENT HEALTH EDUCATION STRUCTURE, PLAN OF EXECUTION AND ACTIVITIES TO DATE.

B. REVIEW STAFFING AND INSTITUTIONAL CAPACITY FOR DELIVERING HEALTH EDUCATION SERVICES, AND

C. REVIEW THE ADEQUACY OF TECHNICAL ASSISTANCE PROVIDED FOR SUPPORT TO HEALTH EDUCATION ACTIVITIES.

FINANCING:

A. REVIEW SOURCES AND AMOUNT OF FUNDING FOR CURRENT PROGRAM ACTIVITIES.

B. REVIEW GOVERNMENT'S NORMAL BUDGET, AND AUTO FINANCING.

C. REVIEW USAID BILATERAL FUNDS, REGIONAL FUNDS, AND COUNTERPART FUNDS.

6. ABOVE SOW IS AMBITIOUS. ONCE TEAM IS IN COUNTRY, THIS GENERIC SOW CAN BE MODIFIED TO FIT PROJECT NEEDS.

7. WE APOLOGIZE FOR THE DELAY IN SENDING THIS CABLE.

SHULTZ

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Persons Contacted

The Honorable Dennis Kux	U.S. Ambassador to Côte d'Ivoire
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