

A.I.D. EVALUATION SUMMARY - PART I

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office Belize (ES# _____)

B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes Slipped Ad Hoc
Evaluation Plan Submission Date: FY 88 Q 3

C. Evaluation Timing Interim Final Ex Post Other

D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
505-0017	Child Survival Technical Support Project	4/23/86	4/31/88	500	500
505-0032	Maternal and Child Health Project	4/23/86	4/31/88	250	250

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. Continue activities of Project HOPE and CARE under new project (505-0037)	MED Tanamly	5/1/88
2. Project HOPE and CARE to plan future activities based on this report.	M. Kroeger (HOPE) F. Brechin (CARE)	3/1/88
3. Both PVOs to ensure thorough documentation of training activities.	M. Kroeger (HOPE) F. Brechin (CARE)	5/1/88

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: _____ (Month) _____ (Day) _____ (Year)

G. Approvals of Evaluation Summary And Action Decisions:

Name (Typed)	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
	SJGBrechin MEDTanamly	F. Brechin M. Kroeger	<i>[Signature]</i> Villarueva	<i>[Signature]</i> NRBrashich
Signature	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Date	3/22/88	3/22/88	3/22/88	3/22/88

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

Project HOPE's and CARE's Child Survival (CS) activities in Belize are different. HOPE works at central level, promoting coordination of CS activities, upgrading management capabilities and streamlining the Health Information System (HIS). CARE works in 12 villages in 2 northern districts, training Community Health Workers (CHW).

HOPE's and CARE's CS activities in Belize began in mid-1986, gaining momentum in 1987. With limited time to pursue project objectives, significant impact is unrealistic. This final evaluation (12/1-12/17/87) was a review of current status and identification of new approaches to promote and strengthen CS activities under a new project. The two consultants reviewed project documents, met with staff from CARE, HOPE, Government of Belize (GOB), and other PVOs, and made site visits to various project work areas to conduct this assessment.

Findings: The two PVOs' activities are beginning to meet at the district level. While coming from different directions, they relate to and reinforce each other, enabling the MOH infrastructure to function more effectively at all levels.

- Increased coordination of CS activities with Project HOPE's help.
- Management training accomplished at national level but not in the districts (HOPE).
- Computerized HIS well established and MCH Reporting Form finalized and in use. Special data analysis activities conducted. (HOPE)
- Assistance to MOH in EPI, nutrition, breastfeeding and postnatal services (HOPE).
- Thirty-three CHWs in 12 villages trained in CS interventions and education (CARE).
- 21 video spots on CS messages produced and aired on local TV in 2 districts (CARE).
- A CHW data collection system linked with the MOH reporting system is in infancy, but village enumeration is a priority for more accurate target population figures (CARE).
- Linkages with the MOH system in those two districts are quite good although national-level MOH staff feel that they have less contact with CARE's activities.
- The CARE training approach is too intensified in staff and supervision to be replicable nationally.

Lessons Learned:

- HOPE's active role in child survival coordination and establishment of a computerized HIS within the MOH has established credibility within the national level of the MOH which will allow them to move quickly into the district level.
- HOPE- Regular feedback of reporting information has allowed MOH field staff to assess immunization coverage quickly and plan program activities in a timely manner.
- CARE- CHWs are in an ideal position to carry out village enumeration and assist the MOH with identification of accurate target population figures for the north.
- CARE's social marketing efforts are the first in Belize and have the potential for impact, reinforcing messages being given by the CHWs at the village level.

COSTS

I. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
David Pyle, PhD	John Snow International	17	\$18,095	PD + S/H
Cliff Olson, MA	John Snow International	17		
2. Mission/Office Professional Staff		3. Borrower/Grantee Professional		
Person-Days (Estimate) <u>22</u>		Staff Person-Days (Estimate) <u>14</u>		

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)
Address the following items:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Purpose of evaluation and methodology used • Purpose of activity(ies) evaluated • Findings and conclusions (relate to questions) | <ul style="list-style-type: none"> • Principal recommendations • Lessons learned |
|--|--|

Mission or Office:

Belize

Date This Summary Prepared:

March 10, 1988

Title And Date Of Full Evaluation Report:

Review of CARE's and Project HOPE's
 CS Activities and Development of Plans

in Belize -- December 1987

Purpose of the Activities Evaluated: Project HOPE's and CARE's Child Survival activities in Belize are quite different although both reinforce AID's Child Survival Strategy and the Government of Belize's (GOB) Child Survival Plan. Project HOPE has worked at central level, promoting the coordination of National Child Survival activities, upgrading management capabilities and assisting in the development of a Health Information System (HIS). CARE, on the other hand, has focused its activities in the two northern districts of Belize where they trained, supported, and supervised Community Health Workers (CHW) in 12 villages. Project HOPE's and CARE's Child Survival activities in Belize were begun in mid-1986, but did not gain momentum until 1987.

Purpose of the Evaluation and Methodology Used: Because of the limited time, the two PVOs have had to pursue their respective project objectives, USAID/Belize realized that it was unrealistic to expect significant impact to have been achieved from these Child Survival activities. USAID sees a continuation of the Child Survival efforts which will permit CARE and HOPE to build on the generally strong foundations laid during the last year and one-half. Thus, instead of a summative final evaluation, this exercise (12/1-12/17/87) was more of a review of current status, identifying what has been accomplished, what approaches and directions can be identified, and what action might be taken to promote and strengthen Child Survival activities during the next three years under the proposed Child Survival Umbrella Project. The two consultants reviewed project documents, met with CARE and HOPE staff, GOB officials, staff from other PVOs, and made site visits to various project work areas to conduct this assessment.

Findings and Conclusion: The two PVOs' activities are just beginning to meet at the district level. While they come from different directions, they relate to and reinforce each other, enabling the MOH infrastructure to function more effectively at all levels.

1. HOPE- There has been increased coordination of Child Survival activities with Project HOPE's help.
 - Management training was accomplished at national level but not in the districts.
 - Development of a Clinic Operations Manual for Rural Health Nurses was delayed indefinitely at MOH request.
 - A computerized HIS has been established and the MCH Reporting Form finalized and in use. Different types of special data analysis activities have been conducted for various PVOs and MOH.
 - Assistance has been given to MOH given in EPI, nutrition, breastfeeding and postnatal services.

2. CARE- Thirty-three CHWs in 12 villages have been trained in Child Survival interventions and education.
- Twenty-one video health education spots on Child Survival messages were produced and are being aired on local TV in those two districts.
 - A CHW data collection system linked with the MOH reporting system is just beginning to be developed, but village enumeration is a priority to have more accurate target population figures.
 - Linkages with the MOH system in those two districts are good although national-level MOH staff feel that they have less contact with CARE's activities.
 - The CARE training approach is too intensified in staff and supervision to be replicable nationally.

Principal Recommendations:

- HOPE:
- HOPE should continue its active role of coordination.
 - Management training should be moved quickly into the district level, working through the District Health teams.
 - HIS priorities are to finish adding MCH data, continue training for all levels of MOH staff, including computer orientation for national-level officials, and consider moving to a Management Information System within the MOH.
 - HOPE should focus on assisting the MOH in the Accelerated EPI Plan to increase coverage, especially in hard-to-reach areas.
 - HOPE should expand technical assistance in management of high-risk pregnancies.
- CARE:
- Expand CHW training to cover almost all villages in the two northern districts, in a phased manner.
 - Continue with mass media health education and consider expanding the activities, as warranted, using technical assistance to refine the focus.
 - CHWs should carry out village enumeration and the CHW reporting form modified to reflect service delivery in the village.
 - Sustainability issues must be addressed with the MOH and other PVOs training CHWs, and ways to provide motivation for CHWs to decrease attrition must be explored.
 - There should be thorough documentation of CARE's program approach (development, training methodologies, and lessons learned) and dissemination of this information.

Lessons Learned:

HOPE:

- HOPE's active role in child survival coordination and establishment of a computerized HIS within the MOH has established credibility within the national level of the MOH which will allow them to move quickly into the district level.
- Regular feedback of reporting information has allowed MOH field staff to assess immunization coverage quickly and plan program activities in a timely manner.

CARE:

- CHWs are in an ideal position to carry out village enumeration and assist the MOH with identification of accurate target population figures for the north.
- CARE's social marketing efforts are the first in Belize and have the potential for impact, reinforcing messages being given by the CHWs at the village level.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Full Evaluation Report

COMMENTS

L. Comments By Mission, AID/W/ Office and Borrower/Grantee On Full Report

This formative evaluation has documented that both PVOs have established credibility with the MOH in providing support to Belize's Child Survival program. It recommends continuation of both PVOs' activities for the next phase of three more years, building on the solid base that now exists. Among recommendations made, different staffing patterns for each project and a slight change in focus for them for the next three years are suggested. Direction is provided for planning activities to be conducted under the new Child Survival Umbrella Project.

XD-AAX-310A

54969

REVIEW OF CARE'S AND PROJECT HOPE'S
CHILD SURVIVAL ACTIVITIES AND DEVELOPMENT OF PLANS
IN BELIZE

by

DAVID F. PYLE, PhD
Senior Associate
John Snow, Inc.

CLIFFORD OLSON
Consultant
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December 1987



JOHN SNOW, INC.

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ACKNOWLEDGEMENT

We want to express our sincere appreciation to everyone who has been involved in the production of this report. It has truly been a joint effort. Sue Brechin at USAID/Belize ensured we met all the important actors and observed the PVO and MOH field operations; she did it with a unique combination of grace and precision. In addition, there were the MOH officials at Belize and in the districts who took time out of their extremely hectic schedules to meet with us. Then there were the staff of CARE (especially Nancy Minett, Lorraine Thompson) and Project HOPE (Mary Kroeger, Dan Bevier and Abi McKay) who educated us on their operations and spent their valuable time responding to our seemingly endless string of questions. Finally, without the logistical and secretarial support of Gigi Griffith and Lourdes Smith at USAID/Belize, this report would never have reached its consumers. To one and all, many thanks and best wishes for success in your exciting and highly promising Child Survival efforts.

GLOSSARY

ARI	Acute Respiratory Disease
BFLA	Belize Family Life Association
BIB	Breast Is Best League
CHW	Community Health Worker
CMO	Chief Medical Officer
CS	Child Survival
CSO	Central Statistical Office
CSTS	Child Survival Technical Support
DHT	District Health Team
DMC	District Management Committee
EPI	Extended Program of Immunization
ERM	Enfant Refuge du Monde
GOB	Government of Belize
HECOPAB	Health Education and Community Participation Bureau
HIS	Health Information System
HTI	Health Talents International
IMR	Infant Mortality Rate
KAP	Knowledge, Attitude, and Practice
M/BIE	Monitoring/Built-in Evaluation
MACH	Maternal and Child Health Project
MCH	Maternal and Child Health
MIS	Management Information Systems
MOE	Ministry of Education
MOH	Ministry of Health
MS	Medical Statistics
NPHCC	National Primary Health Care Committee
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
PAHO	Pan American Health Organization
PCI	Project Concern International
PHN	Public Health Nurse
PVO	Private Voluntary Organization
RHC	Rural Health Center
RNH	Rural Health Nurse
ROCAP	Regional Office of Central America and the Pacific, USAID
TA	Technical Assistance
TBA	Traditional Birth Attendant
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
VC	Village Council
VHC	Village Health Committee
VLWS	Village Level Water and Sanitation

EXECUTIVE SUMMARY

Project HOPE's and CARE's Child Survival Activities in Belize were begun in mid-1986, but did not gain momentum until 1987. HOPE has worked at the central level, promoting the coordination of National Child Survival activities, upgrading management capabilities and assisting in the development of a Health Information System. CARE, on the other hand, has focused its activities in the two northern districts of Corozal and Orange Walk where they trained, supported and supervised Community Health Workers in 12 villages.

Because of the limited time the two PVO's have had to pursue their respective project objectives, USAID/Belize has realized that it is unrealistic to expect significant impact to have been achieved from the Child Survival activities. AID foresees a continuation of the Child Survival efforts which will permit CARE and HOPE to build on the generally strong foundation laid during the last year and a half. Thus, instead of this exercise being a summative evaluation, it is more of a review of current status, identifying what has been accomplished, what approaches and directions can be identified, and what action might be taken to promote and strengthen Child Survival activities during the next three years under the proposed Child Survival Umbrella Project.

The major recommendations, which follow from the discussions with AID and PVO officials and national, district and local level health personnel and from observation of field operations, can be summarized as follows:

- Project HOPE:
- should provide technical support to the DHTs particularly in orienting them on issues and upgrading their management capabilities (i.e., introducing problem identification and problem solving approaches to planning and implementation);
 - should assist the MOH compile the Clinic Operations Manual and train personnel in its use;
 - should support the development of a Child Survival HIS into a longitudinal data base appropriate for evaluation and managerial purposes through increased training and design of appropriate reporting mechanisms;
 - should develop and test new reporting forms (eg., for CHWs) and records (eg., Woman's Health Card);
 - should design an MIS that is replicable for the rest of the MOH.
- Project CARE:
- should expand, in a phased manner, their CHW activities to include all villages over 100 population in Corozal and Orange Walk Districts utilizing to greatest extent possible already existing health-related community workers;
 - should utilize technical assistance to refine and focus

social marketing effort;

- should develop an information system which assures that all children of the village receive and benefit from project activities;
- should assist in the development and testing of a Woman's Health Card to insure that all women of child-bearing age receive and benefit from project activities;
- should streamline operations to increase productivity and limit number of support staff, reducing it to proposed MOH level (ie., one DT/CHO per district) in last year of project;
- should test feasibility of drug revolving funds (possibly with small profit for CHWs) at village level;
- should work closely with DHTs, district public health staff and villages to develop systems to enable them to support and sustain CHW activities once CARE project ends;
- should document and publicize CARE's experience, describing what has been done and why, so that the national CHW effort can benefit from CARE's approach.

I. INTRODUCTION

USAID/Belize requested two consultants to come to Belize for two and one-half weeks (30 November to 17 December) to conduct a joint evaluation of CARE's Maternal and Child Health (MACH) and Project HOPE's Child Survival Technical Support (CSTS) Projects. During the course of the consultancy, discussion with the responsible officer in AID resulted in the exercise being viewed and described as a review of the respective PVO's Child Survival (CS) activities and identification of directions for the follow-on CS program* which is scheduled to begin in the spring of 1988. The terms of reference for the consultancy requested one consultant to be an experienced health professional who has worked in health education, child survival, and private voluntary organization (PVO) programming and evaluation. The second consultant was to be a health management expert with knowledge and experience in establishing and evaluating Health Information Systems (HIS). The objective and scope of work for the exercise are attached as Appendix I.

The consultancy consisted of discussions with USAID/Belize officials who were involved in the CS programming, with those in the PVOs who were implementing the CS activities, and with Ministry of Health (MOH) officials at the national, district and local levels who were knowledgeable and had collaborated with CARE and Project HOPE in their activities. (Appendix II gives a list of persons contacted.) In addition to meetings in Belize City, field trips to Cayo, Corozal, Orange Walk and Stann Creek Districts allowed us not only to meet those who were involved with planning as well as implementing the child survival programs, but also to observe field operations, especially at urban and rural health centers and at the village level where PVO CS activities were being carried out.

Following the introduction, this report is divided into three additional chapters. Chapter II provides a brief background, which begins by giving an overview of the health situation in Belize, particularly as it relates to the underfive population and the women of child bearing age. This is followed by comments on the PVO projects and on the MOH's structures and policies. The next chapter is devoted to the findings of the review, divided into sections on Project HOPE and CARE. The final chapter identifies approaches and activities which might be considered to be included in the respective PVO's upcoming CS programs under the Umbrella Project, again focusing attention on one PVO at a time. The recommendations in the concluding chapter follow from the observations made and needs documented in the preceding chapter.

* CARE and Project HOPE will be included as two components of the so-called CS Umbrella Project in which the Belize Family Life Association (BFLA) and Breast is Best (BIB) League will also participate.

II. BACKGROUND

In this section the health situation of Belize, MOH policy and structure and the PVO project background will be reviewed briefly. This description will provide the context for the findings and recommendations pertaining to the CARE and Project HOPE CS projects that follow.

A. Belize Overview

Belize is a multi-ethnic, multi-lingual country about the size of Massachusetts with a population of 171,000 (1986 estimation). While the English-speaking Creole population comprises about half of the population, the Spanish-speaking mestizo population is growing and accounts for another third; the remainder is made up mostly of Garifuna (mixture of Black Africans and native Carib Indians), Mayan, Mennonite and Ketchi. The population is evenly divided between urban and rural and boasts a literacy rate of over 90%. The annual per capita income hovers around US\$1000. The country is divided into six administrative districts - Belize (having about a third of the population), Corozal and Orange Walk in the north (together accounting for another third), and Cayo, Stann Creek and Toledo in the southern half.

B. Health Situation in Belize

According to data published by the Government of Belize (GOB), the infant mortality rate (IMR) has fallen from 30.2/1000 live births in 1980 to 23.4 in 1984. However, more recently it is suggested that the IMR has increased, possibly due to improved reporting. The EPI Plan of Action 1988-91, gives a figure of 24.8/1000 live births for 1986. According to the KAP Survey on Family Life and Fertility in Belize published in 1986 by the MOH, 42 out of 1000 babies born died during the first year of life. Even though intestinal and respiratory infections have been reduced by half, diarrheal disease remains a concern in that it accounts for over a quarter of under five morbidity and almost 10% of infant mortality. Acute respiratory infection (ARI) is involved in 12% of infant deaths. Nearly a third of the deaths under one year of age are attributed to low birth-weight. Eight percent of Belizean infants and 19% of children between the ages of one and four are classified as moderately or severely malnourished.

In women of child bearing age, 60% of all deliveries take place in hospitals. A high percentage, over 80%, of all pregnant women receive at least one antenatal examination. Neonatal tetanus has been virtually eliminated. One of the most serious problems for women in Belize is anemia with 43% of pregnant women in 1984 having hemoglobin levels below 11g./dl (Priority Health Needs/Belize, GIS/PAHO, 1985); in Stann Creek an informant reported that the majority of women register below 9g./dl. Prematurity is a problem and close to 30% of all infant deaths occur in the neonatal period.

Immunization rates have improved and by age four almost universal coverage with the four basic vaccines has been achieved. However, in terms of timeless, coverage of children at age one has shown varying degrees of

effectiveness, depending on time and location. Coverage figures for the last several years are given in the following table:

Immunization Coverage at Age One (in percentages)

	1984 *	1986 **	1987 *** (Northern Districts)
BCG	77	65	84
DPT (3rd dose)	53	83	31
Polio (3rd dose)	54	84	31
Measles	43	85	39

- * Priority Health Needs/Belize (GIS/PAHO, 1985).
- ** Belize Child Survival Plan, 1988 (MOH, 1987).
- *** CARE KAP Survey (in 12 project villages in Corozal and Orange Walk Districts, mid-1987).

C. MOH Policy and Structure

The GOB signed the Alma-Ata Declaration and subscribes to the principles of "Health for All by the Year 2000"; it has adopted the Primary Health Care strategy as the foundation of its health system. The recently concluded first National Five Year Health Plan (1982-87) emphasized community participation and intersectoral coordination. Mothers, children, low-income groups and those living in underserved areas have been identified as priority groups. Prevention and promotion are featured approaches being used to achieve the government's objectives.

The National Primary Health Care Committee (NPHCC) consists of the heads of the principal programs in the MOH and meets regularly to plan and evaluate the performance of the health services. As part of its efforts to promote better health for all Belizeans, the MOH established the Health Education and Community Participation Bureau (HECOPAB) in 1983. This unit is to coordinate, promote and facilitate community involvement in health activities and education efforts. Shortly after its formation HECOPAB was instrumental in the establishment of intersectoral District Health Teams (DHT) which bring community members, health workers and representatives from other government agencies together at the district level. HECOPAB, however, has been constrained by a lack of funding, and the DHTs have generally been inactive until a very recent rejuvenation.

In the early 1980s, the MOH budget represented approximately 3% of the Gross Domestic Product and 10% of the national budget. The public health expenditure in Belize in 1981 reached \$35 US per capita, but since then it has gradually dropped. It is expected that the MOH budget for the coming year will be 10% below last year. Primary Health Care receives about 20% of the health budget.* Efforts are being made to identify alternative

*Almost all these funds are allocated to recurrent costs (mostly salaries). The only current support for PHC field activities is the funds to cover the stipends given to the CHWs in Toledo District (assisted by PCI). No funds are currently budgeted to support DHT activities.

sources of funds to supplement government finances; this includes cost-sharing of local programs by community members.

There is a network of 23 Rural (RHC) and 8 Urban Health Centers established in the early 1980s to serve half of the country's population living outside of Belize City and district towns. These facilities are attached to the Urban Health Center at the district headquarters. A Public Health Nurse (PHN) is in charge of public health service delivery in the rural areas. Mobile clinics serve the villages on pre-arranged schedules, providing primarily maternal and child health (MCH) services. The network of rural health centers is staffed by Rural Health Nurses (RHN) which are in short supply. Several RHCs have no RHN and the rest have only one so that when a RHN goes on maternity or annual leave, the post is vacant. To reach the sanctioned level of 46 RHNs, their numbers have to be almost doubled.

To increase the reach of the health services, the government has recently endorsed the training of Community Health Workers (CHW). To date, PVOs have led this effort with CHW activities in several districts, covering approximately 60 out of the roughly 300 villages in the country with populations over 100. (See map, Appendix III). The government has made a commitment to cover all such villages by early next decade.

D. PVO Activities

Five PVOs are involved in CS programming in Belize under AID funding. Project Concern International (PCI) has trained and worked with CHWs in 26 villages in Toledo District since 1983 with support directly from the office of Private and Voluntary Cooperation in Washington under a Matching Grant. In addition, grants to BlB and BFLA have played a vital role in their organizational development and strengthened activities in Belize of these two vitally important components of CS breastfeeding and child spacing. The other two are CARE and Project HOPE which were given grants by USAID/Belize in 1986.

CARE has had operations in Belize for 25 years. In addition to the MACH project, CARE is currently implementing two other development projects. Closely related to the CS activities, CARE is carrying out the Village Level Water and Sanitation (VLWS) Project to reduce the high incidences of water-borne infections through the provisions of safe and adequate water supply (100 wells) and the promotion of improved pit latrines (1200) and village-level health education. CARE has concentrated activities in 16 villages of Orange Walk and Corozal Districts since it began in 1985. In addition, CARE carries out the GRCWTH (Gaining Relevant Oriented Work Training and Help) Project to train young school leavers in productive, income-generating skills. To date over 200 participants have been trained.

Project HOPE initiated activities in Belize in 1983 when it established a pilot laboratory. Shortly thereafter, a nurse educator joined the HOPE staff to assist the Bliss School of Nursing develop a community-based MCH curriculum.

USAID/Belize and the two PVOs signed agreements for CS activities in April 1986. Activities, however, were slow to begin due to a combination of factors. In CARE's case, the recruitment of the Nurse Educator who was to lead the MACH effort faced problems. The initial attempt to locate and hire a Belizean Nurse Educator in the U.S. was unsuccessful. The person currently holding the position did not arrive in country until November, 1986, only beginning work in the project villages in early 1987. In HOPE's case, the Project Director was in country earlier, but the delivery of the two computers for the Medical Statistics Office which were required to launch the Health Information System (HIS) component of the HOPE CS project was delayed; they did not arrive in country until September 1987. Moreover, there were lengthy discussions with the MOH on CS activities and the new Project Director of HOPE and Health Educator of CARE found it necessary to change substantially the content of the respective CS projects, which resulted in a new set of objectives. The end result was that significant portions of the two CS projects have only been in operation for a little over a year, or in some cases, less. In addition, after initial project development, the project duration was reduced by USAID/Belize from three to two years due to funding uncertainty (scheduled to conclude in April 1988). The end result is that little in terms of impact can be expected at this time. It is too soon to see any increase in knowledge or substantive change in the health status among CARE's target population in the northern districts or any significant and institutionalized changes in how the MOH functions at the center under HOPE's influence.

Because of the limited time available for PVO program activities, it was not considered appropriate to conduct a typical evaluation, comparing current accomplishments with project objectives. Rather, a review and documentation of CS project status and direction was considered more appropriate. The activities and processes that have been started serve as the basis for the next phase, the three-year follow-on project which is scheduled to begin in April 1988. This review, therefore, is more formative than it is summative in that it looks ahead to how the work that has been started can be promoted, expanded and strengthened. It is with these goals in mind that the next chapter reviews our findings; this is followed by a chapter on recommendations addressing the where-do-we-go-from-here questions. It is in this chapter that we suggest approaches and activities that might be considered to achieve the CS objectives which all concerned organizations (USAID/Belize, MOH of GOB, CARE, HOPE) aspire to: improving the health and nutritional status of Belize's most vulnerable population (under-fives and women of child-bearing age), especially among the most underserved population.

III. FINDINGS

This chapter is devoted to the consultants' findings based on interviews, document review and field observation. Project HOPE is covered first, followed by CARE. Recommendations based on these findings are found in the concluding chapter of the report.

A. Project HOPE

1. Objectives - Prior to this Child Survival Technical Support project, HOPE's activities in Belize included a technical advisor to the nursing school supported under a matching grant: this advisor assisted in the development of the project. The project director/nurse educator is a certified nurse-midwife with a Master's degree in Public Health and the original management specialist is a lay midwife. This has facilitated the project's access to child survival activities through the nursing community.

The April 1986 project agreement between the USAID mission and Project HOPE listed a set of goals relating to immunization coverage, the control of diarrheal disease, malnutrition, improved perinatal care, and acute respiratory infections. These goals were revised in September 1986. The new goals are:

- GOAL #1: To ensure the coordination of the CS Activities of the MOH agencies.
- GOAL #2: To assist the MOH with the development of management and logistical systems and management training activities.
- GOAL #3: To assist the MOH in upgrading the Health Information System and in developing Baseline Data for the Evaluation of CS Activities.
- GOAL #4: To assist the MOH in Planning for Optimal Immunization Coverage in Belize.
- GOAL #5: To assist the MOH in the Management and Evaluation of its CDD Program.
- GOAL #6: To assist the MOH in the development of its nutrition program.
- GOAL #7: To assist with the promotion of breastfeeding and in the development of the established breastfeeding program in Belize.
- GOAL #8: To assist the MOH with clinical training and consultation in the perinatal and CS areas.

Objectives and indicators were developed for each of these goals. These are available at the USAID mission. The following discussion of HOPE's Child Survival Technical Support project is organized according to the above eight goals.

2. Goals

GOAL #1: CHILD SURVIVAL COORDINATION

There has been a broad range of HOPE activities that promote child survival coordination. The major accomplishments are listed under this first goal. Many tasks listed under other goals also encourage child survival.

The Child Survival Core Work Group was organized in July 1986. The work group is chaired by the MOH Director of MCH Services. In addition to the three project staff members, the group includes the Supervisor of PHNs, the Senior Public Health Nurse, and the Inspector of Midwives. In addition to the monthly review of project activities, the work group revised the MCH forms for HIS processing, undertaken a national MCH workshop, developed postnatal protocols, and is currently preparing a manual, "MCH Norms and Standards for Belize".

Dr. N. Reneau, Director of MCH services and chair of both the Core Work Group and the Child Survival Task Force, is also a member of the National PHC Committee and is able to provide representation on behalf of the Core Work Group and the Task Force.

The Child Survival Directory was prepared by HOPE staff under the direction of the Child Survival Task Force. It lists 17 agencies providing child survival services in Belize. For each agency the directory describes:

- o major objectives
- o contact persons
- o timelines
- o target populations
- o MCH services, and
- o resources available

The Child Survival Task Force was organized before the commencement of the HOPE project, but many informants give HOPE credit for providing the organizational support which has made this a functioning body. The Task Force is chaired by the Director of MCH services and includes:

MOH/ MCH
MOH/ HECOPAB
MOE/ School Health Education
Breast is Best League
Belize Family Life Association
Council of Voluntary Social Services
Belize Red Cross
PAHO
UNICEF
USAID
CARE
Project Concern International
Project HOPE: Child Survival Technical Support Project
Project HOPE: Maternal Child Health Program

Health Talents International
Progresso Vocational & Health Institute
Enfants Refugies du Monde (ERM)

The Task Force has undertaken the following tasks:

- the above directory
- coordination of the Caye Chapel Workshop with USAID: a comprehensive review of Child Survival with emphasis on social marketing
- monthly presentations on Child Survival topics

The Breast is Best League: HOPE has coordinated closely with BIB through the provision of extensive administrative assistance. This has included office space, duplication, typing services, and bookkeeping. Technical assistance in support of workshops, surveys, management training and workplans are described later in the text.

"Activation of District Health Teams" is an objective included under this goal. Staffing circumstances within the MOH has, until recently, made it difficult for the MOH to support this activity. At the time of this evaluation, the MOH has taken the initiative in reviving DHTs. Given the extensive responsibilities usually assigned to DHTs, the management skills required by these teams, and the importance of these teams to child survival, the teams will require continuing support.

District Health Teams as currently designed by the MOH in the "Primary Health Care Manual" have broad membership in order to facilitate intersectoral cooperation and coordination between each level of organization from the community to the district. HOPE should meet with the MOH to identify ways in which the project can offer continuing technical support for the District Health Teams. The next goal discusses specific ways in which HOPE can support DHTs through management-oriented technical assistance.

Additional Coordination has occurred through assistance provided to the Nursing School, the Belize Family Life Association, and the Health Education and Community Participation Bureau of the MOH. Each of these is discussed in the following text.

GOAL #2: MANAGEMENT ASSISTANCE

The project was originally staffed by an expatriate management specialist and a Belizean management trainee. The management specialist served for a term of 12 months and completed service in May, 1987. The management trainee now serves as the Child Survival Management Assistant.

A Child Survival Management Training Seminar was provided on a weekly basis to 11 participants over a nine-month period and was taught by the management specialist. The participants were primarily from the MOH and were chosen based on their management responsibilities for child survival programs. Participants seem to agree that the seminar was particularly

successful in building cooperative working relationships, promoting an appreciation of the constraints each of them face, and teaching time management techniques.

District Management Training. Early intentions were to replicate a modified form of the national-level management training seminar at the district level using participants from the national-level training as instructors. This has proved impossible because of competing demands upon the time of these national-level managers. HOPE and the MOH have not delineated an alternative strategy for providing district level management training.

Clinic Operations Manual. This management goal also includes objectives calling for the assembling of a clinic operations manual and a training plan to accompany the distribution and implementation of the clinic operations manual. Work has not yet begun on the manual. Plans are for the manual to include sections on administration, budgeting, supplies management, inventories, health information, record keeping, and transportation. The manual will be of particular value as many new nurses enter the MOH to fill the vacant RHN positions since new RHNs will require less orientation time from PHNs.

Supply and Logistics. One objective under this goal calls for HOPE to assist in the preparation of a "management plan and training module for clinic supply and equipment logistics". This objective has been low in Ministry priorities and work has not yet commenced. Present HOPE staff have little experience in this area.

GOAL #3: HEALTH INFORMATION SYSTEMS AND BASELINE DATA FOR CHILD SURVIVAL

The September 1986 Goal #3 includes objectives that call for:

- selection of child survival health indicators,
- statistical reporting forms and teaching modules,
- the programming of a database,
- instruction manuals for the data collection forms,
- field-based training in the use of the new forms,
- "basic computer operations" training for the MS officer,
- training for the staff of the MS office,
- a training plan for the formal transfer of equipment and responsibility of the health information system to the MOH by January, 1988, and
- assistance in the design and conduct of special studies for CS.

The complete list of objectives included under this goal are, at times, repetitive, and at other times, unclear about priorities. The

actual work accomplished by the HIS specialist approximates these objectives but are best discussed under three categories:

1. Baseline surveys
2. Computer installation and staff training
3. CS monthly reporting

o Baseline Surveys - A list of child survival indicators have been officially adopted by the MCH program and serve the MS office in the compilation of a database and the design of service delivery reporting formats. These indicators are borrowed from UNICEF sources.

HOPE processed a variety of survey data during the first year. Most of this processing was done on the HOPE office computer while waiting for the MS office computers to arrive. These surveys provide much information which serves as baseline child survival data. It also provides data which can be used to confirm conclusions drawn from the HIS.

This category includes six surveys. Two of these are large nationwide surveys. Two are service delivery surveys. Two are regional surveys.

- EPI Coverage Survey. This UNICEF funded, PAHO executed survey reported immunization status nationwide at one point in time. The results were applied to the planning of following immunization campaigns.
- Control of Diarrheal Disease: Morbidity and Mortality. This household survey was conducted by 46 managers included in a PAHO management course. It includes recall of diarrheal episodes, symptoms, and child mortality. When results were compared to the death registry, many of the deaths reported in the study were not included in the registry.
- Survey of Postpartum Care in Belize. This survey reported the availability of postpartum care, services provided under this category, and discussed the feasibility of expanded postpartum care.
- Rural Health Nurse Survey. This survey provided updated information to the MOH on the status of RHNs and RHCs in Belize. In particular, it reviewed recruitment, training, and placement of RHNs.
- Belize City Diarrheal Disease Study. The sample included neighborhoods of high diarrheal incidence as indicated by outpatient records. The survey was conducted by CHWs who collected relevant environmental and demographic indicators, assessed levels of health education, and identified the presence of ORS.
- CARE/MACH KAP Study. (see discussion under CARE)

These studies provide some elements of the child survival baseline activity referred to in the goal. Much of this survey-based activity was conducted on the computer at the HOPE office during 1987 while awaiting the

arrival of computers for the Medical Statistics Office. Since installation of the MS Office computers, more attention has been given to the establishment of an operational child survival health information system.

The Medical Statistics Office computer installation, the development of a child survival HIS into a longitudinal database appropriate for evaluative and managerial purposes should take priority over analysis of survey data.

o Computer Installation and Staff Training - Early in the project, the MS office expected to receive a computer from another donor in March. This did not happen and instead USAID approved the purchase by HOPE of two IBM personal computers. These were installed in September, 1987.

These computers were purchased specifically for the processing of child survival data, and more generally so that the appropriate processing of child survival data would demonstrate the utility of a computerized HIS for the Ministry as a whole. The hard disk capacity of the two computers and the extensive training planned for the MS Office and other ministry officers will provide the Ministry both the hardware, software, and trained personnel to expand coverage beyond child survival. For the immediate future, the Director of Health Services has clearly indicated that the development of computer processing is the top priority.

The timeline for 1987 prepared by the PH HIS specialist and the MOH Medical Statistics Officer had called for training delivered by the HIS advisor to the MS Officer and her staff over a nine-month period. Training did occur during most of the year, but until September, was constrained by the lack of computers at the MS Office. Instead, training was offered on the computer at the HOPE offices. This training was provided on a one-to-one basis and emphasized the provision of basic skills to assure maintenance of the system and maximize self-sufficiency.

Training continues to be provided on a weekly basis to the MS Officer and her staff in a tutorial fashion by the HIS specialist. Increasingly, this process is disrupted by competing demands upon the time of all parties concerned and interruptions which naturally occur at the site.

o Child Survival Reporting - There are several activities that Project HOPE undertook in this area:

- MCH Form. Revised Child Survival reporting commenced with the redesign of the MCH Form. Revision was undertaken with the guidance of the Core Work Group under the chair of the Director of MCH services. A copy of the monthly MCH Reporting Form is provided in Appendix IV. The revised form was personally delivered to each of the 23 RHCs and the RHNs were instructed in the field-testing of this form. Field testing continued for six months after which suggestions were solicited and the final version approved.

MCH data for nine months has been entered into the database. Three quarterly reports and monthly reports from September forward have been generated and distributed. The most recent distribution included the use of percentages and comparisons (district to national and RHC to district)-

see Appendix V for most recent reports. Each PHN receives reports for each of the RHCs in her district in addition to district level data.

Discussion with PHNs suggest that information from the EPI monthly report is used on a pre-existing graph to estimate immunization coverage. Target figures for this graph are generated from adjusted 1980 census figures and may be in serious error due to the arrival of refugee populations in some areas and outmigration of some Belizeans at the same time.

Since the introduction of percents and comparisons is very new, it is impossible to assess the comprehension and use of these, but the unusually high level of literacy in Belize suggests that these will prove useful after minimal training.

- Other Forms. The MCH form is one of 40 forms sent to the MS Office, but it does account for 25% of the staff time, and it does include the majority of child survival reported information. Nutrition information is reported on a separate form. Information on deliveries by Traditional Birth Attendants are reported separately to the Inspector of Midwives. Community Health Workers report separately in a process that does not yet reach the central level.

- Rural Health Center Data Collection. A Public Health Nurse in one district demonstrated a system of registers, cards, and tally sheets used to generate the data reported on the MCH form. The system appeared to be efficient and accurate, suggesting a higher level of reliability for the MCH data than one might have expected without specific PHN training. Observations regarding RHC data collection from other informants include:

- there are no standardized registers for data collection at RHCs,
- there is no instruction manual for the establishment of registers, tally sheets, and data cards at RHCs,
- training for RHNs does not include instruction on data collection and the use of this data, and

GOAL #4: PLANNING FOR OPTIMAL IMMUNIZATION COVERAGE

HOPE completed summaries of both the UNICEF-funded immunization campaign and the survey data collected after the UNICEF-funded and PAHO-executed campaign.

HOPE has worked with the Ministry to plan a joint immunization, diarrheal disease, and health education campaign in an area of Cowpen where populations of illegal aliens have been without health services.

Monthly and quarterly feedback to PHNs and RHNs provide information which allows these nurses to assess their coverage compared to previously calculated immunization targets.

HIS efforts will train PHNs and RHNs in the surveillance of immunization indicators for their service area.

GOAL #5: ASSISTANCE TO THE MANAGEMENT AND EVALUATION OF MOH CDD PROGRAM.

The Baseline Survey section of the HIS section of this report describes both the CDD/Morbidity and Mortality household survey conducted in conjunction with the PAHO management course, and the smaller CDD survey conducted in Belize City by Red Cross CHWs using patient registers from the Outpatient Unit at Belize Hospital.

The project has also provided CDD health education materials such as the videocassette tape, "Prescription for Health", in both English and Spanish.

GOAL #6: ASSISTANCE TO THE MOH NUTRITION PROGRAM

The project has assisted the MOH Nutritionist in the identification of nutritional needs and the development of a national nutrition policy which has been submitted to the Permanent Secretary for review. It has also assisted the Belize Nutrition Communication Network in the presentation of a five day multi-disciplinary and educational activity on weaning foods and young child feeding practices.

Additional assistance has been provided in gathering data on Anemia in Belize and in the planning for for the PAHO funded National Nutrition Survey. Plans related to anemia include an assessment of patient compliance and the use of health education materials to encourage greater compliance.

GOAL #7: PROMOTION OF BREASTFEEDING

The project has been particularly active in providing support for the BIB League. This support has included office support, technical assistance in curriculum development for the training of breastfeeding counselors, management training for the executive director of BIB, financial management, and participation in breastfeeding counselor training in both Orange Walk and Corozal. (Breastfeeding counselors have received additional training in diarrheal disease prevention, nutrition, family life education, and EPI). Future technical assistance will include help in conducting a baseline survey, training, and impact evaluation in Stan Creek.

GOAL #8: CLINICAL TRAINING & CONSULTATION IN PERINATAL & CHILD SURVIVAL.

1. Postnatal Services. A survey of postnatal services was completed in February, 1987, and reported the following month. Based upon this survey, a plan for providing inservice training for district nurses in the provision of six-week postpartum visits was developed. These district training sessions are scheduled for early February 1988.

2. Midwifery Supervision at School of Nursing. HOPE staff participated in this five-week supervision of midwifery students. Comments were reported to the Principal Nursing Tutor.

3. Assistance to the Belize Family Life Association (BFLA) and the MOH Family Life Educator. The MOH Family Life Educator joined the management

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seminar but did not complete the course. Project staff joined in BFLA workshops and collaborated with the HECOPAB Family Life Educator on educational materials.

4. National Workshop in Child Survival. This workshop was conducted in Caye Chapel and provided an opportunity for senior nurses from the MOH to meet and work with FVO staff in an informal setting.

5. High-Risk Pregnancies. The Project Director/ Nurse Educator has organized a course in high-risk obstetrics after having gathered information from the nursery and maternity ward at Belize City Hospital. The BIB League, the MOH Nutritionist, and HECOPAB staff have joined in meetings to discuss procedures and data collection at the Hospital nursery and maternity ward. Results of these meetings will form a portion of the National MCH Norms and Procedures.

6. Other Activities include collaboration on a community health course in the School of Nursing, the development of Spanish prenatal care educational literature in cooperation with Enfants Refugies du Monde, training in the management of high-risk pregnancies for Project Concern International, and the preparation of EPI educational material in Mennonite German.

B. CARE

In contrast to Project HOPE, CARE's MACH Project is more focused, launching CHWs in two districts and developing a health education approach to support their village-level preventive and promotive activities. According to CARE's initial agreement with USAID/Belize, they were to train and support CHWs in 12 villages in each of the two districts of northern Belize, Orange Walk and Corozal. When the duration of the grant was reduced to two years and because the Nurse/Health Educator was not in position until late 1986, CARE's objectives were scaled down so that a total of 12 villages (6 in each district) are to have CHWs by the end of the present project.

In 1987, CARE revised its goals (see Appendix VI). The six intermediate goals address expanded use of oral rehydration therapy (ORT), improved maternal nutrition practices, increased immunization coverage, decreased acute respiratory infections (ARI), enhanced reproductive health for women, and development of health education. CARE's progress in these six areas will be reviewed in the following five sections which address training, interventions, health educations, management and linkage with the government.

1. Training - A considerable portion of the first year of CHW programming has been devoted to training the community health workers. The Nurse/Health Educator and the District Trainer (DT) developed training modules and carried out the training. (See training schedule and topics, Appendix VII).

CARE has followed the training strategy which has been found effective

elsewhere in the world, providing ongoing training over a prolonged period and covering the interventions considered essential in a sequential, task-by-task basis. This competency-based training contrasts with the approach which entails several consecutive months of classroom training that typically overloads the community health worker.

Another characteristic of the CARE CHW training effort is intensity. The instruction is conducted in the CHW's individual villages. The benefit of such training is that women who are busy with other things (e.g., household chores, childcare, field work) are not required to leave home and spend time and money to reach training sessions in the district town which, in some cases, is distant. To hold several training sessions in all six CHW villages (trained in two batches) each month keeps the CARE educators extremely busy. This problem is exacerbated by the fact that only one of the four positions at the district level was filled until mid-1987. Each district is to have a DT as well as a Community Health Organizer (CHO). Slowly the team has been put together with the final DT due to begin work this coming January. This delay illustrates the difficulty of finding qualified and available workers in Belize's limited manpower pool.

2. Interventions - In line with MOH directions CARE has limited the work of the CHWs under its direction to preventive and promotive activities. This contrasts with groups like PCI which has trained its CHW to provide a package of services which includes curative care. In its approach stressing health education activities, CARE's CHW program features early detection and referral to the nearest health center for attention and treatment.

Because of the focus on CS subjects, all the CHWs in the two northern districts under CARE are female. There are 33 CHWs in the 12 villages; see Appendix VIII for list of villages and CHWs. The two smallest villages have one CHW each; two others have two CHWs and the rest have three or four apiece. The first activity of the CHWs is to map their villages, locating each house and noting those with children under five (see example, Appendix IX). If we divide the number of households with under fives by the number of CHWs, each CHW should be responsible for an average of 14 households. However, not all villages are divided into zones of specific CHW responsibility.

The CHWs' work consists mostly of educating mothers on the priority child survival topics and interventions. Attention is directed to such things as assuring that all mothers know and utilize ORT when a child of theirs suffers from diarrhea. Pregnant women are identified and efforts are made to have her attend a prenatal clinic during her first trimester. Once the baby has been born, its mother is encouraged to have a postnatal check-up. In addition, she is counselled by the CHW on proper breastfeeding and weaning practices. All CHWs are or will be trained by BIB as breastfeeding counselors and make every effort to make sure that the mothers in the village exclusively breastfeed their new babies for the first four months. At the same time, the CHW is responsible for seeing that all infants are immunized against the communicable childhood diseases; every effort is made to complete the series prior to the child's first birthday. In November, growth monitoring by the CARE CHWs was begun with "weigh days" scheduled for each village each month. ARI activities have

yet to start since the CHWs are not scheduled to be trained in ARI until later in December.

3. Health Education - As mentioned, the primary function of the CHW is health promotion. Most of their time is spent delivering health education messages to the mothers. For example, at the growth monitoring counselling sessions, the CHWs use charts developed by the Caribbean Food & Nutrition Institute (Jamaica) which have separate messages for children under six months, between 6 and 9 months, and between 9 months and one year of age. CARE plans to adapt the messages to the Belizean context, using locally-available foods and appropriate cultural practices.

The health/nutrition education messages provided by the CHWs are being reinforced and supported by a series of television spots prepared and produced by CARE. CARE identified major MCH-related health problems with the help of the Knowledge, Attitudes and Practice (KAP) survey conducted in mid-1987. (Appendix X provides a summary of significant findings.) The Nurse/Health Educator and DT developed messages and discussed them with the CHWs; the messages were pretested for comprehension. HECOPAB was also intimately involved in the creation and review of spots. After being finalized, a local production company (Great Belize Productions) shot the spots with CHWs not only organizing the appropriate shots but, in a few cases, acting in them as well. The end products show village scenes and people and have voice-over recordings in both English and Spanish giving the health and nutrition education messages. Twenty-three spots were developed and reviewed by the MOH. The MOH requested one spot to be deleted, and CARE chose to eliminate a second because of unclear messages. There are a total of 21 messages now being used. (See list of titles, Appendix XI).

This is the first attempt at social marketing in Belize. Testing messages and measuring comprehension and impact are all new to this country. Before the messages are broadcast, an accidental sampling survey* is conducted in the main town of each district to determine the pre-spot level of information. After one month on television, a similar exercise will be carried out to find out if people have seen the spot, if they identify with the families and if they comprehend the messages. Changes in the messages can still be made at this point, if required. At the end of three months, a third survey is made to ascertain whether the messages are remembered and whether people's knowledge on the specific subjects addressed has improved. An important spin-off of CARE's activities, therefore, is the development of the capacity in Belize to produce and evaluate social sector communications campaigns. This capability can be made use of for a range of constructive, development-related purposes in the future.

*Accidental sampling survey technique differs from random sampling because the process by which interviewees are selected is not scientific. In CARE's accidental survey, every third person in the busiest part of town (i.e., marketplace) is chosen to answer the questionnaire.

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If one analyzes the 21 spots, he will note that 16 different subjects are addressed, five of them having two separate spots devoted to their particular subject. The spots are divided into groups of five which will be aired on a pre-arranged schedule. (See Appendix XII). The group is broadcast in sequence over a three-month period, with one spot shown each day four to six times. The health/nutrition spots are aired by the private television station in each district at no cost.

CARE will be broadcasting the audio portion of the spots on the national radio station as well which will broaden the exposure. In addition, calendars featuring some of the same messages and pictures are being produced and will be distributed to schools in the district. Having various mass media reinforcing the messages the CHWs are spreading at village level on an interpersonal basis is an extremely powerful combination and, if experience from around the world is any indication, should produce results in the villages where the CARE-trained CHWs are operating.

The cost of the social marketing effort should be considered. The production cost is reasonable when one considers that an estimated 75% of the population of Corozal and Orange Walk have televisions. The per capita cost comes to less than US\$0.20. With the air time being free, the television spots become an inexpensive means of getting messages across to the target population. It would be even less if the spots could be used in other areas of the country. However, because of the ethnic and linguistic mix of Belize and the ethnocentric (Mestizo) nature of CARE's spots, these are only limited possibilities. Nonetheless, the MOH has a tape of the spots and will be testing them in Cayo District which is culturally similar to the two northern districts.

Several observations can be made on the social marketing effort. First, no formal formative survey research techniques were used to identify priority messages and current local knowledge and practices. Focus group interview techniques have been found useful elsewhere to determine resistances points which must be addressed in the messages. Another point is the number of messages and the amount of information. Social marketing experts consider it important to identify a limited number of priority behaviors that must be changed to achieve improved health/nutritional status. These messages are then repeated in various forms to attain the desired outcome.

4. Management - The KAP survey conducted by CARE provides them with excellent benchmark data which can be used to determine the extent of change which takes place in the project villages due to the CHWs' work and the television spots.

In terms of personnel management, the intensive support given to CHWs by the CARE staff is extremely important during this early stage of their work. Experience in programs utilizing community workers elsewhere in the developing world demonstrates that there is a direct correlation between their effectiveness and the amount of supportive supervision they receive. The five or more visits the CHWs receive each month not only improves their effectiveness (through the ongoing education), but just as importantly maintains their morale. They are made to feel part of the team effort. In

addition, the CHWs gain status when they are seen with the supervisors. The end result is improved performance and decreased drop-outs. CHWs in other programs (like PCI) are paid a stipend of US\$25 per month (from MOH). On a country-wide basis, the MOH budget could never afford such a payment. Even the intensive supervision required to maintain CHW interest is questionable when it comes to sustainability after the PVO phases out. This issue will be addressed in the next chapter.

The data collection and reporting in CHW villages deserves attention. The use of the child's growth card (with the child's immunization record) as the basic program management tool is to be commended. This is the MOH system which is highly satisfactory because of its simplicity. With the villages of Belize being small, it is possible to keep the cards for all the under-fives in a particular village together in a bundle. When the mobile clinic visits the villages the cards for that community are taken along*.

The problem noted in the CARE villages having CHWs is that there is no way to insure that all the children either have cards or attend all the sessions (mobile clinics and weigh days). While the number of households with under-fives was counted during the initial mapping exercise, no effort was made to either distribute growth cards to the target population or to register them.

With no listing of children under three, for example, it is not possible to know who or how many children should show up at a weighing session. To illustrate the point, the village where we observed a weigh day had a population of 371. Based on this, there should be approximately 35 children under three (3%/year or 9% of 371). In the two weighing sessions, however, only 19 (in November) and 21 (in December) participated. No one knew who had not attended or whose homes had to be visited to locate the missing children.

When we talk in terms of an information system, the lack of village enumeration becomes a denominator problem. By this is meant that, without an accurate number of children in the village, CARE will never be able to determine the status of its program. Without special house-to-house surveys, CARE is unable to ascertain such things as immunization coverage, participation in weighing sessions, and the rate of malnutrition.

More importantly, the lack of a complete registration system will make it extremely difficult for CHWs to practice effective "at risk" programming. This requires that all the children of the village participate or are "in the system". The children who do not attend clinics or weighing sessions are typically those who are in greatest need of assistance. They come from the families that come from the geographic and socio-economic (i.e., poorest) periphery of the village. These families

*The urban clinics also use the cards as the basic information recording tool and keep the cards alphabetically (in lettered cubby holes.)

are likely to include those that are experiencing infant deaths and have the most serious health problems in the village. In Belize, as elsewhere, deaths among the vulnerable age group are apparently grouped in high-risk families. A major responsibility of the community worker is to find these families and assure that they receive the services and education they desperately need. This is the only way a CHW program can achieve its objectives and have maximum impact.

The form CARE is using for CHW reporting does not give the kind of data that the village worker, the community or supervisor requires to determine if the program is working effectively. The monthly reporting form in its present form (Appendix XIII) consists of only the number of various activities (e.g., families visited), immunizations given, referrals, or illness (e.g., cases of diarrhea, ARI). While the number of underfives is mentioned, nowhere on the form is the number of children under 1 and under three recorded so that the person reviewing the form knows whether performance in immunization and weighing is good or bad. In addition, no vital statistics such as the number of births or age-specific deaths (0-1, 1-4) are given. This information is usually known by the CHWs or could be collected with little or no extra energy.

5. Government Linkage - Without exception, all the nurses working at the UHCs and RHCs say that CHWs are a great asset. The village workers serve as a valuable link between the government health services and the community. CHWs organize the villages, assuring that those children requiring immunization attend the mobile clinic and that the pregnant women are identified and encouraged to start their prenatal checkups as soon as possible. CARE's weigh days are highly dependent on CHWs mobilizing the children under three and assisting in the weighing sessions. In addition to educating the village mothers on a range of MCH issues, the CHW is a continuous presence in the community to reinforce the messages. By providing better coverage and follow-up, CHWs improve the effectiveness and efficiency of the MOH's public health staff. The assistance from the CHWs lightens the work load of the overextended PHNs and RHNs, enabling them to achieve results in the CS activities which were previously not possible.

There are a few concerns that arise in the relationship between the government health staff and CARE's CHW activity. The MOH has commented that they have little contact with what CARE is doing in the northern districts. However, at the district level, relations with the PHNs and RHNs is generally good and there is a high level of cooperation. During the first year of CHW operations, occasions did arise when CARE found it extremely difficult to work with RHNs either due to the remoteness of the CARE project villages from the RHCs or because the RHC was vacant.

Several other issues were raised on the subject of Government-CARE linkages. For example, CARE's weigh days are not conducted on the same day as the mobile clinic. Because there has only been one MOH vehicle for the two districts of Orange Walk and Corozal, monthly mobile clinic visits to each village have not been possible. A second vehicle will be sent to the northern districts in the immediate future and should resolve this problem.

Discussions about CHW programming with MOH officials in Belize City indicates a lack of awareness of what CARE is doing in the north. When CHWs

are mentioned, everyone thinks first of PCI in Toledo; the latter program has been in operation for over four years and is well known. The CARE MACH Project, having only been functioning for a year, is at an obvious disadvantage. CARE sends all its reports, descriptive and quantitative, to the MCH department of the MOH which is appropriate. However, as the CHW effort progresses and as a national model takes shape, it is essential that CARE publicize its approach which is so different from PCI so that the options and trade-offs between the different strategies are clearly understood.

One impression voiced at the higher levels of the MOH is that the CARE approach is not replicable. The concern centers around the level of staffing and the intensity of supervision. As mentioned, the two districts in which CARE is working will soon have one DT and one CHO in each district. This is in contrast to the government structure which specifies one position, DT/CHO, per district. However, no district is yet to have such a person assigned to it*. In addition, CARE's vehicles (vans and a motorcycle for each of the support staff) do allow for regular visits to the villages, an essential element in the early phase of CHW program when training and initiation of community operations are the primary activities.

To date there is limited evidence of substantive involvement of the communities in the CHW program. The attempts to form and activate village health committees (VHC) has not met with much success. Because 10 of the

12 villages participating in CARE's CHW program have had VLWS activities in them previously, their water and sanitation committees and general community awareness and ability to work with an outside agency has made things easier. Therefore, the absence of effective VHCs has not adversely affected the CHW program to a great deal up to this point. However, the concern for community involvement increases as the CHW effort progresses and the community's role increases.

*The Public Health Nurse in Toledo District has been designated DT/CHO in addition to her current position but this has not always provided the extra support required to support a CHW effort.

IV. RECOMMENDATIONS

Having reviewed the activities of Project HOPE and CARE in their Child Survival Projects, it is appropriate that we turn our attention to the future and address how the MOH and the two agencies might collaborate during the proposed CS Umbrella Project.

A. Project HOPE

The aspects in which HOPE can contribute most to the Child Survival effort in Belize are identified below. Goals #5 (CDD), 6 (Nutrition) and 7 (Breastfeeding) are not included here since future activities in these areas for HOPE are limited. In the case of breastfeeding, BIB, thanks to the support of USAID/Belize and HOPE, is now able to function on its own and will provide the support the CS program will require in breastfeeding. References are made throughout the HOPE section to the specific findings in Chapter III which provide the basis for the particular recommendations.

GOAL #1: COORDINATION

The April 1986 lists District Health Teams as an object of coordination. Project HOPE should meet with the MOH to identify ways in which the project can support child survival coordination at the district level through the District Health Teams. The suggestions listed below should be considered. Discussion might focus on the role of DHTs in achieving child survival targets.

GOAL #2: MANAGEMENT

1. District Health Teams. The Director of Primary Health Care's recent efforts to revitalize District Health Teams provide an opportunity for the project to meet project objectives relating to district-level training. This could be accomplished through three forms of assistance.

Firstly, the District Health Teams will require extensive staff and administrative support. Such support may prove beyond the budgeted capacity of the Director of Primary Health Care. A relatively small investment of resources would allow CARE and HOPE to provide support for selected DHTs. Given the distribution of CS PVOs, the MOH might request CARE to assist in Orange Walk and Corozal, HOPE perhaps in Cayo and Belize Rural. Administrative support might include taking minutes, typing, duplication, distribution, provision of transport on selected occasions, and technical assistance to the DHT coordinator on the management of Health Team business.

Secondly, the DHTs will require workshops on child survival since many DHT members are unfamiliar with child survival. HOPE staff should assist the MOH in providing presentations to all six DHTs defining the components of child survival, describing the state of child survival in the district using data from the MS office computers and comparing district statistics to national-level statistics. Comparative information for each RHC in the district should be used to introduce the issue of local variations within the district. The DHT should be asked to undertake a local planning activity under which CHWs (where they exist) join with leaders of the

Village Health Committee in assessing child survival needs in each village. Results of this village-level planning process should be collated by the DHT and forwarded to the appropriate Medical Officers of Health.

Thirdly, management training should be provided by HOPE to the District Management Committee. This committee includes the District Medical Officer (as chair), the Medical Officer, the Sister-in-charge, the Public Health Nurse, the Public Health Inspector, the District Malaria Supervisor, and the MOH Dentist. These officers are responsible for the implementation of all MOH programs within the district including all child survival activities. Providing these individuals with inservice management training at each district will improve the management of child survival programs at the district level. Management training at the district level should be preceded by a comprehensive survey of prospective participants in order to tailor the training to reported problems. The training should follow a prepared curriculum and use pre- and post-testing to document results.

2. Management Staffing at HOPE. District-level management training, the production of a clinic operations manual, and training for rural health nurses in the use of this manual will require extensive technical assistance in the area of management. It is important in the next phase of the project to assure that staffing patterns match the stated goals of the project. It is particularly important to assure the availability of adequate management expertise.

In this case, one HOPE advisory position should assume management as sole technical assistance responsibilities. Specific tasks should include:

- TA to the MOH in the design and implementation of district-level management training,
- TA to the MOH in the compilation of a clinic operations manual,
- TA to the MOH in the training that accompanies the distribution and implementation of the clinic operations manual.

Since these are very significant tasks, it is important that no other expectations, other than project administration, be associated with this position.

Given the history of HOPE's attempts to assist the Ministry in district management training, it is essential that HOPE demonstrate the availability of senior technical assistance, adequate funding, and adequate backup. Support for management tasks should be provided through the budgeting of additional short-term technical assistance.

3. Feasibility Study of RHN Training. The EPI plan includes an activity which calls for the Minister to meet with the Director of MCH Services and representatives from the School of Nursing to complete a plan for the recruitment and training of RHNs. (activity 5.8)

Vacancies in the RHN staffing of RHCs constrain the implementation of all child survival interventions. The last graduating class from the

School of Nursing included no RHNs. Many informants suggest that training at the School of Nursing is directed toward hospital nursing rather than RHC nursing.

HOPE should contact the Director of MCH Services to ask how, under HOPE's expanded management capacity, it could provide the Director and others with information that would facilitate this review. The Director might, for example, request that HOPE assess the relative feasibility of separate training for RHNs, of shorter training for RHNs, training for Auxillary RHNs, or of upgrading Practical Nurses to fill vacant RHN positions.

4. The Management Assistant Position. This position needs to be redefined for the second phase of the HOPE project. The Management Assistant will be an asset in the provision of expanded management services described above and the introduction of Management Information Systems described in the following text. More specifically, the management assistant will be able to assist in training, the organization of workshops, continued coordination between organizations involved in child survival and organizational assistance to selected PVO's.

GOAL #3: HIS

1. HIS Priorities. The stated goal requires both the upgrading of the Health Information System and the development of "baseline data for the evaluation of child survival activities". Such an HIS will itself provide a database that would be more useful in the longitudinal evaluation of both project and Ministry child survival interventions.

For the Medical Statistics Office computer installation, the development of a child survival HIS into a longitudinal database appropriate for evaluative and managerial purposes should take priority over analysis of survey data.

Requests for assistance from the MS Office or from the HOPE HIS advisor for other tasks should be referred elsewhere while the office works to complete the basic HIS.

2. HIS Training. Training for HIS under HOPE must reflect the following priorities and constraints:

- assuring the Ministry the capacity to program and reprogram database software applications without external assistance, either from expatriates or Belizeans outside the MOH,
- using Belizean nationals to support the installation(s) whenever possible,
- providing training on a broad basis in order to take full advantage of the democratizing effects upon management systems of personal computers and user-friendly software, and
- providing broad training in order to diminish the possibilities of a single extensively-trained MOH staff member leaving MOH

employment.

A timeline for the following proposed training events is being prepared by the MS Officer and the HIS specialist and will be available soon.

Suggested HIS training includes:

Structured training for the HIS office,
Local training for the MS officer,
Training for the child survival senior staff,
U.S.-based training,
Computer orientation for the National PHC Committee,
RHN and PHN HIS training, and
Training in research services and statistical databases

o Structured Training for the HIS Office. Whereas tutorial training by an expatriate advisor has served the MS Officer and her staff well to date, more structured training provided by a Belizean national through a contractual agreement with HOPE would provide the following advantages:

1. It would consolidate the skills acquired through the tutorial process.
2. It can be offered at a site away from the working environment and isolated from interruptions while close by.
3. The use of a Belizean instructor will show students that Belizeans can learn computer skills as well as anyone else can.
4. The training process will familiarize the instructor with the staff and workings of the MS Office, thereby assuring Belizean technical backup for the MS Office installation as the HOPE HIS specialist assumes an expanded and more diversified role after the end of HOPE assistance.

Discussions have suggested that the training might be conducted:

- in periods not to exceed 2 hours,
- scheduled two or three times per week,
- extending over a six-week period,
- and repeated not less than annually.

The HOPE HIS specialist would work with the Belizean instructor for a short period prior to the beginning of instruction in order to work out agreed upon objectives and curriculum. The MS Officer would join in the teaching of this course. Training can be individualized in order to allow for varying skill levels within the Office. It is important that the MS Officer discuss the possibility of any staff swaps or the possibility of the seconding of staff as early as possible in advance of this training.

o Local Training for the MS Officer. Consolidated Electronics offers a short computer course for approximately B\$150. The course serves as an

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introduction to computers and includes some instruction on the use of the Disk Operating System. The MS Officer should take this course in order to consolidate her knowledge base, assess the teaching skills of the prospective consultant, and begin planning their joint teaching for the MS Office staff.

o Training for the Child Survival Senior Staff. Computer training for the Director of MCH services and selected child survival senior staff would enable trainees who are more familiar with the computer, its software, and its management applications to make better use of the MS office installation for purposes beyond those already undertaken. This would save time and allow the MS office staff to use existing staff time more efficiently.

Similarly, this training would be conducted by the Belizean consultant team-teaching with the MS Officer. Again, the curriculum would be designed jointly with the HOPE HIS specialist.

The Director of MCH services should also attend the 60-hour introductory computer course offered by St John's College.

o U.S.-Based Training. The reliance upon both expatriate and Belizean contractual programming support must be temporary solutions. It is necessary for the MOH to assure the capacity to do database programming within the MOH; this skill should be most appropriately placed within the MS office. Training to date plus the additional training outlined above will have adequately prepared the MS Officer for intensive training in programming in DBASE III Assist. This training is envisioned to require four to eight weeks at a U.S.-based training course. U.S.-based training will remove the MS Officer from other distractions and allow interaction with others in similar positions in other countries. At the completion of this training the MS Officer will assume responsibility for most database applications within the MOH and will require only limited backup from consultants.

o Computer Orientation for the National PHC Committee. Efforts to promote the appropriate child survival use of computers within the MOH will require informed participation on the part of the Permanent Secretary, Medical Officers of Health, and other members of the National Primary Health Care Committee. This can be facilitated through a half-day update/orientation prepared and presented by the HOPE HIS specialist, the MS Officer, and the Director of MCH Services. Informants suggested that scheduling this meeting at a local hotel would favor better attendance and diminish distractions.

o RHN and PHN HIS Training. RHNs and PHNs will require additional training in the use of these forms for supervision and management. This training can be provided in three ways:

- periodic MCH workshops provide an opportunity to present techniques to assembled RHNs and PHNs. These techniques might, for example, enable nurses to use MCH feedback in planning for the more appropriate scheduling of mobile teams.

- periodic meetings called by the Director of MCH Services and including only the senior and district nursing staff will provide an opportunity to review district performance and reinforce supervision of the RHNs.
- by joining the senior nursing staff in the conduct of supervisory visits the MS Officer and HOPE HIS advisory can support the appropriate use of the HIS reports.

o Training in Research Services and Statistical Databases. Currently the MS Office receives many requests for specific data, often on short notice. At the same time considerable research is conducted in Belize and often only a small part of the data collected in the course of this research is analyzed, reported, and maintained in an available state. The MS Office with support from the HOPE HIS specialist is well positioned to provide this service to MOH officers.

3. RHCs. Child Survival data collection systems at the Rural Health Centers should be available with instructions for RHNs in training, RHNs interested in upgrading their procedures, and any expatriate RHNs that might be assigned in the future. This should include suggested registers, cards, tally formats, and instructions in the use of these.

4. From HIS to MIS. The MOH now has a computer that will be used for tracking financial information; the initial programming of this computer has been completed. Another computer is planned for Supplies in the near future. The presence of computers in the MS Office, Finance, and Supplies provides the requirements for a true Management Information System.

With appropriate linkages it will be possible for the MOH to assess the cost of providing services measured by units of service delivered, or perhaps even by impact of those services. As the first MOH installation, the MS Office should commence the design of such a system and submit a proposal for this to the Permanent Secretary.

For example, the Director of MCH Services is interested in assessing the relative costs of delivering MCH services in Belize. This would serve as a good example for other Ministry officers of how MIS can be used to better manage services. By organizing this initial demonstration effort soon, MCH will be able to assure that programming underway for MOH finance is done in a manner that will serve departmental managers.

The HOPE HIS specialist should assist in this process by working with the Director of MCH Services to list measures or units of MCH service delivery and perhaps units of impact; the list of 16 child survival indicators might be useful in this process. Types of expenditures should also be listed, and cost centers identified. The process and projected applications should be presented to the Permanent Secretary.

Consultants should be obtained as needed to complete this task with the Director of MCH Services to assure that this first MIS application serves as a replicable model for the rest of the MOH. The USAID centrally-funded REACH Project provides consultants for EPI and Health Care Finance. The project proposed by the Director of MCH Services would

qualify for this assistance. Such assistance would not require project funds.

Other MIS applications might include:

EPI management. Data on coverage and drop-out rates together with information on the deployment of personnel, vehicles, vaccine, and finances will enable managers to use these resources in a more targeted manner.

DHT planning. Information on disease surveillance within the district together with data on the deployment of MOH resources within the district should be presented to the DHTs as part of a district MIS health planning exercise.

5. MIS and Vertical Programs. Moving from HIS to MIS increases the importance of exchanging information between vertical programs. Demographic information collected by the Vector Control Program may provide denominators useful in Child Survival programming or may confirm similar data collected elsewhere. Similarly, disease reporting received by one program area is often important to other programs. Senior nurses concerned with child survival prenatal programs, for example, need information on unusual occurrence patterns of malaria.

6. The Medical Statistics Office: Staffing and Organizational Position. The introduction of computers rarely diminishes the need for staff. Instead, the ease of access and processing leads to an increase in the demand for information from managers, donors, and field staff. Existing staff at the MS Office will soon be insufficient; plans for additional staff must be made well in advance to allow for training time. If additional positions cannot be created in the establishment list, the MOH should consider the possibility of staff swaps and/or the seconding of staff to the MS Office.

7. Standards and Procedures for MOH Computers. As the number of computers installed in the MOH and planned for the MOH increase, the MOH should consider identifying a person or persons who can be trained to assume responsibility for technical backup for the installations. This would probably be an existing staff person, or at least a person filling an existing position. Concerns such as wiring, air conditioning, voltage surge protectors, and repairs would be responsibilities of this person. In the shorter term, the MOH might consider adopting general guidelines on these issues. This person would advise the Ministry on standardization of software to promote a coordinated MIS.

It would be most useful to the MOH and other government ministries if IBM were to establish an office in Belize able to sell and service IBM equipment. With such an office, warranties would provide first-year servicing and subsequent servicing could be purchased under annual servicing agreements. The GOB, assisted by donors supporting computers (USAID, Project HOPE, PAHO and others) should contact IBM headquarters to promote the establishment of an IBM representative in Belize.

GOAL #4: ASSIST MOH PLANNING FOR OPTIMAL EPI COVERAGE

The Extended Program on Immunization provides an opportunity to demonstrate many of the forms of HOPE technical assistance described above. Data collection, data analysis, management, planning, logistics, training, monitoring and evaluation are elements of HOPE's technical assistance to the MOH which should be applied to EPI.

1. Coverage. The incorporation into the existing MCH reporting system of a CHW reporting form which emphasizes coverage and denominators will allow EPI managers to assess coverage with more precision than previously possible. The CHW information reaching the MS Office will assist in targeting the special immunization outreach activities under 5.5 of the EPI plan. This will also meet the requirements of the activity 9.1. Extending the extent of EPI activity 5.4 to include CARE CHW's would extend coverage.

2. Identifying High Risk Areas. The MCH HIS enables EPI managers to identify areas of high risk and areas of decreasing coverage. This will help to accomplish the geographical targeting required under item 7.7 of the EPI plan.

3. Program Monitoring can be achieved through the quarterly assessment of coverage and drop-out rates in the MCH HIS as required in activities 5.3 and 9.3.

4. Management Training. EPI management training required at the national and district level under items of 3.3 and 3.5 of the plan will provide HOPE an opportunity to demonstrate its upgraded management capacity under its second phase funding.

5. District-Level Planning. EPI provides HOPE with an opportunity to train DHTs or subcommittees of the DHTs in district level planning. HIS generated data on coverage and drop-out rates, together with MIS generated information on logistical issues such as vaccines, transport, personnel deployment and finances will enable district level assessment of the success and constraints encountered.

6. Health Education. Previous collaboration between HOPE and HECOPAB can serve as the model for the production of EPI leaflets in Spanish, English and German. (EPI activity 4.12)

7. Supervision. Activity 6.4 calls for the standardization of reporting forms and improved supervision. Under the second phase, HOPE will have both the management and HIS technical abilities assist the MOH in the development of a model MIS based supervisory structure for EPI. Drop-out rates and coverage data might be the basis for a supervisory system that stressed targeted training and support.

8. MIS. The MIS discussed in earlier sections will be able to use immunization and financial data to demonstrate how this information can be used to assess and redirect limited resources in order to best accomplish the goals listed in the EPI plan. (activity 8.3)

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GOAL #8: CLINICAL TRAINING & CONSULTATION IN PERINATAL AND CHILD SURVIVAL

HOPE should pursue the promotion of better management of high risk pregnancies through the following three interventions:

- Development of Data Forms. These data forms should be developed for both high risk clinics and for the Obstetrics and Gynecological department at Belize City Hospital.
- Inservice Training in the management and referral of high risk pregnancies at prenatal clinics,
- Needs Assessment at the central level to assess the need for appropriate technology to support high risk pregnancy interventions at the central hospital.

B. CARE

In this section we shift our attention from Project HOPE's program which involves issues at the central level and extending down to the district level, to CARE which concentrates its energies at the district level while extending down to the communities where the hard-to-reach target groups reside. The issues that will be explored here relate to the expansion of CARE's effort in Orange Walk and Corozal Districts, management of the community-based effort and the institutionalization of what CARE will establish.

1. Expansion - The stage has been set for the expansion of CARE's CHW program. The progress CARE has made in launching the CHW approach in 12 villages was reviewed in the previous chapter. The support staff will shortly be complete, the training modules have been developed and the approach most compatible with needs and resources has been settled upon. The health system has recognized the value and important contribution that the CHWs make to the existing infrastructure and to the effort to improve the health and nutritional status of the underserved rural population.

Discussions with CARE indicate that they are ready and able to expand the CHW program to almost all villages in the two districts. If CARE were to follow government policy guidelines and cover all villages of over 100 population, 38 villages would be added to the existing 12. That number, however, is based upon the 1980 census figures. (See list of villages, Appendix XIV). It has been noted that current population estimates far exceed the 1980 data. For example, the Central Statistical Office (CSO) estimate for Corozal in 1986 is 28,300 (a 79% increase over the 1980 census figure of 15,778); for Orange Walk it is 27,300 (a 91% increase over

the previously reported 14,260).* This being the case, it is probably more realistic to include the eight villages (four in each district) which had less than 100 people seven years ago. The total number of villages thus becomes 58 with 46 being added to the CHW program.

It is suggested that the expansion exercise be phased. If 23 villages could be added in each of the first two years of the forthcoming three-year project, all villages will have the benefit of CARE support and supervision for at least two years before CARE turns over responsibility completely to the government health staff. This means that the CHWs have the opportunity to gain the skills and confidence before the intensity of support must be reduced.

Obviously CARE will be under considerable pressure during the expansion phase. The need for them to add staff to cope with the increased work load has been mentioned by CARE personnel, possibly one or even two more CHOs in each district. This temptation should be resisted as much as possible so as not to develop unrealistic levels of support that will be impossible to sustain once CARE is no longer associated with the CHW program. This issue will be explored further below under the institutionalization heading. Let it suffice here to say that maximum attention should be placed on streamlining CARE's approach and strategy so as to minimize the level of support required. This could mean considering things like training of CHWs in groups, possibly grouping the women volunteers from three or four nearby villages for training sessions. Doing more training in workshops rather than at individual villages is another way productivity can be increased.

It was mentioned several times during interviews that CARE and the local health services should consider adding services which are found to be of maximum need and in greatest demand. One illustration is malaria in areas where it is endemic. Having the CHWs trained as volunteer collaborators to identify, take slides, give presumptive treatment and refer cases could significantly improve the health status of both the mothers and under-fives.

Including the malaria Volunteer Collaborators as CHWs is an easy way to add malaria know-how to the program with little additional investment. Along these lines, during the expansion CARE should make a conscious effort to include health-related personnel who already reside in the villages. In addition to the volunteer collaborators, the TBAs would make good CHWs since they already have the trust and confidence of the villagers. The point was made by CARE and MOH personnel (and we support) that program effectiveness is increased if the villagers themselves select the CHWs. None the less, CARE should inform the villagers of the benefits of considering those village members who have experience in health.

*This phenomenon is also noted in Stann Creek where the malaria program has enumerated 26,00 people versus less than 14,000 in 1980. This figure contrasts with the CSO estimation of 16,800 for 1986.

CARE's expansion effort in Orange Walk is simplified somewhat by the fact the Enfants Refugies du Monde (ERM) trained approximately 20 CHWs in seven villages in 1985-86. The Government continues to work with the CHWs since ERM pulled out of Orange Walk, but the level of supervision has understandably been reduced. While not all the CHWs will be qualified and warrant inclusion in the new program, those CHWs who have demonstrated both competence and dedication should be selected as the base in their villages under the CARE effort. The ERM villages should be included as soon as possible to reduce the time the ERM CHWs must work without the support they deserve. Although the ERM CHWs will require orientation and some refresher training from CARE, their previous training and experience should reduce the amount of training they will need. Because their needs can be expected to differ from new CHWs, separate training sessions for the ERM CHWs who will be part of the CARE program might be considered.

Assuming that there is a favorable response to the first social marketing effort, and that some impact can be identified from it, CARE should consider a second phase. It is recommended that some limited amount of technical assistance could help CARE upgrade its social marketing skills and leave behind more developed expertise in Belize for similar activities in the future. Such support is available from several centrally-funded projects such as the recently awarded Nutrition Education and Social Marketing project or HealthCom Projects, both managed by Academy for Educational Development (AED). Along the same line, CARE should assist the MOH to adopt and evaluate the existing 21 messages in other areas of Belize. Finally, it has been suggested that immunization schedules be broadcast along with the health messages in the northern districts. This would alert all to the activity, support the CHWs work and increase the coverage in Orange Walk and Corozal where performance has generally lagged.

2. Management - As described in the previous chapter on CARE's program, the CHWs have an opportunity to develop and maintain a complete and accurate information system. Before this is accomplished, however, several things must happen.

First, the CHWs should be made responsible for a specific population (i.e., number of households). Then they should carry out a complete enumeration or registration of the underfives in their villages. By means of a single register, the CHW would be able to track the progress of every child in her area of responsibility. By organizing the register by age, the CHW would be able to cross out those who turn five and add newborns. Next to each name and date of birth should be the basic childhood immunizations and months in which to mark whether the child was weighed (for those under three). Such a tool would make it simple to identify who should be collected for immunization when a mobile clinic comes to the village. Moreover, during weigh days, those missing would be clearly evident and someone could be sent to collect them.

The CHW monthly reporting form should be modified to reflect service delivery in the village. While the CHW's primary responsibility is educational, a very important role she has is to assure that those who need health and nutrition services receive them.

For this reason, the following indicators might be considered:

- No. and % of under threes weighed (participation)
- No. and % of those weighed in II or III degree (rate of malnutrition)
- No. and % of those 9-12 months completely immunized
- No. and % of pregnant women having antenatal check ups
- No. and % of mothers who have delivered within 4-6 weeks who have had postnatal check-ups
- No. and % of under fives with diarrhea who were given ORT
- No. and % of under fives with ARI referred to the clinic
- No. and % of infants under 4 months fully breastfeeding

Because the CHWs would have the children listed by date of birth and all the children would be included, denominators would not be difficult to derive. If one compares these few indicators with the list of 17 indicators developed by the MCH department of the MOH for the monitoring and evaluation of CS programs (see Appendix XV), he will find that they are included.

The only other data that would be helpful are the number of births and deaths in the village during the month. Having tracked the pregnant mother, the CHW should be aware when she gives birth. Deaths occurring below the age of one and between the ages of 1 and 4 should also be noted. No one is more capable of keeping track of a village's vital statistics than CHWs who are in constant contact with each and every household. This would help the district health officials account for the approximately 15% of the births and deaths which are now not reported and hence are missing.

The reporting described is a Monitoring/Built-in Evaluation (M/BIE) system. It allows the community, the CHWs, the RHNs and field managers to know on a regular basis exactly how effectively the program is functioning. Moreover, it permits the CHWs to identify who is in most need of assistance (i.e., helps identify high-risk cases). Because morbidity and mortality is concentrated in a limited number of vulnerable families, such an approach will foster maximum impact and facilitate attainment of project objectives. CARE should test such a system in several of its CHW villages and, if found viable and effective, it should be introduced in all project villages in the two northern districts.

As mentioned, the child growth card is the cornerstone of the management of under-five programming. Delivering services for women of child-bearing age is difficult because no longitudinal record is available for the women. At present a woman is given an ante/postnatal card when she becomes pregnant. This contains a pregnancy/health history and room for examination remarks before and after the birth. Once the postnatal period is over, the card is stored or discarded. When next the woman becomes pregnant, another card is started.

The CHW reporting system as described will not require additional time input by the village-level workers. All the data needed would be readily available to the CHWs, primarily from the children's growth/immunization cards and the women's health cards (described below) or the registers made up from these basic instruments. Some programs have found it helpful to select one or two key indicators to post in the village. This would focus everyone's attention on priority aspects such as immunization coverage and

participation in the weighing sessions. These rates could serve as the basis for comparing program performance in the district villages, hence promote constructive competition. This effort has implications beyond CARE; it provides an example, even a model, which may be appropriate for other CHW/CS projects. The CS Task Force provides a forum to discuss reporting systems with other actors, the MOH and PVOs and to share the experience with the M/BIE system (how it functions and what it has contributed to program effectiveness and efficiency). The end result, it is hoped would be a common/national form and orientation to the process.

It has been suggested that a Woman's Health Card be designed that would be issued to a woman at her first pregnancy and would remain with her during her child bearing years. A pre/postnatal sheet could be added to the woman's file as required. Important concerns such as contraceptive usage could be added to the record as part of her history. Such a card would enable the RHN and CHW to track the women just as they track the children under five. To make the Woman's Health Card a reality, it is suggested that the Core Working Group develop a prototype and that CARE test it in their CHW villages. Work done in this area by Sue Brechin (in Bangladesh) and in Brazil (the CLAP form) should be referred to in this development exercise.

CARE should also consider the introduction of radios in the most isolated/hard-to-reach villages. Most of the villages in the two northern districts can be reached by telephones. However, in those without phone communications, it might be worth the investment of radios so that the MOH public health system and CARE support team can communicate with the village volunteers. This would eliminate the problems which have arisen before - spending an hour or so getting to a village only to find that it is not possible to carry out planned activities due to some conflicting event in the village. The expense of purchasing the radios might be worthwhile in view of the increased productivity. PCI has had good experience with low-maintenance, solar-powered radios which cost approximately U.S. \$750 per unit.

As more is learned about how to manage a CHW program, serious thought should be given to the production of a CHW Operations Manual. This would complement the Clinic Operations Manual that the Core Work Group is in the process of developing. It would be appropriate for the Work Group to consider producing a CHW Manual. This effort would be the result of a compilation of the experience from the various CHW programs (including CARE, ERM, HTI, PCI). A single approach would be identified and issues such as CHW selection criteria and process, interventions, training, supervision, support, management, and reporting would be included. The CHW Manual will be the basis for the Government's CHW program which is expected to be fully developed by the early 1990s. CARE would play a major role in the development of the manual since it will have been responsible for implementing a CHW program covering a third of Belize's population.

3. Institutionalization - Over the course of the next three years, CARE and the GOB have an obligation to be constantly conscious that what they develop in Corozal and Orange Walk must be able to survive after CARE is no longer associated with the CHW program. If the sustainability questions are not frankly addressed, any success CARE achieves in the

villages of northern Belize will be short-lived.

One of the concerns involved with institutionalization has already been mentioned. The need to keep CARE staffing levels to a minimum was raised in the discussion of expanding the CHW program. The possibility of adding one additional CHO to each district might be considered for the first several years of Phase II to assist in the training and start-up of village level operations. However, during the last year of the CS project, it is appropriate that CARE reduce support staffing to one DT/CHO in each district. This will mean that CARE would have one year to run the program with the same level of staffing the Government will have after CARE leaves. The additional two workers in each district would have been trained and experienced and would provide the Government with good candidates for the DT/CHO positions in the other four districts of Belize that, by the time, will be requiring such staff members. At the same time, the MOH and the GOB must demonstrate their support for the CHW program by sanctioning funds for at least the DT/CHO position. Without this one person, the CHW program as developed with the assistance of the PVOs will collapse. The sad mistake seen so frequently around the globe is governments thinking that community workers are a free good and will provide service with virtually no support; this must be avoided in Belize. For a minimal amount of money the strong program initiated with the help of PVOs can produce results and prove a most cost-effective approach to improve MCH care in the villages.

A constant issue in any program utilizing volunteer workers is how to keep CHW dropout rates to a minimum. This problem has plagued community-based PHC/MCH programs around the globe. CARE must give special attention to this concern. One way of maintaining CHW morale and motivation is to supply them with a limited number of simple medicines. The PHC Manual contains a list of 20 which CHW might utilize. (See Appendix XVI). To reduce program costs, it is suggested that the possibility of allowing the CHW to charge for these medicines be considered. This may be more appealing in the more isolated areas. However, it is possible that even in the less remote villages, the convenience of having an accessible source of basic medicines might be appealing, saving people the time and expense of travel to a nearby town which has a drugstore. Having the drugs in and of themselves would raise CHW morale since she would be able to provide a more tangible and more highly-valued service to the community.

Another way to provide motivation for the CHWs would be to allow them to add a small profit margin onto the wholesale cost of the medicines. The CHWs would be able to share the profits, reimbursing them in a small way for their efforts. Prices could be controlled by the Village Council who would approve and maintain the price list which would also be posted where the drugs were sold. Being able to procure the medicines at wholesale rates should help; this would permit the CHWs to undersell the retail stores even with the small profit margin added on for the CHWs.

This is not a new idea. The CHWs trained by the Health Talents International (HTI) working in 13 villages of southern Stann Creek maintain revolving drug funds with few problems. The CHWs in the PCI program in Toledo District also have drugs, and their main problem has been supply. The MOH is considering the possibility of instituting cost recovery

measures starting with charging for drugs, and the officials in Belize City were supportive of CARE testing such practices in its program. Because of problems with the central warehouse in Belize City, the possibility of starting district-level warehouses might be considered. At present, supplies for individual RHCs are packaged in Belize City and sent directly to the health center to assure the district hospital does not intercept the shipment and take what it needs. If the idea of supplying CHWs with medicines is accepted, CARE should study their supply problem and assure that some means is identified to guarantee that the CHWs receive what they need, when they need it.

CARE should also consider how best to work with the DHTs and DMCs in the implementation of the CHW program. The DHTs have been recently revived in Orange Walk and Corozal. They have yet to set their agendas, and CARE should take this opportunity to develop specific ways that the district intersectoral groups can support and strengthen the CHW operation. The more the DHT's role in the CHW program is defined and activated while CARE is present, the better the chance that the CHW program will be well supported after CARE departs.

CARE must do more to involve the villagers in the program; this is essential for the long-term success of the CHW effort. To date the attempts to form and activate the Village Health Committees have met with limited success. CARE's experience of working through the Water and Sanitation Committees which are connected with the VLWS Project appears to make more sense. The formation of one more committee in the village is not encouraged. The typical village is too small to warrant multiple committees for related efforts. Since the number of qualified people to draw from is limited, the same people end up being on all the various committees. Thus, CARE is encouraged to identify the most appropriate committee already functioning in the village and have it assume the local support role. This will mean that CARE will not have to invest so much time in forming, orienting and mobilizing a new committee in each village exclusively for the CHW program.

The final point in CARE's expansion of the CHW program concerns documentation of what has and is being done, along with an explanation of why it is being done the way it is. It is vitally important that, as the CHW approach is being developed nationally, CARE's experience is made available and is included in national plans and strategies. Thus, a description of crucial activities such as CHW training and supervision must be made together with an explanation of why these activities have been carried out in this particular way. Over the past year and certainly over the next three, CARE has had and will continue to have the opportunity to learn many valuable lessons; they must share these with others, particularly the decision makers who will be determining the form of the national CHW program for the future. A series of short discussion papers (e.g., similar to the two-page paper on the health education television spots) may be the best means of disseminating important and/or innovative aspects of CARE's CHW program. They would provide a rationale for a particular action (like training) and explain why things are done the way they are. These papers might be called CAREPORTS and circulated to appropriate officials in Belize City as well as the two program districts. These periodic articles would be shared with the CS Task Force and integrated into the CHW Operations

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Manual. In addition, those officials responsible for determining the design of the national CHW program should be invited to visit villages having CARE-trained and supervised CHWs to see for themselves how they function. There is no substitute for first hand observation and the chance to talk with CHWs and the villagers they serve.

V. CONCLUSION

This report has been organized in such a way that project HOPE's and CARE's Child Survival activities have been examined as separate efforts, the former focusing at the central level with the latter addressing programming issues at the district level and below. In some ways, this picture has distorted the growing and proposed tendency for HOPE and CARE to concentrate their energies at the district level, complementing one another and working with the MOH to strengthen and improve service delivery capabilities to those most in need of health care in rural Belize.

The two PVO's activities at the district level come from different directions, yet closely relate to and reinforce each other. In the end, the two agencies enable the government's health infrastructure to function more effectively from top to bottom and vice versa. HOPE's activities originate at the center and work downward to the district level. For example, to date their work in HIS has primarily involved the MOH in Belize City, but will appropriately turn its attention increasingly to data collection and use at the district level. The same phenomenon will occur both in coordination (where the CS task force will concentrate increasing time to extract lessons and generalizations from CS/CHW experience at the district level) and management (developing an improved management capacity in the districts, especially through the DHTs) aspects of HOPE's Child Survival program.

Simultaneously, CARE has and will be working up from village-based operations, identifying the gaps and constraints existing at the district level which limit the effectiveness of Child Survival service delivery to the vulnerable population at the community level. The information system offers a good example of how CARE's activities link with HOPE's and, in the process, provide assistance the results of which can be applied broadly to all regions of Belize. Their efforts are timely in that the government has committed itself to having CHWs in almost all villages by the early part of the next decade. For this to be achieved and for the goal of reduced infant and child morbidity and mortality and improved mothers care to be attained, the Child Survival program of CARE and HOPE will be invaluable as they point the way to a model of effective CHW program support and management. The prospects are exciting! Working together with HOPE and CARE, the Government of Belize has a good chance of being one of the very few countries that will really be able to claim that they are providing health care for all in the year 2000.

APPENDIX I

Scope of Work

JOINT EVALUATION OF CARE MATERNAL AND CHILD HEALTH (MACH) AND
PROJECT HOPE CHILD SURVIVAL TECHNICAL SUPPORT (CSTS) PROJECTS

Nov. 30 - Dec. 16, 1987

A. OBJECTIVE: The objective of this interim evaluation of projects is to determine the effectiveness of these two CARE Maternal and Child Health (MACH) and Project HOPE Child Survival Technical Support (CSTS) projects in meeting the Child Survival goals and to recommend directions for future activities to build on the bases already established by each project in line with Ministry of Health (MOH) plans.

B. SCOPE OF WORK

The consultants will work with the USAID/Belize Health PVO Project Manager to:

1. Assess the success of each project in meeting the Child Survival (CS) indicators as outlined in the Project proposals and project amendments and document the extent to which CS indicators have been reached.
2. Assess the impact that each project has had separately on the MOH's ability to implement the National CS program and for policy recommendations to the MOH.
3. Assess the impact of the combined effects of the two projects, one which works at the National and now into District-level (MOH system) and the other which works at rural/village and to a lesser extent, at District level, to assess the commonalities of their work in Year 2 and the needs of the District and rural levels beyond the Project Activity Completion Date (PACD) of end April, 1988.
4. Evaluate each project's coordination activities with other organizations and PVOs working in Belize (international and domestic).

For each of these, findings, conclusions, and recommendations should be detailed.

5. Recommend for each project effective project activities which should be continued as well as areas for expansion, considering the CS goals of the MOH and the constraints experienced by the MOH in implementing their CS plan.

6. Make recommendations for areas of collaboration between the two projects and strengthening of relationships with the GOB and other PVOs.

Within the above Scope of Work, the following specific questions should be addressed:

Project HOPE

1. What effect has HOPE's mandated coordination activities had on the MOH and other organizations' abilities to collaborate on activities and decrease duplication of efforts?
2. How has Project HOPE's work to streamline and improve MCH data collection provided timely information for decision-making by MOH managers and to what extent is the MOH using this information for planning and evaluation of their programs?
3. What is the perception of the CSTS project by MOH staff at national, district, and rural levels?
4. To what extent will the Management Assistant's lack of a nursing background continue to be perceived by the MOH nursing hierarchy as a hindrance to her work with them and what other strategies could be tried to decrease/eliminate this perception?

CARE

1. To what extent can CARE's CHW Training Program train CHWs to meet the needs identified in the KAP survey? What revisions are needed for the CHWs to be properly prepared?
2. What activities have been successful in establishing MACH project liaison with the MOH health system and how can these linkages be strengthened?
3. What is the perception of the MACH project by MOH staff at national, district, and rural levels?
4. How has coordination with other PVOs reinforced the MACH activities?
5. How appropriate is the strategy for use of the TV/radio spots to achieve Child Survival goals in the 2 districts?
6. How adequate is the data collection system and how can data collected be more readily used at the district and national levels.

APPENDIX II
List of Persons Contacted

USAID

Nebaysha Brashish	Representative
Mary Ellen Duffy Tanamly	General Development Officer
Art Villanueva	Evaluation Officer
Sue Griffey Brechin	Health PVO Project Manager

MOH

Douglas Fairweather	Permanent Secretary
Dr. Errol Vanzie	Director Health Services
Dr. K. Rao	Director PHC
Dr. Ninette Reneau	Director MCH
Delsyia Goff	Principal Nursing Officer
Grace Collymore	Supervisor, PHN
Araceli Mogual	Senior PHNs
Pat Benguche	Inspector of Midwives
Dr. Jose Lopez	Epidemiologist
Gilda Dennison	Nutritionist
Elaine Clarke	Medical Statistics Officer
Dr. J.J.X. Sosa	Medical Officer of Health

HECOPAB

Maggie Clark	Health Educator
Jacqui Roe	Family Life Educator

MOH, Cayo District

Nurse Simmons	PHN, St. Ignacio
Nurse Louise Neal	Family Nurse Practitioner, Benque Viejo
Nurse Belisle	Rural Health Nurse, Benque Viejo

MOH, Corozal District

Nurse Liz Rowland	Public Health Nurse
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MOH, Orange Walk District

Nurse Meli Osorio	Public Health Nurse
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MOH, Stann Creek District

Nurse Busano	Public Health Nurse
Nurse Enriquey	Rural Health Nurse, Dangriga
Nurse Jessica	RHN, Hopkins RHC

GOB, Orane Walk

Adelaida Vellanueva	District Development Officer
---------------------	------------------------------

CARE

Frank Brechin
Nancy Minett
Sylvano Guerrero
Lorraine Thompson
Angelita Blanco
Ravey Smith
Christine Parkhurst
Florencia Pech
Placida Cawich
Elida Juarez

Director
Nurse/Health Educator, MACH
Program Manager
DT, MACH
CHO
Field Officer, VLWS
PCV (Growth Project)
CHW, Chan Pine Ridge
CHW, Chan Pine Ridge
CHW, Chan Pine Ridge

HOPE

Mary Kroeger
Dan Bevier
Abigail McKay

Project Director/Nurse-Midwife
MIS Specialist
Management Assistant

Great Belize Productions

Stewart Krohn
Evan Gordon
Marcus Walsh

Director
Film Editor
Cameraman

Project Concern International (PCI)

Robert Tucker

Director

BIB

Eva Middleton

Executive Director

BFLA

Judy Behrendt

Director, Family Life Services

PAHO

Leopold Perriott

HIS Specialist

UNICEF

Thierry delRue

Consultant

HTI

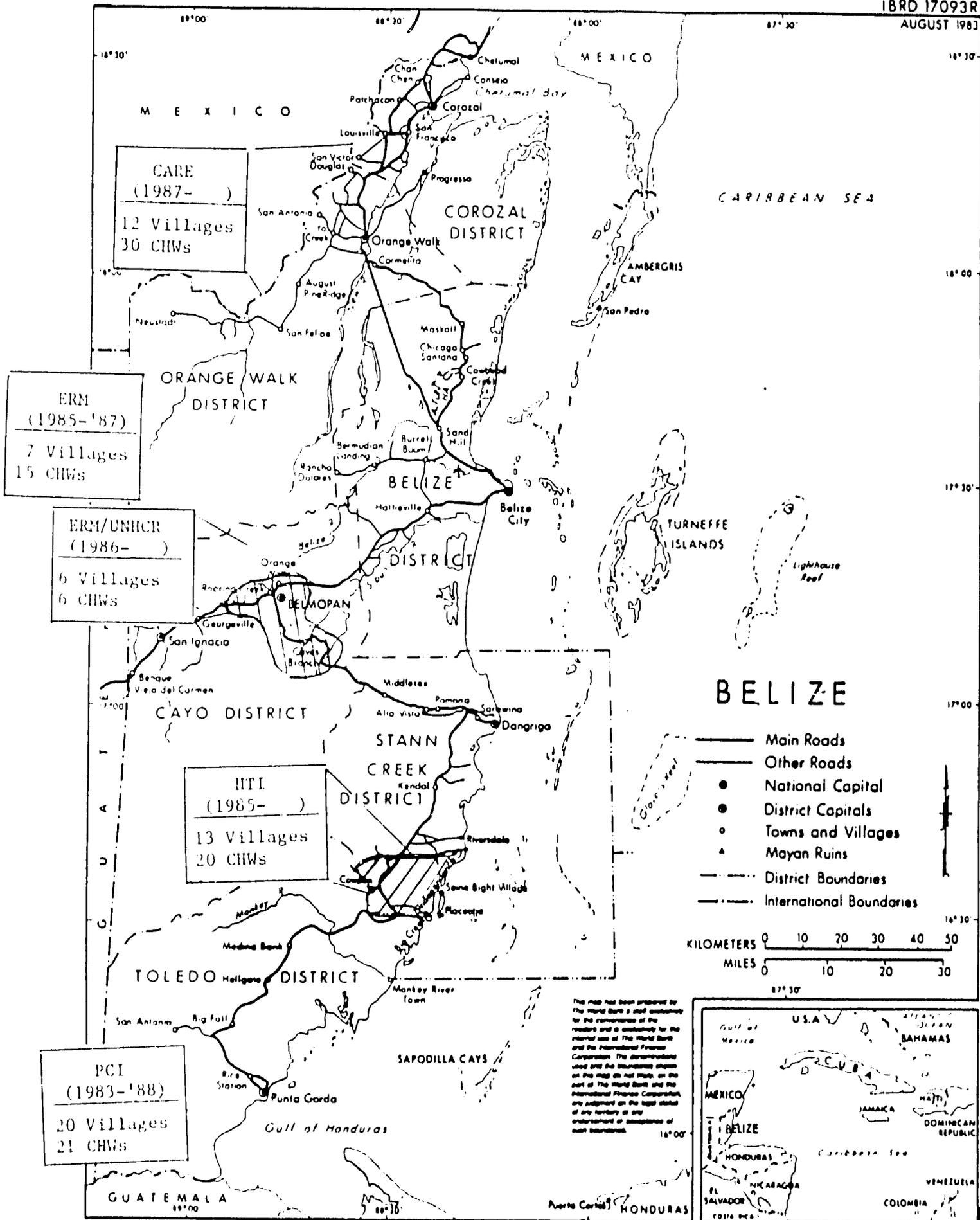
Jean Enochs

Health Educator

Map Locating CHW Activities by District

IBRD 17093R

AUGUST 1983



This map has been prepared by The World Bank's staff exclusively for the convenience of the readers and is exclusively for the internal use of The World Bank and the International Finance Corporation. The drawings used and the boundaries shown on this map do not imply, on the part of The World Bank and the International Finance Corporation, any judgment on the legal status of any territory or its endorsement or acceptance of such boundaries.

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APPENDIX IV
Revised Monthly MCH Reporting Form

MINISTRY OF HEALTH
PUBLIC HEALTH NURSING SERVICE
MONTHLY STATISTICS REPORT
MATERNAL AND CHILD HEALTH ACTIVITIES

Health Center _____

Report for the month/year _____

1. AUDIT	
Date Completed	____/____/____
Date Received	____/____/____
PHN	____/____/____
SPHN	____/____/____
MSO	____/____/____

I. General Clinic Information

2. CLINIC SESSIONS

Health Center	Child Health	Maternal Health	
		Anti Natal	Post Natal
Mobile Clinic	_____	_____	_____

II. Child Health

3. VISITS

A. Newly Registered	Health Center	Mobile Clinic	D. No. of Children Referred to:			
			PHN	FNP	MO	SPEC.
1) 0 - 28 days	_____	_____	_____	_____	_____	_____
2) 1 - 11 mths	_____	_____	_____	_____	_____	_____
3) 1 - 4 yrs	_____	_____	_____	_____	_____	_____
B. Re-visits						
1) Under 1	_____	_____	_____	_____	_____	_____
2) 1 - 4 yrs	_____	_____	_____	_____	_____	_____
C. Total Visits	_____	_____				

4. DIARRHEAL DISEASE CONTROL

A. Age	# cases seen	# cases treated with ORS	B. No. ORS Packets distributed	
			to patients	to Health Workers
Under 1 yr	_____	_____	_____	_____
1 - 4 yrs	_____	_____	_____	_____
			C. No. cases Referred _____	

5. ACUTE RESPIRATORY INFECTION

A. Age	Mild	Moderate	Severe	B. No. of cases treated with antibiotics
Under 1	_____	_____	_____	_____
1 - 4 yrs	_____	_____	_____	_____

6. COMMUNICABLE DISEASES

A. Child EPI	Under 1 - 4		B. Neonatal Tetanus	C. Other Diseases	No. Cases
	1 Yr	Yrs			
1) Measles	_____	_____	_____	1) Parasites	_____
2) Diphtheria	_____	_____	_____	2) Scabies	_____
3) Pertussis	_____	_____	_____	3) _____	_____
4) Polio	_____	_____	_____	4) _____	_____
5) Tuberculosis	_____	_____	_____	5) _____	_____
			_____	6) _____	_____

7. BREASTFEEDING

A. No. of babies fully breastfed up to the age of 4 months	_____
B. No. of babies partially breastfed up to 4 months of age	_____
C. No. of babies never breastfed	_____

B. IMMUNIZATION REPORT FORM

A. CHILDREN'S IMMUNIZATIONS					
Vaccine	Dose	Under 1 Yr.		1 - 4 Yrs	
		H. C.	Mobile	H. C.	Mobile
BCG	1				
OPT	1 st				
	2 nd				
	3 rd				
	Booster				
TOPU (POLIO)	1 st				
	2 nd				
	3 rd				
	Booster				
Measles	1 st				
	Booster				

B. ANTE-NATAL IMMUNIZATIONS		
	Dose	Total
Tet Tox	1 st	
	2 nd	
	Booster	
	No. Fully Immunized not needing Tet. Tox. Vaccine	

C. OUT-PATIENT IMMUNIZATIONS		
Vaccine	Dose	Total
Tet Tox	1 st	
	2 nd	
	Booster	
Vaccine	Dose	Total
_____	1 st	
	2 nd	
	3 rd	
	4 th /Boost.	
Vaccine	Dose	Total
_____	1 st	
	2 nd	
	3 rd	
	4 th /Boost.	

h

9. FIRST ANTE NATAL VISITS III. Maternal Health

Number of women registering for the FIRST TIME IN CURRENT pregnancy by age group, week of gestation, and gravida,

During _____, 19__

Grav.	Gestation period in weeks	Age of Mother in Years or Age Group									Total
		13	14	15	16	17 19	20 24	25 34	35 44	45+	
1	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
2	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
3	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
4	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
5 to 7	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
8 or more	less than 16 weeks										
	16 to 28 weeks										
	more than 28 weeks										
Totals											

Target: Before 1989, 80% of Primip and 60% of Multip register before 16 weeks of gestation.

10. ANTE-NATAL

A. No. of Third Revisits _____

B. Total visits _____

C. No. of cases referred to:
 PHN _____ Obstet. _____
 FNP _____ Other _____
 MO _____ Specialist _____

D. No. cases counseled on C.S./F.L.E. _____

11. ANTE-NATAL TESTS DONE

A. VDRL _____ Pos. _____

B. Hb _____ 8 - 10g _____
 HC _____
 CL _____ 7 under _____

C. Sickling _____ Pos. _____

D. Rh Fact. _____ Neg. _____

E. Urine Tested _____

12. POST-NATAL

A. No. mothers examined _____

B. No. mothers referred _____

C. No. mothers receiving C.S. counselling _____

D. No. mothers referred for C.S. services to: B.F.L.A. _____
 P. _____
 Priv. Dr. _____

13. POST-NATAL TESTS DONE

A. PAP Smears _____ Pos _____

B. Vag Smears _____ Pos _____

C. Hb _____ 8 - 10g _____
 HC _____
 CL _____ 7 under _____

D. VDRL _____ Pos _____

IV. Additional Health Center Activities

14. SPECIAL CLINICS

Type of Special Clinic	No. of Sessions	No. of New Patients	Total Attend.	No. Referred
A. Out-patient				
B. Diabetic				
C. Hypertension				
D. Mental Health				
E. S.T.D.				
F. Chest				
G. Other (Specify)				

15. COMMUNITY OUTREACH

A. Group Talks TOPICS

- 1) Breastfeeding, Weaning, Diet _____
- 2) Hygiene, Water and Sanitation _____
- 3) Child Spacing _____
- 4) Vector Control _____

B. Community Meetings

- 1) District _____
- 2) Village _____

C. No. of Home Visits _____

APPENDIX V
Example of Quarterly Feedback of MCH Data
MCH EPI PROGRAM
 COROZAL DISTRICT REPORT FOR
 ANNUAL 1987, Year to Date

Figures shown are based on 30 reports from Health Centers.

VACCINE	CHILDREN'S IMMUNIZATIONS					
	Under 1 Year			1 to 4 Years		
	Hlth Cen	Mobile	Total	Hlth Cen	Mobile	Total
BCG	313	263	576	46	109	155
1ST DPT	309	309	618	29	61	90
2ND DPT	261	184	445	48	110	158
3RD DPT	187	102	289	85	129	214
DPT BOOSTER	4	0	4	144	120	264
1ST POLIO	293	298	591	28	46	74
2ND POLIO	260	202	462	54	106	160
3RD POLIO	233	101	334	75	131	206
POLIO BOOSTER	4	1	5	132	111	243
MEASLES	185	146	331	81	163	244
MEASLES BOOSTER	7	7	14	179	274	453

TOTAL NUMBER OF CHILDREN UNDER 1 YEAR
 WHO ARE FULLY IMMUNIZED
 BY EACH TYPE OF VACCINE

VACCINE	CHILDREN *
BCG	576
DPT	289
POLIO	334
MEASLES	331

* Use these figures to plot the correct coverage level for this reporting period on the Immunization Coverage Graphs.

TOTAL DOSES ADMINISTERED BY TYPE OF VACCINE

VACCINE	DOSES
BCG	731
DPT	2,082
POLIO	2,075
MEASLES	1,042

TOTAL NUMBER OF SYRINGES
 USED FOR EPI: 5,930

SOURCE: Medical Statistics Office, Belize City Hospital
 DISTRICT REPORT STATISTICS

REPORT RUN ON 12/09/87

MCH PROGRAM
 CDD, ARI & BREASTFEEDING PROGRAM REPORTS
 COROZAL DISTRICT REPORT FOR
 ANNUAL OF 1987, YEAR TO DATE

Figures shown are based on 30 reports sent from Health Centers.

* * * * *

AGE	DIARRHEAL DISEASE				
	CDD CASES	CASES TREATED WITH ORS	% CASES TREATED WITH ORS	# CASES REFERRED TO M.O.	% OF TOTAL CASES
TOTAL	148	47	% 32	12	% 8
UNDER 1	72	34	% 47		
1 TO 4	76	13	% 17		
PERCENT OF NATIONAL	% 8		% 33		

ORS PACKET SUPPLY	
TOTAL DISTRIBUTED	427
TO PATIENTS	393
AS SUPPLIES	34

* * * * *

AGE	ACUTE RESPIRATORY INFECTION							
	ARI CASES SEEN				CASES TREATED		CASES REFERRED	
	MILD CASES	MODERATE CASES	SEVERE CASES	TOTAL CASES	#	%	#	%
TOTAL	401	45	4	450	10	% 2	20	% 4
UNDER 1	165	19	2	186				
1 TO 4	236	26	2	264				

* * * * *

BREASTFEEDING				
NUMBER OF CHILDREN BREASTFED TO FOUR MONTHS				PERCENT FULLY BREASTFED
FULLY	PARTLY	NEVER		
127	213	121		% 28
NATIONAL PERCENT				% 43

MCH PROGRAM
 ANTE-NATAL & POST-NATAL PROGRAM REPORTS
 COROZAL DISTRICT REPORT FOR
 ANNUAL OF 1987, YEAR TO DATE

Figures shown are based on 30 reports sent from Health Centers.

* * * * *

MEASURE	ANTE-NATAL CLINIC		PERCENTAGE BASE OF
	NO.	%	
FIRST VISITS	703	% 24	TOTAL VISITS
FIRST VISIT INDICATORS			
UNDER 17 YRS	34	% 5	FIRST VISITS
17 TO 19 YRS	107	% 15	FIRST VISITS
1ST TRIMESTER	79	% 11	FIRST VISITS
3RD TRIMESTER	88	% 13	FIRST VISITS
3RD REVISITS	381	% 13	TOTAL VISITS
TOTAL VISITS	2,986		
CLINIC SESSION	243	12.3	VISITS/SESSION
REFERRALS	201	% 7	TOTAL VISITS

ANTE-NATAL TETANUS TOXOID	
1ST DOSE	199
2ND DOSE	130
BOOSTER	138
PREVIOUS	398
FULLY *	666

*Use this figure to plot the correct coverage level for this reporting period

TETANUS TOXOID DOSES ADMINISTERED	
ANTE-NATAL OUTPATIENT	467 51
TOTAL DOSES	518

* * * * *

TEST	ANTE-NATAL TESTS		
	NUMBER TESTS	ABNORMAL RESULT	PERCENT
VDRL	454	10	% 2
Hb	595	-----	-----
Hb Under 11g	-----	119	% 20
Hb Under 8g	-----	0	% 0
SICKLING	455	4	% 1
Rh FACTOR	413	0	% 0
URINE	1,573	-----	-----

SOURCE: Medical Statistics Office, Belize City Hospital
 DISTRICT REPORT STATISTICS

REPORT RUN ON 12/08/87

MCH PROGRAM
 ANTE-NATAL & POST-NATAL PROGRAM REPORTS
 COROZAL DISTRICT REPORT FOR
 ANNUAL OF 1987, Year to Date

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Figures shown are based on 30 reports sent from Health Centers.

* * * * *

POST-NATAL	
VISITS	21
SESSIONS	10
VISITS/SES	2.1
REFERRALS	0

* * * * *

POST-NATAL TESTS			
TEST	NUMBER TESTS	ABNORMAL RESULT	PERCENT
VDRL	28	2	% 7
Hb	9	-----	-----
Hb Under 11g	-----	2	% 22
Hb Under 8g	-----	0	% 0
PAP SMEARS	0	0	% 0
VAGINAL EXAM	43	1	% 2

SOURCE: Medical Statistics Office, Belize City Hospital
 DISTRICT REPORT STATISTICS

REPORT RUN ON 12/08/

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APPENDIX VI

CARE's Revised Intermediate Goals

1. Improve the knowledge, attitudes and practices concerning diarrheal disease, dehydration, oral rehydration therapy (ORT) in 80% of mothers of children under five in target villages.
2. Improve the nutrition knowledge and practices during infant, weaning, pregnancy, and lactation periods of 80% of mothers of children under five in target villages.
3. Increase by 10% the number of children/year and under who are appropriately immunized and increase by 10% the number of pregnant women fully immunized with tetanus toxoid in target villages.
4. Decrease the incidence and complications of acute respiratory infections (ARI) among children under five in the target villages.
5. Increase knowledge about and accessibility to reproductive health care for women of child-bearing age, especially for ante-natal and post-natal care and family life education.
6. Train at least one Community Health Worker to provide continuing health education, in each target village and to maintain continuing liaisons with the MOH hierarchy.

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APPENDIX VII

CARE's CHW Training Schedule by Topics

MOH/CARE

M A C H

IMPLEMENTATION ACTIVITIES
MONITORING

As of Dec. 5, 1987

Training Modules		I	T		T	T	T	T	T	T			T		
No. of Hours															
Name of Village	Council Orient	Intro. to Project	Community Map 1	Identify M/P 2	Diarrhea 3	ORT Demost. & Plan 4	E.P.I. 5	Growth Scales 6	Growth Record 7	Under 5 Weaning 8	Pre-Natal & Family 9	Post-Natal 10	Breast Feed 11	A.P.I. 12	F.L.B. 13
	No. of Parl.														
Corozal District															
Buena Vista	V	V	I	I	I	I	V	XX	V	I	X	X	Y	X	
San Victor	V	V	I	I	I	I	V	XX	Y	I	X	X	V	X	
Cristo Rey	V	V	I	I	I	I	V	XX	Y	I	X	X	V	X	X
Progreso	V	V	I	I	I	V	I	XX			X	X	V	X	
Chanox	V	V	I	I	I	I	V	XX	V	X	X	X	V	X	
Copper Bank	V	V	I	I	I	I		XX	V	X	X	X	V	X	
Orange Walk District								XX	V	X	X	X	V	X	
Santa Marta	V	V	I	I	I	I	V	XX	V	I	X	X	V	I	V
San Luis	V	V	I	I	I	I	V	XX	V	X	X	X	V	X	
Buen San José	V	V	I	I	I	I	V	XX	V	X	X	X	V	X	
Trinidad	V	V	I	I	I	V	I	XX	V	X	X	X	V	X	
Douglas	V	V	I	I	I			XX	V	X	X	X	V	X	
Clan Five Edge	V	V	I	I	I			XX	V	X	X	X	V	X	

APPENDIX VIII

List of Villages and Homes of CHWs

MACH PROJECT

(November, 1987)

COROZAL

Buena Vista: Maria Chan

San Victor: Marcelina Coye
Marta Gutierrez
Desideria Oba

Cristo Rey: Maria Luisa Chan
Brunilda Chan
Justina Teck

Copper Bank: Yolanda Tzul
Edelvira Aguayo
Noemi Tzul
Elodia Gorosica

Chunox: Solange Reyes
Maria Nela Martinez
Emelda Mesh
Eva Gunther (Little Belize)

Progreso: Ireni Magaña
Petronilla Rodriguez
Theresa Catzim

ORANGE WALK

Santa Marta: Rosaura Cawich
Aguida Cantun
Martina Pech

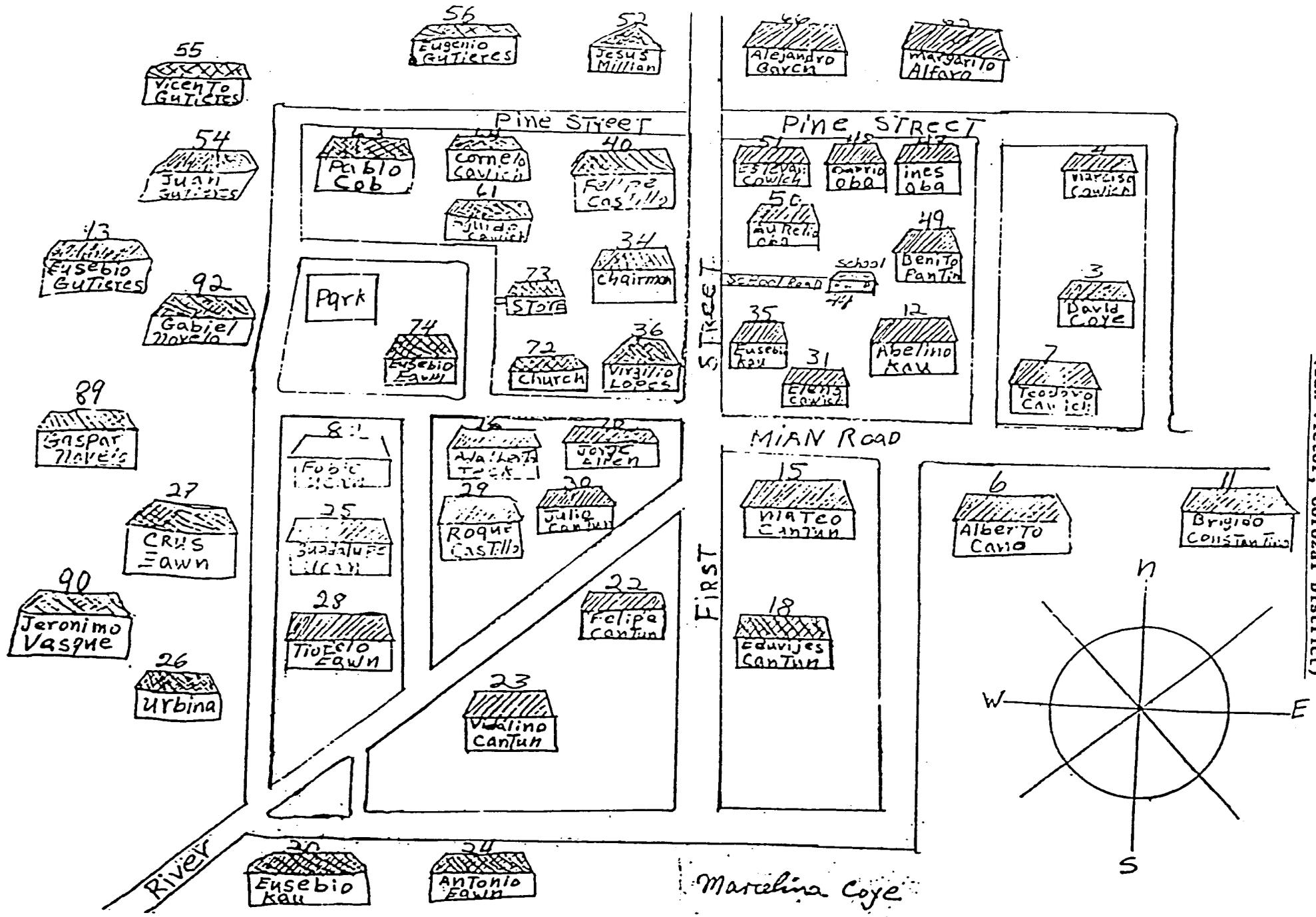
Nuevo San Juan: Susana Osorio
Cecilia Mendez

San Luis: Eugenia Marin

Chan Pine Ridge: Florencia Pech
Placida Cawich
Elida Juarez
Inocenta Chan

Douglas: Martina Arcurio
Salustiana Arcurio
Dorita Damian

Trinidad: Elsa Briceño
Yolanda Tun



Illustrative CIM Village Map
(San Victor, Corozal District)

APPENDIX X

Summary of Significant KAP Survey Findings

IN THE MACH VILLAGES IN COROZAL AND ORANGE WALK

Knowledge, Attitudes and Practices

1. 159 interviews of mothers of children under 5
2. Village Populations: 111 - 781
 - a) No. per household: 1 - 16
 - b) No. of children under 5: 307
3. Education
 - a) 18 mothers = none
 - b) Others = 3 to 8 years
4. Pregnancy and Childbirth
 - a) First Pre-natal visits:

1st Trimester = 31%
2nd Trimester = 56%
3rd Trimester = 11%
 - b) 63% did not know why tetanus injections were important.
 - c) Where born:

at home	= 42%
in hospital	= 48%
at clinic	= 10%
midwife delivered	= 36%
 - d) Post-natal advice

49%	had none
10%	advised to breastfeed
14%	had advice about family planning
5. Breastfeeding
 - a) Only 20% = only breast milk for first 4 months
 - b) Reasons for not breastfeeding within first several hours

my milk was bad	= 3%
it's not the custom	= 6%
no milk yet	= 25%
baby sleeping or not brought to me	= 16%
 - c) Preparation for breastfeeding:

HOT leaves as compress. (This is not necessary and often burns the breasts.)
6. Diarrhea
 - a) Episodes of diarrhea within preceeding 4 weeks = 25%
 - b) Mothers with more education = less diarrhea among the children.

7. Acute Respiratory Infections A.R.I.
- a) Episodes within preceeding 4 weeks = 51%
 - b) Treated at home = 84%
 - c) Treatment
 - Vicks on chest and around nose = 77%
 - Eucalyptus oil = 14%
 - Vaporizer (humid air) = 11%
8. Immunizations
- a) Most mothers don't know what diseases immunizations protect against.
 - b) Completed all DPT and polio = 31%
 - c) Completed measles = 39%
9. Most serious health problems
- ARI = 55%
 - Fever = 38%
 - Diarrhea = 18%

APPENDIX XI

List of CARE Television Spots

1. Pregnancy - diet and anemia
2. Diarrhea - prevention
3. Weaning practices -- #1
4. Personal Hygiene
5. Breastfeeding #1
6. Pre-natal care -- clinic visit
7. Family life education #1
8. Growth monitoring
9. Caring for the sick child
10. Community health
11. Weaning practices -- #2
12. ORS -- preparation, UNICEF packet
13. Immunizations
14. Nutrition for the family
15. Post-natal care and diet - #1
16. Family life education #2
17. Pre-natal care #2
18. Worms
19. Breastfeeding #2
20. Acute respiratory infections
21. Post-natal care #2

APPENDIX XII

Programming Schedule of GOB/CARE MACH Project Television Spots

(November, December, January)

- 1. Pregnancy -- diet
- 2. Diarrhea -- Prevention
- 3. Weaning -- Beginning
- 4. Personal hygiene
- 5. Breast feeding -- No. 1

Each spot: 4-6 times daily = = = 6 - 7 days per month = - = 19 days over 3 months

TOPICS	DAYS OF MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
NOV.	1 ST MO.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
DEC.	2 ND MO.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1
JAN.	3 RD MO.	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2

CMW Monthly Reporting Form (Translation)

MOB - CARE - USAID

PROYECTO MACH

ACTIVIDAD MENSUAL (Monthly Activity)

MONTH

COMMUNITY

MES: _____

COMUNIDAD: _____

FIRST AND LAST NAME

Nombre y apellido: _____

				TOTAL
	NUMBER OF FAMILIES VISITED			
1.	Número de familias visitadas: _____	_____	_____	_____
	NUMBER OF CHILDREN WEIGHED & REGISTERED			
2.	Número de niños pesados y arcnivados: _____	_____	_____	_____
	NUMBER OF CHILDREN WHO RECEIVED			
3.	Número de niños que recibieron:			
	-BCG: _____	_____	_____	_____
	MEASELS _____	_____	_____	_____
	Sarampion: _____ 1	_____ 2	_____ 3	_____
	D P T: _____ 1	_____ 2	_____ 3	_____
	Polio: _____	_____	_____	_____
4.	NUMBER OF CHILDREN W/ DIARRHEA WHO HAVE BEEN VISITED			
	Número de niños con diarrea que he visto: _____	_____	_____	_____
	NUMBER OF DEMONSTRATIONS OF ORT			
5.	Número de demostraciones de sueros: _____	_____	_____	_____
	NUMBER OF CHILDREN REFERED W/ DIARRHEA			
6.	Número de niños referidos con diarrea: _____	_____	_____	_____
	NUMBER OF CHILDREN W/ ARI			
7.	Número de niños con (ARI)* _____	_____	_____	_____
	NUMBER OF CHILDREN REFERRED W/ ARI			
8.	Número de niños referidos con (ARI)*. _____	_____	_____	_____
	NUMBER OF WOMEN PREGNANT			
9.	Número de mujeres embarazadas: _____	_____	_____	_____
	NUMBER OF PREGNANT WOMEN TAUGHT			
10.	Número que las enseñan: _____	_____	_____	_____
	NUMBER OF PREGNANT WOMEN W/ T.T. COMPLETE			
11.	Número de mujeres enba.azadas con tatanos completo: _____	_____	_____	_____
	NUMBER OF PREGNANT WOMEN REFERRED			
12.	Número de mujeres embarazadas refe.idas: _____	_____	_____	_____
	NUMBER OF VISITS OF MOBILE CLINICS			
13.	Número de visitas de clinica mobil: _____	_____	_____	_____
	NUMBER OF HOURS ASSISTING			
14.	Número de horas que asisti: _____	_____	_____	_____

APPENDIX XIV

List of Villages with Populations in Corozal and
Orange Walk Districts
(1980 CENSUS)

O R A N G E W A L K D I S T R I C T

<u>No.</u>	<u>Village</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
1.	August Pine Ridge	885	480	405
2.	Blue Creek Community	661	350	311
3.	Carmelita	164	115	49
4.	Chan Pine Ridge [*]	291	158	133
5.	Douglas [*]	453	245	208
6.	Guinea Grass	1,291	706	585
7.	Hill Bank	66	66	0
8.	London (Orange Walk Highway)	64	33	31
9.	Nuevo San Juan [*]	111	53	58
10.	Richmond Hill	50	34	16
11.	San Antonio	345	183	162
12.	San Estevan	978	543	435
13.	San Felipe	585	304	281
14.	San José	1,164	604	560
15.	San José Palmar } San José Nuevo }	477	239	238
16.	San Lazaro	567	295	272
17.	San Lorenzo Road	404	200	204
18.	San Luis [*]	162	92	70
19.	San Pablo	638	344	294
20.	San Roman Rio Hondo	352	192	160
21.	Santa Cruz Rio Hondo	76	42	52
22.	San Marta [*]	121	69	52
23.	Shipyard	2,446	1,261	1,185
24.	Tower Hill	193	102	91
25.	Trial Farm	483	252	231
26.	Trinidad [*]	423	226	197
27.	Yo Creek	810	443	367

^{*} CARE CHW's Trained in 1987

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1980 CENSUS
C O R O Z A L D I S T R I C T

<u>No.</u>	<u>Village</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>
1.	Buena Vista *	330	180	150
2.	Calcutta	709	369	340
3.	Caledonia	942	529	413
4.	Carolina	197	108	89
5.	Chan Chen	351	190	161
6.	Chunox *	439	235	204
7.	Concepcion	608	311	297
8.	Consejo	60	27	33
9.	Consejo Road †	59	35	24
10.	Copper Bank ‡	190	100	90
11.	Cristo Rey *	377	190	187
12.	Estrella	118	65	53
13.	Libertad	1,518	818	700
14.	Little Belize	329	162	167
15.	Louisville	436	258	178
16.	Paraiso	510	245	265
17.	Patchakan	700	372	328
18.	Progreso *	781	393	388
19.	Ranchito	604	314	290
20.	San Andres	459	240	219
21.	San Antonio	264	135	129
22.	San Joaquin	929	485	444
23.	San Narciso	1,436	786	650
24.	San Pedro	271	151	120
25.	San Roman	448	255	193
26.	San Victor *	349	193	156
27.	Santa Clara	449	243	206
28.	Santa Cruz	69	40	29
29.	Sarteneja	1,005	521	484
30.	Xaibe	760	384	376
31.	Yo Chen	78	42	36

* CARE CHW's Trained in 1987

APPENDIX XV

List of MOH Indicators for

MONITORING AND EVALUATION OF THE CHILD SURVIVAL PROJECTS

The following are the minimum number of indicators to be utilized for the monitoring of the Child Survival Project:

Maternal Health:

- 1- Maternal mortality rate (per 10,000), and 5 principal causes at the institutional level.

Child Health:

- 2- Percentage of children under 5 years with malnutrition Grade II and Grade III or under 2 Standard Deviations (weight/age).
- 3- Percentage of infants with low birth weight (institutional).
- 4- Infant mortality rate (per 1000 live births).
- 5- Child mortality rate (1 to 4 years) per 1000.
- 6- Number and mortality rate for neonatal tetanus.
- 7- Number and rate of Polio cases in children under 15 years of age.
- 8- Number and rate of measles cases in children under 5 years.
- 9- Percentage (prevalence) of total breastfeeding up to 4 months.

Socio-economic and cultural indicators conditioning maternal and child health:

- 10- Percentage of households (urban/rural) with water:
 - piped water (in the home)
 - well
 - public source.
- 11- Percentage of women 15 to 44 years that have completed primary school education.

Demographic:

- 12- Population structure by sex and age.
- 13- Birth rate.

Service Indicators:

- 14- Percentage of children under 1 year and 1 to 4 years protected against POLIO (3 rd. dose).
- 15- Percentage of pregnant women with at least 2 prenatal visits.
- 16- Percentage of deliveries attended by trained personnel.

Cost Indicators:

- 17- Cost of complete immunization (per child).

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DRUG AND SUPPLY WORK SHEET

Name: _____

Health Center: _____

Date: _____

Community: _____

ITEM	AMOUNT TO BE STOCKED	AMOUNT ON HAND	AMOUNT NEEDED	AMOUNT SUPPLIE.
1.) Aspirin 300mg	50 tabs			
Aspirin 75mg	50 tabs			
2.) B-N-T Ointment	1 tube			
3.) Whitfields Ointment	1 tube			
4.) Chloramphenicol 1%	1 sm. br.			
5.) Mebendazole tabs (500mg)	40 tabs or 2 brs.			
Rifampicin (300mg)	by			
6.) Streptomycin (1gm, vial)	prescription			
7.) Lindane Lotion/Shampoo	1 br.			
8.) Chloroquine (150mg base)	50-200 tabs			
Iron (65mg)	100 tabs			
9.) Folic Acid (0.2mg) tabs	50 envelopes			
10.) ORS	1 sm. br.			
11.) Hydrogen Peroxide 3%	1 sm. package			
12.) Absorbent Wool Cotton	2 rolls			
13.) Adhesive tape 1 inch	2 each			
14.) 1,-2,-3, inch gauze	20			
15.) Sterile gauze pads	2			
16.) Triangular bandage	1 sm. br.			
17.) Lysol - Dettol	1/4 liter			
18.) 70% Isopropyl Alcohol	25 tabs			
19.) Mag Trisil, compound, tabs	1 br.			
20.) Ipecac & Ammonia mixture				
21.) Other (specify)				
22.)				
23.)				
24.)				