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Evaluation Report

PROJECT CONCERN INTERNATIONAL

BELIZE

Toledo Primary Health Care Project

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September 1986

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PCI/BELIZE REPORT

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ABBREVIATIONS

ARI	Acute Respiratory Infection
CHW	Community Health Worker
DHT	District Health Team
GOB	Government of Belize
IMR	Infant Mortality Rate
MCH	Maternal and Child Health
MOH	Ministry of Health
MSH	Management Sciences for Health
NPHCC	National PHC Coordinating Committee
ORT	Oral Rehydration Therapy
PCI	Project Concern International
PHC	Primary Health Care
PHN	Public Health Nurse
RHN	Rural Health Nurse
TBAs	Traditional Birth Attendants
USAID	US Agency for International Development
VHC	Village Health Committee

I. EXECUTIVE SUMMARY

Since 1982 Project Concern International (PCI) has managed a system of primary health care (PHC) in the Toledo District of Belize in Central America. The major purpose of this PHC project, which is supported by Matching Grant funds from AID/Washington, is to develop and demonstrate a rural PHC system of trained Community Health Workers (CHWs) working in Rural Health Posts in every village. This evaluation report analyses the progress made by PCI during the past three years toward meeting its Matching Grant project objectives.

As planned in 1984 by PCI, at least 60 CHWs were to be trained by 1986 during the three years of the Matching Grant project, and steps would be taken to plan replicating aspects of the system in other districts. It is generally accepted that for this or any other system to work effectively, CHWs must be selected and supported by active, representative Village Health Committees (VHCs), be supervised by experienced nurses, and be supplied by the MOH with essential drugs, equipment, and, in some cases, a wage or honorarium. A few of these conditions have been fulfilled in the Toledo PHC project yet while some progress has been made, many problems remain.

A. Project Strengths

PCI has achieved some significant breakthroughs in establishing a model for rural PHC systems in Belize. For example:

- it has shown that CHWs can increase the access of rural villagers to some basic health services and can effectively assist nurses in outreach and mobile health clinics;
- in the course of the project, the CHW training program has been modified and improved to make it more relevant, and a PHC manual has been produced clarifying the roles and relationships of all health workers;
- a functioning cross-sectoral District Health Team (DHT) has been developed;
- there has been some coordination of related community programs in the training and supervision of the CHWs;
- village health committees have been established (even if they are not all functional);
- PCI is trying to ensure that a Belizean counterpart will

be prepared to take over project administration, and that PHC is given more political and financial support at the national level;

- one health survey has been completed to define actual health problems, and others are underway or planned.

B. Project Weaknesses

The major obstacle to PCI in achieving its primary goal of creating a self-reliant PHC system is only partially under PCI's control: it is the reluctance of the Belize government to commit itself to rural PHC. Although the MOH has made a policy decision to make PHC a priority area, and has established a National Primary Health Care Committee, in practice support from the MOH has been inadequate. The supervisory infrastructure for the CHWs is woefully inadequate for long-term survival; it now depends largely on expatriates. The prospect of the MOH supplying the necessary nurses for adequate long-term supervision is extremely dim. This is true not just in Toledo, but in all rural Belize, where many nurses' posts are empty and turnover is high. Thus, the actual supervision of the CHWs (with a few notable exceptions involving expatriates) was observed to be inadequate. While most MOH policy is beyond the control of PCI or AID, PCI and AID both have leverage in the MOH and are concerned about encouraging self-reliance and institutional development.

Other difficulties PCI faces in Belize are, these:

- the information system for reporting activities of the CHWs is inadequate and inconsistent; baseline and benchmark surveys are needed;
- although PCI originally planned to train 50-60 CHWs in Toledo, the current director's reassessment of the district's needs and resources led to much more modest objectives: only one group of 15 has been trained (and only nine of those are still functioning), while another group of 15 is to complete training in late 1986;
- most Village Health Committees (VHCs) seem weak and ineffective or disinterested. It appears that adequate community development and follow-up is not being done by the MOH and PCI staff involved together in this project;
- as a result, there seems to be only sporadic village support for the CHWs. Villagers are said to be generally unwilling to pay for the services of the CHWs;
- logistic support for the CHWs (drugs, transportation) is irregular and inadequate;

- the MOH will not in the future pay the \$25 (US) monthly honorarium to CHWs in districts other than Toledo; this may cause difficulties in any future program expansion (although it is debatable if the MOH should have paid the honorarium to begin with);
- MOH policy towards the CHWs is somewhat restrictive and does not recognize a variation in local needs, such as the appropriateness of some CHWs doing suturing or dispensing antibiotics;
- although one of the CHWs' prime functions should be to facilitate referrals of emergency cases, an adequate system for referrals does not exist.

C. Recommendations

The evaluators, after visiting most project sites and discussing the project with MOH and AID officials in Belize City, believe that PCI deserves credit for establishing the basic design for PHC in Toledo. We encourage AID to continue supporting the project because of its potential for eventual impact and replication. However, several improvements will have to be made in the project before it can be considered the working, replicable model it is intended to be. For example, the project should:

- improve CHW selection and training, e.g., by increasing community participation in selection and training, by involving more traditional healers in PHC, and increasing the availability of health education materials;
- improve supervision considerably by increasing the number and availability of nurses with better incentives and improving the frequency and quality of their encounters with CHWs;
- strengthen community participation in health education, volunteering labor, and raising money for PHC;
- complete comprehensive baseline studies and generally revise information systems to be more useful to the CHWs as well as to monitor CHW and VHC activities, and sharing information much more widely with other PVOs in Belize who need to coordinate plans for nationwide replication;
- work with the MOH and the National PHC Coordinating Committee (NPHCC) to ensure real MOH support for PHC. Support should be demonstrated by the MOH paying the salary of the PCI project counterpart, continued MOH payments for CHWs (possibly on a matching basis with the community), and the MOH sharing the costs of maintaining rural health posts and resupplying drugs which should be sold to help support CHWs;

- expand the CHW system, adapted appropriately, to new districts only after solutions to the Toledo PHC systems difficulties are better understood. (This would not preclude doing feasibility studies in other districts, since the situation for CHW development in Toledo is quite different from other districts.)

II. BACKGROUND

A. Project Concern International (PCI)

1. PCI Overview

PCI is a private, non-profit, nonsectarian health care training and development organization which provides services to governments of developing countries and local organizations in underserved communities. Founded in 1961, PCI receives most of its support from individual and institutional donations in the U.S., Canada, Australia and New Zealand. PCI has received about \$450,000 annually from AID -- 9.5% of its total program budget or 13% of its total cash budget. Its funding operations are supported by a network of volunteers throughout the USA. Presently, PCI has programs in Bolivia, Belize, Guatemala, Mexico, and Indonesia as well as disadvantaged areas in the U.S. in Navajoland and Eastern North Carolina. Programs are presently being developed in Somalia and Papua New Guinea.

The objectives of Project Concern's overall program are to:

1. "Bring an affordable, socially acceptable and accessible system of health care to underserved communities;
2. Demonstrate to the country's central governments the feasibility of a low-cost, effective PHC system;
3. Develop host country capacity to assume responsibility for projects;
4. Provide financial and technical support within a given time frame;
5. Promote local responsibility for the development of future PHC health care services;
6. Establish host country nationals as Community Health Worker (CHW) trainers; and
7. Train CHWs in basic curative health and, more important, preventive health educations." (PCI Matching Grant Proposal, San Diego, 1982).

In Belize, as in most of the six countries where PCI operates, PCI project staff work closely with regional or central offices of ministries of health, thus pursuing AID's strategy to "assist host countries to effectively deliver existing and improved health care technology through policy reform, manpower development support, management improvement, institutional development and promotion of private sector participation in financing and service delivery"

(AID Health Sector Strategy Paper, Washington, 1984). Because PCI has developed a track record over several years in health training activities of high priority to AID, PCI received its first matching grant (MG) in 1979. This grant supported the development of programs in Belize as well as in The Gambia, Guatemala, Bolivia, and Mexico.

2. AID Matching Grants, 1979-1986

The first matching grant (MG) awarded to Project Concern by AID ran from 1979 to 1982. The second became effective in January 1983 and initially committed a total donation of more than \$1.2 million for a three-year period. PCI's original contribution to the grant program is projected at \$1,206 million, or 50.1% of the total estimated expenditures. Country programs begun under the previous MG, including Belize, were to be continued and expanded; in addition new programs were to be initiated. The present MG from AID, which was extended from 1985 to June, 1986, totals \$1.35 million.

The ultimate goal of PCI programs is to attain "self-reliance," that is "the ability of the program to sustain itself indefinitely on in-country resources, without the need for personnel, money or equipment from outside the country." The purpose of PCI's programs, as expressed in the second MG proposal, reflects organizational objectives. The proposal asserts PCI's intent to increase "the capabilities of ministries of health and other levels of health service in planning, designing, implementing and evaluating programs of PHC at the village level." PCI's PHC strategy focuses on the training of villagers, the use of local resources, and encouraging self-reliance and host country replication.

The indicators of purpose achievement and the specific outputs of the program activities are somewhat overlapping in the MG proposal. Basically, these refer to the establishment of detailed plans and the development of support systems; the training of supervisors, trainers, and support personnel; the training of CHWs and Traditional Birth Attendants (TBAs); and the establishment of functioning local committees and local sources of financing. To accomplish these objectives and activities, PCI commits itself to providing field staff of PHC specialists to work with the ministries of health and funding for additional technical assistance, materials, equipment, and administrative support. Host governments are to provide counterpart personnel, physical infrastructure, and limited support funds.

B. Belize

1. Overview

Belize, formerly British Honduras, the smallest country in Central America, is bordered by Mexico and Guatemala. Its popula-

tion totals only 170,000; 52% of Belizeans are urban and concentrated largely in eight, mostly coastal centers. Belmopan, 50 miles southwest of Belize city, has been the capital since 1970. Belize City, population 46,000, is the former capital and the largest town. The economy is based predominantly on agriculture, forestry and fishing, and is relatively well developed; the per capita gross domestic product has hovered around \$1,000 since 1980, with the average paid employee earning \$3,000 a year. Unemployment averages 14%.

Belize is a multi-ethnic society. English is the official language of Belize and is taught in the schools, most Belizeans also speak another local language. About 40% of the people are Creoles who share African ancestry and speak the local English Creole dialect. Mestizos, Spanish-speaking Belizeans descended from Amerindians and Europeans, constitute 32% of the population. Garifuna (17%) are a mixture of African and native Carib Indians who arrived in Belize in the 19th century. Five Mayan groups (10%) live almost exclusively in the southern part of the country.

Literacy (defined as the ability to read and write one's name, or having attended primary school) is high, estimated at over 90% of the population. 42% of Belizeans are under age 15. Education is compulsory between ages 6 - 14. Primary education is free. Advanced training for professional and technical fields is available at the Belize College of Arts, Sciences and Technology (BELCAST), but students usually go abroad for graduate and post-grad studies.

2. Toledo District

Of Belize's six administrative districts, Toledo District, where the PCI project is located, is the second largest district in the area, the smallest in population (14,000 in 1986) and the poorest economically. Unemployment is estimated about 24%. Most of the population are Mayans who speak Mopan or Ketchi as their maternal language in addition to English which they learn at school. The district is composed of one town, Punta Gorda, population 3000, the District capital where the PCI office is located, and about 25 villages plus dozens of scattered small settlements. Where there are roads public transportation is limited to one bus three days a week. In the southwest part of the district roads are lacking; villages can be reached only on trails by foot or horse, or on rivers by boat. Access to remote villages is especially difficult in the rainy season.

The major towns involved in the PCI project are shown in the map in Appendix 5. Toledo North, where towns are accessible by road, contains over 20 small villages or settlements consisting at the most of 20 houses each, three larger villages (Laguna, Indian Creek and Forest Home) with about 50 houses each, and Punta Gorda. Houses in rural areas are not crowded together, as

in many countries, and are a half mile to several miles from people's plantations. Toledo North includes San Antonio, 21 miles from Punta Gorda, the largest Mayan Indian Village in the Toledo District with over 2,000 inhabitants. San Antonio is the center of a cluster of nine Indian Villages with about 3,000 inhabitants. Twenty miles away from Punta Gorda, northeast of San Antonio, is San Pedro Columbia, another Mayan Indian Village with about 1,000 inhabitants surrounded by a cluster of ten small Indian Villages with over 1,000 inhabitants. Toledo South, accessible by boat, horse, or helicopter, contains Crique Sarco (population 300), a half day boat ride away from Punta Gorda.

3. Maternal and Child Health

In a recent report on "Priority Health Needs/Belize" (November 1985) by the GOB and PAHO, a dramatic 50% decrease in infant (under one year) and child (age one to five) mortality is reported between 1979 and 1984. The infant mortality rate (IMR) fell from 39 to 23 per 1,000 births while child mortality fell from 3.8 to 1.5 per 1,000 population. The GOB claims that deaths from intestinal infections dropped 60%, deaths from respiratory infection dropped 50%, few or no deaths were reported in 1984 from measles, whooping cough, and neonatal tetanus, and no case of polio has been reported since 1980. By age four, says the GOB/PAHO study, "practically 100% (immunization) coverage is achieved." Belize claims one of the lowest IMRs in the Third World, and the lowest in Central America excluding Costa Rica (19). Thirty percent of the reduction in infant and child mortality is due to prevention of diarrheal death, mainly related to the introduction of oral rehydration therapy (ORT). Deaths of infants and children due to respiratory illness were reduced by half by 1984.

Nonetheless, this 1985 report also warns that the IMR has recently begun to rise again and immunization coverage is losing ground. Some of the increased IMR might be related to recent improvements in the reporting system; reported deaths from malnutrition, for example, have nearly tripled since 1980, possibly because of improved reporting procedures. Nonetheless, immunization coverage in Belize is limited by the lack of trained rural public health and nursing personnel, vehicles and cold chain facilities.

Diarrheal disease has also decreased yet remains a concern, with 6% of all children under five surveyed in 1984 found to have had at least one episode of diarrhea in the preceding two weeks, amounting to 28% of reported morbidity in that age group. The IMR related to diarrhea is reported as 2.3 per thousand live births, less than 9% of total infant mortality; the IMR related to acute respiratory infection (ARI) is 12%. Child mortality is .55 per thousand population from diarrhea and .8 per thousand

population from ARI. Thirty percent of the IMR is believed attributable to low birth-weight even though an estimated 60% of all deliveries are in the hospital; complications of pregnancy and childbirth are the first cause of hospitalization in Belize City. Eight percent of Belizean infants and 19% of children are undernourished.

All these averages are for Belize as a whole; morbidity and mortality rates in Toledo have been found to be higher. Nutritional surveys have found a higher prevalence of moderate and severe malnutrition in the southern parts of Belize. The degrees of severity of health and nutritional problems in Toledo seem to vary; in 1979 a survey on nutritional status and pregnancy found a high incidence of anemia, but a 1980 survey found an adequate dietary intake of iron throughout Belize, even in Toledo. Surveys on immunization consistently find lower coverage in rural areas.

Concerned about possibly ominous trends in IMR and EPI reports, Belize has developed a Five Year National Child Survival Plan of Action with the support of UNICEF, PAHO, and the EEC.

4. GOB Health System

The Belize Constitution promises Belizeans "education and health on the basis of equality", and the GOB "assumes responsibility for ensuring that every Belizean without distinction may have access to the best level of care available." It has adopted PHC as its basic health strategy, and its goal is that "no community should be more than one hour away from PHC services (by appropriate transportation) or two miles walking distance." It defines PHC as "the availability of essential drugs, the treatment of minor wounds, injuries and prevalent diseases, as well as basic maternal and child health care." (GOB/PAHO op.cit.).

The Government is said to be the main provider of health services in Belize, although non-government organizations are numerous, especially in rural areas, and private practitioners serve both the rural poor ("bush doctors") and the urban middle class (40 physicians and 10 dentists.) On paper the GOB maintains a network of 28 Rural Health Centers, theoretically staffed by a Rural Health Nurse (RHN) with two years training in MCH and PHC, but in reality about a third of them "are non-functional, due to dilapidation of the center's buildings, lack of basic equipment, shortage of qualified personnel and insufficient transport" (GOB Project Paper, "Extending and Strengthening PHC", updated.) Each Health Center is supposed to serve 2000-4000 population, but in two districts serve over 8,000 people. Community Health Posts, the smallest health units, are supposed to supplement the Rural Health Centers. Integrated into the community, the posts should be staffed by volunteer CHWs and used by TBAs and village health committees (VHCs). CHW services should include:

- health education
- water and sanitation promotion
- first aid
- ORT
- provision of basic drugs
- home deliveries for low risk pregnancies and referral of high risk pregnancies
- collecting information on births, deaths, etc.
- assisting the Rural Health Nurse, Public Health Inspector, and Malaria Evaluator during mobile visits.

The 1985 GOB report says that the Health Post "level is fully operational in the Toledo District, and is now being introduced into the other rural areas of the country." GOB statistics about health services do not easily reveal any shortages or inaccessibility.

Even in Toledo District accessibility to health facilities appears to be high in respect to population: as shown in the following table, the number of people using its one hospital (Punta Gorda Hospital) and five Rural Health Centers (including one in Punta Gorda Hospital) is smaller in Toledo than most other districts, and the number per hospital bed is average.

DISTRIBUTION OF HEALTH FACILITIES BY DISTRICT, BELIZE 1984

District	Population	Hospitals	Beds	Beds 1000 pop.	Health Centers	Population Health Center
Belize	53800	1	181	3.4	7	7685.7
Corozal	26800	1	28	1.0	4	6700.0
Orange Walk	25800	1	28	1.1	3	8600.0
Cayo	26500	2	75	2.8	3	8833.3
Stann Creek	15900	1	47	3.0	6	2650.0
Toledo	13300	1	30	2.3	5	2660.0
Total	162100	7	389	2.4	28	5789.3

Source: GOB/PAHO, "Priority Health Needs", 1985

Moreover, utilization of the 30-bed hospital at Punta Gorda in Toledo is not excessive (about 900 inpatients annually, only 2.4 discharges per day). By some criteria, then, it appears that Toledo is well served in PHC.

Despite good intentions, however, GOB health services in rural areas fall far short of what is intended. Only one-tenth of the rural population in Belize has "direct, close access" (within an

hour) to PHC services; while most people have inconsistent access to a mobile unit, one of four people has no coverage at all (GOB Project Paper, op.cit.) The PHC program which PCI began in 1982 was designed to help solve this shortage of services; the following section analyses PCI's role in bringing PHC services to Toledo District.

C. PCI in Belize

1. Origins

PCI's decision to work in Belize was based as much on personal ties as on organizational plans. At first glance Belize does not appear to be a high priority area in terms of health needs. The target population in Toledo is very small (14,000), even though the project receives about as much support as other PCI projects with much larger target populations. Infant mortality, normally an important measure of need, is far lower than most developing countries. Broad geographical distribution cannot justify PCI involvement because also PCI works in neighboring Guatemala. Why, then, did PCI decide to devote its scarce resources to Belize?

In 1981 the Belize MOH decided to adopt the WHO goal of "health for all", hiring Dr. William Hawley as Director of PHC. The GOB also created the national "Unity Brigade" program, an outreach education program to raise health awareness and at the same time develop a PHC program managed by PCI. Toledo was chosen as the pilot area because it was the "forgotten district" and had the worst health coverage of Belize's six districts. PCI was chosen because of a professional relationship between Dr. Hawley and Pat Taylor, then on the staff of PCI. Ms. Taylor visited Belize, and the PCI Primary Health Care Training Project was planned in 1981 by PCI headquarters staff. In March 1982, an agreement with PCI was signed by the GOB, and the project began in July 1982. It has been supported in part by PCI's second AID Matching Grant, \$242,000 of which was earmarked for Belize (about 10% of PCI's total MG of \$2.4 million.) In early 1986 PCI submitted a request for continued three year funding for Belize under a third MG (approved June 1986).

2. Objectives

According to its first Annual Report for 1984, the project sought to assist the Ministry of Health, Housing and Cooperatives "in the development of a rural PHC model project in the Toledo District." The PAHO evaluation describes the purpose of the project "to design and field test a PHC system which ... would be fully integrated into the community structure as well as that of the national health care system." The 1984 Annual Report states

that the project's "long range goal" is "to improve the overall health and well-being of the target population by:

- reducing the incidence of anemia in high-risk groups, especially pregnant women, women in the reproductive age, and children (birth to six years);
- reducing the incidence of intestinal parasitism, especially in children from birth to ten years;
- reducing tetanus neonatorum to less than 1%; and
- reducing mortality and hospital admissions for other preventable conditions such as gastroenteritis, complications of pregnancy and birth, and diseases preventable through immunization, and malaria."

This set of objectives is no longer used by PCI/Belize; baseline data on parasitism is the only information on this list which has been collected by the project. A different list of objectives used by the project, and tasks required to reach these objectives were listed in PCI's agreement with the GOB of March, 1982, "the Primary Health Care Project, Toledo District, Project Implementation Plan and Budget." The next section reports on the project's achievement of those objectives as of March 1986.

III. PROJECT OBJECTIVES AND ACHIEVEMENTS

In general, some progress has been made toward establishing a framework of a PHC system, but subsystems which make PHC function effectively are not yet developed. The project's mixed results are documented and are of concern to AID/Washington.

For example, PCI's 1984 Annual Report to AID reported "substantial increases in service coverage and accomplishment of program goals", in the first 21 months of the MG. However, the 1984 GOB/PAHO evaluation of PCI found only half the villages in Toledo had CHWs (13 of 26). Half the villages had no village health committee (VHC), and many of the VHCs that did exist were not very effective. Concern about the low level of training was raised by the AID/FVA Project Officer, Vicky Kunkle, who visited Belize in August 1985.

When we arrived in early 1986, the CHW situation had worsened; the number of functioning CHWs had shrunk to nine; five of the 14 originally trained had resigned (see Appendix 8). Only four of the five rural health nurse posts were filled, two by expatriate nurses. On a more hopeful note, 15 new CHWs had begun training and would be at their posts in November 1986. The District's present PHC system, showing current villages, CHWs, RHNs, and the travel distances between them, is shown in Appendix 7.

Our assessment of project progress toward each objective and task, on the basis of information provided by the PCI Project Director and our own observations, is as follows:

A. District PHC Administration

Objective: Develop the organizational and administrative structure for the delivery of PHC at the district level.

1. Establish Project Management Team

From 1982 to 1985, the PCI project was managed by Dan Domizio, MPH, PCI Program Director who coordinated the establishment of the project with the District Medical Office in Toledo and the MOH in Belize City. The District Medical Officer had been appointed as the Director's counterpart, but their relationship was unsatisfactory. The MOH's Director of MCH and PHC, based in Belize City, was later appointed as counterpart Director. In May 1985 Domizio was replaced by Robert Tucker, MPH, PCI's current Project Director. Tucker is a member of the District Health Team and the National PHC Committee (NPHCC), and is assisted by two secretaries in his Punta Gorda office.

The Director of MCH and PHC went on leave in late 1985, so a new counterpart, Katherine Price, formerly Principal Tutor at the School of Nursing, was appointed in early 1986 by PCI to be their

Principal Trainer in the Toledo project. The MOH agreed to pay her salary beginning in 1987, but she resigned in mid-1986 because, according to PCI, she did not wish to work for an AID-supported project for political reasons. There is now no Belizian professional staff member paid by PCI.

2. Establish District Health Team

The District Health Team (DHT) was formed in 1982 and has evolved in quantity and quality. Initially focussed on team building and communication, the DHT included the Punta Gorda Hospital staff and representatives of all public health programs (the Malaria Officer, Public Health Inspector, Rural Health Nurses.) As CHW training expanded and new health programs (e.g., the Water and Sanitation Program) were developed, others joined the DHT. Meeting monthly for only a few hours with at least 20-30 members attending regularly, the DHT is an important means of communication among the increasingly complex hospital and PHC systems. The PCI project helped managed the DHT, defining its own role and its officers' tasks as well as defining the roles and relationships of the workers and supervisors in the PHC system. The DHT coordinates the acquisition and distribution of health facilities, supplies, and equipment. During our visit the DHT meeting concentrated on planning the EPI campaign in mid-1986.

3. Develop Awareness of PHC

PCI, working through the DHT in Toledo and the NPHCC in Belize City, had begun to develop some awareness of the PHC approach as planned, "at all administrative, social and political levels." Yet, as the PCI Director is quick to admit, this effort is an uphill battle facing many obstacles, particularly a centralized health system which spends more than 60% of its funds in Belize City, 45% on its eight hospitals, and only 18% on PHC (GOB/PAHO, op.cit.) While \$29* per capita was budgeted for health in Belize in 1985/86, only \$5 was planned for PHC. At the national level, health planners seem more concerned that "the changing patterns of morbi-mortality is progressively placing larger demands on the secondary and tertiary levels of care, which are ill-equipped." The GOB's plans for developing hospitals are almost five times one American dollar equals two Belize. more costly than for extending PHC.

* All dollars mentioned in this report are US Dollars; currently one American dollar equals two Belize.

4. Develop Information System

A national health information system has been established by the MOH in cooperation with PAHO, CARICOM, and USAID, without PCI involvement. Punta Gorda Hospital sends standard reports on disease surveillance to the MOH, but a health information center at the district level has not been established. Adaptation of the national health information system to the district is difficult because of the differences between health information collected at the district and national levels.

5. Develop Drug and Financial Management Systems

PCI has agreed to establish decentralized, district supply and financial management systems to improve responses to identified needs and improved project cost analysis. A medicine and supply formulary has been developed for each level of health workers. It is compatible with the national formulary. An improved treatment and referral protocol is being developed. Authority and responsibility for the storage, inventory and distribution of medicines and supplies are starting to be decentralized.

PCI is in the process of standardizing all requisition and reporting forms. Financial reporting to PCI headquarters each month is done according to standard PCI procedures, but a system for analyzing project component costs, cost-benefits, and cost-effectiveness has not been established. The project's financial reports to headquarters are not yet as useful a tool in health planning as they should be.

B. Health and Development

Objective: Incorporate health and related activities into the overall development plan at the district level.

Progress toward the goal of integral health and development planning is being done by developing an intersectoral District Health Team which includes members from a wide range of health related development organizations in the private and public sector.

C. Community Participation

Objective: Establish mechanisms for community activation and participation in all aspects of the PHC system.

1. Establish Village Health Committees

While we were able to meet directly with only a few of the village health committees (VHCs), PCI reports it has established VHCs "in all villages". Our conversation with VHC members, CHWs, villagers, and other informants revealed that some VHCs are far more active and effective than others. In general the VHCs have

been disappointed that the GOB has not done more to help them, particularly in building or maintaining rural health posts. They rarely collect funds or contribute labor, although a few had organized volunteer efforts to build water supplies, schools or latrines. Relatively few MCH problems, the many demands of farming, plus traditions of fatalism and lethargy seem to result in low levels of participation in Toledo. The key to continued involvement and participation, reports PCI, "has not yet been found".

2. Regular Meetings with Community Representatives

Meetings of VHCs with the PCI project team for program planning do take place. The VHCs were responsible for selecting the CHWs for training. PCI also had several meetings with the VHCs regarding health needs, community financing, and CHW responsibilities. These discussions ultimately led to the curriculum developed for this new group of trainees. Some communication also occurs when VHC members attend the DHT meetings.

3. Develop Support Mechanisms for Community Health

PCI reports that the process of identifying available resources and establishing an incentive matching fund for community development project assistance is an ongoing process. However, we do not know examples of community development projects supported by PCI.

4. Conduct Training for Community Groups

PCI's objective of helping communities to identify opportunities and acquire skills, in such non-health areas as food production, income generation and management skills, has not been attempted at all.

D. Train Health Workers

Objective: Expand the District Health Team to include community level workers and provide training and ongoing orientation to extend and upgrade rural services.

1. Define Functions

The first task under this objective was to define PHC functions and referral protocols for each level of the district health system and to develop manuals for use in rural health posts, health centers and the district hospital. This task has been largely accomplished; all PHC functions are defined in the new National PHC Manual including referral protocols. However, diagnosis and treatment manuals for locally prevalent diseases have not been prepared.

2. DHT Training

At least 15 health managers have been trained by PCI as trainers and supervisors of the PHC program since 1981 (see PCI Annual Matching Grant report to AID, 1984.) Nine of these PHC trainers are nurses. In addition, PCI has continuously sought to train all members of the DHT in appropriate communication and health education skills needed for training, community education and motivation, intersectoral cooperation and client/personnel interface. This ongoing training process is a general one and results are difficult to measure. Clearly some members of the DHT are more effective than others. PCI reports that the community education and motivation skills of the DHT are improved but DHT educational activities have not been evaluated.

3. Train CHWs

One of the most important project tasks is to "provide a trained CHW aid for each 100-500 population". This training is under way, and is analyzed in Section IV.C. Establishment of adequately equipped physical facilities (Community Health Posts) for all of the CHWs has not been done. Less than half the CHWs we visited used separate rooms as health posts; many used part of their own living quarters to see patients and some had no working space at all. PCI is currently involved in building a Community Health Post in one village, Pueblo Veijo; PCI supplied funds for materials, but the people volunteer their labor.

4. Train TBAs

This project is supposed to provide one trained midwife or TBA for each 250-1000 population, a total of 18-27 TBAs (PCI/Belize Annual Report, 1984.) This training has not begun except for brief discussions with some TBAs during monthly meetings (see below) and during mobile clinics.

5. Monthly Meetings

One or two day meetings were supposed to be conducted monthly at the supervisory health center for all CHWs, TBAs, and midwives. This task is partially accomplished at monthly DHT meetings which most CHWs, some TBAs, and occasionally midwives attend. But travel to and from the meetings is paid by PCI staff, so the PCI Director does not see this as a sustainable or replicable activity.

6. Continuing Education

A regular program of continuing education for all members of the health team was also to be established by the project, but is only partially done. The project has identified training needs with ongoing supervision and established a PHC library and health education resource center in the project office in Punta Gorda.

However, early plans for bimonthly, two or three day seminars at the district level for appropriate DHT members, and two national seminars for senior level district personnel per year have not been implemented.

7. Equipment

An in-depth "inventory of equipment, supply and facility needs, establishing priorities, and acquiring needed supplies for all levels of the district system" has not been done.

E. Health Education

Objective: Develop and implement an ongoing health education program designed to increase the level of health awareness and the development of health-promotive behaviors.

1. KAP Surveys

The project plan was to collect information on health related attitudes and practices in the target population through interviews, group discussions, etc. Although some of this community diagnosis has been done by other professional groups and individuals in Toledo, it has not been done by this project as defined. No organized, documented baseline survey of health attitudes and behaviors has yet been implemented.

2. Health Education Planning, Training, and Implementation

Despite that lack of information on which to base health education planning, the project has gone ahead with the next task, to "define health education objectives and develop a plan and materials for district implementation". That plan has been used in training CHWs in the health education concepts and skills they need to improve health behaviors of village families. Unfortunately the CHW health education training does not appear very effective because of ineffective supervision. Although health education should be implemented at all levels with active community participation, PCI reports that "Community participation is a problem" (see Section VI.C.3). Health education materials are in very short supply.

Despite difficulties, however, some CHWs say they give community health talks regularly. In 1983 the 14 CHWs then at work reported an average of 75 sessions a month and only one talk a week per CHW (the size of the audience was not recorded). During our visit several CHWs reported giving regular health promotion talks to villages - sometimes to VHCs only, sometimes to hundreds of villagers back from farming in late afternoon. Some VHC members told us they help to plan and encourage attendance at the discussions. We were unable to see any sessions under way or to assess their effectiveness. PCI has started to develop a liaison

with the Health Education Unit of the MOH, some of whose staff came from Belize City to participate in the CHW training program in 1983 and 1986, but the Unit has only three professional staff and is not able to participate more than superficially in PCI project planning and monitoring.

F. Communication and Supervision

Objective: Establish an effective system of communication, supervision and referral within the district.

1. Train Supervisors

The first task planned in this objective was to identify supervisors at each level of the district system. Nurse supervisor positions to be filled by PHNs or RHNs have been identified and established in the MOH budget, with a job description in the EHC Manual. However, only one of four such positions is currently filled by a Belizean Nurse and one post is empty. The problem is both high turnover and low motivation of the RHNs and PHNs in the Toledo District as in other rural areas, a problem discussed in Section IV.

The project also had planned to establish a schedule and criteria for supervision in conjunction with mobile clinics so that CHWs would have regular support, supervision, follow-up training, monitoring, and supply during mobile clinic visits by nurses. This task has not been done, again, due to turnover and low motivation of RHNs and PHNs, and lack of reliable transport. This project should "train personnel [nurses] in supervisory skills". This training has not been attempted primarily because of high turnover of nurses. Criteria for treatment and referral of patients at each service level were to be established and instituted. While these criteria are generally known to CHWs, who appear to refer patients as appropriate, the criteria have not been put down on paper and referral criteria is not monitored to determine whether referrals are appropriate, timely, or effective.

2. Transport Supervisors

A major task under the supervision objective is for the project to "provide adequate means of transportation for provision of services, supervision, community activities, training, and referral". To date, analysis of transportation costs has not been done. Regrettably, acquisition of vehicles by the MOH is impossible because of lack of funds for PHC, especially outside the towns. Moreover, effective preventive maintenance measures have to be instituted for MOH vehicles and equipment at the national level. A driver's job description has been included in the NPHC manual; PCI is working to see that it will be adopted and enforced by the MOH. The Project Director has spoken with the MOH and it is now assuming some responsibility for transportation.

3. Radio Communication

The important role of communication to support CHWs and to facilitate referrals led to another project task: to "investigate the feasibility and relative benefit of developing a radio communication system in cooperation with the partially completed VHF-FM system operated by the Roman Catholic Church in the Toledo District". This system has been partially tested and adopted; CHWs have two-way radios. They have proven very useful in supporting CHWs with both medical and administrative information. However, the radios are very costly (\$900 each). A cost-effectiveness study should eventually be done to determine if radios should be provided to CHWs elsewhere in Belize.

G. Monitor and Evaluate

Objective: Monitor and evaluate the Toledo PHC system throughout the life of the project.

The project was to "define the responsibility of the National PHC Coordinating Committee, the District Health Team, and the community for project monitoring and evaluation". These responsibilities are defined in the PHC manual in a very general way, but are not spelled out concretely and practically. The project has begun to "establish criteria for periodic and final project evaluation, making use of information collected on a routine basis", but far more careful development of an information system is required before data collected can be used in management and planning.

The project does have a "monthly review of progress by the project management team with reports to the National PHC Director and PCI" as originally planned, but these reports have not included specific quantitative data of progress toward each objective or target. Nor is there a "quarterly review of progress towards objectives and modification of implementation plan at the national level with reports to PCI". The project has also been unable to "develop an appropriate health information and disease surveillance system" which could document improvements in health resulting from project activity yet being planned.

It is premature for PCI to implement other tasks in the 1982 agreement, to "prepare a plan for replication in other districts, including guidelines for organizational and administrative structure, training plans and materials, supervision and monitoring systems, and evaluation"; to "identify and secure resources for implementation"; and to "implement a national PHC plan." Since 1984 there has not been an "annual project evaluation", as planned initially. The PCI Director does prepare a workplan and budget each year with the District Health Team for approval by PCI headquarters and by the Director of PHC. There will be a final evaluation upon project completion in 1989.

H. Replicate Throughout Belize

Objective: Replicate the appropriate aspects of the Toledo PHC system throughout Belize.

The replicability of the Toledo PHC project - the appropriateness of PHC subsystems now being tested in Toledo for future adaptation and application in other districts of Belize - is still unclear. In the 1982 plans, replication was to begin by 1986. But some PHC project components such as CHW supervision, financing, and monitoring, have not yet been made to work smoothly in Toledo. In the PCI/GOB agreement, the project was to hold a national workshop "to evaluate the results of the Toledo Project recommendations for the implementation of PHC throughout Belize", to "prepare a plan for replication in other districts", and to "implement a national PHC plan." These plans would be premature before more progress has been made in Toledo, so little has been done to implement this final objective.

IV. ANALYSIS OF PROJECT ACHIEVEMENTS

A. Background on CHW Activities

Past problems implementing PCI's training plans from 1982-85 were thoroughly documented in 1984 and 1985 (see comparison of evaluations, Appendix 13). The GOB/PAHO evaluation found training was considered inadequate by most health workers who "did not feel adequately informed or prepared to assume their new responsibilities. . . , especially with regard to supervision" (GOB/PAHO, 1984). The PCI Project Officer found too few training programs, and reported that some people felt the curriculum too sophisticated, too slow, and too heavily curative (Kunkle, 1985). Because of concerns about the effectiveness of the 1983 CHWs and the need for more CHWs, a new round of CHW training was proposed by the DHT to begin in January, 1986. Five of the 15 new CHWs would replace the five old CHWs who were not accepted, had moved away, or simply resigned. But the majority of the CHWs were to serve in villages which did not previously have any trained health workers.

The DHT developed a proposal and examined the experiences, problems and successes of the first round of training (only two of the original PHC team remained in the DHT.) An important issue was the high turnover rate among the health professionals who participated in the first round of training.

Other CHW problems included:

- CHW candidates were not carefully selected;
- no clear duties and responsibilities had been established for CHWs and Supervisors;
- supervision of CHWs in the field was almost nonexistent;
- trainers were not sufficiently prepared in the PHC philosophy;
- trainers were not familiar with adult, non-formal education methods;
- the curriculum overemphasized curative care and deemphasized prevention and health promotion;
- traditional and cultural values were not taken into account in the development of the curriculum and training;
- provisions for continuing education were not made;
- the community or the village health committee (VHC) did not participate in the development of the curriculum; and

- the project had no schedule for training CHWs during the life of project.

When the decision was made to train new CHWs, a curriculum workshop for CHW training was held in Punta Gorda at the shared office of the PHC and Toledo Water Supply and Sanitation Project in November, 1985. The purpose of the workshop was to build on the experience of the 1983 training to develop a new, more appropriate, and more effective curriculum than that used in 1983, and to design improved materials for CHW training. Specific objectives included learning new health promotion skills in what the Principal Trainer calls "learner-centered training," and stressed teamwork using "non-formal adult education techniques." The resulting curriculum to be used with the new round of health workers is summarized on page 26.

B. CHW Selection

PHC program success depends in large part on careful selection of CHWs who will be both acceptable and respected by the people as health workers. In the words of the 1984 report, it is important for the community to "clearly understand and accept the role of the CHWs and the need to support them." We were concerned about the characteristics of the CHWs, their selection process, and their reputations in the community, for both the first group trained in 1983 and the second group in training during 1986.

In general, community leaders and villagers we met in Toledo North did not appear to be much involved in the CHW selection process, partly because they are not very active in any community activities, partly because health care is not a high priority to them, and partly because the PCI/GOB project has not planned and structured their role. In some communities, however, especially in Toledo South, many people did participate in selection. Some had guidance from the RHN in Crique Sarco who is well known and liked. In other communities selection was under the guidance of the alcalde, a village political leader, and other community leaders.

PCI has not developed a careful community sensitization process in Belize as used in its Gambia PHC Project, for example; nor did PCI implement a "community diagnosis" or do a pre-project survey of health attitudes and practices which might as a side-effect have contributed to sensitizing communities about the need for them to select an appropriate health worker. Often no VHC was functioning in the community which might have facilitated the selection.

PCI has not found it easy to involve traditional healers in this project. They have traditionally been skeptical of PHC, secretive about their practices, and seeing CHWs as competitors. PCI has attempted to recruit traditional healers for CHWs, but

only one CHW is a former traditional healer. Healers are less suspicious now as the project matures, but integrating traditional and PHC practices is still a problem affecting CHW effectiveness.

A final selection among the candidates who had been pre-selected was made by a committee of health professionals from the DHT who might have been able to screen out some weaker candidates, but an outside committee cannot play the vital role of a VHC in inspiring community spirit, encouraging CHW candidates to compete for the post, and supporting the CHWs finally chosen. A new procedure for selecting CHWs, with written criteria for selection, are being introduced and are in the National PHC Manual, so future CHW selections should improve.

Eight of the nine "old" CHWs (trained in 1983) were married males, but at least one of the five "old" CHWs who resigned were women. Two of the "new" CHWs who began training in early 1986 are women; one is unmarried, aged 18; the other, aged 30 is married with five children. The 13 male CHWs are married and range in age from 19 to 44, averaging age 26. CHWs should all be literate, but often one of the most literate community members (e.g., the Alcalde's secretary) may be selected. In one case (San Jose) the CHW is the village's representative to the District Council and is very popular.

Training of 15 CHWs from 12 villages began in January 1986 and will be conducted intermittently over eleven months to allow trainees to farm their lands as necessary, with a final graduation ceremony in November 1986. Candidates who volunteered to be CHWs had to first be approved by both the alcalde and community. Because the Mayan (Ketchi and Mopan) cultures are male dominated, all but two trainees were male. Once the initial selection of alternative candidates was done at the community level, candidates were interviewed by the Principal Trainer and the appropriate RHN supervisor using the following selection criteria. Candidates must:

- be willing to serve the community on a volunteer basis [not defined];
- be able to make time [not defined] for daily activities;
- be committed to stay in the community for at least two years;
- have prior experience (e.g., TBAs, Bush Doctors, Malaria collaborators);
- be able to read and write [defined]; and
- be at least 18 years of age.

The final choice of candidates was made by the TPHCT. Letters of acceptance were sent to those selected, and training began in early 1986. An overview of training methods and content is shown on the next page.

Overview of
Toledo CHW Training Program

Selection	Duration	Dates	Location	Content
A. <u>Basic Training</u>				
<u>Part One - Study</u>	80 hours (10 days)	1/86	San Antonio Health Center (HC)	Each day = 5 hours of class discussion, three hours of "practical projects". Topics include: the PIC approach; interpersonal communication, group dynamics; personal, family and community health; prevention and control of diarrheal disease; prevention of common health problems, basic first aid, and the Belize health care system. After each session all trainees have oral or practical exam.
- <u>Practicum</u>	3 weeks	2/86	CHWs' home village	Supervised by RHN, trainees work in own neighborhoods, holding village meetings, giving health talks, undertaking family health assessments, and helping with the mobile MCH clinics.
<u>Part Two - Study</u>	80 hours (10 days)	3/86	San Antonio Health Center	Review of past session; maternal health care; aseptic technique; immunization; and prevention and control of common health problems in the villages.
- <u>Practicum</u>	3 weeks	3-4/86	CHWs' Villages	Similar to Part One Practicum, plus emphasis on national vaccination campaign.
B. <u>Workshops (3)</u>	One Week each	4/86 7/86 8/86	Crique Sarco HC 4 Other Districts San Antonio HQ	Visits to other districts were to learn about their different health services. Curricula to be determined "by CHWs' own experiences". Final oral and practical exam will be given to all trainees in November 1986 before graduation.

TOTAL: 280 hours of formal and non-formal/practical sessions
 8 weeks (20 hours per week) of supervised practice
 28 weeks (20 hours per week) of periodically supervised practice

C. CHW Training

The new CHW training program has been tested and is improved. The experience gained has been valuable. The training program for the first group was probably too long and inappropriate and so was modified. The present training program seems much better suited to CHW needs and social problems. Several problems have arisen in the first phase of CHW training in 1986 which the project is working to solve:

- language and cultural barriers between the Principal Trainer, who speaks only English, and trainees, who speak Mopan or Ketchi, which made teaching difficult for both. This was partly resolved by having some "old" (1983) CHWs attend and participate in question-answer sessions;
- CHWs do not have enough practice of clinical skills;
- nurses do not provide sufficient supervision during the practicum;
- communities do not provide enough support for the CHWs while in training;
- the new CHW manual used in training is not used very well by the trainer, and it is still not determined whether the manual is used by CHWs;
- the Principal Trainer believes she did not have enough training and experience herself in adult education techniques; and
- the cost of training each CHW seems quite high (US \$1,015.00 for each CHW in the first group, probably less for the second group).

D. CHW Performance

It was difficult for us to assess CHW performance during our visit because few CHWs could be found (many were farming or "away") and because the reports of their activities are obviously incomparable, incomplete, inconsistent, and inadequate. Our analysis of 1985 reported activities, for example, reveal that some CHWs report injections for TB, others do not, some report referrals, others don't. Apparently some health workers make very few referrals, or some patients who are very sick go directly to Punta Gorda Hospital without consulting the CHW. There is no good definition of what constitutes a "health education" or "community action" encounter; obviously there are some inconsistencies.

Some items reported are unclear or overlapping. For example, the CHW in Santa Elena reported 261 health education visits in 1985 (nearly half the total) and 268 home visits, apparently double counting. Some data and records have simply been "lost".

As a result, each CHW reported an average of only 25-30 curative visits a month, or about one a day.

The two tables showing "Reasons for Visits to CHWs in Toledo District" (1982/84 and January-February, 1986) are quite consistent, and indicate both the kinds of health problems in the districts and the CHWs' abilities. The major diseases seen are fever (likely secondary to malaria or flu), skin and eye problems, "headache", diarrheal and respiratory diseases and trauma. Much of the actual disease etiology is uncertain, as "fever" and "headache" are vague "diagnoses," and may or may not represent malaria. Malaria smears are being done, but on only a small fraction of those patients diagnosed as "fever". Parasitoses are probably underdiagnosed and undertreated; they do not appear as one of the significant diagnoses. Logical treatment can only follow from logical diagnosis, so the degree of effective curative care being provided by CHWs cannot be measured at this time.

CHWs are productive in a variety of functions which are not expected to be reported but provide significant support to other parts of the health system; for example,

- many help out the RHN at Health Centers; these tasks are not documented in monthly CHW reports;
- all help with the mobile clinics, and in fact are invaluable as translators and facilitators of care, as village communicators, and for notifying people of mobile clinics, and immunization campaigns. These data also do not appear in any statistical information;
- although not officially permitted, many CHWs are giving injections, especially for tuberculosis patients or in conjunction with immunization campaigns;
- in Southern Toledo all the CHWs are suturing, after being trained at Toledo hospital, even though it too is not permitted officially by the MOH. They also prescribe antibiotics contrary to MOH regulations when they think they are necessary. In Crique Sarco they consult the Nurse on the radio when they give antibiotics (each village in Southern Toledo has a radio for contact with Crique Sarco);
- in Northern Toledo, none of the health workers prescribe antibiotics;
- most CHWs help with referral of sick patients; and
- most CHWs teach the use of ORS to treat diarrhea.

Preventive education and health promotion activities of CHWs are also difficult to quantify clearly from the sketchy reports available, but we conclude that preventive visits by CHWs to

homes or groups represent only minimal percentage of reported visits. Preventive visits seem to be undertaken more with mobile teams than by CHWs individually. "Health Education" activities are not clearly defined; some report many, some almost none. No CHWs we visited seemed to be setting examples for their neighbors; most have not built their own latrines, frequently the first step for CHWs involved in a latrine building campaign. At least one opposes family planning.

The following are other impressions we had of CHW Performance:

- The health workers are doing a certain amount of preventive work usually in direct conjunction with the RHNs (e.g., mobile and immunization clinics).
- The CHW group health educational activities are difficult to define, probably vary a lot depending on the motivation of the CHW and the orientation of the community.
- Although the CHWs and the communities have identified water supply (and occasionally sanitation) as major problems, the CHWs in fact are not working much in these areas.
- The CHWs are doing an average of 25-30 clinical encounters per month.
- The most frequent medications prescribed by the CHWs are tylenol, aspirin, and various skin and eye ointments. Only in Southern Toledo are the CHWs using antibiotics and doing suturing.
- Because of cultural practices, the CHWs have had little to do with deliveries.
- The CHWs have helped link their villages into the formal health care system.
- The CHWs do feel their Bze. \$50.00 monthly stipend from the MOH is important, and it is likely many would quit if they did not get it, although the new CHW trainees have not received any stipend. Much of the work the CHWs do is in fact direct supportive work for the formal health system, and they should receive compensation for this, as they lose time from work to do at least this kind of work.
- An information system for the CHWs has been developed, but is inadequate and needs major revision. The CHWs' reporting system needs revision and standardization.
- CHWs should be selected so as to be motivated, literate, and of appropriate age, sex and marital status so as to be best utilized by their community.

- The program should be flexible enough to allow certain CHWs to do special tasks such as suturing or prescribing antibiotics if (a) they are capable of doing the special task and if (b) common sense dictates that such special talents will serve the best needs of the community.
- Special programs (malaria, water and sanitation, survey, immunizations, MCH) should cooperate with the CHWs to allow the maximum impact on the communities.

E. CHW Support Systems

The MOH's construction and maintenance of the CHWs' Health Posts is sporadic at best, reflecting the GOB's ambivalence about PHC as well as its lack of funds. Some CHWs work out of Community Health Posts, some specially constructed for them by the MOH (e.g., Santa Cruz), some part of another community building (e.g., San Jose), and some work out of their homes (e.g., Santa Elena, San Marcos, or Otoxha). Some always work from the Rural Health Centers (e.g., San Antonio, Crique Sarco, or Barranco) directly with the RHN. But in several villages Health Posts are incomplete (e.g., Santa Elena, Pueblo Viejo) because neither villages nor the MOH are willing to repair or complete them.

CHWs trained in 1983 have a stethoscope, sphygmomanometer, thermometer, a basic supply of gauze and a few solutions. The new health workers will get these soon. 1983 CHWs also had a supply of basic medicines, though not much of certain medications.*

The following are our conclusions about CHW support systems:

- The MOH should support the CHWs with as much monetary and material support as they do verbal support.
- CHW drug supplies are often marginal or inadequate. An effort must be made to supply them with a secure supply of the basic medications if they are not to lose the confidence of their villagers.
- Many drugs are available from the MOH but transportation of drugs is difficult.

* In northern Toledo, CHWs had: Tylenol (small quantities), Aspirin (sometimes), chloroquin, Eye Ointment (in small quantities, sometimes donated by British Army), Skin Ointments (small amounts), Solution to treat scabies (usually some), Antacid Tablets (a few), ORS (usually several packets), Gentian Violet Alcohol (sometimes), Soap (usually), Roundworms medication (occasionally)

- Drugs have been obtained from other sources such as the British Defense Forces (who also provide emergency medical back-up including evacuation by helicopter), through private purchases in Guatemala, or through church group donations, thus improving CHW supplies and effectiveness.
- Transportation is costly and is seen to be a major problem, in many respects, because of difficulties in:
 - referring patients;
 - sending lab tests (e.g., malaria slides);
 - supplying drugs, forms, information;
 - attending health worker meetings, training sessions;
 - providing adequate supervision.
- The radio system has been used very effectively for:
 - instant supervision;
 - arranging medical evacuations;
 - multiplying efficiency of system; and
 - reinforcing CHWs.

F. CHW Supervision

All CHWs must report to both the local VHC and the RHN/PHN, as well as the Malaria Supervisor, the Public Health Inspector, and others. (See chart, Appendix 6.) CHWs must submit monthly reports to RHN supervisors (see sample copy, Appendix 14.)

The RHN, a licensed practical nurse/midwife with some orientation in community health, supervises CHWs and TBAs in an average of 12 villages. She collects and collates CHWs' and TBAs' reports and forwards to the Public Health Nurse (PHN), and checks and provides supplies and drugs to CHWs. She is supervised by the PHN and the PHN Supervision based in Belize City. (PHC policy manual includes DT/CHO & PT).

The PHN is a registered nurse/midwife with a post-graduate course in Public Health (usually from the Kingston Public Health School in Jamaica). She supervises all RHNs in the district, and collects and collates RHNs' reports and forwards them to the supervisor of PHNs (Belize City), her supervisor.

The supervision tasks actually performed by RHNs and PHNs, principally during CHWs' participation in clinic activities, involve observing and training CHWs in performing specific tasks, including:

- weighing children and marking a growth chart;
- health education methods;
- recording clients' charts;
- use and care of equipment;
- occasional home visits (if client is unable to attend clinic);
- sporadically interacting within groups, (e.g., a VHC meeting or a health education program); and
- completing monthly CHW reports and referrals.

The DT/CHO's and PT's supervision is done during clinic activities, home visits and at group meetings. CHWs also collaborate with the District Malaria Supervisor and Malaria Evaluator who collects malaria test slides and announces the dates spray team will come to village. They also coordinate with the Public Health Inspector, who visits villages chosen for Toledo Water Supply and Sanitation Project, and the Health Educator, who works with CHW in Health Education on water and sanitation.

The inadequate quantity and quality of supervision, particularly in the northern and central villages, is one of the major unsolved problems of the Toledo project; both deficiencies are rooted in the shortage of experienced nurses, particularly Belizean nationals. Infrequent and ineffective supervisory visits are the norm, according to first or second hand reports we received from nurses and CHWs. In more advanced PHC programs such as PCI/Gambia, nurse supervisors visit CHWs about once a week. In Toledo, although most travel to north and central villages requires less than one or two hours, nurses visit with CHWs every six weeks on mobile clinics and less frequently on most other visits, as follows:

Frequency of Supervisory Visits/Contacts*

<u>Activity</u>	<u>Frequency</u>
In-service review and reinforcement usually done at Health Center	3 - 4 months
Home visits in villages	3 - 4 months
VHC meeting in villages	3 - 4 months
Health Teaching in villages	3 - 4 months
Malaria clinics	6 - 8 weeks
Records, reports, referrals at Health Center or Project Office	Monthly at most

*Reported by Principal Trainer, March 1986

The nurses cannot visit a CHW more than a few times a year because they have curative work to do at their Health Centers and because few vehicles are available.

The quality of supervision during the nurses' visits is also limited, especially in the North. During mobile clinics, for example, several clients need attention, usually secondary care or referral. In northern villages however, the mobile clinics are crowded, as we observed in San Pedro, and nurses have limited time because of limited subsistence and over-time allowances.

In southern villages, on the other hand, distances are long but the RHN (Wingard) is in frequent radio and personal contact with CHWs, visiting them at least monthly on horseback. She utilizes CHWs to provide services in villages without CHWs. She often stays overnight in the villages and supervises home visits, VHC meetings, and health teaching activities in the evenings. Supervision quality is thus as much a matter of the nurse's experience and commitment as it is of transportation and allowances.

However, unreliable transportation is a problem everywhere. In northern villages vehicles are often unable to meet commitments for mobile clinics for various reasons (wet roads, mechanical problems, emergency evacuations, or lack of drivers), so there is no way to inform CHWs or villages of changes of plans. Sometimes the project attempts to contact northern villages through the Catholic school radio system as most principals of schools have radios in their homes. However, sometimes it takes three days to send a message to reschedule a clinic visit. In southern villages, by contrast, the RHN uses horses which are more reliable than vehicles. Moreover she can immediately contact three of her villages by radio. The British Defense Forces often help her in emergency helicopter lifts (a recent helicopter crew included Prince Andrew), and a British medical officer frequently assists the RHN in supervision by horseback.

Our conclusion is that despite effective supervision in the south (resulting from the efforts of an unusually skilled and committed expatriate nurse, plus radios), Toledo's basic supervisory system is fragile and inadequate. At present, CHWs are superficially supervised at work in the field only when the busy nurses go out on mobile clinics, rarely more than once every six weeks. The few successes in Toledo have come largely from the input of "outsiders" (a Peace Corps volunteer, a Mennonite missionary, and the American-trained Principal Trainer), not from a replicable working model. The present MOH system with the RHN being the supervisor of the CHWs is unrealistic and poor. If it is not improved, CHW programs will probably fail.

If the CHWs are well supervised, they seem to learn and thrive. In the northern part of Toledo, where the supervision has been inadequate at times, the outcome was evident: many CHWs resigned or were forced by villagers to resign. There are not enough RHNs to supervise the present CHW system adequately. When there was frequent turnover in the supervisory system, the CHW program suffered. Moreover, RHNs who are not motivated and trained to be supervisors will not function well. Better there was frequent turnover in the supervisory system, the CHW program suffered. Moreover, RHNs who are not motivated and port and, if not too costly, more radios are also needed.

G. CHW Financing

A monthly stipend of \$25 (US) per month to is now paid to CHWs in Toledo. The MOH has threatened to cancel this stipend and says it will not pay CHWs in other districts if the program expands. To us the stipend seems essential to retaining the CHWs; if it is withdrawn, many of the CHWs will likely resign. It also seems appropriate because the MOH provides far more costly and better health services to people in towns who have generally fewer health needs, and because the CHWs are giving much of their time. They not only serve their own villages but strengthen the MOH's health service system as a whole (e.g., EPI campaigns, mobile clinics, serving other villages without CHWs).

Although our impression from many conversations in Toledo is that the communities are almost unanimously unwilling to recompense the CHWs at this time, it might be possible to try out a Matching Grant system. The MOH would agree to repair or build the Community Health Post, pay the CHW monthly stipend, and provide seed money and initial drug supplies to begin a self-supporting revolving drug fund, provided the villages contribute a certain amount of funds (e.g., an equal amount of stipend) and voluntary labor (e.g., building a certain percentage of the target for latrines) each year. Although the project has done little or no work on community financing of CHWs, there appears to be little opposition by the NPHCC to the introduction of revolving drug funds, or to charging for drugs. The project can test a variety of community financing strategies; it cannot fail to improve on the current system, which seems to satisfy no one.

V. INSTITUTIONAL DEVELOPMENT

A goal of PCI (and AID) in the Toledo project is to develop PHC institutions like the VHC at the community level, the District Health Team at the district level, and the NPHCC at the national level, all to ensure that the PHC model developed in Toledo will be sustained there and later replicated in other districts of Belize. These health related organizations must have the membership, leadership, motivation, linkages, and financial support needed for PHC to be sustained and replicated, preferably with increasing use of local manpower and money and diminishing dependence on non-national staff and funds. In our view, institutional development at all three levels is only now beginning to occur in this project.

A. Community Level

The underdeveloped role of the community in PHC in Toledo has been discussed in relation to CHW selection and CHW financing. In general, community participation in CHW selection and support has been present in places but is not usually strong. VHCs have been established in all the CHW villages; some are effective, some are not. There has been improvement in the selection process of the CHWs by the VHCs, from the first to the second group of CHWs trained. VHC membership has been subject to frequent change, and the VHCs do not always choose the CHWs. Communities in general seem at present unwilling to support paying the CHWs in cash or in kind. The efficacy of the VHCs in supporting the CHW program is yet unproven.

B. District Level

Following years of difficulty between the former PCI Project Director and his MOH counterpart, the current PCI Director has done well in only a year to establish very good relations with MOH officials at the district and national levels. The Principal Trainer is being prepared as counterpart Director, possibly to replace the PCI Director in time. The former Director is also to be commended for getting the project off the ground and for creating a large, democratic, and enthusiastic DHT whose members represent all parts of the health system (all CHWs are members) and, as they are quick to express at their meetings, all shades of opinion on all issues. In addition to broadening DHT membership and institutionalizing its procedures, PCI has helped in many other ways to build the capabilities of district staff, refining job descriptions, defining the rules and procedures of communication, authority, and supervision at all levels, and acquiring the facilities, supplies and equipment required for administrative and supervisory support.

The District Hospital at Punta Gorda seems well integrated into the CHW program:

- hospital staff participate in CHW training;
- CHW referrals are handled well (although improvement in the referral system is needed);
- the Hospital is integrated into the CHW radio network; and
- the Hospital has cooperated well with laboratory back-up.

Unfortunately, because of the lack of funds and proper equipment and facilities, there is no surgery at the Hospital. This adversely affects the health program as a whole, limiting the capability of the system to care for emergency cases (who must be airlifted to Belize City Hospital). While MOH policy is largely beyond PCI's control, in the long-term PCI should lend support to developing a complete PHC support system, including at least some surgery in Punta Gorda. (This should be encouraged over such proposed MOH projects as the new national hospital in Belize City.)

C. National Level

The PCI/Belize project has correctly been concerned from the start about strengthening the support of the MOH, and specifically the role of the NPHCC, in improving PHC just by testing and developing a model in Toledo (and smaller pilot projects run by other PVOs in other districts), then by replicating the PCI approach by adapting it in other districts. In principle, the MOH has stated its support for CHW programs and its intention to expand some sort of CHW system to other districts. The National PHC Manual has been developed with full involvement and support by the NPHCC, and the NPHCC is functioning.

However, the effectiveness of NPHCC in reaching its objectives is still unclear. Linking health sector PVOs, for example, is an important role planned for the NPHCC but is not fully achieved. For example the French PVO in nearby Orange Walk District does not share information with PCI in Toledo. In part, the limitations of the NPHCC may have resulted from the fact that the MOH post of PHC Director was empty for a year prior to March 1986. But it is more significant, we believe, that the MOH has not given fuller support to PHC and rural areas in general.

Community Health Posts are not built, and RHN positions are not filled. Government policies favor hospitals and do not provide adequate incentives for RHNs to leave the towns. The MOH has not always kept its promises to the villages in the CHW program (i.e., materials for CHW health posts); this has made the villagers suspicious of the program. Moreover, although some national and district programs such as malaria have integrated the CHWs into their programs, others (such as water and sanitation) have not.

An example of the low priority given to PHC generally, and the Toledo PHC project in particular, is the MOH attempt to discontinue paying CHW stipends. While supporting hospitals in towns with millions of dollars, the MOH has considered phasing out the CHWs' monthly payment of \$25 (US), now totalling only \$7500 a year for all of Toledo (25 CHWs at \$25 US per month). Various pressures have apparently forced the MOH to continue the payments in Toledo, but it will not pay the stipends to future CHWs in other districts - an inequity likely to cause complaints later.

D. Replicability

PCI and AID/Belize are concerned about the issue of whether and when to replicate or expand the Toledo PHC system to other districts in Belize. Toledo was probably the most difficult district in Belize to start a CHW program because of its cultural and economic remoteness and the historical governmental neglect it has endured. Delivering PHC elsewhere in Belize should be easier because other districts:

- are not as remote in terms of transportation and communication;
- are not as isolated demographically or ethnically;
- have public health centers, district and rural, staffed by RHNs;
- have medical supplies and equipment delivered more frequently, therefore cutting short the supplies to Toledo; and
- have better health education supplies and equipment and more audiovisual equipment repair and maintenance shops.

On the other hand it is likely that some of the same problems which PCI has encountered in Toledo, particularly those related to supervision, financing, and community participation, will also be encountered - if not so severely - in other districts. We believe time and money will be wasted if PCI rushes expansion to other districts before solutions to some of Toledo's PHC problems are resolved, or at least better understood. However, this would not preclude doing feasibility studies in other districts where the environments for CHW development vary widely. Before any expansion is considered, PCI should carry out these studies to know what problems PHC expansion will face. Other PHC programs are under way in other districts, though on a smaller scale than in Toledo, and valuable lessons are being learned.

VI. SUMMARY OF RECOMMENDATIONS

A. Recommendations

1. Community Health Workers

- a. The CHW program in Toledo should be continued and improved before considering expansion to other districts of Belize.
- b. The CHWs should be selected more carefully, in accordance with the lessons learned in the program's first four years. Consideration should be made of the sex of the CHW; in some villages, it might be appropriate to have one male and one female.
- c. In accordance with the major health needs of the Toledo District (safe water, improved sanitation), there should be more integration of the CHWs into the water and sanitation programs and more practical training and experience for the CHWs in this field. More health education materials should be provided if the CHWs' preventive programs are to continue to take priority over curative care. These improvements are now more likely because a new UNICEF health educator is coordinating activities with CHWs; this did not occur in the past.
- d. The MOH stipend of \$25 (US) should be continued, and the MOH should be prepared to pay it in future programs in other districts. Other incentive systems should also be developed. CHWs should be reimbursed for their services. The MOH has said its priority is i. PHC. If the CHW is not reimbursed, the attrition rate for CHWs will rise, and the investment made in training of the CHW would be lost entirely. Some additions to direct cash stipends could be:
 - covering transportation and per diem costs for re-training and conferences/meetings;
 - providing alternative support (e.g., goods or vouchers, other free services);
 - have the CHWs sell drugs at a profit; realistically this would not provide a large or even adequate income, however, by itself; and
 - developing some incentive system for accomplishments in preventive work.
- e. Recruit more traditional "bush doctors" as CHWs, and involve other traditional healers and midwives in the program.

2. Supervision

- a. A major overhaul in the present system of supervision for the CHWs is needed for the system is to be effective.
- b. Personnel alternatives to improve the supervisory system include:
 - any RHN supervising must be well trained and well motivated properly to supervise effectively;
 - since one RHN at a Rural Health Center is usually swamped with work, assigning one or two RHNs or PHNs per Health Center would be appropriate in a system including CHWs;
 - have a professional level nurse, such as a PHN, assigned to each Health Center from which supervision of CHWs is to be done. This alternative would probably be most appropriate; and
 - have a CHW as well as a PHN or RHN assigned to each Health Center so as to allow the supervising nurse time to get out for supervision. This CHW should be reimbursed by the Health Center so as to allow the supervising nurse time by the MOH for work done at the Health Center.
- c. The supervising nurse should supervise the CHW more often than once every six weeks. They should have no more than five or six CHWs to supervise, and should be able to supervise them in the field at least once a month.
- d. There should be better incentives to retain supervisory personnel and minimize turnover.
- e. The system for recruiting CHW supervisors needs improvement (try advertising positions, community rotations at Health Centers for nurses in training, etc.).
- f. A manpower study needs to be done if a decision is made to expand the CHW program to other districts. This would help determine whether Belize has adequate nurses to supervise other CHW systems. The capacity to train and motivate rural nurses should also be evaluated, as the nursing school currently lacks the means to expand and few nursing graduates are willing to work in rural areas.

3. Community Participation

- a. Continuing efforts should be made to integrate the communities into the CHW program.

- b. The lessons learned to date in the Toledo project should be used in developing new VHCs and in strengthening existing ones; for example, communities should be more involved in selection of CHWs.
- c. If lessons have been learned from community development in other sectors, they should be applied in developing CHW programs; the DHT could encourage this.
- d. The project should increase its effort to get communities to give some compensation to CHWs. Community financing experiments could include testing a matching grant (e.g., communities receive half of the CHW subsidy from the MOH if they contribute the other half.) Meanwhile PCI should continue to encourage support for PHC at the national level.

4. Supply Systems

- a. A better system for medical evacuations of patients needs to be developed to make possible the CHWs' role in referrals of very sick patients for definitive emergency care. The radio system is one part this, and this part is functioning fairly well in Toledo now.
- b. The MOH drug supply system needs improvement or the CHW system will be crippled. The logistics should be heightened up for at least the few basic drugs needed by the CHWs. The system of supplying the CHWs through the Health Centers and the RHNs should be strengthened.
- c. PCI/Belize should study the cost-effectiveness and replicability of using radios. If financially feasible with outside funding, the radio network should be expanded. But every village needs its own radio; location of the radios will have to be carefully determined.
- d. Before expanding or replicating the CHW system the information system for the CHW system needs much revision. This should be coordinated with the MOH and other PVOs (particularly in districts where expansion requires collaboration with other PVOs.)
- e. The possibility of charging for drugs needs to be studied and tested, as recommended by PAHO in a recent study (see John Turnbull, Drug Management Study, PAHO, Belize City, forthcoming.) However, the CHWs in Toledo should not charge for drugs unless the whole MOH system charges also. The NPHCC considers that such a major policy change is feasible soon. However, this alternative should not be chosen as the sole alternative for compensating

the CHW. If the system is instituted for the CHWs, it should be instituted in a way that the CHW supervisors do not have to be overly occupied with accountability for collections for drugs. The PCI/Gambia and PCI/Guatemala, projects are examples of useful experiments in drug sales.

- f. Once the PHC supporting subsystems in Toledo have been strengthened, the financing study originally planned for the Matching Grant project should be done to test the feasibility of expanding the Toledo CHW system to other districts. This should include study of training/retraining costs, per diem, transportation for the CHWs, and the cost of adequate supervision - all of which may cost less in other districts (except perhaps Stann Creek) than they do in Toledo.

5. Institutional Development

- a. The MOH needs to give more support to the CHW program, including its supervision, if it really considers PHC health care a priority.
- b. The DHT needs to focus its activities better, should run tighter programs, and better schedule its meetings.
- c. The referrals from CHWs should be better documented to get a better idea of the efficacy of the CHW program.
- d. The water and sanitation program needs better integration into the CHW program.
- e. If the CHW program is expanded, its goals and efforts should be flexible to allow it to meet all needs in each village individually. This flexibility would require some policy changes, e.g., in what nurses are allowed to do, such as suturing or prescribing antibiotics. It would not be necessary to have a CHW in every one of Belize's about 360 villages, nor would it be feasible given the present supervisory capability, with only 28 health centers. The villages would have to be selected to have the greatest impact. This could be done in a feasibility study.
- f. Every effort should be made to share the experiences of the various PVOs in Belize involved in CHW programs.
- g. With their limited resources, both PCI and AID should examine the appropriateness of investing child survival funds in a country whose reported IMR is 23.5, or probably no more than 30 if underreporting is taken into account. There is still much morbidity in some rural areas in the

maternal and child groups; however, child survival funds should be targeted in Belize to the areas where the mortality and morbidity are highest. Before any expansion of the CHW program is done, a study should be undertaken to determine the high-risk areas of the country where CHW programs would have the most impact.

- h. Further baseline studies should be encouraged so that health problems can be identified and impact of health interventions measured.
- i. PCI should be continued as coordinator of the CHW program in Toledo District, and be involved in any expansion to other districts. An attempt should be made to involve Belizean counterparts as much as possible, and the CHW program should be turned over to Belizean management as soon as practicable. PCI could continue in an advisory role.
- j. Begin feasibility studies for expansion of CHW program to other districts, without actual expansion until problems with supervision, financing, community participation, and infrastructure are closer to being solved in Toledo.

B. Lesson Learned

Money, time, and perseverance - from the village to the national level - are inevitably needed to establish PHC. Belize is one of the healthiest, smallest, most homogeneous, and most politically stable nations in this hemisphere, and PCI is one of the most experienced and specialized health sector PVOs supported by AID. Yet the PCI/Belize project demonstrates again the inevitable cultural, economic, and political barriers which slow the development of new PHC programs.

Careful, step-by-step development of each PHC subsystem-- including community involvement, CHW training, nurse supervision, drug supply, financing, information flow, and coordination among private and public organizations--requires patient effort by field staff, specialized technical assistance involving back-up from the PVO home office, and long-term financial support from PVO donors and AID. Any PHC project that can make these subsystems work within five to ten years, even in a peaceful developing country like Belize, is doing well.

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APPENDIX 1

ABOUT THIS EVALUATION

The report is part of a series of evaluations sponsored by AID/FVA of primary health care projects managed by PVOs and supported in part by Matching Grants from AID. The purpose of the evaluation series, administered by Management Sciences for Health (MSH) For AID, is to provide information that will lead to improvements in the impact of PVO health and nutrition activities and document PVO capabilities and experience.

The purpose of the evaluation in Belize is to build on the findings of the joint PAHO/GOB/PCI evaluation of the project undertaken in November 1984 and probe such subjects as the quality of health worker training and supervision, the role of the NPHCC, project costs, and progress toward achieving project objectives, all with a view towards identifying lessons learned which may be applicable in designing a national PHC program.

The evaluation team include Robert LeBow, MD, MPH, an international PHC design specialist, and Nick Danforth, EdM, MIA, a specialist in PHC evaluation and the manager of the PVO Evaluation Project at MSH. They were assisted by Rene Salgado, MD, MPH, the Project Director for Project Concern in Mexico who represented PCI headquarters in San Diego, and Mary Ellen (Mellen) Duffy Tanamly, General Development Officer at USAID/Belize. During their eleven day visit in March 1986 the team met MOH officials in Belize City and Belmopan, Punta Gorda Hospital officials and numerous CHWs and nurse supervisors at several health posts. Other CHWs were interviewed by radio (see list of contacts in Appendix 2.)

APPENDIX 2

LIST OF CONTACTS

MSH EVALUATION OF PCI/BELIZE PROGRAM

MARCH 3

Meeting with USAID/Belize. Met with:

Neboysha R. Brashich - AID Representative
Sam Dowding - Health Project Manager
Mellen Tanamly - General Development Officer.

Meetings with Ministry of Health in Belmopan, Belize. Met with:

Douglas Fairweather - Permanent Secretary for Ministry
of Health, Labor and Sports.
Dr. Errol Vanzie - Director of Health Services.

MARCH 4

Meeting with some of the MOHs departmental heads. Met with:

Ms. Goff - Principal Nursing Officer.
Matron Courtenay - Matron of Belize City Hospital
Nurse Collymore - Supervisor, Public Health Nurses
Doctor Hoy - Medical Officer of Health.

Flew to Punta Gorda.

MARCH 5

Visited the following villages: Laguna, San Marcus, San Antonio, Santa Cruz, Santa Elena and Pueblo Viejo. Arrangements were made in those villages to meet with their CHW and tomorrow and hopefully also with their respective Village Health Committees.

Met with District Medical Staff at Punta Gorda District Hospital: Dr. B. Raju, District Medical Officer; Shirley Mahung, Sister-in-Charge; Tommy Johnson, lab and X-ray Technicians; Tressa Smith, Public Health Nurse; Anita August, Dispenser; Theresa La Masney, Health Educator (Peace Corps).

MARCH 6

Drove up to San Antonio and briefly met with:

Ms. Katherine Price - Principal Trainer
Ms. Emelia Chun - Community Organizer, PHN
Ms. Marge Gish - RHN, San Antonio (Peace Corps).

APPENDIX 2 (Continued)

Met with Wilfredo Cos, CHW, and the Village Health Committee of Santa Cruz. Meeting was then held in Santa Elena with Filberta Choc and in Pueblo Viejo with Faustino Tush and Bernardo Coc, CHWs. Met and talked with Emelia Chun, PHN at San Antonio.

MARCH 7

Met with Heraldo Coc, CHW, San Antonio. Met with Bernaldina Chen, CHW, and Marcello Cho, CHW at the San Pedro Columbia Health Center. Observed Prenatal Mobile Clinic.

Met with the Village Health Committee of San Jose along with the two CHW's, Justino Peck and Isodro Peck, and with Ann Fink, a medical anthropologist from Oxford living in San Jose and studying MCH in the village.

MARCH 8

Met the VHC and CHW from San Marcos, Juan Iko.

MARCH 9

Nine hour boat ride (roundtrip) to Crique Sarco - met with the Rural Health Nurse Dorothy Wingart and the CHW for Crique Sarco, Lucas Chab. Spoke by radio with two CHWs in Otoxha, Mariano Ical and Manuel Ach.

MARCH 10

In Punta Gorda, drafted parts of report.

MARCH 11

Flew to Belize City. Debriefing with Dr. E. Vanzie, and Dr. Sosa, PHC Director (his first day at his post), and at AID with Neb Brashich, Sam Dowding, and Mellen Tanamly. Met with Governor General in evening at reception.

MARCH 12

Met Dr. Reneau, Director of MCH; Fred Smith, Chief Health Inspector, and John Turnbull, MSH Consultant to AID and PAHO in Drug Management. Dr. LeBow returned to USA.

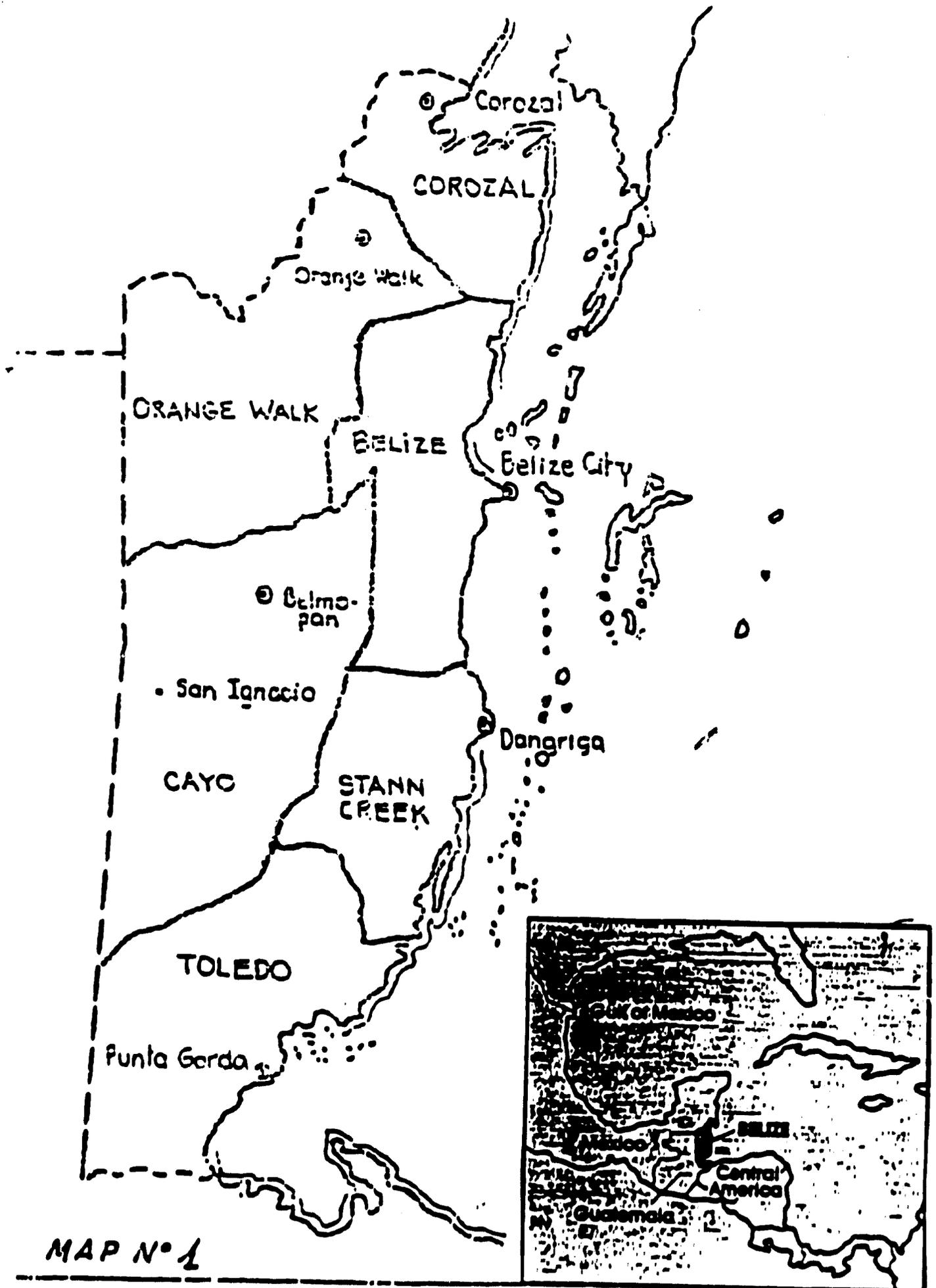
MARCH 13

APPENDIX 3

SELECTED REFERENCES

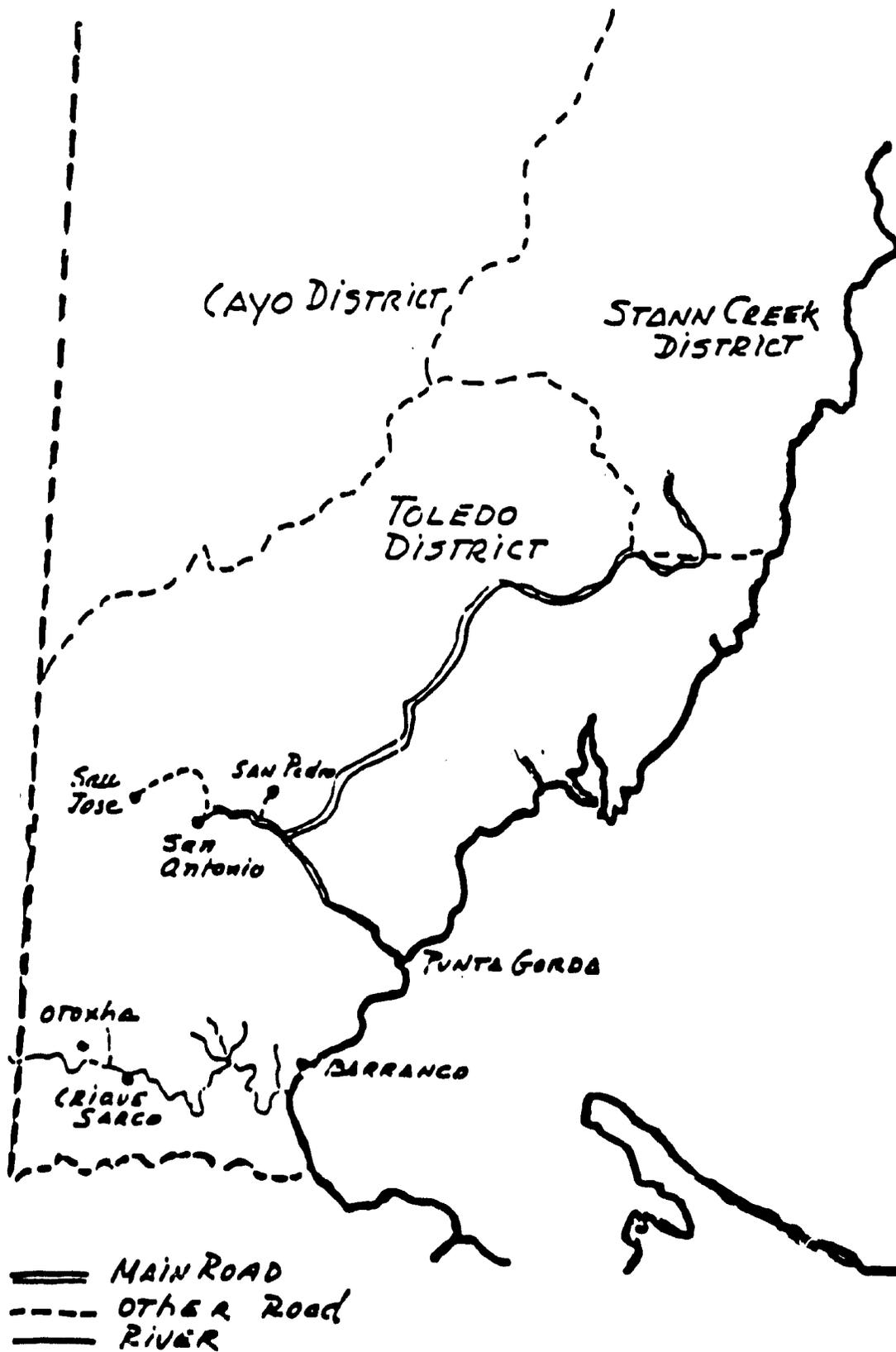
- GOB, Govt. Info. Service, Priority Health Needs/Belize, Belize City Nov. 1985
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- GOB/MOH, Priority Health Needs: The Strengthening of Health Services: Extending and Strengthening PHC, monograph, undated
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DISTRICTS OF BELIZE C.A.

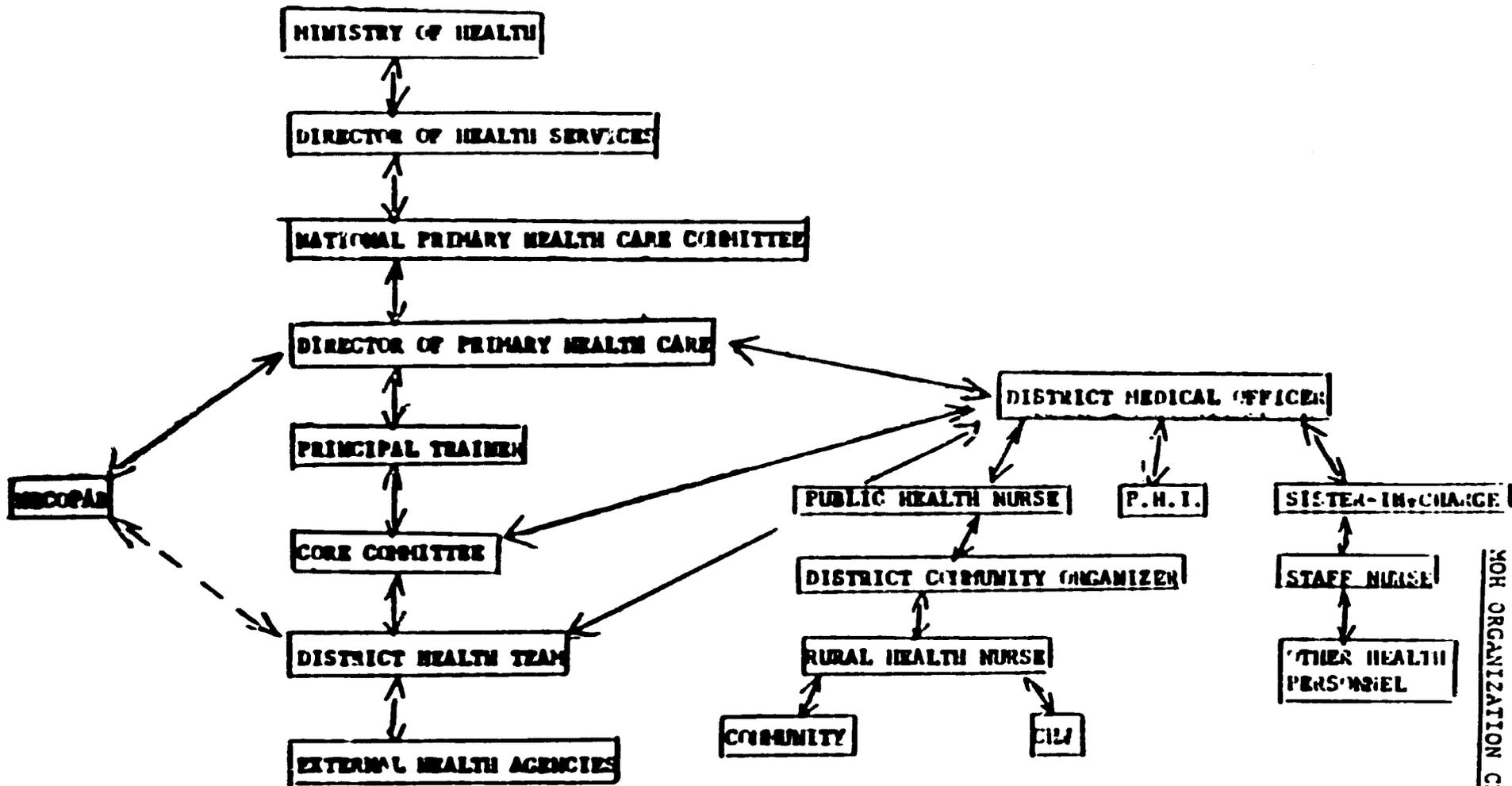


MAP N° 1

BELIZE TOLEDO DISTRICT



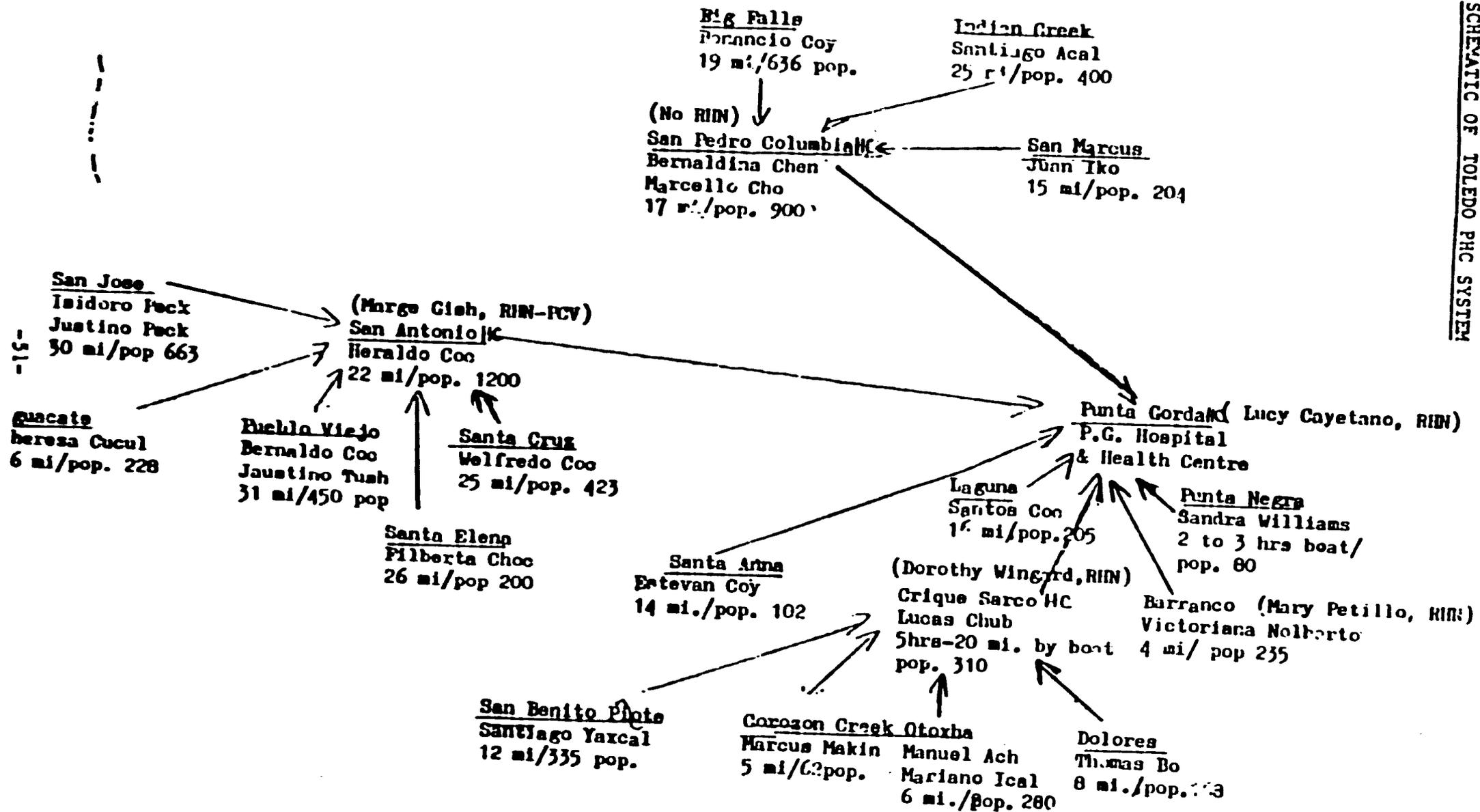
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MOH ORGANIZATION CHART

Schematic: Toledo Primary Health Care Supervision and Referral System, March, 1986
 (Showing: Name and Population of Village, Distance in miles to Punta Gorda, names of Community Health Workers and Rural Health Nurses.)

SCHEMATIC OF TOLEDO PHC SYSTEM



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APPENDIX 8

LIST OF CHWs, 1986

Trainees for Community Health Worker Programme, 5th Jan. - 10th Nov. 1986

Big Falls:	Benancio Coy
Dolores:	Thomas So
Indian Creek:	Santiago Anal'
Jalacte:	Augustine Isal
Pueblo Viejo:	Bernardo Coc † Faustino Tush †
Punta Negra:	Sandra Williams
San Antonio:	Heraldo Coc †
San Jose	Isidoro Peck † Usno Peck †
San Marcus:	Juan Iko †
San Pedro Columbia:	Bernaldina Chen † Marcello Cho †
Santa Anna:	Estevan Coy
Santa Cruz:	Wilfrido Coc †

Community Health Workers presently functioning as of 1st January, 1986

Aguacate:	Theresa Cucul
Barranco:	Victoriana Noiberto
Corozon Creek:	Marcus Makin
Crique Sarco:	Lucas Chub
Laguna:	Santos Coc
Otozha:	Manuel Ack Mariano Lazi
San Benito Poite:	Santiago Yarcac
Santa Elena:	Filberta Choc

Community Health Workers who resigned prior to 1st January, 1986

Dolores:	Marcus Ichia
Pueblo Viejo:	Fermin Choc
San Jose:	Laura Chu
San Pedro:	Myrna Mendez Romero
Santa Cruz:	Cirilo Teul

APPENDIX 9

LIST OF PHC PROJECT STAFF. TOLEDO DISTRICT, 1986

Public Health Nurses:

- | | | |
|-----------------|----------|---------------------------|
| 1. Erelia Chun | based at | San Antonio Health Centre |
| 2. Tressa Smith | " " | Punta Gorda Health Centre |

Rural Health Nurses:

- | | | |
|---|----------|----------------------------|
| 1. Lucy Cayetano
(away in USAID Fellowship Feb. - Aug. 1986) | based at | Punta Gorda Health Centre |
| 2. Marge Gish
(PCV leaves June, 1986) | based at | San Antonio Health Centre |
| 3. Mary Petillo
(retired and rehired) | based at | Barranco Health Centre |
| 4. Dorothy Wingard | based at | Crique Sarco Health Centre |

Community Health Workers:

- | | | |
|------------------------|------------------|--------------------------------------|
| 1. Victoriana Noiberto | Barranco | Supervised by Barranco Health Centre |
| 2. Thomas Bo | Dolores | Supervised by Crique Sarco H.C. |
| 3. Marcus Makin | Corona Creek | " " " " " |
| 4. Lucas Chub | Crique Sarco. | " " " " " |
| 5. Augustine Ical | Jalacte | " " " " " |
| 6. Manuel Ach | Otoxa | " " " " " |
| 7. Mariano Ical | Otoxa | " " " " " |
| 8. Santiago Yancal | San Benito Pioce | " " " " " |
| 9. Santos Coc | Laguna | " " Punta Gorda " " |
| 10. Sandra Williams | Punta Negra | " " " " " |
| 11. Estevan Coy | Santa Anna | " " " " " |
| 12. Theresa Cucul | Aguncate | " " San Antonio " " |
| 13. Bernaldo Coc | Pueblo Viejo | " " " " " |
| 14. Justino Tush | Pueblo Viejo | " " " " " |
| 15. Heraldio Coc | San Antonio | " " " " " |
| 16. Isidoro Peck | San Jose | " " " " " |
| 17. Justino Peck | San Jose | " " " " " |
| 18. Welfredo Coc | Santa Cruz | " " " " " |
| 19. Filberta Choc | Santa Elena | " " " " " |

Should be supervised by San Pedro Columbia Health Centre which has no Rural Health Nurse (presently supervision is shared by San Antonio and Punta Gorda Health Centre)

- | | |
|---------------------|--------------------|
| 20. Benancio Coy | Big Falls |
| 21. Santiago Acal | Indian Creek |
| 22. Juan Iko | San Marcus |
| 23. Bernaldina Chen | San Pedro Columbia |
| 24. Marcello Cho | San Pedro Columbia |

APPENDIX 10

REASONS FOR VISITS TO CHWS, 1982-84
(as reported on daily activity sheets)(1)

TOTAL NUMBER OF REASONS(2) = 8150

"Fever"	29.2%
Headache	13.7%
Injury	10.5%
Skin Problem	9.2%
Diarrhea	8.1%
Cough/Resp. Illness	5.2%
"Belly Pain"	4.1%
Anemia	3.0%
Joint/Back Pain	2.9%
Nutrition	0.9%
Child Health	0.4%
Pre Natal	0.4%
Post Natal	0.7%
"Other"	11.7%

- 1 - From "Toledo District's Primary Health Care Project/Program: 1982-1984: The First Two Years", PCI Report, Punta Gorda, 1985
- 2 - One encounter may generate more than one "reason for visiting."

APPENDIX 11

REASONS FOR VISITS TO CHWs, 1986

(In a Sample of six villages in Toledo District 1, 2)

TOTAL NUMBER OF Patient Encounters (3): 222

REASON	NUMBER	% OF REASON/ENCOUNTER
Fever	69	31.1%
Skin Problems	48	21.6%
Headache	24	10.8%
Cough/Respiratory	24	10.8%
Eye Problems	24	10.8%
Diarrhea	22	10.0%
Trauma	14	6.3%
Child Health/Post and Pre Natal	3	1.4%
Malaria Smear Done	10	4.5%

- 1 - Reporting is for January 1986 only for Aguacate, Corazon Creek, Otoxha, San Benito, Poite and Santa Elena. Laguna figures include January and February, 1986.
- 2 - Two health workers reported giving daily injections to tuberculosis patients; these numbers are not included either in their reports or below.
- 3 - One encounter may generate more than one "reason".

APPENDIX 12
REPORTED ACTIVITIES OF
COMMUNITY HEALTH WORKERS IN TOLEDO DISTRICT 6
1985

<u>Village</u>	<u>Population</u>	<u>Reported Deaths</u>	<u>Home Visits</u>	<u>Health Education</u>	<u>Community Action</u>	<u>Curative Patient Visits</u>	<u>Referrals</u>
Aguacate	228	1	86	19	9	308	0
Barranco	235	1	85	21	22	347	0
Corozon Creek	62	1	140	46	50	3152	0
Crique Sarco	310	2	24	16	12	2303	0
Laguna	250	1	21	14	10	367	0
Ocoxa	240	3	93	42	22	459	6
Pueblo Viejo	450	3	160	56	47	292	0
San Benito Poite	335	0	14	46	5	455	0
San Pedro Columbia	903	1	43	9	9	2374	0
Santa Cruz ⁵	423	8	80	11	2	2275	0
Santa Elena ⁵	200	0	268	261	5	4145	0
Totals	3634	21	1014	541	193	3651	6

- 1 - Figure inflated by the presence of two insulin-dependent diabetics getting daily insulin injections.
- 2 - In November 1985, 26 of 33 encounters were injections for tuberculosis. December 1985 showed 31 of 40 visits for the same.
- 3 - Includes 77 reported encounters for August 1985 alone; the rural health nurse was gone that month.
- 4 - For 11 months only, injections for tuberculosis account for many of the encounters.
- 5 - Data for 10 months only.
- 6 - Data from San Jose (pop 663) and Dolores (pop. 202) were not available for 1985.

APPENDIX 13

MAJOR CONCLUSIONS OF EVALUATIONS, 1984-85

A. CHW ISSUES

<u>GOB/PAHO, 1984</u>	<u>AID/KUNKLE, 1985</u>
<p>1. <u>CHW Selection/VHC Role</u></p>	<p>-no information is available to document role of VHC in general or in selecting CHW</p>
<p>-good in South where RHN encourages village participation; poor in North.</p> <p>-some CHWs too young to be accepted by villagers.</p>	<p>-traditional healers not adequately involved in project.</p>
<p><u>Recommend:</u></p>	
<p>-new criteria and RHN involvement to improve community support</p>	
<p>2. <u>CHW Training</u></p>	<p>-lack of MOH policies, guidance</p>
<p>-cost \$1015 per CHW</p> <p>-need to train in suturing and antibiotics, at least in certain areas or circumstances</p>	<p>-unrealistic planning by PCI</p>
<p><u>Recommend:</u></p>	<p>-why only 6 months of training during first 36 months of project?</p>
<p>-national (not expat) trainer</p>	<p>-curriculum too advanced? too slow? too curative?</p>
<p>-training generally inadequate, esp. for supervisors</p>	<p>-why 7.5 month gap before refresher training?</p>
<p><u>Recommend:</u></p>	<p>-need for PHC Manual (done)</p>
<p>-continuing education for all DHT</p>	<p>-need to hire S. Price as Principal Trainer (and Counterpart Director)</p>
<p>3. <u>CHW Function</u></p>	
<p>-aver. 10-15 patients/day</p>	
<p>-Limited home</p>	

APPENDIX 13 (Continued)

GOB/PAHO, 1984

AID/KUNKLE, 1985

3. CHW Function (Cont.)

-excessive turnover of
RHNS and PHNS, thus weak
supervision.

Recommend:

-improved health education
materials and in-service
training

-Health education sessions
for VHCs

4. Supervision,
Communication, Referral

-lack of clear supervision
indicators to measure
quality.

Recommend:

-supervisory training
needed

-radio system and
emergency evacuation de-
veloped and working.

B. MANAGEMENT ISSUES

1. Planning

2. Staffing

3. Information

-no plan or organization
exists for improving role
and support of Nurses as
Supervisors

-No easy solution to pro-
blem of Nurse shortage,
absenteeism, turnover.

-no baseline or monitor-
ing to measure health
impact even though target
pop. very small

-poor monitoring of clinic
visits, community health,
activities, etc.

APPENDIX 13 (Continued)

GOB/PAHO, 1984	AID/KUNKLE, 1985
B. <u>MANAGEMENT ISSUES</u> (Cont.)	
4. Budgeting	-discrepancy between operating budget and
5. Institutional Development	-weak relations between first Proj. Director (Domizio) and GOB counterpart
6.. Supplies	-drugs and educational supply inadequate

