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A Health Plan for the
Banana Control Board/Belize

September 5 - 11, 1987

**Resources for
Child Health
Project**

REACH



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A HEALTH PLAN FOR THE BANANA CONTROL BOARD, BELIZE

South Stann Creek, Belize
September 5-11, 1987

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LIST OF ACRONYMS

BCB	Banana Control Board
BGA	Banana Growers Association
HCF	Health Care Financing
LAC	Latin America - Caribbean
PVO	Private Voluntary Organization
USAID	United States Agency for International Development

I. EXECUTIVE SUMMARY

From October 5 through 11, 1987, a team of two REACH Project consultants, Dr. Susan Ueber Raymond and Mr. Art Ouellette, visited the South Stann Creek area of Belize which constitutes the prime area of operations of the Banana Control Board (BCB) and the Banana Growers Association (BGA). The scope of the teams efforts was to assess the level and nature of demand for health services within the banana growing area, the costs of providing a range of services to this previously underserved population, and the financing and provision options available to the banana growers in meeting the defined need.

The following report details the team's findings. Sufficient data were accessed to develop not only the action recommendations required by the Scope of Work, but also the initial pro-forma and sensitivity analysis for a business plan targeted at the development and extension of privately financed health care services for the entire South Stann Creek area.

South Stann Creek is in the process of extensive economic growth and development. Banana operations themselves are growing at a rapid pace. In the next five years, acreage will increase by 250%, and the total population associated with the banana farms will more than double from 6,155 in 1987 to over 15,000 in 1991.

Other private industries in the area - agriculture, citrus, shrimp farms, fishing, etc. - are also experiencing similar growth. Virtually the only brake on this growth is the shortage of labor. Alien labor from

Guatemala and Honduras form a growing portion of the local workforce, introducing a variety of problems including increases in some communicable diseases.

In the past, the populations of South Stann Creek has had no meaningful access to health care services. Existing government facilities are distant and reachable only by dirt roads and at considerable expense. The newly privatized banana growers, therefore, have determined that locally provided services will be increasingly needed and have undertaken that task to ensure that provision.

The demand data indicate that by 1991, assuming the growers health services are used only by those associated with banana operations and isolated villages, a clinic operation would be servicing 18,000 persons. The bulk of the growth in demand will occur between 1989 and 1990. It is apparent that the clinic operations will be confronted with very high demand in a very short period of time. Outpatient services, currently operating with a sole physician, will be overtaxed within the first year. The demand data show that an expansion of existing staff with the addition of a nurse should be planned early on, with a commitment to undertake a major facility and staff expansion over the next two years.

Detailed examination of capital and recurrent costs of the health operation were conducted, as well as revenue projections based on current grower agreements with the existing physician regarding fee levels and guarantees. A sensitivity analysis was run on the resultant modified P&L statement. It is evident that the clinic operation will be highly revenue

sensitive. Failure to meet strict collection standards (80% - 100%) will result in a seriously compromised financial picture. Therefore, the report contains a series of detailed suggestions for revenue maximization.

On the expense side the clinic, as currently envisioned, (especially if it continues to be limited to banana growing operations) has only a limited ability to reduce overall operating costs. Alternatively, the rapid growth in the Stann Creek area will result in an opportunity, possibly at the end of 1988 and certainly by 1989, to develop an area-wide, multi-employer, pre-paid health system building on the current private system. Such a system will both increase and stabilize the revenues, and thus remove one of the financial problems of the health service as planned. Moreover, by establishing a pre-paid basis for finance, it would also serve as an incentive for cost control, further improving the financial viability and affordability of the operation.

The financing option discussed in the report address both capital needs for start-up of operations and the recurrent cost financing needs as the demand for services mushrooms. With collections and management discipline, recurrent costs can be met within the area. Capital costs, on the other hand, will require an outside infusion of finance albeit an infusion which, even in the most aggressive of planning scenarios, is not overwhelming given the current unserved population to be covered. Various strategies, public and private, for meeting these capital needs are discussed.

Four possible future roles for USAID are then identified. All but one (which addresses MCH equipment needs) involve continued provision of technical assistance for financial information systems and planning. Such

assistance is essential over the first two years of operation if the health services are to be costed and managed in such a way as to achieve self-sufficiency by 1991.

To reiterate, the provision of health services to the population of the South Stann Creek area by a private self-sustaining scheme, which serves both workers and poor villagers, appears to be technically and financially feasible. That feasibility, however, is contingent on the acquisition of outside capital and disciplined and sophisticated approaches to recurrent cost tracking and revenue maximization. The South Stann Creek area of Belize is in the process of economic growth which can be harnessed to expand health care to become a model of private health service provision for both primary care and worker health.

II. PURPOSE OF VISIT

A. Scope of Work

From October 5 through 11, 1987, a team of two Project REACH consultants, Dr. Susan Ueber Raymond and Mr. Art Ouelette, visited Belize at the request of the USAID Mission in Belize City. The team was asked to evaluate health services demand in the South Stann Creek area of Dangriga District which constitutes the prime area of operations of the Banana Control Board (BCB) and the Banana Growers Association (BGA). The team was also requested to estimate the size and nature of health services required in the area, current availability of such services, as well as the recent response of the BCB and BGA to providing health services to the population. Finally, the team was asked to develop a series of recommendations for the BCB and BGA regarding methods for further developing and financing health services in the banana growing area.

As noted in the "Methodology" section below, the team carried out extensive discussions with the banana growers, their plantation supervisors, BCB staff, and local medical authorities. Sufficient data and information was obtained to develop not only the action recommendations required by the Scope of Work, but also the initial pro forma and sensitivity analysis for a business plan targeted at the development and extension of privately-financed health care services for the entirety of the South Stann Creek area.

B. Genesis of the Work

The October 1987 visit to the banana growing region resulted from a April 1986 mission by Jerry Norris under the auspices of the AID HCF/LAC project. During this earlier visit, the health care needs and interests of the banana growers and workers were identified as an opportunity for the development of privately financed sources of health care in the area. In his trip report, Mr. Norris recommended that technical assistance be provided to the banana growers to assess their options for extending health care to their employees and surrounding villages.

Built upon other recommendations from this early visit, AID's HCF/LAC project then conducted a major evaluation of the costs of health services in the public inpatient facilities of the Ministry of Health. That study resulted in specific unit cost data which would facilitate an evaluation of the health care costs and options faced by the banana growers.

Based on these two efforts, a scope of work for assistance to the growers was developed in February of 1987. Subsequent discussions and alterations led to the October 1987 technical assistance visit.

As will be detailed later in this report, however, the growers did not remain inactive during this period of discussion and development. Based on the May 1986 visit, they undertook a series of independent efforts which resulted in the start-up of on-site plantation medical services in September of 1987. Thus, although the initial purpose of the AID technical

assistance was to help the growers plan for initiation of health services, in fact this report is intended to assist the growers in planning for the expansion of services which they themselves had already initiated.

III. BACKGROUND

A. Belize

Belize (see Map 2 page 54) is a country with a population in excess of 165,000, 52% of which resides in urban areas. Indeed, Belize City itself contains over a third of the national population. The country has the lowest population density in Central America and one of the lowest in the world (6 persons per km²).

Belize represents one of the most open economies in the region, with minimal government restrictions and ownership of economic production mostly in private hands. Both local and foreign private investment dominate the economy. Public sector activities represent only about 30% of GDP.

Access to credit, particularly small business credit and/or long-term credit, remains a problem, as does the economy's continued dependence on international commodities markets for its citrus and sugar exports. On the other hand, national government finances have traditionally been well-managed. Belize has the lowest debt service ratio in the region -- less than 5% of domestic exports.

Health status in Belize is also at the top of the regional scale. Life expectancy now averages over 66 years, up from 59 in 1970. Statistical corrections for infant and child mortality result in an average life expectancy in excess of 70 years.

The infant mortality rate (22.7) has been halved since 1976. The crude death rate is down to 5.0 per 1000 population. Immunization coverage has doubled since 1979. Now, 81% of infants receive BCG vaccinations; 59% of children have had DPT; 61% receive OPV; and 43% have been immunized against measles, a ten-fold increase since 1979.

B. South Stann Creek Area

1) Location

Map 2 depicts the physical location of the South Stann Creek area. It is located in Stann Creek District, about 40 minutes by air south of Belize City. The area extends from Monkey River in the south to South Stann Creek in the north. It is bounded on the east by the Caribbean Sea, and in the west the area extends into the sparsely populated Maya Mountains. The area covers approximately 400 square miles.

There is only one main road in the region, the Southern Highway which runs from Punta Gorda in the Toledo District generally northward to Dangriga and then on to Belmopan, the capital of Belize. (see Map 3) In Stann Creek District, this "highway" is an unpaved dirt road some areas of which are deteriorated and difficult to access. As will also be noted from Map 3, the Southern Highway loops westward away from the coast just at the South Stann Creek area, and thus is itself quite a distance from much of the coastal populations and plantations in this area. These transport and geographic attributes of the area will become important in understanding the need for the banana growers to develop local health services.

2) The Economy

The South Stann Creek area is dominated by agriculture and fisheries. In addition to extensive banana growing operations, farming includes citrus orchards, mango farms, some recent experimentation with vegetable agriculture, shrimp farms, and fishing cooperatives.

With the exception of a few isolated Mayan villages, employment rates are high in the area. Indeed, banana and citrus growers must increasingly rely on labor imported from Guatemala and Honduras to work the expanding farms.

3) Demographics

Detailed recent census data on the South Stann Creek area is not available from government sources. Total population figures developed by the team were based on two sources. First, numbers of workers and dependency ratios were determined by interviews with individual growers. Second, the isolated village population proximate to but not employed by the banana operations was estimated using data from the recent USAID house-by-house malaria survey.

Since the technical assistance effort was focused on forwardplanning for the growers, these baseline data were projected for five years, using grower estimates of farm expansion and national averages for rates of natural increase.

Table 1 below contains a summary of data for the population catchment area proximate to or employed by the banana growing operations. A complete breakdown of these data by population group is contained in the annexes to this report.

Table 1

Summary Population Data

	1987	1988	1989	1990	1991	1992
Workers	1240	1300	1840	2100	2450	2850
Families*	4915	5352	7301	9286	10816	12392
Villages	2612	2662	2713	2765	1818	2872
Total	8767	9314	11854	14151	16084	18114

* not employed in banana operations

4) Health Status and Services

Health status in the Stann Creek District is considerably lower than in Belize overall. This is especially true among children. For example, it is reported that infant mortality associated with diarrhea and dehydration is markedly higher than elsewhere in the country.

Three other exceptional conditions are also notable. First, there is a considerably higher prevalence of malaria in the district, due in part to the importation of malaria by workers from Honduras and Guatemala. Second,

the rate of serious injury to the extremities of the body is higher in the South Stann Creek area due to the high rate of machete wounds incurred during the clearing of the banana fields. Third, the banana workers population has a history of emergency problems related to poisoning incurred from the handling of the chemical inputs to banana production, especially pesticides. While an intensive education program by the growers has reduced the number of these cases, the problem periodically recurs.

Stann Creek District has one hospital, a 47-bed district-level facility run by the Ministry of Health. It is located in the town of Dangriga and in 1985 had the lowest occupancy rate (17.8) of all District hospitals. This is due in large part to the lack of physical access between the western and southern parts of the District and Dangriga which is located in the north. It is also explained by the lack of staff and supplies at the hospital, which often leads patients to bypass this facility and travel on to the newer facility in Belmopan. Finally, the low occupancy is partially due to the presence of alien workers in the district who do not use official public health facilities for fear of being reported to police authorities.

There is one public health center in the area of South Stann Creek, located in Independence (adjacent to the police station) and staffed by an elderly public health nurse whose own physical disabilities prevent her from providing anything but limited care during a brief morning schedule. In addition, Health Talents International, a U.S. religious PVO, is training 23 Community Health Workers from local villages to carry out preventive programs and provide basic first aid at the village level. These workers are scheduled to graduate from the program in January 1988.

Dangriga also contains one private physician who operates a sole practice in general medicine. There are no pharmacies in the South Stann Creek area. Dangriga is the nearest point for purchasing prescription drugs.

As regards emergency care, the Dangriga Hospital is virtually inaccessible to the general South Stann Creek population. The hospital is two hours by dirt road from the center of banana operations at Independence. Prior to September 1987, banana plantation employees with serious injuries were transported to Dangriga in grower vehicles. Serious injuries transported to Dangriga result in as much as four lost work days per injury, since the injured worker is often accompanied by at least one other employee. (Emergencies needing air evacuation are rare, but are arranged by growers via the BCB's own plane or via Maya Airways to the Belize City Hospital.)

Even minor illness or injury cases require that at least two days be set aside if care is to be sought at the Dangriga hospital. A private bus service operates along the Southern Highway (which, it will be recalled, is itself a distance from many villages and banana operations). The round-trip fare is \$10 Belize. The scheduled bus, however, arrives at Dangriga after outpatient clinic hours. Thus, a worker (or any other member of the general population) arriving by bus at Dangriga in the early afternoon must find and pay for overnight accommodations (as well as the \$10 bus fare) in order to be seen at the clinic the next morning.

As can be seen, accessibility of available services, whether emergency or outpatient, is problematic in the South Stann Creek area. Prior to September 1987, however, there were no alternative physician services available.

C. Banana Control Board and Banana Growers Association

1) History and Operations

Prior to 1984, the government dominated banana growing operations in Belize. During this period of government ownership, the banana industry regularly lost money due to low production rates, lack of government investment, lack of reliable purchaser contracts, and mismanagement.

In 1984, the government decided to privatize the banana operations. Existing and future acreage was sold to individual private operators, who then organized themselves into the Banana Growers Association for purposes of planning and coordination.

The government's participation in banana operations is limited to the responsibilities of the Banana Control Board (BCB), a government parastatal located at Big Creek. The BCB reports to the Ministry of Agriculture and acts as an intermediary between the individual growers and purchasers in negotiating prices, terms, and quality bonuses for the growers. The BCB also acts as a procurement agent for the growers so that chemical inputs can be bought in greater quantities at lower prices.

It should be noted that, although a quasi-governmental agency, the BCB operates as a private company. It is not supported by central government budget revenues. Rather, the growers are assessed a fee per box of bananas sold, with the fee being allocated (1) to support BCB administrative costs and (2) to retire the government's debt incurred during the period of public ownership of the plantations.

Currently, the major banana purchaser is Ffyfe's, which has an agreement with the BCB guaranteeing purchase up to 5 million boxes of bananas annually through 1997 at a minimum price of \$12.50 (Belize) per box and with possibility of upward expansion of quantity and price. Currently, nearly all Fyfe markets are in Britain and Europe.

Members of the Banana Control Board are the Banana Growers Association (2), private industry (2), the Ministry of Agriculture, the Ministry of Finance, and the Development Finance Corporation. The BCB itself employes about 15 staff. It also operates the Big Creek shipping port, which is in the process of being bought out by the growers.

2) Size and Growth

Privatization has turned the ink on the bottom line of banana operations from a deep red to a healthy shade of black. Although still burdened with considerable debt from the period of government ownership, banana farms are now showing a profit.

Currently, 3550 acres are under cultivation, owned by 13 farms. Seven of the 13 are in production. Taking into account only currently planned investment and a single World Bank project along the Monkey River, by 1991 the BCB projects expansion to 8600 acres and 16 fully producing farms. BCB officials believe that the upward limit on market potential is 10,000 acres producing about 8 million boxes of bananas per year.

If even the conservative estimates are achieved, major government investments in roads, water supply, and utilities will be needed in the South Stann Creek area. This need will be compounded by the impact of planned expansion in virtually every other existing agricultural and fisheries sector in the area, as well as by a potential influx of tourists to a wildlife preserve which is currently under discussion between the government and private investors.

Furthermore, expanded investment in housing, schools (growers now provide their own schools for children of workers), transport, and virtually every other service and amenity will be required. Needless to say, health care will be high on the list of prerequisites.

Virtually the only current brake on the momentum of growth is the labor supply. To date, large-scale employers in the area have utilized immigrant labor from Guatemala and Honduras. While some of these workers carry legal work documents, many are illegal aliens. The Government is concerned about the illegal worker situation for reasons of security, disease control, and drug trafficking. Periodic police raids on worker communities have occurred. Currently, the banana growers and other major employers are negotiating with the government to develop a limited temporary residence status for these workers to resolve the difficulty.

In short, the size of the banana operations alone will double the banana work force in the next five years and more than double the total population associated with the plantations. Even conservative growth expectations of this and other agricultural industries in South Stann Creek can be expected to create significant increases in the demand for health and medical care in the area.

D. BCB/BGA Response To Health Care Needs

The banana growers have been interested in the health care situation in Stann Creek for the last two years for two primary reasons. First, the distances involved in obtaining care in Dangriga, whether emergency or outpatient, result in significant lost work days. With a guaranteed purchase contract, high productivity is clearly in the growers' interests.

Second, and, in the eyes of growers interviewed, more importantly, the lack of available, accessible health care not only for workers and families, but also for isolated villages represents a social problem which the growers wish to address. Growers interviewed acknowledged that limited government resources and a poor transportation system make it unlikely that government health services will be extended to the South Stann Creek area. They saw no alternative except to undertake an initiative themselves, albeit recognizing that the nature of that initiative would be limited by their own resources.

Recognizing the government's limitations and unaccustomed to waiting for lengthy donor evaluations, the growers undertook to engage a physician to provide immediate services until such time as a technical donor team was

available to assess expansion and financing alternatives. The former District Medical Officer, Dr. Reddy, was hired in September 1987 to fulfill this need. He was selected because of his excellent reputation within the Ministry of Health and because of his rapport with the people of the Stann Creek District. Currently, he is providing general medical and basic surgical services to banana operation employees, their families, and surrounding villages.

Compensation for Dr. Reddy is shared between the BGA and the BCB. The BCB provides Dr. Reddy with housing, a first floor room of which is currently his office. The BCB is committed to renovating this space to provide a basic consultation and surgery suite. It has also purchased a vehicle for his use, at no cost to Dr. Reddy for the first two years of operation. This vehicle is to enable him to carry out periodic rounds to work sites and villages. These rounds will concentrate on providing services to mothers and children. At the end of two years, Dr. Reddy is to purchase the vehicle or to return it to the BCB and independently purchase another. It is also intended that Dr. Reddy will cooperate with local implementation of public health programs in immunization, oral rehydration, malaria control, and water supply.

Financially, Dr. Reddy's salary guarantee is evenly split between BCB and the BGA. Dr. Reddy functions as a private sole practitioner. After consultation with the growers, his consultation fee was set at Belize \$10. It has been agreed that he would charge this fee to workers and their families. Workers would pay what they were able, and the joint BCB/BGA fund would make up the difference between that amount and the total \$10 fee. This arrangement would apply to earnings up to \$60,000 Belize per

year. At that point, additional earnings would be returned to the BCB/BGA to reimburse them for their in-kind contributions of housing, utilities and transport.

Since no pharmacy is available in the area, Dr. Reddy dispenses his own drugs. His arrangement with the BCB/BGA allows him to markup drugs 10% over the purchase price and to use these funds to defray the pharmacy's operating expenses and to purchase necessary medical equipment.

As regards services to people other than employees and their families, Dr. Reddy is encouraged to provide such services and to charge and collect the \$10 fee as he is able. Where such fees are collectable, they are to be included in the offset against the \$60,000 guarantee. Where they are not, Dr. Reddy will simply be placed in a position of providing pro bono services.

Both Dr. Reddy and the growers admit that there is much on the current arrangement that has not been completely thought through. For example, no fee differential has been set between a regular consultation for illness and the minor surgery needed for machete wounds. Neither has consideration been given to the cost differential of supplies needed to treat a consultation versus minor surgery. In both cases, Dr. Reddy is expected to meet costs out of the \$10 fee. Finally, the decision to set the fee itself at \$10 was made simply on the basis of the costs to access the alternative site of medical care in Dangriga, i.e., the \$10 round-trip bus ticket. Whether this fee is too high or too low in terms of costs and/or payment ability is an issue needing near-term investigation.

In the interests of getting some level of services operating, however, such questions are expected to be addressed as the service develops. Both the growers and Dr. Reddy look to this report to assist them in assessing the true costs of providing illness and injury care.

IV. RECOMMENDATIONS

As noted in the previous section, the data indicate that an active, private health service is viable in the banana growing area. There are several options for meeting the capital and recurrent costs of such a service, with the capital costs being the most difficult to underwrite. This section will suggest possible ways to deal with these problems.

A. Capital Costs

1) Organization

Virtually all projections for the banana industry indicate a healthy bottom line for the growers over the next five years. The financial projections contained in this report indicate the possibility of a fairly healthy bottom line for health services as well.

It is certainly possible to consider the health services operation as a for-profit venture. If the numbers were sufficiently compelling, this might represent an attractive investment opportunity for growers or for outside investors (see also discussion of pre-paid options below). At this point in time, however, neither the BCB nor the growers nor Dr. Reddy is prepared to make the availability of services contingent on investor interest. This is true because the social need rationale is currently the primary reason for starting operations. Furthermore, until previous government debt is retired, the banana growers do not have available capital for investment in construction and equipment.

Since the alternative is to rely, at least in the immediate term, on donors and philanthropy to establish the necessary health facilities, it would be useful at the earliest possible point to form a not-for-profit organization called, for example, the Stann Creek Medical Services Organization. This organization would then be able to seek the cash and in-kind contributions needed to meet the capital needs of the expanded clinic and ultimately the proposed bedded health center.

2) Sources of Finance

Aside from savings out of cash receipts and ruling out for the moment an investor-based approach, there are basically three sources for capital finance for the health facilities envisioned. Each has positive potential, but each also has not insignificant disadvantages.

a. Bilateral and Multilateral Donors

Donor agencies could be approached for finance of the inpatient building and for equipment for both that facility and its clinic predecessor. As regards the physical plant, most donor agencies have gotten out of the "bricks and mortar" business in the hospital sector. Only rarely do international donors get involved in hospitals at all, an intriguing exception being the EEC in its capital grant for the construction of the new Belize City Hospital.

The International Finance Corporation, the private sector arm of the World Bank, still invests in physical plant and has been seeking out health sector opportunities, and thus may represent a financing source. However, it deals only as a co-investor in private for-profit projects. The need for co-investors, and the for-profit status which effectively eliminates philanthropic options, would close out several other financing options in the early stages of the project.

Moreover, donor agencies typically take years to develop and assess project opportunities. A two-year lag between project identification and a decision to fund is not extraordinary for AID or the World Bank. The local entrepreneur's overhead during those two years in fulfilling all of the donor's requirements can be a significant unreimbursed cost of doing business in the world of development aid.

On the other hand, donor assistance for equipment (as opposed to construction) would likely be a more fruitful option. This would be particularly true if the specific items requested were targeted at maternal and child health services. In this case and given the history of Belize, the donors to approach would include USAID, the Pan-American Health Organization, the Canadian International Development Agency, the British Overseas Development Agency, and the European Economic Community. A not-for-profit status for the medical service organization would be a useful platform from which to make such requests.

b. Philanthropy

Contributions to construction and both cash and in-kind contributions to equipment are possible from two categories of philanthropic donors. In both cases, a not-for-profit status would be helpful and in some cases prerequisite.

Private, unaffiliated foundations in the U.S. could be approached. One immediate option would be the Kellogg Foundation in Michigan, which concentrates a large non-U.S. health giving portfolio almost exclusively on Latin America. Other similar foundations should be investigated, although there are few U.S. foundations which give to health programs overseas. In the U.K., inquiry should be made to the Sue Ryder Foundation which has financed health care service programs in Belize in the past.

Perhaps a more productive option, however, lies in corporate foundations. Two categories seem immediately apparant. Fyfe's is the leading purchaser of BCB bananas, and has a fairly high profile in the growing region and with the government. An overture should be made to their corporate giving side, backed up by a strong supportive statement from the government, for major cash assistance for construction.

Second, it is striking that 60% of the costs of growing bananas is accounted for by the chemical inputs, especially fertilizers and chemicals to control pests and diseases. Major U.S. chemical corporations have a highly visible presence in the plantation area, and will have greater exposure (and larger markets) as the banana operations double or triple in the next five years. BCB could take an inventory of its major chemical

suppliers and approach corporate foundations for grants for the major equipment needed for health services. In all cases, the non-profit entity should offer the contributing corporation public recognition for its contributions via both media coverage and a contributors plaque at the facility.

Other categories of corporations which represent potential markets for philanthropic approaches include suppliers of irrigation equipment (especially as the acreage area grows) and pharmaceutical and medical supply manufacturers (especially those in the U.S. who are under pressure to respond more aggressively to the health needs of the developing world).

There are two downsides to philanthropic strategies. First, they tend to be labor intensive. The grant writing and follow-up is essential and time-consuming. Second, their success is unpredictable unless an applicant has a close contact within the organization who will act as a champion for the request. Given this unpredictability, BCB/BGA would have to begin investigating the viability of such support if the grants were to be available in the construction timeframe envisioned.

c. BCB/BGA

Another option, of course, is for the growers' organizations to increase the level of their contribution to the capital side of the health care operation. Donations of land, construction materials, and labor would significantly reduce the total cost of the facilities needed, perhaps by as much as 50%.

B. Recurrent Costs

Precedent for a fee-for-service system has already been put in place to meet recurrent costs. The current fee of \$10 has been levied not on the basis of costs or affordability, but rather on the basis of comparability to transport costs to Dangriga. The consultants judge that this fee level may be on the low side of what will be needed to bring the medical operation to some level of self-sustainability.

The problem with a per consultation fee system, however, is not so much the actual fee level as it is the practicality of fee collection. This will be particularly true as the number and variety of patients increases and as the system is complicated by inpatient charges.

A lesson in this regard should be taken from the now-failed Santiago Castille Hospital in Belize City. The hospital encountered financial problems not only because of complexities in accessing physicians but also because fee collection was difficult and entailed considerable administrative overhead. On thin financial margins, and with a sensitivity analysis which shows the business plan to be highly revenue sensitive, collections and associated overhead can spell the difference between success and failure.

Thus, there are a number of options which the growers and the not-for-profit medical corporation should consider in assessing ways to meet recurrent costs of operations.

1) Fee Levels

An evaluation should be made in the beginning of the second quarter in 1988 as regards the adequacy of current fees, the level of use, and the relationship between types of users and success of fee collection. This evaluation is crucial in setting fee structures not only for the expanded outpatient clinic but also for the inpatient facility, both of which will entail higher unit costs than will be incurred in early months of health service operation.

This evaluation should also make an explicit assessment of the tariff schedule to be applied to the laboratory and radiological services anticipated to be provided by the health facility. In this regard, specific tariff schedules developed by the HCF/LAC project for the Belize City Hospital might prove useful benchmarks.

It is likely that higher fees will have to be charged by the end of 1988, both in terms of outpatient services and in terms of anticipated per-day inpatient services. One way to approach the problem may be on a diagnostic basis, pricing services by type of service used rather than by visit or day.

2) Payroll Deductions

Conservative estimates as to the growth of the banana-related payroll indicate that outpatient costs for workers and immediate families could be covered by a 3% deduction from payroll through 1989 (the period during

which all services will be outpatient in nature). This assumes that the BCB/BGA covers the costs of services for those isolated villagers who are unable to pay.

By 1992 and with the full operation of the inpatient facility, deductions would have to rise to 6% of payroll. This assumes that the facility would remain reserved solely for banana employees and families. If services and costs were spread over a larger employee population (e.g., services offered to other agricultural sectors), the payroll deduction could probably be kept at 3% to 4%.

During interviews with growers and BCB staff, there was some resistance to the idea of payroll deductions, largely because of the difficulty of explaining to workers why such a deduction would be in addition to the 1% worker contribution deducted for Social Security. The Belize Social Security Board does not cover medical care except related to on-the-job injuries and to maternity costs. The general view was that the distinction would not be well-understood and would lead to worker resentment.

Nevertheless, the payroll deduction option remains a possibility that should be considered, perhaps not immediately but certainly as workers become accustomed to receiving and paying out-of-pocket for health services in late 1987 and early 1988. This payment precedent might facilitate the explanation of the alternative payroll-deduction payment mode.

This option would also facilitate the collections problem, and associated overhead, at the health facility itself. It would thus contribute to easing the revenue sensitivity of the facility's financial analysis.

3) Social Security

Currently, the Social Security Board reimburses employee injury costs only when medical services are received at a public health facility and the nominal facility fee is charged. Two exceptions have been made. Costs of injuries which cannot be treated in Belize and which are sent out of country are reimbursed wherever the treatment is received. Second, at a major citrus growing cite in the North of Belize, Social Security has agreed to reimburse costs of care provided at a private facility.

In most cases, however, medical costs of injuries are not covered under social security if privately provided. Employers often choose private provision for either quality or availability considerations, and simply treat their Social Security payment as a tax.

Finding a way to hook Social Security up to costs of providing services for on-the-job injuries opens up two problems for the banana growers. First, the services would be private. Second, many recipients of the services would be undocumented workers and thus would not qualify for coverage. Nevertheless, to the extent that some Social Security solution could defray even partial costs of services, the option should be aggressively pursued.

4) Insurance

Another option would be for the growers to explore with a local Belize insurance company the possibility of providing conventional health insurance for employees and families. In 1986, the Regent Insurance Company located in Belize City was developing such an insurance product. The growers then could arrange some type of plan for sharing the costs of premiums with the workers.

5) Pre-Paid Group Coverage

As noted in this report, the next five years will see an extraordinary growth in investment and economic activity in the South Stann Creek area. All employers will face the same problems as those currently encountered by the banana growers. Health care will be sought for ever larger groups of people, and costs to companies and to individual workers will rise unless the payment and service system has a built in brake in the form of some type of utilization review and cost-containment.

This experience has been duplicated elsewhere in the developing world. As investments and productive capacity matures and as the work force becomes older, health care costs rise and become an ever increasing burden on the corporate bottom line. While the banana growers are currently concerned with the immediate need to provide critical health care to their own employees, these days of explosive growth and production maturity are only 6 to eight years off.

It is the team's view, therefore, that it is important to give serious consideration to the ultimate potential for developing a private pre-paid health care organization to serve all of the South Stann Creek area. Employers would be the major enrollees, although the plan would be open to individuals as well. Such a pre-paid scheme would accomplish two objectives. By definition it would create incentives for reducing service utilization, keeping workers healthy, and containing costs. This would be in the interests of both employers and employees, since both are sharing the costs of providing health care. Second, by building up reliable reserves on the basis of pre-paid fees, it would help to underwrite services for any remaining indigent population in the area.

It should be noted that such a pre-paid scheme is not an immediate option for financing the recurrent costs of health care in the area. There is much to be done through other means to put in place the personnel and facilities capability upon which such a payment scheme could be based. But an evaluation of the potential for evolution into a most cost-manageable and service efficient mode of organization should be made as the service and population base solidifies, perhaps in late 1988.

6) Government Participation

Another payment option, of course, is to involve the Government of Belize in financing the provision of services to the currently unserved population of the South Stann Creek area. The BCB/BGA initiative has at least two choices in the regard, given their initiative and commitment to date.

First, the BCB/BGA leadership could put the Government on notice effective 1988 that they will develop the health service as planned and incur and finance all costs for the next five years, i.e., until 1992. They could state that as of that time, the BCB/BGA intends to turn the entire operation over to the Government which can then choose to operate it as part of the public health system. In effect, this puts the BCB/BGA in the position of abruptly walking away in one step, an option which may not be welcomed in Government halls in Belmopan.

Alternatively, the BCB/BGA could set up a lease-back arrangement with the Government. In this mode, the Government would purchase the medical operations from the BCB/BGA over time and in accordance with the success of the operation. In year two, for example, the Government could begin to take over the BCB/BGA subsidy for services to the non-worker population, and complete the takeover by year 5. The payroll fee-for-service system would be kept in place so that the Government's financial exposure would be only for the non-employed population.

There is one significant problem with the second mode, however. Recall that the viability of the medical operation is dependent on a revenue-sensitive financial structure. Current Government regulations, however, prohibit Ministry of Health facilities (or the Ministry itself, for that matter) from retaining the revenues gained via enforcement of patient tariff collections. This revenue must be returned to central treasury coffers.

Under these circumstances, MOH management of the South Stann Creek medical operations would leave no incentive for the maximization of revenues, and hence would compromise a revenuesensitive financial structure.

One alternative would be for the Stann Creek operations in year 5 to represent an experiment in collection-site revenue retention in the public health system. The advantages of such an experiment are discussed in some detail in the aforementioned HCF/LAC study on Health Costs and Finance in Belize.

This may be an intriguing option. One should keep in mind, however, that Government ownership and operation of essentially privately viable services is how the publicly-controlled South Stann Creek banana industry ultimately drowned in red ink. And it was that red ink that led to privatization. The alternative described above essentially "publicizes" a currently private medical service. The track record of viability for such an effort in Belize is not encouraging.

But the question is legitimate and remains: is there a way for the Government to provide recurrent services financing for and thus contribute to the viability of a privatized health service in the South Stann Creek area?

V. FOLLOWUP

There are three potential opportunities for AID to continue to provide support for the banana growers initiative in this underserved area of Belize.

First, ways should be sought to assist with the costs of equipping the anticipated health services, particularly in the area of maternal-child health and diagnostic laboratories. The former are clearly within the substantive area of AID's interest; the latter could contribute to improved malaria control.

Second, AID should provide immediate technical assistance to Dr. Reddy to develop an information system which will allow him to track utilization and costs. This will be of ultimate importance in developing financing alternatives for the system. It could be of immediate use to other AID activities as well, since it could feed into malaria control and sanitation projects already underway with AID sponsorship. mid-1988 to evaluate the utilization data for outpatient services and the appropriateness of the initial fee structure.

Fourth, in late 1988 AID should provide a technical team to perform a detailed assessment of the viability of a private areawide pre-paid group plan involving all major employers in the South Stann Creek area. This effort would be akin to that provided to the Indonesian oil company Pertamina, and would result in a similar business plan for such an undertaking. AID's assistance would be in keeping with its mandate to encourage private sector solutions to development problems where appropriate and to ensure the financial viability of health care initiatives in the developing world.

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Table II

	<u>Catchment - Population</u>					
	1987	1988	1989	1990	1991	1992
Acres	3550	3350	5550	6850	8600	10,000
Farms	13	16	16	16	16	20
Factories	7	11	16	16	16	18
<u>Workers</u>						
Field ^{1/}	710	670	1110	1370	1720	2000
Farm/Other ^{2/}	260	320	320	320	320	400
Casual ^{3/}	150	150	200	200	200	220
BCB ^{4/}	50	50	50	50	50	50
Plant ^{5/}	70	110	160	160	160	180
Total	1240	1300	1840	2100	2450	2850
<u>Families</u>						
Field ^{6/}	2485	2345	3885	5822	7310	8290
Farm/Other ^{7/}	1300	1600	1600	1600	1600	2000
Casual ^{8/}	600	600	800	800	800	880
BCB ^{9/}	250	250	250	250	250	250
Plant ^{10/}	280	440	640	640	640	720
Total	4915	5235	7175	9112	10,600	12,140
Banana Total	6155	6535	9015	11,212	13,050	14,990
Natural Increase ^{11/}	--	117	126	174	216	252
Total	6155	6652	9141	11,386	13,266	15,242
Surrounding Villages ^{12/}						
Include Natural Increase						
	2612	2662	2713	2765	2818	2872
Grand Total	8767	9314	11,854	14,151	16,084	18,114

Catchment-Banana -- Notes

- 1/ One worker / 5 acres
- 2/ Misc other, 20/farm (supervisors, farmer, drivers, etc.)
- 3/ Independent laborers from villages
- 4/ Include wharf
- 5/ 10/plant, full time
- 6/ Interview range =
40% married in new farms,
85% married in old farms; assume on average
70% are married (1987-1987) with an average of 5 dependents;
85% in 1990, 1991
57% in 1992 of new workers
- 7/ 100% married with 5 dependents
- 8/ 100% women married with 4 dependents
- 9/ 100% married with 5 dependents
- 10/ 100% women married with 4 dependents
- 11/ Assume nation average of net natural increase of 1.9% is applicable
and remains constant over 5 years (correction factor);

Table III

Summary Utilization Table

	<u>4th Q</u> <u>1987</u>	1988	1989	1990	1991	1992
Accidents ^{1/}	156	650	920	1050	1225	1425

In-Patient Days:

Worker & Family ^{2/}	303	1583	2175	2710	3156	3628
-------------------------------	-----	------	------	------	------	------

Out-Patient Visits:

1) Worker ^{3/}	1368	6240	8736	9984	11,544	13,416
2) Family ^{4/}	1368	6522	9048	11,232	13,104	14,976
Total	2736	12,762	17,784	21,216	24,648	28,392

Villages:^{5/}

1) Out-Patient	538	2184	2236	2288	2340	2392
2) In-Patient	78	312	324	324	336	336

TOTALS

Accidents	156	650	920	1050	1125	1425
In-Patient Days	381	1895	2499	3034	3492	3964
Out-Patient Days	3274	14,946	20,020	23,504	26,988	30,784
Avg.OPD/Day	45 ^{6/}	48	64	75	87	99
Avg.Occ: 12 Beds	TR*	TR*	TR*	70%	81%	92%
% Growth OPD.	--	7%	33%	21%	16%	14%

* total referral

** assumes facility available, preserve quickly advertised, so end part of December 10 - January 10 holidays

Table III - Notes

- 1/ Based on constant estimate by growers of an annual accident rate of .5 on total labor force;
- 2/ Based on Dangriga Hospital experience, on a 6100 person bases, 60 patient days/ no general medicine, plus a 50% increase for alien labor likely to use BCB facility; + 35% for maternity cases. Total base is 121 patient days/mo on 6100 base. Estimate is conservative for several reasons including failure to factor in an increased utilization rate resulting from decreasing service distances.
- 3/ Based on grower interviews, team chose the most conservative illness estimate of 3 illnesses per 200 workers per day for a 6-day week (during packing periods, farms operate on a 7-day week).
- 4/ Stann Creek District average is 5.3/2000 persons per day. This base has been increased by 50% to include use by illegal worker families. This is conservative since there will be no transport barriers to use. Physician will either visit worker camps or grower will provide daily sick call transport to clinic.
- 5/ District averages applied.
- 6/ Assumes the clinic is quickly available, well advertised, and open during December 10-January 10 period.

Table IV
 Equipment List - Stage I
 (US \$)

Item / Equipment	#	Unit Cost	Total Cost	Freight	Total
Sterlizer	1	1400	1400	350	1750
Microscope	1	1000	1000	250	1250
Small Refrigerator	1	600	600	150	750
Additional Examing Table*	1	100	100	--	100
Goose Neck Lamp	2	150	300	75	375
Instrument Table*	1	100	100	--	200
Instrument Cabinet*	1	150	150	--	150
Supply Cabinet*	1	100	100	--	100
Patient Records Cabinet*	1	100	100	--	100
Centrifuge	1	600	600	150	750
Sphygmometer	1	300	300	75	375
Total			\$4850	\$1050	\$5900

Table IV (cont'd)
Equipment List - Stage I (cont'd)

Furnishings	#	Unit Cost	Total Cost	Freight	Total
+ Desk	1	---	---	---	---
+ Chair	1	---	---	---	---
Patient Chairs*	2	10	20	---	20
Supply Cart*	1	100	100	---	100
+ Exam Table					
X-Ray View Box	1	300	300	75	375
Clerk Table*	1	50	50	---	50
Clerk Chair*	1	10	10	---	10
File Cabinet	1	80	80	20	100
Waiting Benches	3	10	30	---	30
Total			590	95	\$685

Instruments		\$500	125	\$625	Total
					<u>BZ</u>
			which medical =	7,210	14,420
				- 200	- 400
				<u>7,010</u>	<u>14,020</u>

* assume local source

+ Dr Reddy has

Table IV (cont'd)
EQUIPMENT LIST - STAGE I.B
(US \$)

<u>Item</u>		
Exam Table	100	
Goose Neck	187.5	
2-Chairs	20	
Instrument Table	100	
Instruments	<u>200</u>	
	607.5	1,215 BZ

Table V

	Revenue (Belize \$'000)					
	1987	1988	1989	1990	1991	1992
Total Recurrent Cost (Adjusted)	55.9	303.1	413.5	756.9	999.6	1172.3
<u>Revenue*</u>						
BGA/BCB Fee Guarantee	15.0	60	60	60	60	60
Other OPD Fees	17.7	95	140	175	210	247.8
OPD Pharmacy	32.7	150	200.2	235	269.9	307.8
Accident Pharmacy & Supplies	1.8	7.8	11.1	12.7	13.6	17.2
In-Patient Fees ^{tt}	--	--	--	228.0	261.9	297.3
In-Patient Pharmacy	--	--	--	30.3	34.9	39.6
Subtotal	67.2	312.8	411.3	741.0	850.3	969.7
Inflation Peg. ^t	--	20.2	58.2	116.8	224.9	366.9
Total Revenue	67.2	333.0	469.5	857.8	1075.2	1336.6
Profit (Loss)	11.3 ^{**}	29.9	56.0	100.9	75.6	164.3

* Assume 100% collection; lower collection rate implies possible loss situation (see sensitivity analysis)

^t 8% inflation per year on 1987 price base, except for fee guarantee

^{**} Assumes facility available, presence quickly advertised, no holiday impact

^{tt} \$75/night, exclusive of drugs and supplies

Table VI

Capital Costs (Belize \$'000)

	1987	1988	1989	1990	1991	
<u>Stage I</u>						
Renovation ^{1/}	10.0	--	--	--	--	--
Medical Equip., ^{2/} Instruments, Furn.	14.0	--	--	--	--	--
Non-Medical Equip., Furnishings, ^{3/}	.4	--	--	--	--	--
Vehicle ^{4/}	36.0	--	--	--	--	--
Total	60.4	--	--	--	--	--
<u>Stage II</u>						
Planning & Design ^{7/}	--	20.0	--	--	--	--
Hospital Construction,	--	--	500.0 ^{1/}	--	--	--
Nursing Housing ^{8/}	--	--	36.0	--	--	--
Equipment ^{9/}	--	--	100.0	--	--	--
Patient Transportation Vehicle ^{10/}	--	--	36.0	--	--	--
Stage I Vehicle Replacement	--	--	--	--	40.0	--
Total	--	20.0	672.0	--	40.0	--

Table VI (cont'd)
Capital Costs (Belize \$'000)

	1987	1988	1989	1990	1991
Subtotal	60.4	20.0	672.0	--	40.0
Less BGA Contributions	46.0	--	--	--	--
Adjusted Subtotal	14.4	20.0	672.0	--	40.0
Contingency ^{11/}	--	2.0	67.2	--	4.0
Grand Total	14.4	22.0	739.2	--	44.0
Less Allocated Revenue from Pharmacy 10% Mark Ups	3.3	15.0	20.0	23.5	27.0
Net Total	11.1	7.0	719.2	--	--

^{11/} assumes construction via tender

Table-VI

Capital Costs - Notes

- 1/ 600 sq ft of space in BCB-owned building (see diagram)
- 2/ assumes duty free status; majority of furnishing items will be manufactured locally; see equipment list for details
- 3/ Includes: 2 tables, 4 chairs, 2 benches, 1 calculator, 4 lights, 2 file cabinets
- 4/ Purchases by BCB October, 1987
- 5/ Additional examination/treatment room 170 sq ft
- 6/ Includes
- 7/ Facility design, architect's drawings & TA on operating plans/processes
- 8/ Sq ft @ _____/sq ft concrete block
- 9/ Assumes duty free status, majority of furnishings items will be manufactured locally; see equipment list for details

Nurses Housing:

1500 sq ft at \$20/sq ft = 6 apts @ 1000/ with furnishings; 30,000
_____ + 6,000 furnishings & equipment

10/

11/ 18%

Not included is provision for generator or H²O treatment.

Table VII
 Recurrent Costs (Belize \$'000)

	<u>4th Q</u>					
	1987	1988	1989	1990	1991	1992
<u>Staff</u>						
M.D. 1 ^{1/}	15	60	60	60	60	60
2 ^{2/}	--	--	--	50	50	50
Nurses 1 ^{3/}	--	9.6	9.6	9.6	9.6	9.6
2 ^{4/}	--	--	8.4	8.4	8.4	8.4
3-7 ^{5/}	--	--	--	12.6	42.0	42.0
Ward Maids (6) ^{6/}	--	2.1	2.1	16.8	25.2	25.2
Clerk/Driver 1 ^{7/}	.9	3.6	3.6	3.6	3.6	3.6
2 ^{8/}	--	--	--	3.6	3.6	3.6
Pharmacist/ Supply Officer ^{9/}	--	--	--	9.6	9.6	9.6
Lab Tech/X-Ray ^{10/}	--	--	--	9.6	9.6	9.6
Porter/Driver ^{11/}	--	--	--	3.6	3.6	3.6
Laundress ^{12/}	--	--	--	6.5	6.5	6.5
Cook 1 ^{13/}	--	--	--	5.0	5.0	5.0
2 (p.t.) ^{14/}	--	--	--	2.5	2.5	2.5
Subtotal	15.9	75.3	83.7	201.4	239.2	239.2
Social Security	1.1	5.3	5.9	14.1	16.7	16.7
Total	17.0	80.6	89.6	215.5	255.9	255.9

Table VII (cont'd)
 Recurrent Costs (Belize \$'000)

	<u>4th Q</u>					
	1987	1988	1989	1990	1991	1992
<u>Materials/Supplies</u>						
Food ^{15/}	--	--	--	30.3	70.0	80.0
(OPD + Acids) ^{16/} Medical/Disposable	6.6	32.2	37.2	44.2	51.4	59.0
Medical/Disposal In-Patient ^{17/}	--	--	--	15.2	17.5	19.8
Pharma/OPD ^{18/}	32.7	149.5	200.2	235.0	269.9	307.8
Pharma/ In-Patient ^{19/}	--	--	--	15.2	17.5	19.8
Non-Medical ^{20/}	.1	.2	.2	.4	.4	.4
Total M/S	39.3	181.9	237.6	340.3	426.7	486.8
<u>Maintenance/Repair</u>						
Building ^{20/}	--	--	1.0	1.0	2.0	2.0
Equipment ^{21/}	--	1.1	1.1	--	--	--
Vehicle ^{22/}	--	3.6	3.6	7.2	7.2	7.2
Total M/R	--	4.7	5.7	8.2	9.2	9.2
<u>Other Operating</u>						
Travel ^{23/}	--	2.0	2.8	4.0	4.0	4.0
Vehicle Fuel ^{24/}	.5	2.0	2.0	4.0	4.0	4.0
Utilities ^{25/}	2.4	2.4	2.4	6.0	6.0	6.0
Phone ^{26/}	--	2.4	2.4	2.4	2.4	2.4
Total	2.9	8.8	9.6	16.4	16.4	16.4

Table VII (cont'd)
 Recurrent Costs (Belize \$'000)

	<u>4th Q</u>					
	1987	1988	1989	1990	1991	1992
<u>Housing</u> ^{27/}						
MD	3.0	12.0	12.0	24.0	24.0	24.0
Subtotal Total	62.2	288.0	354.5	604.4	732.2	792.3
Less BCB Donated ^{28/}	6.3	20.7	16.8	32.4	32.4	32.4
Adjusted Subtotal	55.9	267.3	337.7	572.0	699.8	759.9
Inflation ^{29/}	--	21.4	56.1	148.6	252.2	356.6
		<hr/> 288.7	<hr/> 393.8	<hr/> 720.6	<hr/> 952.0	<hr/> 1116.5
Contingency ^{30/}	--	14.4	19.7	36.3	47.6	55.8
Grand Total	55.9	303.1	413.5	756.9	999.6	1172.3

Table VII

Recurrent Costs: Notes

- 1/ As of October 1
- 2/ General practitioners @ _____ as of third quarter - 1989
- 3/ Senior nurse, as of January 1 @ 800/mo
- 4/ For stage I clinic expansion & preparation for in-patient @700
- 5/ Total 6 nurses to cover 3 shifts, 7 days/week in-patient & 1 nurse for OPD coverage
- 6/ Three shifts in-patient, shared with OPD; p.t. in 1988, 1989 for cleaning, laundry @ \$2/hour
- 7/ As of January 1 @300/mo
- 8/ As of third quarter 1989 @
- 9/ @ 9.6/year
- 10/ @ 9.6/year
- 11/ @ 3.6/year
- 12/ @ .5 day week, \$25/day
- 13/ @ \$2/hour, 6 day week
- 14/ Three days/week _____
- 15/ @ \$10.00/patient day raw food cost
- 16/ @ \$2.07 / OPV
- 17/ @ \$5.00 BZ/patient day
- 22/ @ \$300/mo/vehicle
- 23/ staff costs (airfare, ped, ground transport), Belize City for duty-related consultation:
 - o 1988 10 trips/year
 - o 1989 14 trips/year
 - o 1990 20 trips/year
 - o 1991 20 trips/year
 - o @ \$160 airfare + \$40 p.d. + ground
- 24/ @ 250mi/vehicle/week @ avg 25mi/gal = 10 gal @\$4 gal = \$40/week
- 25/ @ \$200 / mo for Stage I clinic; \$500/mo for in-patient facility
- 26/ @ \$200 / mo
- 27/ BGA/BCB facilities
- 28/ Until profit, provided by growers MD house, utilities, phone
- 29/ 8% per annum above 1987 base year unit costs
- 30/ 5%

Table VIII
Sensitivity Analysis

	1988-92 P & L				
	1988	1989	1990	1991	1992
1. Revenue Declines 10%	2.4	9	15.1	31.9	30.6
2. Revenue Declines 20%	(36.7)	(37.9)	(70.7)	(139.4)	(103)
3. Revenue Declines 30%	(70)	(34.9)	(156.4)	(247)	(236.7)
4. Costs Increase 10%	(14)	14.7	25.2	(24.4)	47.1
5. Costs Increase 10% Revenue Declines 20%	(66.9)	(79.3)	(146.4)	(239.4)	(220.2)
6. Costs Increase 10% Revenue Declines 30%	(100.2)	(126.3)	(232.1)	(346.9)	(353.9)
<u>Projected</u>	11.3	29.9	100.9	75.6	164.3

Table IX

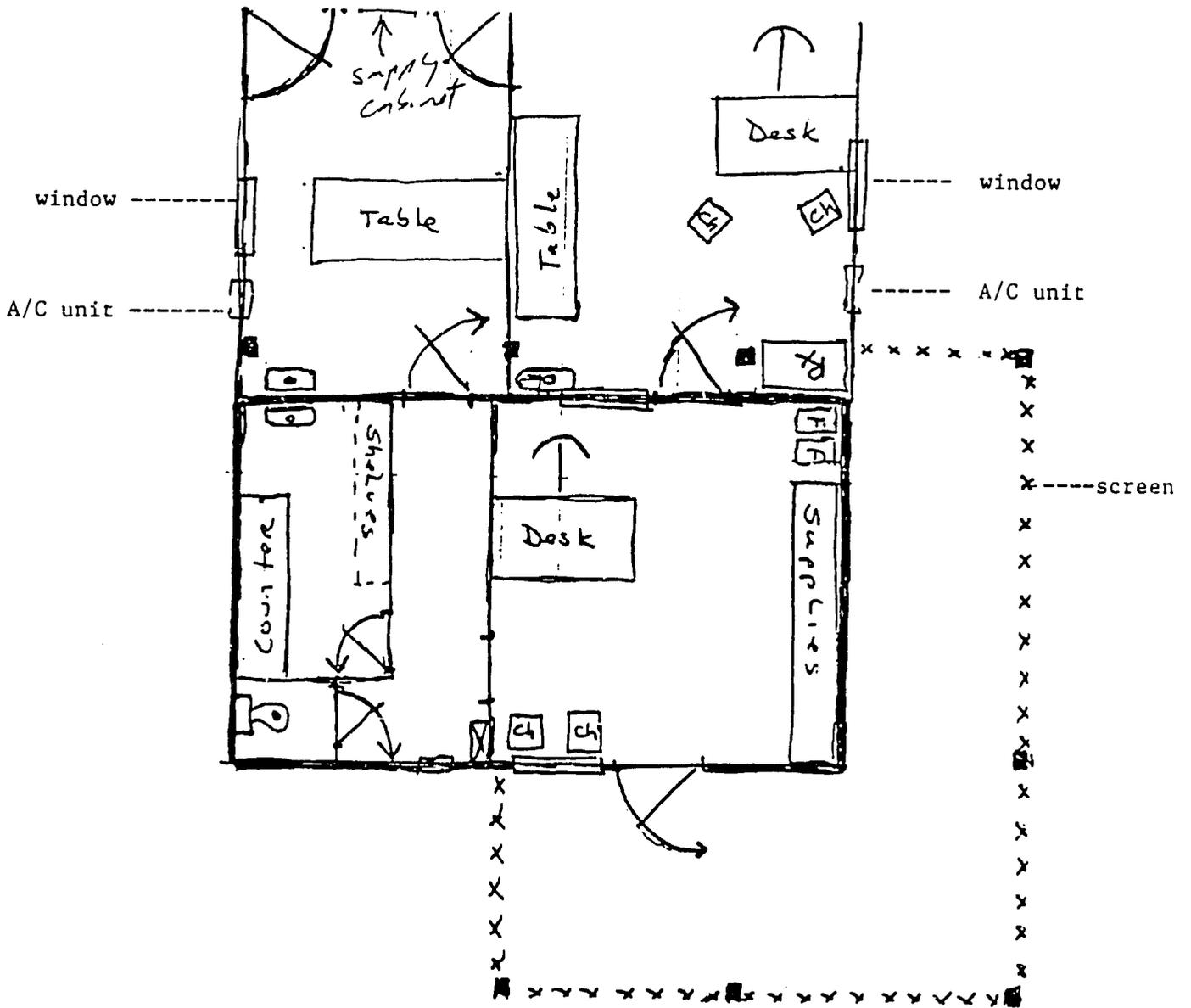
Per Worker Costs & Payroll Implications
(Belize \$'000)

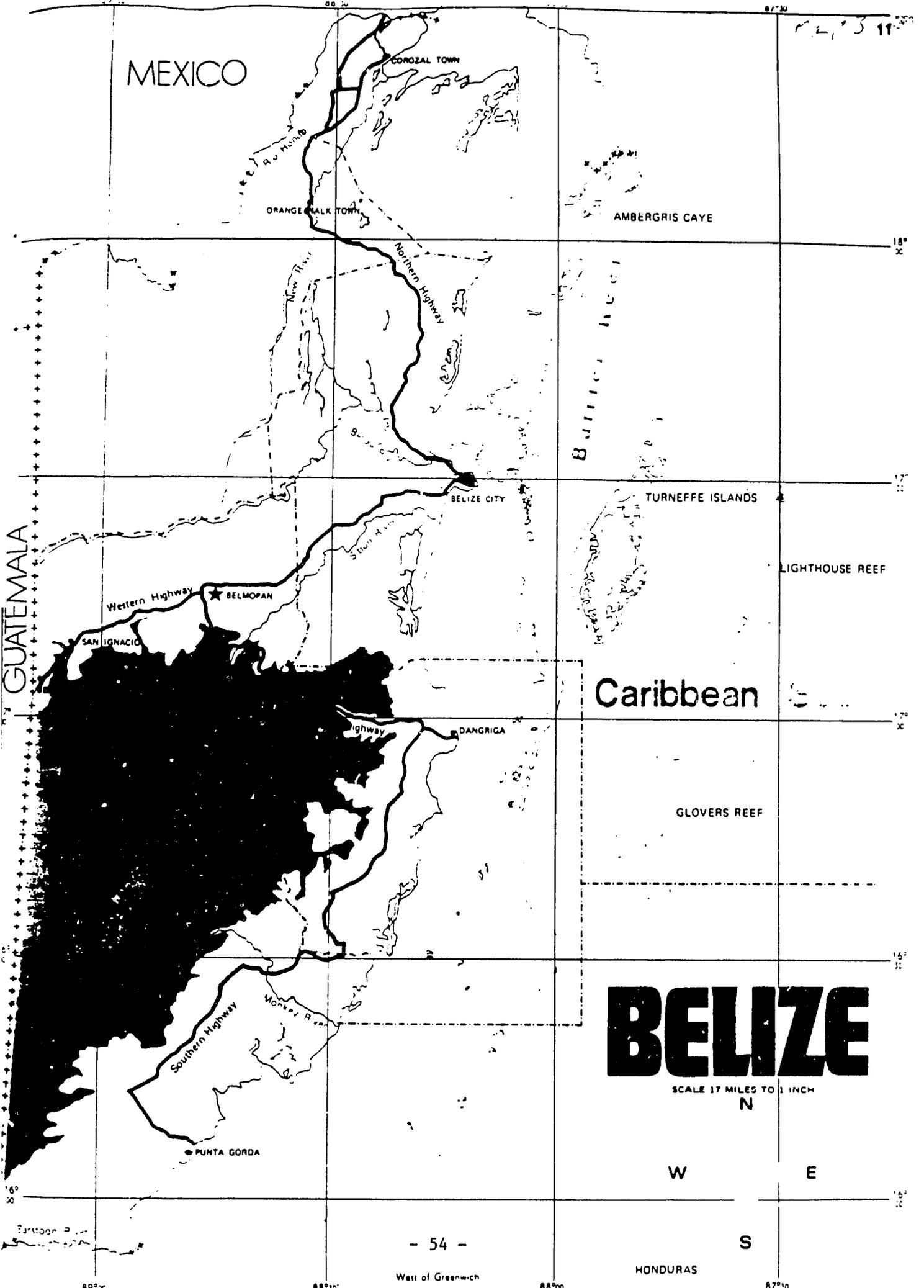
	1988	1989	1990	1991	1992
Total People	9314	11854	14151	16084	18114
Total Workers & Families	6652	9141	11386	13266	15242
Est. Payroll ^{1/}	567.4	8840.8	10090.1	11802.3	15102.2
Operating Costs	303.1	413.5	756.9	999.6	1172.3
Adjusted Operating Costs ^{2/}	282.4	396.7	724.5	967.2	1139.9
Total Adjusted Operating Costs as % Payroll	5%	4%	7%	8%	8%
Adjusted Operating Costs per Capita, Catchment	30.3	34.88	51.2	60.13	62.94
% Catchment Comprised Of Village Population	29%	23%	20%	18%	16%
If BCB/BGA Covers Villagers, Workers & Family; Adjusted Costs as % Payroll	3%	3%	6%	7%	6%

^{1/} Assumes all workers at \$1.75/hour, 8 hour days, 6 days/week, with 10% inflation raise over 1987 in 1989 and 10% over 1989 in 1992;

^{2/} Net of value of BGA in-kind contributions

CLINIC LAYOUT





MEXICO

COROZAL TOWN

ORANGE WALK TOWN

AMBERGRIS CAYE

Belize

BELIZE CITY

TURNEFFE ISLANDS

LIGHTHOUSE REEF

Western Highway

BELMOPAN

SAN IGNACIO

Caribbean

Highway

DANGRICA

GLOVERS REEF

Southern Highway

Monkey River

PUNTA GORDA

BELIZE

SCALE 17 MILES TO 1 INCH

N

W

E

S

11-11

