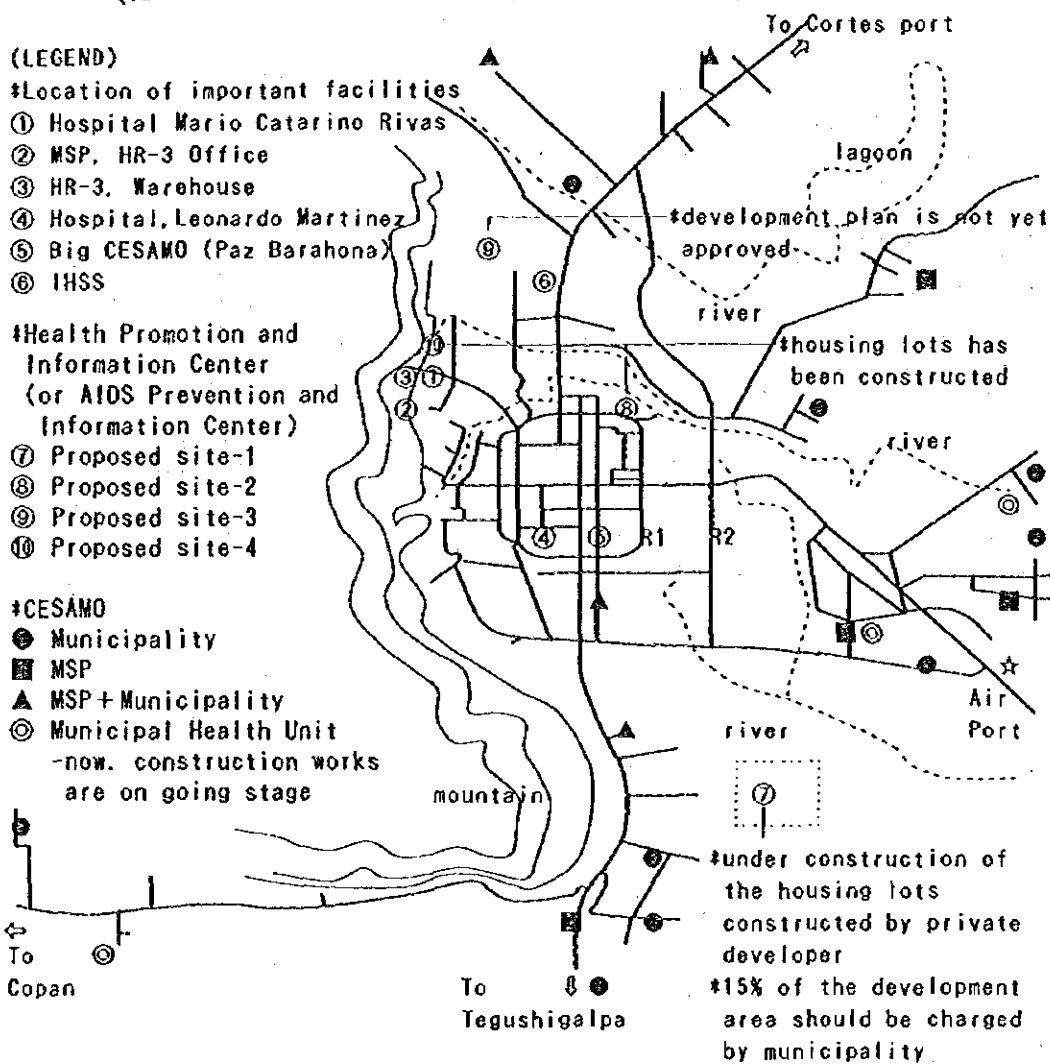
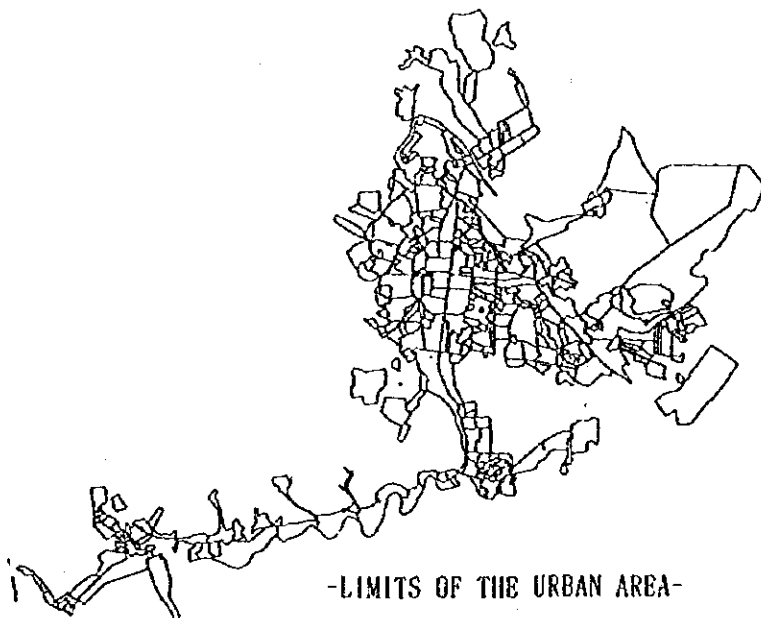


CIII. LAYOUT OF FACILITIES IN SPS

CIII-1. Location of health facilities in SPS and the proposed sites for the "Health Promotion and Information Center" (or "AIDS Prevention and Information Center")



- LOCATION OF THE HEALTH RELATED FACILITIES IN URBAN AREA-

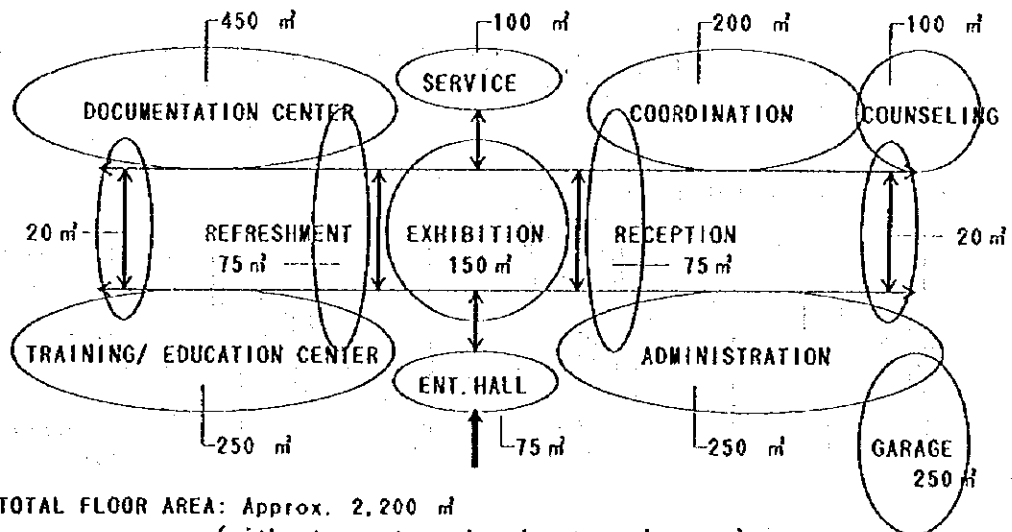


**CHI-2. Tentative layout plan of the "Health Promotion and Information Center"
(or "AIDS Prevention and Information Center")**

■ KEY FUNCTION AND REQUIRED FACILITIES & EQUIPMENT

(KEY FUNCTIONS)	KEY ACTIVITIES	FACILITIES & EQUIPMENT
*COORDINATION	*Coordination meeting -Public & private sector -Monitoring / Research -Management of all activities	*Meeting needs: -Meeting room (25 persons) -Refreshment area -Meeting equipment & furnishing
*DOCUMENTATION INFORMATION CENTER	*Information Resource Center -Documentation -Library & Statistics	*Documentation & Library needs: -Printing and documentation workshop, Library, AV editing -computer, printing equipment & furnishing
*EDUCATION OF GENERAL POPULATION	*Prevention programs for general populations -Promotion of general education & message expanding	*General education needs: -Exhibition hall -Multipurpose education room -General education equipment -Equipment of internet system
*ADOLESCENT EDUCATION	*Target for young generation are in schools & out of schools -JUPSA program -COMVIDA program, Etc.	*Specific education needs: -Space of their activities -Assist of their activities -Training & education Equipment -Assistance equipment
*TRAINING	*Target persons who are working in HIV/AIDS prevention -Technical assistance -Upgrade trainers' skills	*Training needs: -Training space for large & small meetings -Training equipment -Meeting equipment
*COUNSELING CENTER	*Counseling and identification of HIV+ -Counseling -Blood sampling	*Counseling needs: -Counseling & Examination room -Laboratory, only to draw blood -Counseling equipment -Minimum laboratory equipment

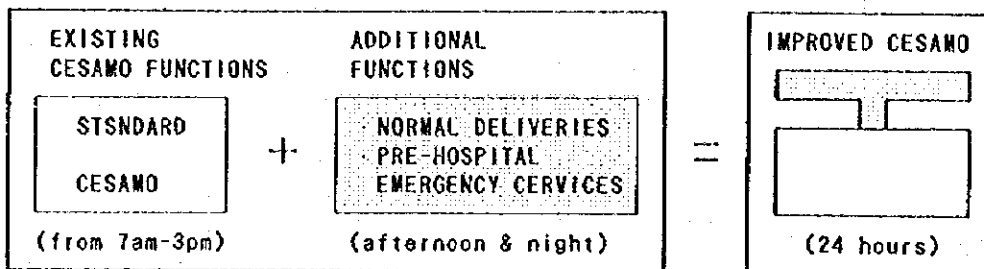
■ TENTATIVE LAYOUT PLAN



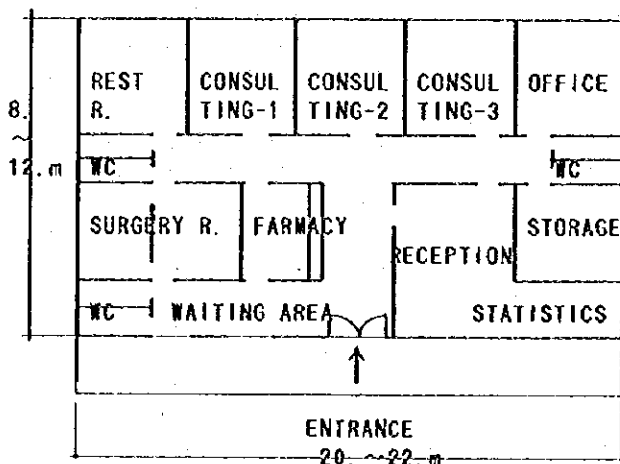
- TOTAL FLOOR AREA: Approx. 2,200 m²
(without court yard and external areas)

CH-3. Tentative layout plans of the "Reinforcement of SPS CESAMOs function"

KEY CONCEPT OF IMPROVED CESAMO



STANDARD MODEL OF CESAMO

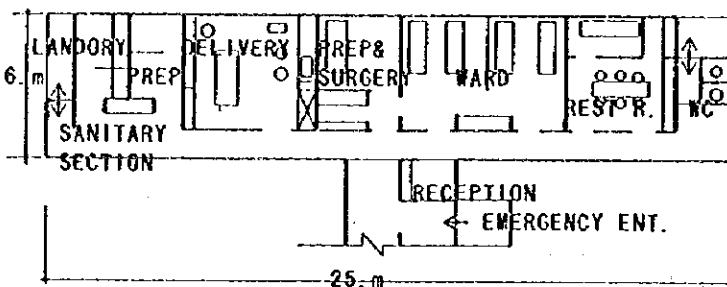


(Standard staffing)

-Doctor	1
-Dentist	1
-Registered Nurse	1
-Nurse	2
-Clinical	1
-Pharmacist or Assistant	1
-Social worker	1
-Health education	1

(SUB TOTAL-1) (9)

STANDARD ADDITIONAL FUNCTIONS

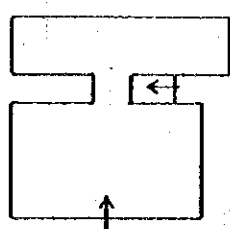


(Additional staffing)

-Doctor	4
-Registered Nurse	4
-Nurse	8
-Security & Assistance	4

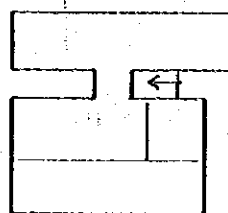
(SUB TOTAL-2) (14)

STANDARD ARRANGEMENT OF IMPROVED CESAMO



□ DAY TIME OPERATION

STAFF
9 persons
as
standard
staffing



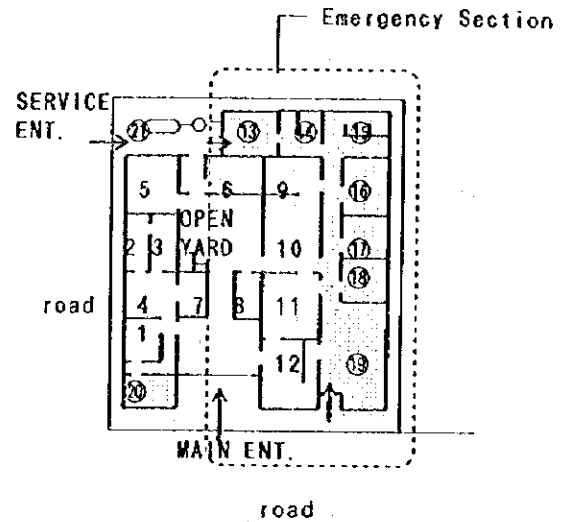
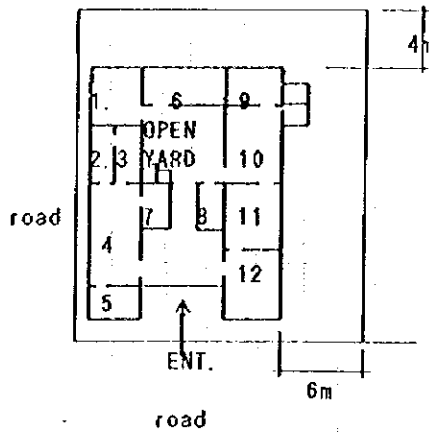
□ NIGHT TIME OPERATION

STAFF
5 persons
as
emergency
staffing

□ ARRANGEMENT OF CESAMO IMPROVEMENT

■ CASE STUDY-1: CESAMO COFRADIA

1. PLANING



(EXISTING FUNCTIONS)

1. Cashier
2. Health Promoters Room
3. Cold storage & Kitchen
4. Waiting Room
5. Injection Immunization Room
6. Laboratory
7. Pharmacy
8. Toilet
9. Doctor Consulting Room
10. Waiting Room
11. Drug Storage
12. Nurses Station

(IMPROVED FUNCTIONS)

- ※ 1. Cashier
2. Health Promoters Room
3. Cold storage & Kitchen
- ※ 4. Waiting Room
- ※ 5. Injection Immunization Room
6. Laboratory
7. Pharmacy
- ※ 8. Toilet
9. Doctor Consulting Room
10. Waiting Room
- ※ 11. Staff Meeting & Rest Room
12. Nurses Station
- ⑬. Laundry Service Section
- ⑭. Sanitary Service Section
- ⑮. Shower & Toilet
- ⑯. Delivery Room
- ⑰. Minor Surgery & Preparation with some lab. equipment
- ⑱. Equipment & Drug Storage
- ⑲. Ward
- ⑳. Dental Care Room
- ㉑. Septic tank & Seepage tank
- ※ : Some Renewal works and/or modification of the layout

2. ITEMS OF IMPROVEMENT

1) Facilities improvement

- New construction area: 160 m² (building and external area)
- Improvement area of existing facilities: 50 m²
- Special facilities: Electricity circuit and panel installation
Waste water and soiled material treatment
- Equipment: Emergency services equipment, 1 unit

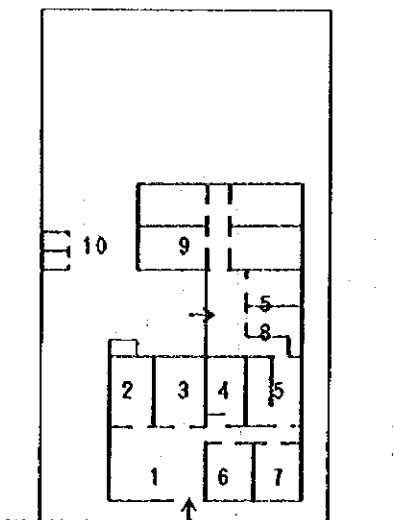
3. COSTS

- 1) Facilities: 215,000 US \$
- 2) Equipment: 200,000 US \$
- 3) Operational cost:

(salary, management, maintenance)

■ CASE STUDY-2: CESAMO CHAMELECON

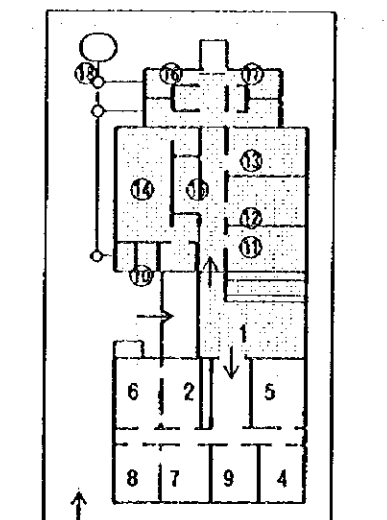
1. PLANNING



road MAIN ENT.

(EXISTING FUNCTIONS)

- 1. Waiting & Health Promoters Room
- 2. Pharmacy
- 3. Nurses Station
- 4. Injection Immunization Room
- 5. Laboratory
- 6. Drug Storage
- 7. Doctor Consulting Room
- 8. Laundry Service
- 9. Colera care Rooms
- 10. Toilet



MAIN ENT. road

(IMPROVED FUNCTIONS)

- ※ 1. Waiting & Health Promoters Room
- ※ 2. Pharmacy
- ※ 3. Nurses Station
- ※ 4. Injection Immunization Room
- ※ 5. Laboratory
- ※ 6. Drug Storage
- ※ 7. Doctor Consulting Room
- ※ 8. Dental Care Room
- ※ 9. Health Promoters Room
- ⑩. Toilet
- ⑪. Nurses Station
- ⑫. Delivery Room
- ⑬. Minor Surgery & Preparation
- ⑭. Ward
- ⑮. Service Section
- ⑯. Shower & Toilet
- ⑰. Sanitary & Landry Section
- ⑱. Septic tank & Seepage tank
- ※ : Some Renewal works and/or modification of the layout

2. ITEMS OF IMPROVEMENT

1) Facilities improvement

- New construction area: 200 m² (building and external area)
- Improvement area of existing facilities: 50 m²
- Special facilities: Electricity circuit and panel installation
Waste water and soiled material treatment
- Equipment: Emergency services equipment, 1 unit

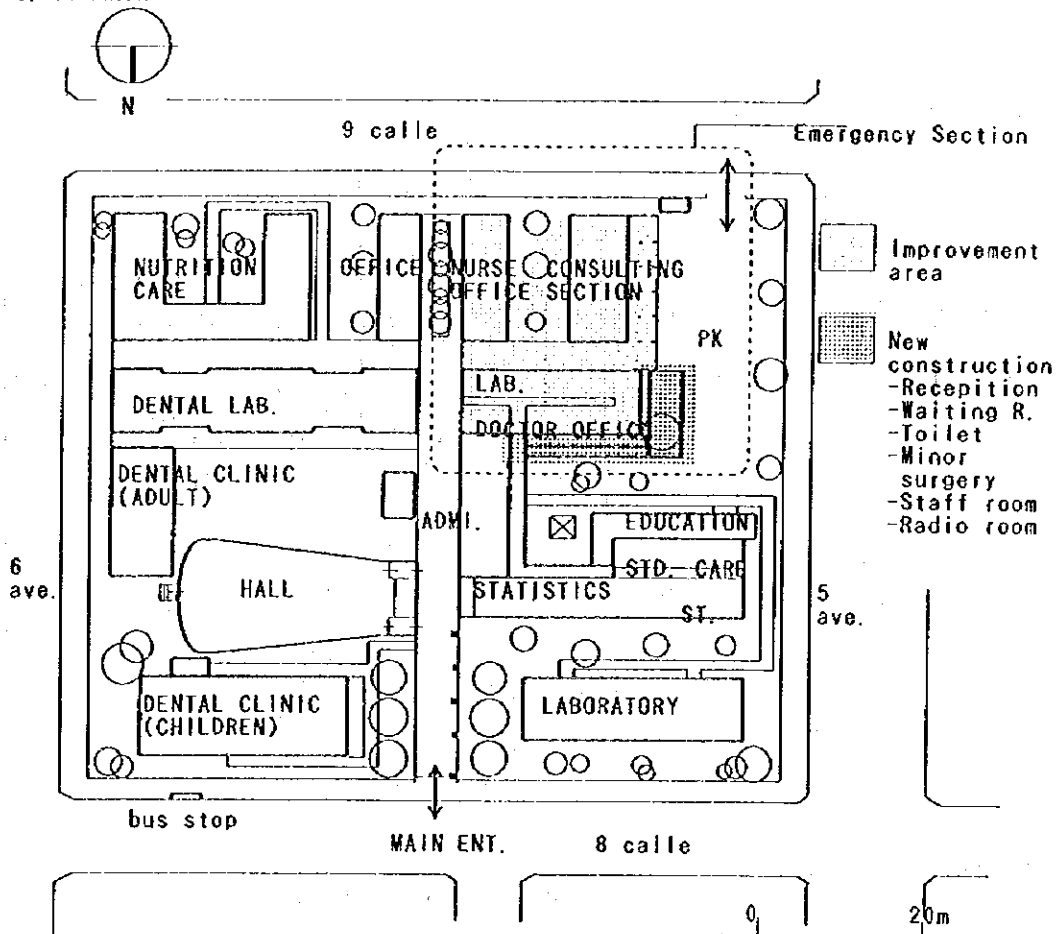
3. COSTS

- 1) Facilities: 334,000 US \$
- 2) Equipment: 200,000 US \$
- 3) Operational cost:

(salary, management, maintenance)

■ CASE STUDY-3: CESAMO MIGUEL PAZ BARAHONA

1. PLANNING



(EXISTING FUNCTIONS)

1. Largest CESAMO in HR-3 area.
2. Metropolitan area office of HR-3 is located in this CESAMO and control the other CESAMOs in the URBAN AREA.
3. Operational service hours:
 - 7am to 3pm
 - No emergency service system

(IMPROVED FUNCTIONS)

1. Key functions
 - Minor surgery
 - Emergency counseling
 - Assist for other Improved CESAMOs
2. Operational area
 - Above mentioned area
3. Type of the improvement
 - Arrangement of existing functions
 - New construction for the central office of night
 - Emergency services equipment

2. ITEM OF IMPROVEMENT

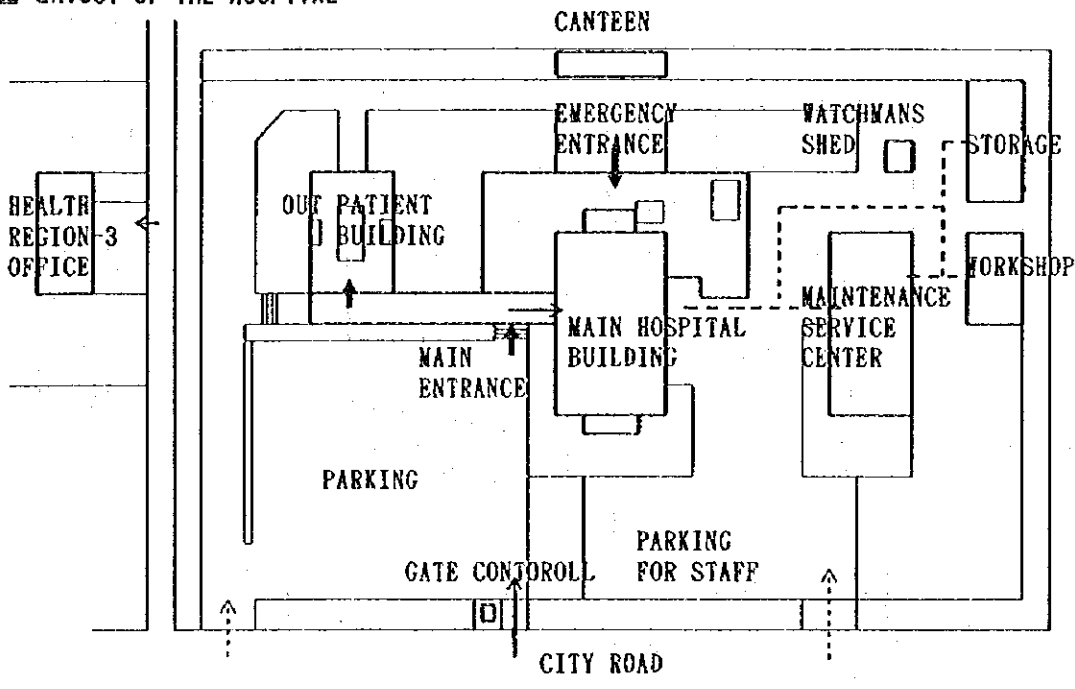
- 1) Facilities improvement
 - New construction area: 200 m² (Foreign assistance)
 - Improvement area of existing facilities: 75 m² (Local works)
 - Equipment: Emergency services equipment, 1 unit

3. COSTS

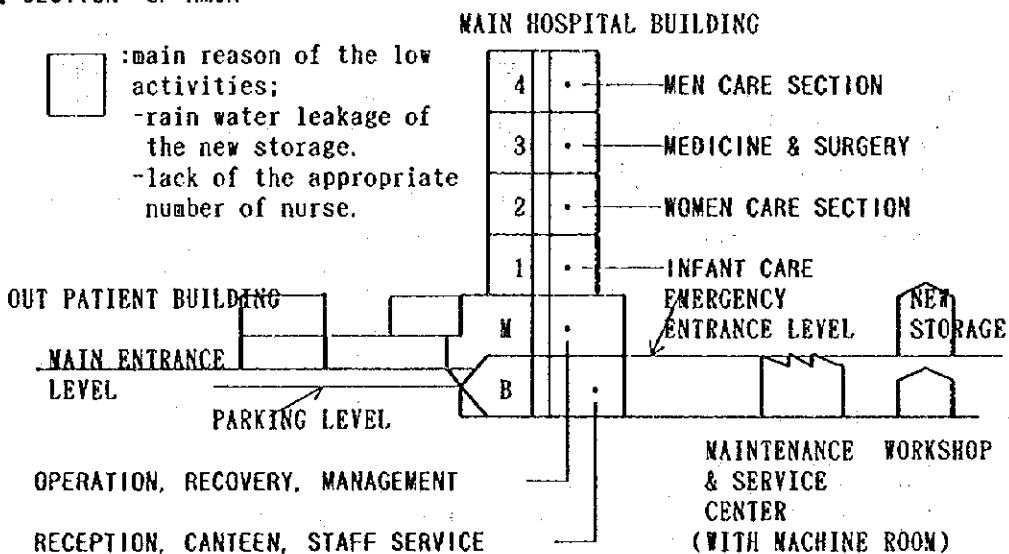
- 1) Facilities: 355,000 US \$
- 2) Equipment : 200,000 US \$
- 3) Operational cost: (salary, management, maintenance)

CH-4. Layout of MSP hospitals in SPS

LAYOUT OF THE HOSPITAL



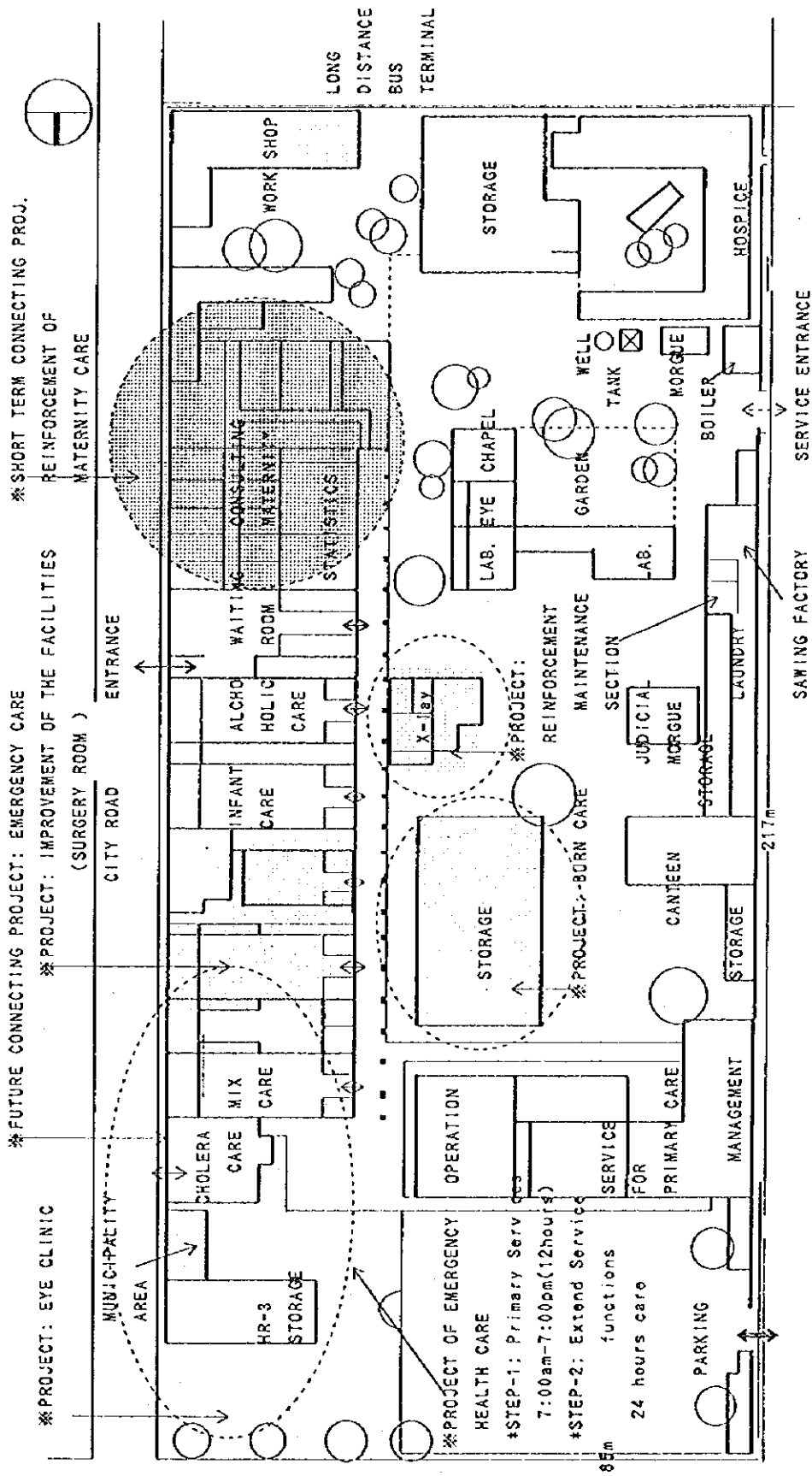
SECTION OF HMCR



CHARACTERISTIC PROBLEMS

- Service access ramp has been required the connection for the floor level, especially in B, M and 1. reason of the frequently occurring the elevator problems and electricity problems.
- Air-conditioning and ventilation are depending on the central machine system . it is required the modern maintenance technologies and special spare parts.

HOSPITAL LEONARDO MARTINEZ (Area Hospital in SPS)
- EXISTING CONDITION AND PLANNED PROJECTS BY THE HOSPITAL



: TENTATIVE PROJECT ZONE by the Hospital

D

WATER AND SANITATION

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D. WATER AND SANITATION - SUPPLEMENTAL REPORT

This supplemental report should be read in conjunction with the main report as certain sections that appeared in the main report may not be presented here.

1. Overview / Field Survey Results

According to the 1991/92 ENESF, 82% of urban households and 40% of rural households have piped water inside the house and 89% and 51% respectively have access to a water source located less than 100m from the house (including the above category).

The urban water coverage since the 1974 census which was 90% (see Table 1) has not changed much for large cities. Substantial efforts and finance will therefore be required if further increases in the coverage rates are to be achieved as increase in urban population may outpace increase coverage. The rapid urbanization and deterioration, contamination and diminishing of water supplies are constraints facing the nation to meet its goals of 100% coverage objectives stipulated by the Regional President's Conference.

About a third of the population of Honduras do not have safe access to water and sanitary facilities. For both services, the rural areas (80%) and the marginal areas of Tegucigalpa and San Pedro Sula form the largest part of the unserved population.

It should be emphasized that the water and sanitation problem is now being perceived by the concerned institutions (SANAA, MSP, RRNN, Ministry of Environment) as an integral part of the overall environmental control problem, where the main efforts tend to prevent air, water and soil contamination and to preserve the ecosystem. Indeed, the reduction in forested areas through agriculture, husbandry, logging and fires, and the regulation of industrial activities both have significant implications for the availability of water sources and the cost-effectiveness of building and maintaining water systems.

Specifically, emphasis has been placed on raising the dissemination rate of tap water, while the most basic and important element in public health, water quality, has been neglected, as exemplified by the fact that presently tap water is unsuitable as drinking water. This is also seen in the low recognition of the need for waste water treatment. Countermeasures in preventive medicine must include steps to maintaining good water quality for human consumption.

The average Honduran household or office rely on purchased bottled water as a source of potable water. This stems from general public knowledge that drinking tap water may cause diarrhea. This fact indicates that the hygienic condition of tap water is extremely deficient. Despite the fact that a higher dissemination rate of tap water is targeted in order to improve

the living environment, if tap water is not hygienically safe, the citizens will continue to rely on purchased bottled water.

Due to low fluvial water volume, the degree of pollution is high during the dry season in comparison to the wet season. When polluted fluvial water is purified for use as tap water, it must be pre-treated by aerated lagoon, a biological treatment method, to remove organic matter, ammonia and decrease the bacteria count, in order to produce hygienically safe tap water. Pre treatment is the most effective means of securing tap water for Tegucigalpa City until waste water treatment becomes available for its sewerage system in future. This will require corroborative tests, particularly in the San Ra-tael and Los Llanitos suburbs of Choluteca where a combined trial of both purification method and aerated lagoon is required. Llanitos, in particular, is unable to use well water due to salination of its groundwaters. Securing safe and healthy potable water and carrying out purification tests on polluted water is recommended for regional development.

SANAA and BGS compiled their recommendations in reports on groundwater movement, well configuration, causes of well pollution, and countermeasures against pollution since March 1993 and they are currently being used in dissemination activities. "Prevengamos La Contaminacion De Los Pozos Y Manantiales" must be adhered to.

1.1 Urban Areas

1.1.1 Tegucigalpa

The water supply of Tegucigalpa comes from surface water and underground wells (95% by surface water). Surface water is supplied by the system at Picacho, Los Laureles, and Concepcion. Others sources of water are wells around the city but the water quality from these wells are generally poor or saline. These wells located at various parts of the city generally do not have any treatment.

Concepcion has chlorination and rapid filtration of the water and supplies about 1200 l/s i.e. 60 - 70 % of the surface water to Tegucigalpa. With the completion of the rapid filtration plant in Picacho, its capacity will be about 900 l/s which drops to about half during the dry season (Feb-May). Los Laureles supplies about 500 - 600 l/s and has both chlorination and rapid filtration of the water supply.

Chlorination of water has been strengthened since the beginning of the cholera outbreak in 1991 which in Honduras, reached a total of 9,486 cases and 224 deaths by the end of 1994.; however, the maintenance of effective levels of chlorine is made difficult by downstream contamination, either from sewage, industrial contamination or from leaks (about 40%) in old and deficient pipe systems in the urban area. Boiling drinking water is not a common option, given the scarcity of fuel material, especially in urban areas.

Not all the city areas have 24 hour supply of water. SANAA controls and rationed the water supply to the city areas due to the lack of water and the constraints in the water supply system. A large number of residents in marginal areas of Tegucigalpa are not served by piped water supplies and therefore have to buy water from trucks or nearby wells.

The sewage collector system in Tegucigalpa in areas are about 30 - 40 years old. It has exceeded its useful life and there is about 60% leakage. There are 52 kilometers of sub-collectors and collectors and majority of the collectors are in poor condition or damaged. The collector network is generally in good condition made up of about 650 km. There was a partial study in 1992 to improve the Tegucigalpa sewage system which includes a treatment plant. This study also covers sewage system improvement in other big cities as well as 23 small ones. IDB has a loan to complete the study and design of the sanitary sewage system of Tegucigalpa and has earmarked \$50 m for the improvement / rehabilitation of the system.

New water and sewage network in private developments are undertaken by private developers. They construct according to standards set by SANAA. Upon completion of the network, it will be transferred to SANAA for their operation and maintenance. This transfer from private developers to the government sector also applies to San Pedro Sula Municipality.

The losses from the distribution network in Tegucigalpa is about $1\text{m}^3/\text{s}$ or 40%. A priority to meet future water demands of the city would be to improve, repair and maintain the network to minimise the losses. Future water supply projects could be new dams at Tatumbia Savacuante ($0.5\text{m}^3/\text{s}$) and Quebra Montes ($1.2\text{m}^3/\text{s}$).

An increase in the population of Tegucigalpa signifies a rise in the pollution load volume since Choluteca has not been geographically favored with a suitable water basin. Based on these circumstances, Tegucigalpa is in immediate need of sewerage treatment facilities in order to cut the pollution load volume in the rivers. In particular, there is an urgent need to resolve the problem of a long season of low river flow volume. Reducing this volume of pollution load is anticipated to be a long, time consuming endeavor.

1.1.2 San Pedro Sula

DIMA which manages the water supply in San Pedro Sula was founded in 1976. Presently the water coverage in the urban area of SPS is 90% and 65% in the case of sewerage services. 70% of the water is from underground source whilst the remainder 30% is from superficial source. Only some underground source are chlorinated as the water quality is generally good except a part where there is a higher concentration of manganese and iron (still in an allowable range) and do not require this treatment as opposed to the superficial waters which are chlorinated. The water quality from superficial source deteriorates when it rains - suspended solids, turbidity problem. The underground source at Chamalecon area has high content of iron and manganese.

Existing water sources are from 5 reservoirs and 81 wells. The SPS's Master Plan of Potable Water in cooperation with World Bank & British Commonwealth Development Corp. seeks to meet city's water needs through 2010. The Phase I of this master plan is 98% completed and will end in 1996. Major components of this master plan are: improvement of water supply system in the urban area; construction of water treatment plants (being undertaken now by the Japanese contractor under grant aid); and water supply to areas which do not have water supply at the moment.

For big cities DIMA or SANAA takes care of the water supply. In small communities the Ministry of Health is in charge. The tendency right now is to create DIMA in every city. Some of the cities that are doing it right now are Choluteca, Choloma and Puerto Cortes.

In San Pedro Sula, the municipality has planned new settlement areas for new arrivals and to relocate people from river banks and areas designated for development needs such as road widening. These settlement areas are provided with water, electricity and rubbish disposal services.

SPS Water Master Plan

On going project is the Master Plan of San Pedro Sula. This master plan is 98% completed and will end in March 1996. Major components of this master plan are:

- improvement of water supply system in the urban area
- construction of water treatment plants (being undertaken now by the Japanese contractor under grant aid)
- water supply to areas which do not have water supply at the moment.

With the completion of the Master Plan, coverage area will be 90%. The total supply capacity will be 900 litre / sec.

Sewage

There is at present about 70% coverage. The main concern is with the maintenance of the collectors and construction of treatment plants. The Inter American Bank of Development have conducted a study of the water treatment requirements. The study recommends either oxidation lagoon or treatment plant method for dealing with the sewage. DIMA has not decided which method to adopt.

If DIMA implements the recommendation of the study, the coverage will go up to 90%. Their goal is 100% coverage in the years 2005 - 2010.

Treatment

Under the Japanese Grant Aid, they have just completed one water supply treatment plant. The construction of the second one is just starting. They plan to ask the Spanish Government to sponsor two more plants.

At the moment, there is no treatment of the sewage. The sewage is discharged into the Chamelecon River. The main concern of the sewage disposal system is with the maintenance of the collectors and construction of treatment plants. The Inter American Bank of Development have conducted a study of the water treatment requirements. The study recommends either oxidation lagoon or treatment plant method for dealing with the sewage. DIMA has not decided which method to adopt. If DIMA implements the recommendation of the study, the coverage will go up to 90%. Their goal is 100% coverage in the years 2005 - 2010.

Industrial Discharge

DIMA has issued instructions to the industries 2 years ago to implement waste treatment before discharging their waste. After the grace period of 3 years, DIMA will start imposing fines/penalties if the industries do not comply with the instructions and discharge standards.

Water Extraction Control / Protection

They exercise control on the water quantity extracted from private wells by; 1. controlling the dimension of the pump, and 2. fixing a water meter. Also license is required to put in a new well. No development is allowed with 300 ft of a well.

Under the National Congress Law 46/90, the Meredon Mountain range have been declared a protected area and development is limited to below 200m elevation. Settlement in this protected area are being relocated.

Tariffs

The water tariffs are 82c/m³ for domestic and 50c/m³ for industries. These rates are discretionary i.e. the poor are charged less than stated. The rates have therefore been adjusted to take this into account.

Sewage service is charged at 40% of the water charges.

Treatment Plant

Rio Piedras - starting construction May, 1996

Santa Ana - finished construction and will be inaugurated by the end of May, 1996.
(JICA)

La Primavera - Spanish Donation

Manchaguala - future project

Future Water Supply Projects

A new project is the construction of a new surface water source called el Zapotal. By constructing El Zapotal, they will achieve two goals. The amount of surface water will increase and some wells will be closed making operation cost cheaper because El Zapotal will not need electricity as it work by gravity flow.

DIMA hopes to implement water supply projects employing gravity flow instead of pumping as the electrical cost is prohibitive. As these projects are implemented, they will decommission existing water supply which uses electrical pumps.

Until 1994, Cofradia (part of zone 8) was not considered part of the urban area. Its water condition is bad. A water supply project is going to start in this zone specifically in Manchahuala River. Right now the community has a public faucet but not enough water.

The Rio Lindo water supply project will involve the construction of a pipe from a water source near Rio Lindo which is about 45 km south of SPS. If all goes according to plan, it should be completed by 2002.

With the completion of this programme which will serve SPS and the surrounding 13 communities, the existing water supply source from wells will be eliminated. Consequently, the use of electricity to pump water from the wells will be eliminated. This will translate to a lower water tariff for consumers. This programme will supply 4 cu meters / sec of water.

The funding for the Rio Lindo programme is not yet decided. DIMA will approach the World Bank and Commonwealth Development Corp. to fund it. It will be a privatised programme.

1.1.3 Urban Marginal Areas

Around the big cities like Tegucigalpa and San Pedro Sula, in-migration of people from the rural areas have created haphazard and unplanned settlements in the marginal areas of the cities.

In the case of Tegucigalpa, there are 218 barrios marginales (marginal neighbourhoods) which contain about 400,000 inhabitants. These marginal areas are located on hilly slopes without proper water, sewage and rubbish disposal services. The water supply to these areas are by private water truck delivery, common water faucet, and /or private water network schemes.

UEBM (Unidad Ejecutivo Barrios Marginales) was created with funding from UNICEF and technical support from SANAA to solve among other issues, the water problem in the

marginal areas. This office is responsible for the promotion and implementation of water projects to the marginal areas of Tegucigalpa. At present, they have only 3 municipal water trucks that deliver water to the marginal areas. They are to get 10 new water trucks from JICA end of June 1996. These trucks will be servicing Sector A (4 trucks, coverage population ~ 30,000), Sector B (3 trucks, coverage pop ~ 25,000) and Sector C (3 trucks, coverage pop ~ 10,000).

The water trucks fill up at the Tanque Los Filtros. This is also the place where private water trucks fill up. There are about 60 to 70 private water trucks operating in and around Tegucigalpa. The filling station handles about 125 truck filling per day. The charge to private water trucks are Lp 0.01/gal and they normally resell this water at Lp 6 to Lp 10/barrel (about 50 gals). Private water trucks also get water from private wells, the water quality of which is variable. There is no control on the quality and amount of water drawn from these wells as there are no National regulation to control them.

22 water wells identified by the JICA project have low production volume and acceptable quality. These wells will be used to supply the immediate areas around the wells.

UEBM's approaches to supplying water are; 1. Supply water by water trucks, 2. Develop wells in the area, and 3. Supply water from water mains to tanks built in the community. Their objective is to eliminate or reduce the need to buy water from mobile private vendors. The positive impact of the projects clearly shows the viability of the project and they have plans to apply the methodology to other cities with similar problems.

Villa Cristina, Tegucigalpa - Field Survey

Water Supply

here are four main sources of water for the Villa Cristina community. One is from community tanks which are ideally filled every day (more usual once in 2 or 3 days) by water truck from SANAA. Private water trucks sell water to individual consumers. There are some privately owned water tanks that resell water to consumers. There is also a private well which supplies water.

Water from community tanks are Lp 5/barrel. There are 3 community tanks and each of them serve a sector. These tanks were built by the communities' resources with technical assistance from MSP sanitary section. The capacity of the tanks are one 2500 gal tank, and two 4400 gal tanks. Sector 3 is the area most short of water because of the road access and large community. The number of barrels per week that a family is entitled to buy are 4 when there is enough water.

The private water trucks sell water at about Lp 8 or Lp 9 depending on the area. The water trucks prefer to sell the water in bulk to the private water tank owners rather than in small quantity to individual households. Private water tanks owners then resell water at Lp 9.

The CESAMO Alemania receives water from SANAA truck directly into their tank. Delivery is once a week and is free of charge. This amount is insufficient so sometimes the CESAMO closes due to lack of water or has to be supplemented by buying water from the private water trucks.

Water Quality

The water from SANAA that is delivered to the community tanks are chlorinated by the communities. The water quality from private water trucks are suspect as the source is unknown. MSP regulates the quality by checking the water at the source and in the trucks. They could close down the water source if found contaminated or below quality, fine the supplier, and/or suspend sale of water from the offending water truck. However due to the acute nature of the water shortage, the people insist on having the water even knowing that it is contaminated.

Latrines

The MSP has undertaken four latrine building projects so far but due to the ever increasing influx of new settlers, there remains a shortage of latrines. Of the 194 composting latrine built, 100 are still operational. The project to build 205 simple latrines has only completed 175 as the other recipients could not sustain themselves and had to move out.

Due to the sandy and rocky nature of the soil in the community, they do not experience overflowing of the latrines when it rains.

FHIS has sponsored building of the latrines. FHIS provides the material and the personnel to built the above ground structure. The recipients are responsible to dig the pit for the latrine which is about 2.5m deep x 0.7 x 0.9 m dimension. Health promoters/CESAMO personnel checks the hole for conformity.

Solid Waste

There is no rubbish disposal service from the municipality. Household waste is either buried or burned. The CESAMO and community runs campaign to educate the community regarding the handling of waste.

Water Board Setup

The water board is composed of 8 members and their office period is 2 years. The water board members are not getting paid, their work is voluntary. The personnel in charge of the water distribution and control is composed of 3 supervisors, 1 secretary, 1 pump controller and a plumber. In the beginning the affiliated people paid Lp 2 per barrel. The former water boards were corrupted and a lot of money was missing. In order to pay the debts due to the previous corrupted boards the price of the barrel was increased. The affiliation fee is Lp. 201.00 (200 for affiliation and 1 for the id card).

There are 5 members of the board; President, Fiscal Officer, Treasurer, Secretary, and Vocal. Vocal can act for any other member of the board in their absence. They are "permanent" positions but can be replaced in unsatisfactory/non-performance of their duties. The present board members assumed their position in January 1996. Before this, the function of the water board was performed by the Patronatos.

Water Management

1. Purchase of Water from SANAA

The Water Board has a bank account with three signatories i.e. President, Fiscal Officer and Treasurer. When they want to purchase water from SANAA, all three must go to the bank to withdraw the money.

They then proceed to SANAA's main office to pay for the water. They purchase 29,600 gallons at Lp 296 (i.e. Lp 0.01/gal). After paying for the water they get a receipt. With this receipt they then proceed to Banadessa.

At Banadessa, they pay for the transportation charges of the 29,600 gals which amount to Lp 900. With the receipt for the transportation, they then go back to SANAA's main office.

With the two receipts (i.e. for water and transportation cost), SANAA then issues them an authorization letter which they then take to UEBM (Unit Ejecutivo Barrios Marginales). At UEBM, they are issued 10 sets of invoices which they are to give to the Controller at the SANAA's water truck filling station. Each invoice is for a truck load of 2,960 gals of water. They will therefore receive 10 truck loads of water totalling 29,600 gallons.

The schedule of water truck deliveries will depend on SANAA. SANAA has 1 big and 2 small water trucks that deliver water to marginal areas and during emergencies. V.Cristina sometimes get daily delivery or at worst, 2 or 3 deliveries per week. The water trucks operate Mon to Fri and half-day on Sats.

2. Sales of Water to Community

The Water Board manages 3 community water tanks. At each of these water tanks, there is a woman in-charged of sales. Sales are in cash. The expected sales of each tank is about Lp 250 of which Lp 25 is given to the saleswomen to maintain, clean the tanks and to purchase consumables (such as brooms and chlorine).

Sales are conducted from 7-11am and 2-5pm as the saleswomen have to prepare lunch for the family. Sales are to small buckets which can be carried on the head or hand carried. Small carts may be used to transport the buckets if the road is not too bad. Large volume sales example to 50 gal drums are prohibited due to the limited water and to ensure equitable distribution to the whole community.

Inhabitants living far away from the community tanks sometimes prefer to buy water from private water trucks or nearby private water tanks. Some areas rely 100% on private water supply due to distance constraints.

Private Water Supply

The number of privately owned water tanks reselling water to the community are:

Sector 1 - 3 nos, Sector 2 - 6 nos, and Sector 3 - 6 nos. There are about 12 private trucks that deliver water to the community. These private water suppliers oppose the planned water supply projects by JICA as obviously it would affect their water sales.

Water for Laundry

Purchased water is normally used only for cooking and drinking. Rainwater collected when it rains, is for washing. Some inhabitants travel to a nearby river by bus to do their laundry as the Lp 5 bus charge is economical.

Firewood Cost

They buy firewood from trucks or nearby stores. Depending on the size of the piece of wood, it could cost from Lp 0.5 to Lp 1.50. To cook 3 meals a day would normally use Lp 9 of firewood (i.e. each meal's firewood would cost Lp 3). Family cooking tortilla for sale would use about Lp 20 of firewood per day. The restrictive cost of firewood is one reason why boiling of water is not more commonly done despite the knowledge that the water may be contaminated.

Villa Nueva, Tegucigalpa - Field Survey

Water Board

President of the Water board - Pedro Montano Gonzalez - was elected by the community in May/95. The water board is composed of 8 members and their office period is 2 years. The water board members are not getting paid. Their work is voluntary.

The personnel in charge of the water distribution and control is composed of 3 supervisors, 1 secretary, 1 pump controller and a plumber.

• Affiliated Members

There are about 25,000 inhabitants in the community. Affiliated members are about 1,800. The affiliation fee is Lp. 201.00 (200 for affiliation and 1 for the ID card). Only affiliated members may buy water from the community water faucet.

In the beginning the affiliated people paid Lp 2 per barrel in cash at the faucet. The former water boards were corrupted and a lot of money was missing. In order to pay the debts due to the previous corrupted boards the price of the barrel was increased to Lp 3. To buy the water, coupons must now be bought at the office of the water board and not in cash at the faucet.

Water Supply System

The water system serves 7 sectors with 160 public faucets. The system has 1 main tank with a capacity of 40,000 gal (150 m³) and 7 sub-tanks of about 3,900 to 15,000 gal. The total capacity of all 7 tanks is 54.9 gals. The main tank is connected directly to SANAA's main supply pipe. SANAA supplies water from 7 pm to 7 am and in very rare occasions during the day.

The night time supply to the main tank is not ideal as the switch for the pump to the upper tanks are not automatic. The switches for the different tanks have to be manually turned on and off according to a predetermined filling time (determined by the capacity of each tank). A water board staff therefore has to be present to control the switches manually according to the time each tank takes to fill up. As night time security is a problem, staff only stay until midnight.

As the capacity of the main tank cannot fill all the 7 sub-tanks for the day, the water supply to the sectors are staggered according to a weekly schedule with each sector receiving water about 2 -3 times a week.

• Alternative Water Supply

Private mobile tanks sell water for Lp 8 - 9 a barrel.

They have tried perforating wells but the quality of the underground waters in this area is very bad.

Water Management

There are 5 persons in charged at each faucet to collect the coupons for the water. The maximum number of barrels allowed per week per household is 4 when there is enough water. Families own 50 gals barrel which they take to the faucet for filling when there is water to be bought. The barrels placed around the faucet is filled one at a time. Each family then empties their barrel into smaller containers to take back to their houses which average about less than 50 m from the faucet. There are some which use hose to siphon the water from the barrel into their houses if downhill of the faucet. If there is still water after the first round of filling the barrels, a second round of filling is done.

There has been cases of affiliated members selling their water coupon to friends that are avoiding to pay the affiliation fee. The water board is trying to eliminate this by making

sure that affiliated members can only buy no more than the maximum water coupons per month i.e. for 16 barrels.

1.2 Rural Areas

The rural areas do not generally have water supply or sewage network. Their water supply are from individual wells or springs which are located close to their communities. Latrines, if any, are simple pit latrines.

1.2.1 Chogola, La Esperanza Municipality - Field Survey

Demographic / Geographic Information

Population - 510 , 67 head of families, 99 kids of schooling age

Location - South of La Esperanza, about 5 km away

Water Supply

There are no water wells or springs near the community. The central area inhabitants have to walk about 30 minutes to the nearest spring. Since the community is in the higher part and the springs are in the lower part, the steep slopes makes it very difficult to collect water. Women and kids collecting water have been injured after falling on the steep slopes.

The existing school is being extended by funding from FHIS. There is no water supply in the school. The nearest water supply is about 20 minutes walk down a steep slope.

Latrine

The majority of the houses do not have latrines.

Possible Projects

• Water Supply

Due to the rocky soil about 15m below ground, the community has not been able to manually dig below that level to the water table. Some wells could be dug by using a drilling rig to solve the problem of water access. These wells would be hand operated.

• Latrine

Simple pit latrine construction could be encouraged by providing the material for the structure. Extension officer / health promoters will provide the technical advice for the construction of the latrine whilst the beneficiaries will provide the labour to dig the pit.

1.2.2 Oloas, Yaramanguila Municipality - Field Survey

Demographic / Geographic Information

- Population: 561 (100% Lenca) of which men-128, women-132 , girls-138 and boys-163.
- Houses - 116
- Areas - 3,000 manzanas (3,000 hectares)
- Altitude - 1,825 meters above sea level
- Location - South of Yaramanguila, about 15-20 km away

Water Supply

There are no wells in the community. Their water supply comes from springs located all over the community. Almost all the houses have springs nearby but during summer most of them dry up except for about 12 springs. The summer months are January - April. The water quality is not the same in all the springs.

The school has a piped water supply from a concrete tank (1.5 x 1.5 x 1.5m). This tank and the pipe network was funded by CCD (Cooperación Cristiana Desarrollo). The tank is located at a spring about 10 minutes walk away. This tank also supplies water to 8 families living nearby. These families and the PTA contribute towards the purchase of chlorine to chlorinate the water in the tank.

There are two small brooks near the community but these are contaminated so are not used as a source for water.

Latrine

50% of the houses have no latrines. The latrines are simple pit type. As the houses are quite dispersed and not concentrated, the lack of latrine is not critical and does not impose a health risk. Proper hygiene / education will prevent contamination of water source especially important during cholera epidemic.

Possible Project

Water Supply

COSEPRADII (Central Committee for Projects of Integral Development in Intibuca) has identified a water source located 20 km way from Oloas in El Cerron at an altitude of

1,905 m above sea level. The cost of buying the spring and 400 m² of land around it is L.p 10,000. The capacity of the spring is 37 gal/min and is to supply water to 80 houses. They are planning to construct a pipe water system to provide potable water to these houses. The technical and financial details of this supply route has not been worked out.

An alternative to this above project would be to dig some wells around the community to provide year-round water supply. These would be hand operated pumps and are not expected to be deep wells as there are springs around the community.

• Latrine

Construction of simple pit latrine could be encouraged by providing the material for the structure. The beneficiaries will provide the labour to dig the pit. Extension officer / health promoters will provide the technical advice for the construction of the latrine.

2. Concepcion Filtration Plant

The filtration plant in Concepcion utilizes water pumped in from Concepcion River and it is an ideal source of water supply for the city, due to the water level from the mountain summit. The raw water is yellowish brown with a pH of 7 during the dry season, dropping to a pH 6.2 during the rainy season; and 2.37mg/l of chlorine has been added. According to the plant manager, the treated water has a pH of 4.2 due to the effect of coagulants and the water has not been neutralized by lime. Tap water with low pH levels enhances corrosion in the plumbing, greatly damaging the city's plumbing network and eventually requires its entire replacement. Countermeasures against water leakage is extremely difficult and very costly. In comparison, the cost of lime is nominal. A water treatment system which takes into consideration all aspects of maintenance is required.

A new town is presently being constructed nearby; and although a road has been built, no conservation measures have been taken. In addition, pollution of the river head caused by an inflow of sewage water from the new town is inevitable. As a result, SANAA maintenance personnel are extremely anxious about maintaining the quality of the tap water. This situation has evolved due to the lack of public sanitation awareness. City planning must coordinate aspects of the living environment such as water supply and waste water planning with environmental changes brought on by development projects, i.e. an environment impact assessment is required. Development projects such as the new town planning, must use guidelines for environmental impact assessment prepared by SEDA.

3. Los Laureles Filtration Plant

The Laureles filtration plant receives its water from Guaserique; and the treated water is neutralized by lime at this plant.

4. Picacho Filtration Plant

The Picacho filtration plant receives water from the reservoir created by the San Juancito River dam. The Picacho filtration plant presently adds chlorine to its raw water which is then passed through a simple settling basin before it is supplied to residents. Additional coagulating sedimentation treatment and sand filtration tanks are presently being built. When these facilities are completed, a supply of good quality water will be available.

5. Water Quality Survey Result

5.1 Dissolved Oxygen and Oxygen Consumption Rate in Río Choleteca

Measurement data on flow volume, electric conductivity, dissolved solids, dissolved oxygen, concentration of nitrate/nitrogen and load volume per day, concentration of nitrite/nitrogen and load volume per day, concentration of ammonia/nitrogen and load volume per day, pH levels, alkaline levels are shown in Tables 2 , A-1 to A-15.

According to the data mentioned above, the heavy volume of water flow during the rainy season has a low concentration of dissolved solids and a high concentration of dissolved oxygen. During the season when water flow volume is low, the conditions are reversed. A low concentration of dissolved oxygen throughout the river basin indicates a high rate of oxygen consumption. This signifies that organic decomposition by micro-organisms is actively taking place in areas near the river mouth.

The location of sampling points of volume of dissolved oxygen and the rate of oxygen consumption in Cholulteca River are shown in Figure 1. The results of the survey done on July 11 at location A,B,C,D and on July 17, 1995 at location E & F are shown in Table 3.

Fish habitats were observed at all survey sites, but fish appear to have escaped to unpolluted tributaries such as site B in areas when the concentration of oxygen was below sustainable limits.

The dissolved oxygen value was similar to data obtained from a 1989 survey carried out during the wet season. Despite the comparatively low rate of oxygen consumption, the concentration of dissolved oxygen in the sludge area accumulated in the riverbed was about 0.1mg/l; and it was discovered that the degree of pollution in the sedimentation of the

riverbed was extremely high in comparison to the surface water flow. Pollutant load stemming from stock farming carried out along the entire Choluteca River basin is also suspected, in addition to human and industrial wastes. Large areas of cleared forest land were used as pasture rather than for agricultural purposes; and the grassy riverbanks were used for grazing. This pollutant load in the river basin is the cause of the low concentration of dissolved oxygen found downstream as shown in Table 3.

5.2 Residual chlorine concentration of service water in various areas

In the Honduras, if well water is utilized as a source of water, chlorine sterilization is rarely carried out. For example, only two wells implemented chlorine sterilization out of the 80 wells averaging a depth of 80m managed by DIMA in San Pedro Sula, while the remaining 78 locations did not take any measures at all. Bacterial tests on water from these two wells was carried out once every two months and the water tank located throughout the city were tested for bacteria once a month. According to DIMA's data on water quality analysis, the standard level of residual chlorine concentration was 0.5mg/l. In addition, the filtration plants in Concepcion, Laureles, and Picacho implement chlorine sterilization since the water of Tegucigalpa is sourced from rivers. In the case of the filtration plant in Concepcion, the concentration of chlorine being added was 2.3mg/l during an observation visit.

The following sampling sites are given below. Several locations were sampled in the larger cities. Residual chlorine was measured using the Orthotolidine (OT) colorimetry method. The results of the survey are in Table 4.

Francisco Morazan:	Cedros, Valle De angeles, San Juan De Flores, Villa De San Francisco, Las Mesas, La Venta, Tegucigalpa
El Paraiso:	Molloceli, Ojo De Agua, Hoya grande, Jacaleapa, Danli
Comayagua:	Flores, Comayagua, San Jeronimo, La Libertad
La Paz:	La Paz
Yoro:	El Progreso, Santa Rita, El Negrito, Morazan, Yoro
Cortes:	San Pedro Sula
Santa Barbara:	Trinidad, Chinda, Santa Barbara
Copan:	Frorida, Santa Rita, Copan Ruinas
Choluteca:	Mororica, Apacilagua, Choluteca
Valle:	San Lorenzo

Of the 33 locations sampled above, the following were the only two locations where residual chlorine was detected.

Francisco Morazan:	Villa De San Francisco - residual chlorine concentration of 0.2mg/l
El Paraiso:	Moroceli - residual chlorine concentration of 0.2mg/l

Of the locations listed above, four-fifths of the tested samples were tap water taken from the health centers. Samples were also taken from the following hospitals.

La Paz
Comayagua
Santa Barbara
Danli
San Lorenzo

Note: Residual chlorine concentration of the tap water in Miami was 1mg/l.

5.3 Choluteca

In Choluteca, public tap water is a mixture of underground flow water drawn from an intake facility installed in the riverbed and river water taken from a nearby mountain. In addition, a well was dug near the rivers and its groundwaters have been used as municipal water. The utilization ratio of water from a river source as public tap water is high.

6. Water / Sewage Treatment Recommendation

6.1 Groundwater

The groundwater of deep wells often contain iron and manganese

ions due to the geological features of the area. When chlorine disinfection is carried out, these heavy metals become oxides and they are the cause of turbidity and discoloration. Subsequently, when such raw water is used for tap water, it must be treated using contact removal methods such as oxidation and coagulating sedimentation or manganese sand filter media. If land space is readily available, these heavy metal ions can be treated using a biological filtration method that utilizes oxidation adsorption removal. Extremely hard groundwater can be treated by employing softening treatment. Water with a high concentration of alkalinity must be neutralized using acid. Hence when securing tap water volume, various water quality adjustment methods are required according to the water quality conditions of the area. Use of groundwater and fluvial water which have been polluted by human and livestock wastes is unavoidable when no other suitable water source is available. In such cases, the water is biologically pre-treated, its pollutant load substances are largely removed, and pre chlorine treatment followed by either coagulating sedimentation or sand filter treatment is carried out. The waste water itself can also be released after thorough biological treatment. These methods should be studied as specific public health countermeasures. They can be implemented on a trial basis according to area and it should be propagated as a project to improve the basic living standards of the people.

6.2 Chlorination

Chlorine disinfection prevents the spread of waterborne infectious diseases such as cholera and diarrhea which are passed on through carriers. As a result, tap water is potable without heat sterilization.

The chlorine consumption volume greatly differs according to pollution conditions. The differences in water quality is related to the volume of pollution load. In the case of shallow wells, the pollution load depends on the degree to which livestock excrement and human wastes have permeated the water.

In terms of public sanitation, tap water should never be contaminated by viruses or by organisms which may have been contaminated by viruses. Water pipes which supply this water must also prevent contamination from the external environment. As a countermeasure against such contamination, chlorine is usually added to service water as a means of sterilization; and it is mandatory that residual chlorine is detected when water is run from the tap. Residual chlorine is categorized as either free residual chlorine or bonding residual chlorine. These two categories are distinguished by different set standards, since the latter is weaker in sterilization strength.

Reduction substances such as organic substances, iron, manganese, etc. will consume chlorine even if it is added at the source of the water supply. Furthermore, ammonia and amino acids and amines and chlorine will react and produce chloramine which is a bonded chlorine, which is weak in sterilizing power. When chlorine consuming substances are present in the water, the volume of chlorine which is added must be higher than the volume of chlorine consumed, in order for residual chlorine to be present.

As a result, when chlorine which is added at the filtration plant, but is not detected in the tap water, indicates that an insufficient amount of chlorine is being added and that bacteria are not being sterilized.

When chlorine is added at the filtration plant or water supply facility, the required volume of chlorine is determined after the consumption volume has been measured. If this procedure is followed, tap water will become potable.

It is necessary to reassess and recognize the recommendations compiled in the WHO report, "National Plan on Hygienic Drinking Water", which promotes the supply of safe, chlorine sterilized water.

6.2.1 Residual Chlorine

Residual chlorine in the tap water was not found in samples taken at several sites throughout the city. Consequently, each respective filtration plant must carry out a jar test on the raw water; and taking measurements of the chlorine consumption volume must be made an

obligatory maintenance work. Under present conditions, the city's tap water is not suitable as drinking water and improvements are required.

Samples of service water taken from various water pipes in Choluteca were measured for their concentration of residual chlorine. However, no residual chlorine was found in any of the samples. If the water upstream was contaminated with infectious bacteria of the intestinal organ and water treatment was inadequate, there is an alarming possibility that tap water would be the source of virus contamination over a wide area. In order to prevent this, the frequency with which the source of tap water is measured for chlorine consumption volume should be increased; and residual chlorine should always be detected in tap water. It is recommended that an ample volume of chlorine is added.

6.3 Aerated Lagoon

Pre treatment methods by settling basin or aerated lagoon will easily reduce the bacteria count in the water from about 10^7 /ml to 500/ml and thereby, greatly reduce the volume of chlorine consumption.

For areas which must rely on river water high in organic pollutant load as a municipal water source, biological treatment by aerated lagoon should be utilized as one means of securing a safe, economical, and superior water purification system.

6.4 Maintaining the pH in tap water

Maintaining the pH level of tap water to within the range of 5.8 to 8.3, is not only essential in terms of public health, but it is also extremely significant in preventing corrosion of concrete and steel, a key component in waterworks facility maintenance. The Concepcion filtration plant in Tegucigalpa employs a combined treatment method using aluminum salts as a coagulant and poly-electrodes as a coagulant aid. Coagulant pH is kept at 4.2 and neutralization by lime is not carried out; and water with a pH level of 4.2 is supplied. When water with such low pH levels is supplied, there is a high risk of corrosion occurring in the water pipes. In Tegucigalpa 35 percent of the water supply contains water which has leaked in from water pipes. Water with low pH levels is the cause of an increased ratio of water leakage. Repair work is extremely costly and time consuming. Subsequently, neutralizing procedures must be immediately implemented.

7. Master / Action Plan for Water and Sanitation

UNICEF/SANAA has initiated the Preparation of Municipal Water and Sanitation Plans for the national level. Their aim is to obtain funds to implement the municipal plans based on low

cost technologies and promote the rational use of water and financial resources. Infrastructure construction for water projects is being managed by MSP in small communities and by SANAA in larger ones. A few cities, such as San Pedro Sula (with DIMA) manage their own system, an orientation strongly supported under the State Modernization plan.

To promote the decentralisation of water management and services to the municipalities, training of technicians has begun in 35 municipalities in water storage, liquid waste and sanitation areas. Eventually enough municipalities' technician will be trained to undertake and manage the municipalities' water and sanitation plans.

The availability of washable or hydraulic latrines was 50-67% in urban and 6% in rural areas, whereas the figures for simple latrines were 29-34% and 26% respectively. The large majority of waste water and sewage flows directly back into the river, for the lack of treatment plants. Garbage disposal is organized in the main cities and garbage is used as landfill. Elimination of hospital biological wastes by burning is not yet universal, as not all hospitals have incinerators.

8. Strategies

8.1 Generic Strategies

For generic strategies pertaining to national, regional and local level plan of action, refer to the main report section 6.1.1 (3).

Based on data compiled from the survey, there appears to be inadequate awareness and knowledge on the part of waterworks and waste water related personnel regarding their work roles. If such personnel were more informed about their jobs from a public health aspect, there would be a better quality of tap water available. Personnel who perform their work perfunctorily and with only superficial knowledge, must be educated and made aware of the significance of water treatment, the social impact of the entire waterworks and waste water sector, and the need to acquire basic knowledge. Pursuing a policy of decentralization without educated and informed personnel will undermine the great effort being expended.

Specifically, emphasis has been placed on raising the dissemination rate of tap water, while the most basic and important element in public health, water quality, has been neglected, as exemplified by the fact that presently tap water is unsuitable as drinking water. This is also seen in the low recognition of the need for waste water treatment. Countermeasures in preventive medicine must include steps to maintaining good water quality for human consumption.

The following five countermeasures are proposed.

1. Comprehensively disseminate public health information to the public.

2. Work personnel engaged in the public sanitation sector such as waterworks and waste water treatment will undertake a training course in public health and environmental education related to public health.
3. Establish a national system of qualification and provide technical training in waterworks and waste water treatment.
4. Establish regulations pertaining to water pollution and waste water quality control for riverheads and basins.
5. Execute and enforce environmental laws.

The Environment Law enacted in May 1993 covers all of the circumstances explained above. However, executing and enforcing this law involves various factors such as improving the bill concerning municipal law, pertinent departments and agencies, establishing a management system to oversee its implementation, etc. Immediate improvements are needed in order to achieve results.

8.2 Issues Pertaining to Medical and Health Care Institutions

8.2.1 Reducing bacteria in service water

Residual chlorine was not detected in any of the service water samples taken from hospitals in Comayagua, La Paz, and San Lorenzo. In San Lorenzo, tap water was supplied by a water tank with 15 day storage capacity (90m³). Subsequently, chlorine was consumed due to the long storage time. A UV sterilization unit has been installed in the surgery room, but ideally, water should be pumped into an elevated water tank where chlorine is added in order to sterilize the entire volume of service water.

Hospitals where tap water is directly supplied by SANAA, have elevated water tanks with a 15m³ storage capacity and hypochlorine is easily added, in fixed quantities by a simple device for sterilization. The spread of this type of sterilization method is recommended.

8.2.2 Tap water by boiler

Boilers are vital facilities in hospitals; and breakdowns disastrously affect daily hospital management and capacity. They were the cause of a drop in the number of patients that one hospital was able to accommodate. The quality of groundwaters particularly, are affected by geological factors and it is not uniform. The hard water composition of these waters taken from a segment of the SANAA references are shown in Figures. 2 and 3.

Scales are formed in the interior of the boiler when very hard water is used . Water high in alkaline produces carbon dioxide from thermal dissociation and causes corrosion in the boiler. It causes the water in the tank to become alkaline at an extremely high pH level, according to the performance of the boiler used, and the alkaline causes the steel to deteriorate. The quality of the water supplied from the boiler must be analyzed and the necessary water treatment and management procedures should be undertaken.

8.3 Strategy - Decentralization by SANAA

Waterworks in the cities, towns, and villages, excluding San Pedro Sula are managed by the public waterworks company, SANAA. Due to financial problems, SANAA is planning to transfer some aspects of waterworks to the respective cities, towns, and villages.

With the exception of Choluteca and La Ceiba which are financially well off, the national government is planning to allocate some assistance to the remaining 270 autonomous governments.

Water service companies should have its own financial base and should be managed on a self-supporting system of accounting. In areas where the share of revenue from users are inadequate, improving the dissemination rate of waterworks and raising revenue through increased rates are difficult. Financial assistance is needed from general public accounts until the water service companies are capable of self-management. Therefore, the financial state of autonomous local governments is the key factor to decentralization. The independent water supply company, DIMA, operates in San Pedro Sula. However, DIMA's expanded water supply facilities are largely supported by foreign aid and it is not managed on a truly self-supporting system of finances. In Puerto Cortes, water service is supplied by a private company which is managed on revenue generated from water rates.

Decentralization is a segment of this country's modernization plan, but it can not be divorced from tax and law reforms and improvements which stimulate regional economic activities. In order for the cities, towns, and villages to efficiently implement the business of water services, a vital issue is to establish a self-supporting system of finances rather than resolving a technical problem.

In order to achieve decentralization, national and regional functions and responsibilities must be clearly demarcated. National and regional governments must adjust their public finances in relation to each other, in order to efficiently implement its administrative affairs. This financial adjustment will stem from an adjustment of financial resources (distribution of national and regional taxes) and a realignment of tax resources. Even if the national and regional governments secure the required financial resources following an adjustment and a realignment of finance and tax resources, the definition of "required resources" between the national government based on authority and the regional government concerned with providing a segment of services for its citizens, will differ.

Financial readjustment will be secured through realignment measures based on a very strict definition of financial resource adjustments, which will be attractive to both national and regional governments. In order for water services to become financially independent through revenue generated from water service rates, the users must be capable of paying the rates. If this is difficult, subsidies from the national government are essential. Assistance is unavoidable, if independently managed water companies cannot expand or build new water facilities or develop water resources. As exemplified by the case of San Pedro Sula, it is possible for a city to develop its water services by relying on a segment of foreign aid.

The generic strategies proposed in Table 5 are for the short to long term perspective for water and sanitation development. It is based on a premise of rationalization and decentralization of the water authorities and services to improve efficiency of services. There will still exist a need for a centralized body to coordinate the national water and sanitation policy and act as the central depository and dissemination of information and technical expertise. National level planning and coordination is essential to effectively manage and systematically develop the nation's water and sanitation services in line with national policies / framework in cooperation with foreign donors financial and technical support.

The success of decentralization and development of water services will depend very much on the active stimulation and development of the regional economy and the continued efforts towards rationalization of the organization of the water authorities and their demarcation of responsibilities.

9. Conclusion

This public health survey has shown the need to reassess the importance of technical aspects such as facility maintenance and water quality control, as well as the issue of residual chlorine. Issues of organizational rationalization / decentralization will need to proceed with a long term view to eventually empower the communities to manage their own water and sanitation requirements. There will be a need for continued foreign assistance to meet the financial and technical short-falls.

Table 1. Water and Sewage Service Levels and Areas

	COVERAGES,%			
	1974 Census	1988 Census	1991 ENESF	1992 extra
1) Water Supply				
a) Urban Area				
- By domestic connection	75.26	79.62	82.10	82.90
- By easy access	15.25	6.27	7.20	7.50
TOTAL With System	90.51	85.89	89.30	90.40
Without System	9.49	14.11	10.70	9.60
b) Rural Area				
- By domestic connection	12.88	38.64	39.80	40.20
- By easy access	8.36	6.40	11.60	13.30
TOTAL With System	21.24	45.04	51.40	53.50
Without System	78.76	54.96	48.60	46.50
c) Country				
- By domestic connection	32.61	55.74	58.50	59.40
- By easy access	10.54	6.34	9.60	10.70
TOTAL With System	43.15	62.08	68.10	70.10
Without System	56.85	37.92	31.90	29.90
2) Sewage disposal				
a) Urban Area				
- By domestic connection	41.94	52.69	50.30	49.50
- Other means	36.85	35.11	39.80	41.40
TOTAL With System	78.79	87.80	90.10	90.90
Without System	21.21	12.20	9.90	9.10
b) Rural Area				
- By domestic connection	1.60	8.13	5.70	4.90
- Other means	9.00	29.91	37.40	39.90
TOTAL With System	10.60	38.04	43.10	44.80
Without System	89.40	61.96	56.90	55.20
c) Country				
- By domestic connection	14.35	26.73	25.50	25.10
- Other means	17.81	32.08	37.50	39.30
TOTAL With System	32.16	58.81	63.00	64.40
Without System	67.84	41.19	37.00	35.60

Source: Situacion actual de sector agua y saneamiento de Honduras: Coberturas, PAHO/WHO, Oct 1993

Table 2. *Cuadro A-1 to A-15: Water Quality at 8 stations of the tributaries of the Río Choluteca in 1989*

Cuadro A.1 Temperatura del medio ambiente (°C) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	29	30	29	28	27	28	28.5	28
2	28	28	28	30	30	31	31	31
3	30	30	32	33	33	33	33	32
4	29	26	29	32	30	29	32	32
5	25	25	28	29	28	28	24	27
6	24	24	26	26	26	27	26	26
7	23	23	26	24	23	23	24	25
PROMEDIO	26.8	26.5	28.2	28.8	28.14	28.4	28.3	28.7

Cuadro A.2 Temperatura del agua (°C) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	26	28	28	26	25	26.5	26	27
2	25	24.5	25	28	27	27.5	28	27.5
3	25	25	26	27	29.5	28	29	28
4	25	22	26	25	26	26.5	28	26.5
5	22	21	24	23	24	25	24	24
6	21	22	22	25	25	25	25	25
7	22	20	23	23	23	22.5	23	24
PROMEDIO	23.7	23.2	24.8	25.28	25.9	25.8	26.14	26

Cuadro A.3 Caudal (m³/s) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	0.15	0.84	0.18	0.66	0.48	0.57	0.39	0.82
2	0.36	0.71	0.72	0.54	0.58	0.96	0.43	0.96
3	0.19	0.36	0.49	0.38	0.48	0.38	0.38	1.44
4	1.2	1.52	1.12	2.03	2.73	1.82	1.8	6.72
5	6.75	7.2	2.12	5.4	7.2	14	18	24
6	0.15	0.36	0.61	0.41	0.86	1.31	0.71	1.23
7	0.31	0.78	0.47	0.56	1.02	0.53	0.7	1.62
PROMEDIO	1.30	1.68	2.22	1.42	1.90	2.79	3.20	5.25

Cuadro A.4 Conductividad (uhoms) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	800	310	590	800	600	700	900	750
2	450	150	280	430	600	600	1100	600
3	450	140	430	360	600	470	900	420
4	190	80	190	145	440	325	470	208
5	120	80	70	110	100	100	350	130
6	248	165	105	340	270	310	800	400
7	330	190	150	490	370	440	900	600
PROMEDIO	369.71	159.2	259.28	382.14	425.71	420.71	774.28	472.57

Cuadro A.5 Sólidos disueltos (mg/l) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	533.6	206.77	393.53	533.6	400	466.9	600.3	500.25
2	300.15	100.05	186.76	286.81	400.2	400.2	733.7	533.6
3	300.15	93.38	286.81	240.12	400.2	313.49	600.3	280.14
4	126.73	53.36	126.73	967.15	293.48	216.77	313.77	138.73
5	80.04	53.36	46.09	73.37	66.7	66.7	233.45	86.71
6	165.41	110.05	70.03	266.78	180.09	206.7	533.6	266.8
7	220.11	126.73	100.05	326.83	246.79	293.4	600.3	400.2
PROMEDIO	246.59	106.24	172.94	384.95	283.95	280.6	516.44	315.20

Cuadro A.6 Nitrato en (mg/l) las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1								
2								
3	0.88	0.22						
4	6.6	--	1.76	0.88	8.8	3.52	4.4	0.88
5	0.88	0.44	1.32	1.76	2.64	1.76	4.4	--
6	1.76	0.2	2.64	4.4	0.88	2.2	17.16	3.08
7	0.0	0.0	0.44	2.2	0.88	0.44	3.52	1.32
PROMEDIO	2.024	0.715	1.34	2.31	3.3	1.98	0.88	1.76

Cuadro A.7 Carga de Nitrato (g/día) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1								
2								
3	14.44	5.47						
4	684.2		170.31	154.34	2075.6	553.51	684.28	510.9
5	513.21	273.71	241.78	821.14	1642.2	2128.8	26687.	
6	152.21	68.42	139.13	155.86	65.38	249.00	215.9	327.31
7	0.0	0.0	17.86	106.44	77.55	20.14	53.22	184.75
PROMEDIO	272.81	86.9	142.27	309.44	965.20	737.88	6910.1	340.98

Cuadro A.8 Nitrito (mg/l) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	1.78	1.45	0.13	0.46	1.1	0.79	0.23	0.46
2	0.0	0.0	0.08	0.0	1.78	3.1	0.17	0.1
3	0.07	0.0	0.0	6.5	1.55	1.55	0.0	0.07
4	0.05	0.03	0.0	0.198	1.35	0.89	0.17	0.23
5	0.0	0.0	0.0	0.03	0.03	0.07	0.73	--
6	0.43	0.2	0.0	1.06	0.39	0.56	0.43	0.43
7	0.0	0.03	0.2	0.13	0.12	0.07	0.1	0.07
PROMEDIO	0.33	0.24	0.06	1.196.	0.902	1.00	0.26	0.194

Cuadro A.9 Carga de Nitrito (g/día) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	23.06	105.23	2.02	26.23	45.60	38.90	7.75	32.59
2	0.0	0.0	4.97	0.0	89.19	257.12	6.31	8.29
3	1.14	0.0	0.0	213.4	64.28	50.88	0.0	8.70
4	5.18	3.93	2.90	34.72	318.42	139.95	24.43	133.5
5	0.0	0.0	0.0	18.66	3.62	84.67	1135.2	--
6	5.57	6.22	0.0	37.54	28.97	63.38	26.37	45.69
7	0.0	2.02	8.12	6.28	10.57	3.20	6.04	9.79
PROMEDIO	4.99	16.77	2.57	48.11	80.09	91.15	172.59	39.76

Cuadro A.10 *Amonio (mg/l) en las 8 estaciones de los Tributarios del Río Choluteca en 1989*

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	11.47	1.27	3.1	4.15	6.02	10.0	14.64	18.78
2	8.05	0.73	4.14	8.4	23.67	15.86	6.95	8.42
3	0.79	10.98	3.66	7.19	12.07	7.8	11.47	13.91
4	0.85							
PROMEDIO	5.29	4.32	3.63	6.58	13.92	11.22	11.02	13.70

Cuadro A.11 *Carga de Amonio (g/día) en las 8 estaciones de los Tributarios del Río Choluteca en 1989*

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	148.65	92.17	176.77	236.64	249.66	492.48	493.30	1330.5
2	250.38	44.78	257.54	391.9	1186.1	1315.4	258.20	698.38
3	12.96	341.52	154.94	236.06	500.56	256.08	376.58	1730.6
4	88.12							
PROMEDIO	125.02	159.49	196.41	288.2	645.4	688.0	376.0	1253.1

Cuadro A.12 *Alcalinidad (mg/l) (CaCO₃) en las 8 estaciones de los Tributarios del Río Choluteca en 1989*

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	80	20	40	200	100	180	60	80
2	160	60	40	40	220	180	200	160
3	160	200	140	180	140	180	120	240
4	20	80	100	60	140	100	100	60
5	40	40	40	40	40	100	60	..
6	60	60	40	80	80	60	120	60
7	80	60	40	100	100	100	120	100
PROMEDIO	88.5	74.28	62.8	100	117.1	128.5	111.4	116.6

Cuadro A.13 pH en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	6.5	5.9	7.0	6.2	6.3	6.2	6.1	6.0
2	6.3	6.5	5.2	5.9	6.8	6.5	6.1	6.5
3	5.5	5.6	5.8	6.1	6.4	6.2	6.8	6.1
4	6.0	6.5	6.3	6.2	6.5	5.5	7.3	6.3
5	5.5	5.5	5.0	5.5	5.3	5.3	5.5	4.9
6	5.7	6.1	5.7	6.8	6.0	5.7	6.6	6.4
7	5.8	5.8	5.7	6.2	5.7	6.2	6.3	6.8
PROMEDIO	5.9	5.98	5.8	6.12	6.14	5.94	6.38	6.14

Cuadro A.14 Oxígeno Disuelto (mg/l) en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	0.2	1.5	1.3	0.1	0.15	0.15	0.25	0.1
2	5.0	5.8	2.5	0.9	0.8	1.1	0.9	1.1
3	4.4	2.9	1.1	--	--	--	--	--
4	5.2	6.7	5.0	5.8	2.5	3.4	4.5	5.6
5	7.6	7.6	6.4	6.5	6.0	6.3	5.8	6.0
6	7.1	5.6	4.0	7.3	3.8	4.6	1.6	5.1
7	3.9	3.8	2.9	3.9	0.3	2.2	1.7	2.0
PROMEDIO	4.77	4.842	3.31	4.08	2.25	2.95	2.45	3.31

Cuadro A.15 Porcentaje de saturación en las 8 estaciones de los Tributarios del Río Choluteca en 1989

MUESTREO AÑO 1989	ESTACIONES							
	1	2	3	4	5	6	7	8
1	2.47	19.20	16.64	1.23	1.82	1.85	3.09	1.25
2	60.67	74.26	30.33	11.52	10.06	13.83	11.52	13.83
3	53.39	13.59	--	--	--	--	--	--
4	59.63	78.83	61.80	70.38	32.01	42.02	57.61	69.22
5	92.23	85.33	76.19	75.93	71.42	76.45	69.04	71.42
6	79.77	64.22	45.87	88.59	46.11	55.82	19.41	61.89
7	44.72	41.89	33.87	45.56	3.50	25.22	19.85	23.60
PROMEDIO	56	56.7	39.7	48.8	28.	36	30	40

Table 3. Concentration of Dissolved Oxygen and Oxygen Consumption Rate of the Río Choluteca

No.	Survey Site	Dissolved Oxygen (mg/l)	Water Temperature	Rate of Oxygen Consumption (mg/l /day)
A	San Juande Flores	3.3	25.8°C	0.62
B	Tributary near Villa De San Francisco	7.25	25.8°C	0.36
C	Guadalara	5.3	26.3°C	0.72
D	Ojo De Agua	5.81	27.9°C	0.84
E	Morolica	7.1	30.2°C	0.72
F	Apacilagua	6.42	30.4°C	0.73

Note: Excluding B, due to soil particle suspension, the water was yellowish brown in color. Site E was a small stream and the high degree of aeration. For location of sampling points, see Figure 1.

Table 4. Concentration of Residual Chlorine in Tap Water

Date	Place	Location	Concentration of Chlorine (mg/l)
4 July 1995	El Progreso	Gas Station	0
	Santa Rosa	Grocery Shop	0
	Morazan	Grocery Shop	0
	Yoro	Restaurant	0
	El Negrito	Grocery Shop	0
	San Pedro Sula	Hotel	0
5 July 1995	San Pedro Sula	Gas Station	0
	Santa Barbara	Hospital	0
		Restaurant	0
6 July 1995	Tegucigalpa	House	0
7 July 1995	A'dea Palillos	Farm	0
	La Paz	Hospital	0
	Comayagua	Central Saloon	0
		Nat. Hospital	0
		Grocery Shop	0
	San Jeronimo	Sesal	0
	La Libertad	Central Saloon	0
		Restaurant	0
11 July 1995	San Juan De Floris	Central de Salud	0
	Vill de San Francisco	Salud	0.2
	Moroceli	Salud	0.2
	Ojo de Agua	Restaurant	0
13 July 1996	Las Medico	Centro Medico	0
	Ojo de Aqua	Cesar	0
	Jacaleapa	Cesar	0
	Danli	Hospital	0
		Restaurant	0
	Hoya Grande	Central Salud	0
16 July 1995	Siguatpeque	Restaurant	0
	Copan Ruinas	Hotel	0
18 July 1995	Choluteca	Hotel	0
	San Lorenzo	Hospital	0
	Tegucigalpa	Office	0

Table 5. Generic Strategies for Water and Sanitation Development

	Short-Term	Medium Term	Long Term
Nation Level Strategies			
• Improve Coordination and Management of Water Resources	Clarification and rationalization of roles & responsibilities at central level.	Clarification of decentralising of water resources management to regional/municipal level.	Clarification of decentralising of water resources management to local/community level.
• Water Resources Management and Protection	Technical cooperation to strengthen resources management and protection	Technical cooperation - Management & protection of micro basins decentralized to municipalities & communities especially for the model projects.	Technical cooperation to develop local water resources management & protection plans.
• Water Extraction/Safe Control	Legislation to control water harvesting and sale.	Nationwide enforcement of control.	Decentralize control to municipalities.
• Water Resources Inventory	Technical & Financial assistance for nationwide water resources inventory.	Technical & Financial assistance for regional/local water resources inventory.	Maintain and update water resources inventory.
• Decentralisation Strategy - technical transfer	Technical transfer from SANAA to the municipal staff.	Municipal staff to train community based staff (TOMAS) and target model project communities.	Technical transfer to all communities.
• Water Regulation	Implementation and enforcement of regulation.	Update Regulation in light of changed situation.	Update Regulation in light of changed situation.
• Liquid Waste Regulation	Implementation and enforcement of regulation.	Update Regulation in light of changed situation.	Update Regulation in light of changed situation.
• Training and Awareness	Technical assistance for training of trainers and establish professional standards.	Upgrading of technical abilities and standards nationwide by regional/ municipal training.	Upgrading of technical abilities and standards nationwide by community training.
Regional / Municipal Level Strategies			
• Development of Regional Plans	Upgrade technical abilities by training and technical / information support from central level.	Financial and technical assistance to develop regional/ water shed development plans.	Financial and technical assistance to develop local area plans with community active participation.
• Municipal Organisation & Staff Training	Technical cooperation for institutional strengthening & training	Assign Sanitation & Environmental technician to liaise with & train community water/sanitation board	Greater community initiative and support from municipality.
• Provision, Maintenance & cost recovery of network	Financial and technical assistance to reduce losses, maintain, improve network & treatment plants	Financial & Technical assistance to implement monitoring & maintenance system, and cost recovering scheme.	Financial & Technical assistance to maintain & extend system to unserved areas.
Community Level Strategies			
• Improve Awareness	Technical assistance and training and local initiatives	Community self improvement & training with technical support from municipality.	Community sponsored health awareness programs
• Ownership and Control	Technical assistance and training and local initiatives	Community ownership and control of model projects	Community ownership & control in other communities
• Active Participatory Approach	Technical assistance and training and local initiatives	Active community participation in water/sanitation project planning & implementation especially in model project areas	Active participation approach in other communities.

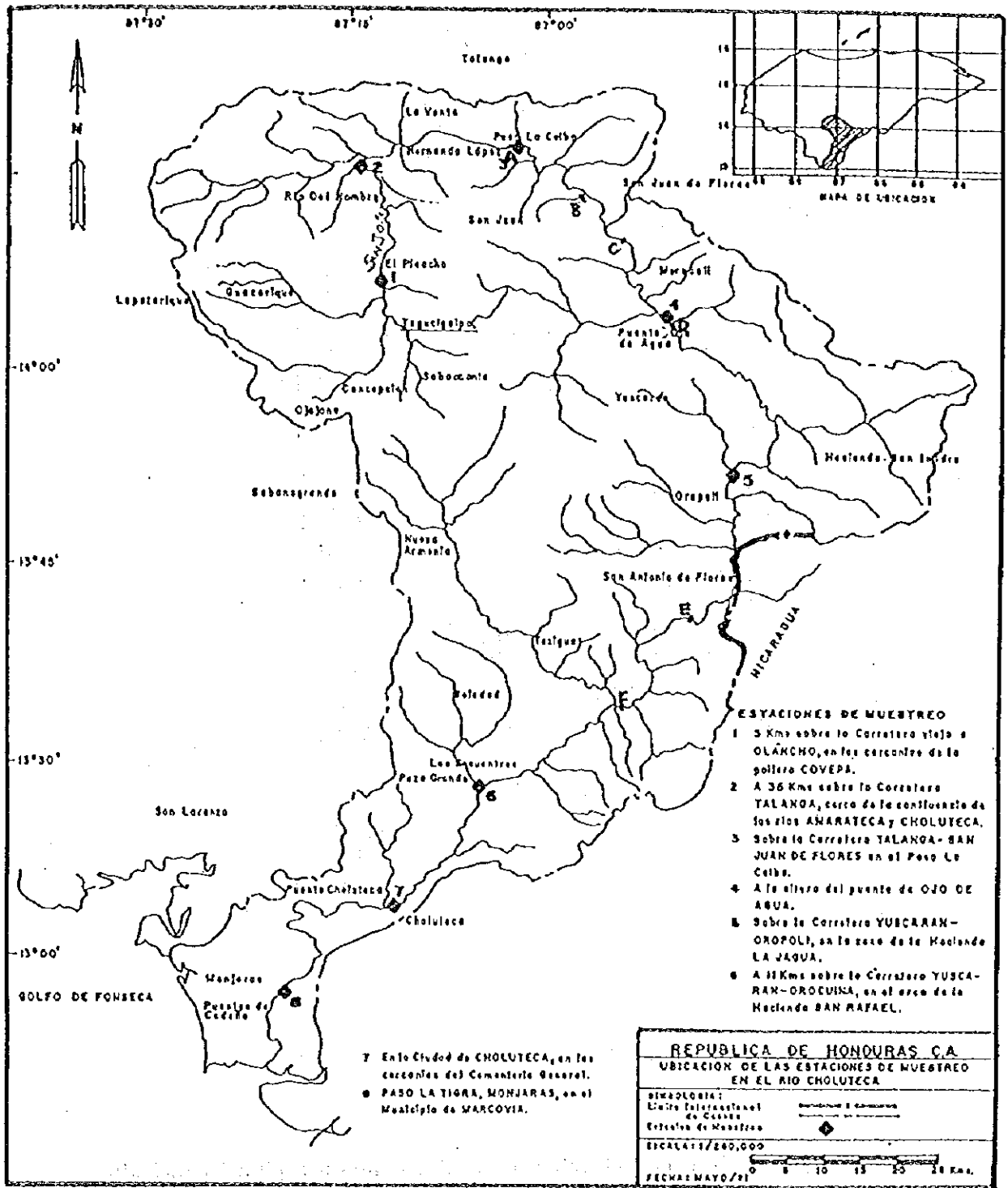
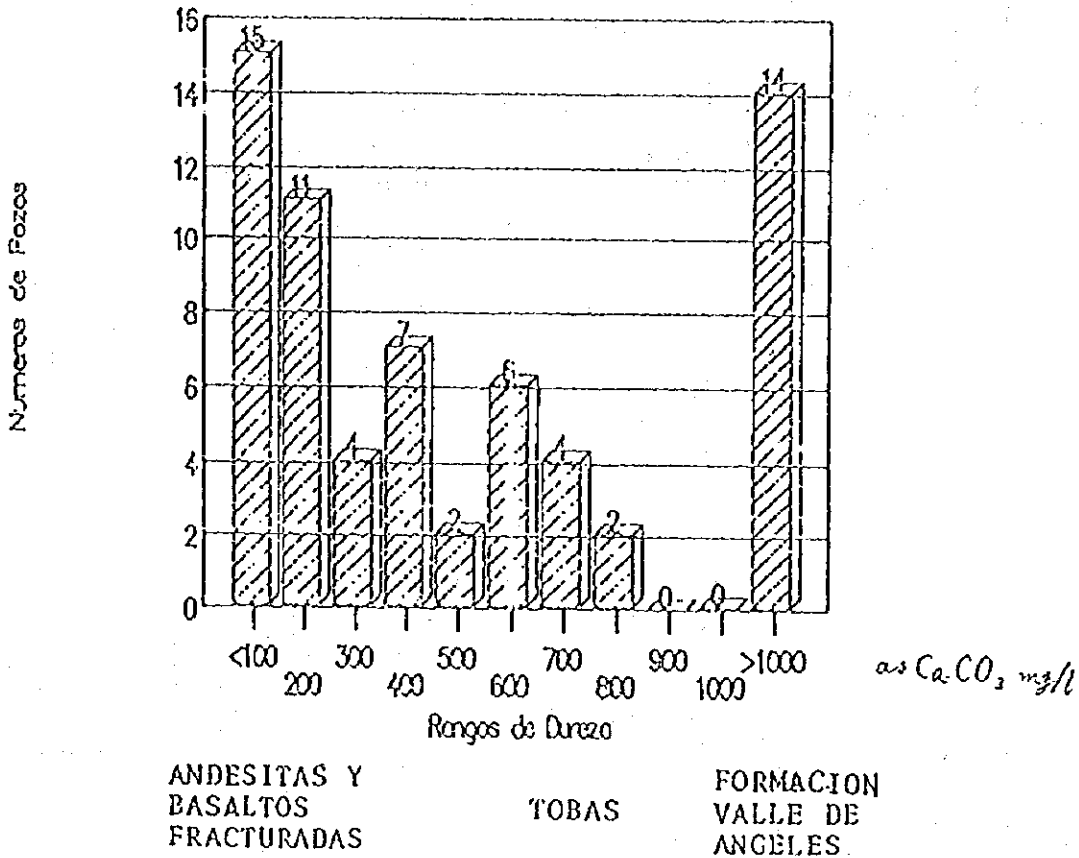


Figure 1. Sampling Stations of Río Choluteca

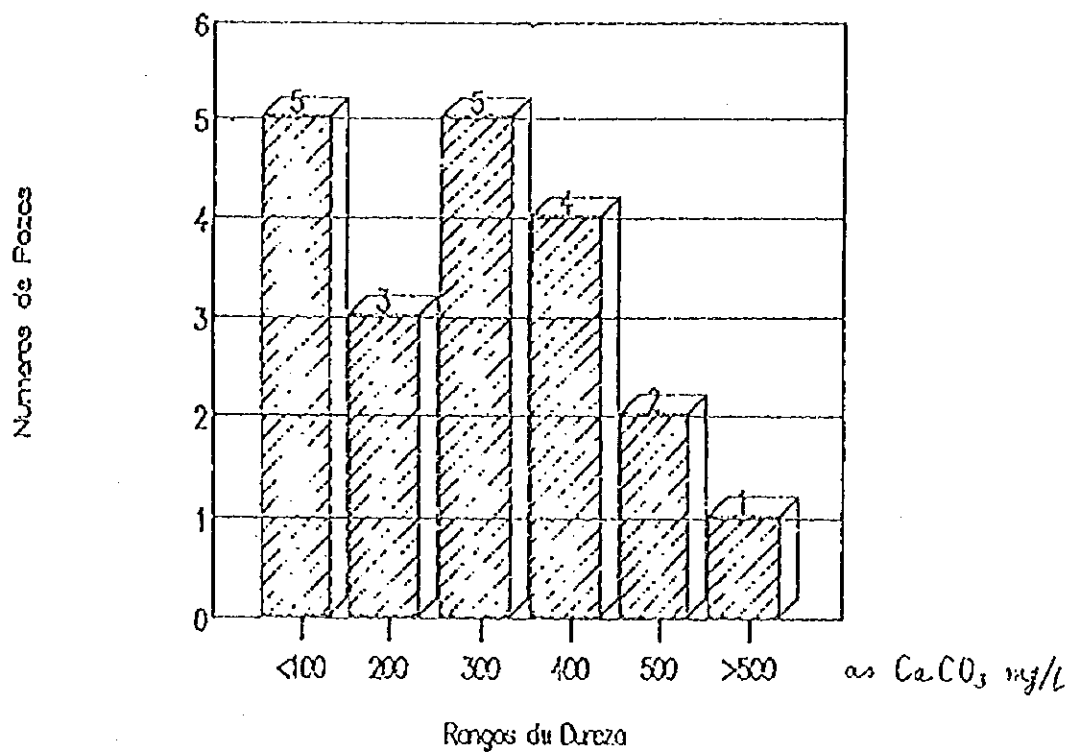
Dureza (Calculada)



TEGUCIGALPA (<100->1000)

Figure 2. Hardness of well water in & around the capital, Tegucigalpa

Dureza (Calculada)



DEPTOS. DE ATLANTIDA, YORO, CORTES (< 100 > 500)
 DEPTO. DE VALLE (70 - 190)

Figure 3. Hardness of well water in the country

E

EPIDEMIOLOGICAL INFORMATION
(Vector-born diseases and AIDS)

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EI. EPIDEMIOLOGICAL DATA ON MALARIA

Table 1. Number of Malaria cases, 1958-1994

<i>Year</i>	<i>Population</i>	<i>Exam.</i>	<i>Positive</i>	<i>Cases</i>	<i>C/B</i>	<i>D/C</i>	<i>D/B*1000</i>	<i>E/B*1000</i>
1958	1,570,162	27,051	2,048	953	1.72%	7.57%	1.30	0.61
1959	1,632,551	56,391	6,675	3,170	3.45%	11.84%	4.09	1.94
1960	1,695,047	109,577	5,517	1,737	6.46%	5.03%	3.25	1.02
1961	1,765,846	104,965	4,334	861	5.94%	4.13%	2.45	0.49
1962	1,832,044	239,655	5,750	593	13.08%	2.40%	3.14	0.32
1963	1,895,458	264,131	7,077	688	13.93%	2.68%	3.73	0.36
1964	1,955,822	207,000	6,673	641	10.58%	3.22%	3.41	0.33
1965	2,013,627	310,301	6,952	163	15.41%	2.24%	3.45	0.08
1966	2,083,612	360,802	17,127	1,204	17.32%	4.75%	8.22	0.58
1967	2,155,047	465,598	16,152	872	21.61%	3.47%	7.49	0.40
1968	2,230,056	584,896	15,666	4,281	26.23%	2.68%	7.02	1.92
1969	2,305,690	591,544	29,584	5,528	25.66%	5.00%	12.83	2.40
1970	2,397,253	357,436	34,537	5,878	14.91%	9.66%	14.41	2.45
1971	2,458,233	258,191	48,586	4,444	10.50%	18.82%	19.76	1.81
1972	2,544,767	226,579	18,651	852	8.90%	8.23%	7.33	0.33
1973	2,527,205	226,231	8,862	239	8.95%	3.92%	3.51	0.09
1974	2,115,615	287,842	7,503	150	13.61%	2.61%	3.55	0.07
1975	2,809,833	266,923	30,289	1,076	9.50%	11.35%	10.78	0.38
1976	2,908,867	295,128	48,804	2,603	10.15%	16.54%	16.78	0.89
1977	2,924,716	264,269	39,414	1,355	9.04%	14.91%	13.48	0.46
1978	2,972,560	236,650	34,554	2,541	7.96%	14.60%	11.62	0.85
1979	3,014,941	143,385	25,297	4,505	4.76%	17.64%	8.39	1.49
1980	3,024,276	175,623	43,010	5,768	5.81%	24.49%	14.22	1.91
1981	3,041,940	221,822	49,377	7,046	7.29%	22.26%	16.23	2.32
1982	3,148,034	322,802	57,482	4,232	10.25%	17.81%	18.26	1.34
1983	3,258,446	336,879	37,536	2,376	10.34%	11.14%	11.52	0.73
1984	3,350,315	452,184	27,332	1,589	13.50%	6.04%	8.16	0.47
1985	3,482,574	410,720	33,628	1,616	11.79%	8.19%	9.66	0.46
1986	3,626,908	411,150	29,130	1,236	11.34%	7.09%	8.03	0.34
1987	3,631,062	388,509	19,095	743	10.70%	4.91%	5.26	0.20
1988	3,655,085	421,474	29,737	405	11.53%	7.06%	8.14	0.11
1989	3,698,043	394,510	46,177	367	10.67%	11.70%	12.49	0.10
1990	3,708,706	418,513	53,099	659	11.28%	12.69%	14.32	0.18
1991	3,704,506	468,811	73,350	1,731	12.66%	15.65%	19.80	0.47
1992	3,923,519	471,950	70,838	1,216	12.03%	15.01%	18.05	0.31
1993	4,078,884	372,180	51,353	621	9.12%	13.80%	12.59	0.15
1994	4,194,854	361,776	61,082	654	8.62%	16.88%	14.56	0.16

Table 2. Malaria positive cases by region and area, 1-30 week of 1993

<i>Region</i>	<i>Area</i>	<i>M. ex.</i>	<i>Vivax</i>	<i>Fal / Mix</i>	<i>T. pos</i>
Metropolitan		732	105	0	105
I	1	10,022	1,310	30	1,340
	2	1,839	125	0	125
	3	3,122	132	0	132
	4	3,865	129	1	130
	total	18,848	1,696	31	1,727
II	1	5,247	1,205	0	1,205
	2	0	0	0	0
	3	5,819	853	0	853
	4	5,513	2,391	0	2,391
	5	229	19	0	19
total	16,808	4,468	0	4,468	
III	1	5,641	1,132	7	1,139
	2	14,860	3,502	146	3,648
	3	2,637	548	1	549
	4	5,753	112	0	112
	5	3,406	121	0	121
	6	7,865	2,353	9	2,362
	7	2,613	437	0	437
total	42,775	8,205	163	8,368	
IV	1	5,156	29	0	29
	2	15,841	162	0	162
	3	25,501	231	0	231
	4	2,644	36	0	36
	5	17,563	7	0	7
total	66,705	465	0	465	
V	1	9,833	38	0	38
	2	10,040	6	0	6
	3	6,722	16		16
	4	9,093	168	1	169
total	35,688	228	1	229	
VI	1	5,572	1,019	35	1,054
	2	4,727	332	1	333
	3	3,901	616	16	632
	4	16,356	2,211	16	2,227
	5	2,769	765	11	776
total	33,325	4,943	79	5,022	
VII	1	8,233	1,224	0	1,224
	2	5,595	1,450	0	1,450
	3	1,923	43	0	43
	4	2,041	320	0	320
total	17,792	3,037	0	3,037	
VIII		7,052	551	19	570
National Total		239,725	23,698	293	23,991

Table 3. Malaria positive cases by region and area, 1-30 week of 1994

Region	Area	M.ex.	Vivax	Fal / Mix	T. pos
Metropolitan		567	131	0	131
I	1	13,160	5,537	7	5,544
	2	2,066	530	0	530
	3	2,252	91	0	91
	4	2,779	229	0	229
	total	20,257	6,387	7	6,394
II	1	7,682	2,433	5	2,438
	2	4	0	0	0
	3	4,717	711	0	711
	4	5,156	1,971	0	1,971
	5	139	15	0	15
total	17,698	5,130	5	5,135	
III	1	9,814	2,105	61	2,166
	2	11,682	2,954	169	3,123
	3	1,761	355	9	364
	4	3,167	104	0	104
	5	2,445	82	0	82
	6	6,459	2,095	8	2,103
	7	2,630	697	0	697
total	37,958	8,392	247	8,639	
IV	1	2,835	35	0	35
	2	8,324	206	2	208
	3	12,309	355	4	359
	4	2,104	68	0	68
	5	852	19	0	19
total	26,424	683	6	689	
V	1	6,254	26	1	27
	2	7,689	9	0	9
	3	5,009	3	0	3
	4	6,330	380	1	381
total	25,282	418	2	420	
VI	1	3,259	623	14	637
	2	5,144	572	15	587
	3	8,757	1,201	54	1,255
	4	23,451	5,456	101	5,557
	5	4,934	988	7	995
total	45,545	8,840	191	9,031	
VII	1	9,730	2,764	11	2,775
	2	7,619	2,551	5	2,556
	3	875	58	1	59
	4	2,805	630	5	635
total	21,029	6,003	22	6,025	
VIII		7,477	671	65	736
National Total		189,662	36,655	545	37,200

Table 4. Malaria positive cases by region and area, 1-30 week of 1995

<i>Region</i>	<i>Area</i>	<i>M.ex.</i>	<i>Vivax</i>	<i>Fal / Mix</i>	<i>T. pos</i>
Metropolitan		563	112	1	113
I	1	7,221	1,648	1	1,649
	2	1,599	274	0	274
	3	2,004	40	0	40
	4	2,251	142	0	142
	total	13,075	2,104	1	2,105
II	1	6,800	1,584	7	1,591
	2	1	0	0	0
	3	3,380	441	6	447
	4	3,222	908	5	913
	5	45	9	0	9
total	13,448	2,942	18	2,960	
III	1	6,780	1,730	25	1,755
	2	957	259	20	279
	3	1,409	311	1	312
	4	2,303	89	20	109
	5	1,401	54	1	55
	6	1,984	491	13	504
	7	588	101	0	101
total	15,422	3,035	80	3,115	
IV	1	2,665	29	0	29
	2	6,189	180	0	180
	3	8,264	154	0	154
	4	1,255	14	1	15
	5	664	4	0	4
total	19,037	381	1	382	
V	1	3,644	30	0	30
	2	6,131	3	0	3
	3	5,406	16	0	16
	4	5,500	181	0	181
total	20,681	230	0	230	
VI	1	4,696	1,587	59	1,646
	2	3,626	438	8	446
	3	3,770	499	11	510
	4	8,103	3,022	110	3,132
	5	6,637	2,235	47	2,282
total	26,832	7,781	235	8,016	
VII	1	6,895	2,239	3	2,242
	2	5,514	2,390	3	2,393
	3	691	69	0	69
	4	2,348	490	4	494
total	15,448	5,188	10	5,198	
VIII		4,960	997	94	1,091
National Total		129,466	22,770	440	23,210

EII. EPIDEMIOLOGICAL DATA ON DENGUE

Table 1. Confirmed Dengue cases by age group, 1995

Age	Cases
<1	97
1-5	188
6-15	477
16-30	849
31-45	596
46-60	231
>60	133
unknown	30
Total	2,601

source; lab. central of virology

Table 2. Geographical distribution of Dengue by serotypes

Region	Locality	Type-I	Type-II	Type-III	Type-IV
Metropolitan	Tegucigalpa	20		47	8
	Comayaguela	7		31	11
	Rio Hondo			1	
I	Danli			3	
	El Paraiso			2	
	Santa Lucia		1		
II	Comayagua	1		2	1
III	San Pedro Sula	1		4	
	El Progreso	1		2	
	Chamelecon			1	
IV	Choluteca			3	
	Nacaome			1	
	San Lorenzo			1	
	Monjaras			1	
	la Libertad				1
V	sta. Rosa de Copan			1	
VI	la Ceiba			1	
VII	Juticalpa	2		36	6
	Catacamas	4		11	
	Campamento			1	
Total		36	1	149	27

Table 3. Distribution of confirmed Dengue case by region, 1995

<i>Region</i>	<i>Tested</i>	<i>Positive</i>	<i>%</i>	<i>Negative</i>	<i>Undetermined</i>
Metropolitan	2,741	1,483	54.1%	1,156	102
I	516	118	22.9%	334	64
II	41	6	14.6%	32	3
III	387	108	27.9%	245	34
IV	540	159	29.4%	291	90
V	1,743	493	28.3%	1,179	71
VI	153	29	19.0%	93	31
VII	584	205	35.1%	359	20
VIII	34	0	0.0%	14	20
Total	6,739	2,601	38.6%	3,703	435

by serology (IgM-ELISA) and/or virus isolation source; central virology lab. MSP

Table 4. Clinically or laboratory confirmed Dengue case by month, 1995

<i>Month</i>	<i>Clinical</i>	<i>Confirmed</i>
JAN.	153	33
FEB	139	9
MAR	114	14
APR	52	20
MAY	167	49
JUN	304	180
JUL	1,206	693
AUG	6,077	1,032
SEP	5,126	480
OCT	2,925	69
NOV	1,612	19
DEC	277	3

source; central virology lab. MSP

Table 5. Monthly distribution of confirmed Dengue cases by region, 1995

<i>Month</i>	<i>Tested</i>	<i>Positive</i>	<i>%</i>	<i>Negative</i>	<i>Undetermined</i>
JAN	116	33	28.4%	66	17
FEB	81	9	11.1%	54	18
MAR	101	14	13.9%	87	0
APR	86	20	23.3%	56	10
MAY	152	49	32.2%	85	18
JUN	440	180	40.9%	190	70
JUL	1,335	693	51.9%	473	169
AUG	2,085	1,032	49.5%	982	71
SEP	1,875	480	25.6%	1,337	58
OCT	364	69	19.0%	291	4
NOV	91	19	20.9%	72	0
DEC	13	3	23.1%	10	0
Total	6,739	2,601	38.6%	3,703	435

by serology (IgM-ELISA) and/or virus isolation
source; central virology lab. MSP

III. EPIDEMIOLOGICAL DATA ON HIV/AIDS

Table 1. Number of HIV positive cases, 1985 - June 1995

	<i>Cases</i>
AIDS cases	4,421
sub total	4,421
Asymptomatic cases	1,445
L.C.P./A.R.C.	864
Total HIV positive	6,730

source: AIDS/STD division, MSP

Table 2. Number of AIDS cases by sex, 1985 - June 1995

<i>Year</i>	<i>Male</i>	<i>%</i>	<i>Female</i>	<i>%</i>	<i>Total</i>
1985	4	100.0%	0	0.0%	4
1986	9	69.2%	4	30.8%	13
1987	68	65.4%	36	34.6%	104
1988	123	64.7%	67	35.3%	190
1989	168	64.9%	91	35.1%	259
1990	389	64.5%	214	35.5%	603
1991	353	69.6%	154	30.4%	507
1992	519	69.7%	226	30.3%	745
1993	633	65.6%	332	34.4%	965
1994	516	64.0%	290	36.0%	806
1995	141	63.2%	82	36.8%	223
Total	2,923	66.1%	1,496	33.9%	4,419

source: AIDS/STD division, MSP

note: 2 male cases is unknown, thus total number of AIDS cases is 4,421

Table 3. Number of AIDS cases by age, 1985 - June 1995

Age	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total
0-4			2	2	10	12	22	28	56	54	9	195
5-9				2	1	1	1	5		5	1	16
10-14						5			2	1		8
15-19			9	7	7	19	18	22	27	26	8	143
20-24		2	18	36	42	112	73	104	146	102	31	666
25-29	1	5	25	44	62	140	122	159	207	169	48	982
30-34	2	3	22	32	46	106	93	157	203	158	48	870
35-39		1	11	19	43	78	61	98	121	104	29	565
40-44			5	22	22	50	47	65	82	68	24	385
45-49			3	13	7	27	26	44	41	49	11	221
50-54		2	2	5	6	17	14	23	32	20	7	128
55-59	1		5	2	7	14	10	26	24	20	3	112
>60				4	6	15	11	13	21	26	4	100
Unknown			2	2		7	9	1	3	4		28
Total	4	13	104	190	259	603	507	745	965	806	223	4419
(%)	0.1%	0.3%	2.4%	4.3%	5.9%	13.6%	11.5%	16.9%	21.8%	18.2%	5.0%	100.0%

source: AIDS/STD division, MSP

note: 2 male cases is unknown, thus total number of AIDS cases is 4,421

Table 4. Number of AIDS cases by group, 1985 - June 1995

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total	%
Heterosexual	1	6	62	145	193	466	396	634	813	683	196	3,595	81.4%
Homosexual	1	3	19	14	15	29	19	19	20	21	7	167	3.8%
Bisexual	2	3	17	22	21	56	48	47	53	33	7	309	7.0%
Transfusion		1		3	9	13	4	5	4		2	41	0.9%
			2	3	9	12	23	31	56	58	10	204	4.6%
IV drugs			1		1	1				1		4	0.1%
Unknown			3	3	11	26	17	9	19	10	1	99	2.2%
Total	4	13	104	190	259	603	507	745	965	806	223	4,419	100.0%

source: AIDS/STD division, MSP

note: 2 male cases is unknown, thus total number of AIDS cases is 4,421

Table 5. Number of AIDS cases by region, 1985 - June 1995

Region	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total	%
Metropolitan	1	2	18	22	28	96	80	116	158	214	91	826	18.7%
I				6	10	16	6	21	28	45	27	159	3.6%
II		1	3	9	8	46	38	32	56	47	11	251	5.7%
III	3	10	62	118	148	312	259	438	527	294	14	2,185	49.4%
IV			4	3	7	20	28	26	40	53	25	206	4.7%
V			3	13	30	41	46	55	50	70	23	331	7.5%
VI			14	18	25	66	39	40	95	78	30	405	9.2%
VII				1	3	5	10	14	6	3	1	43	1.0%
VIII									2	2		4	0.1%
Unknown						1	1	3	3		1	9	0.2%
Total	4	13	104	190	259	603	507	745	965	806	223	4,419	100.0%

source: AIDS/STD division, MSP

note: 2 male cases is unknown, thus total number of AIDS cases is 4,421

Table 6. Number of AIDS cases by city, 1985 - June 1995

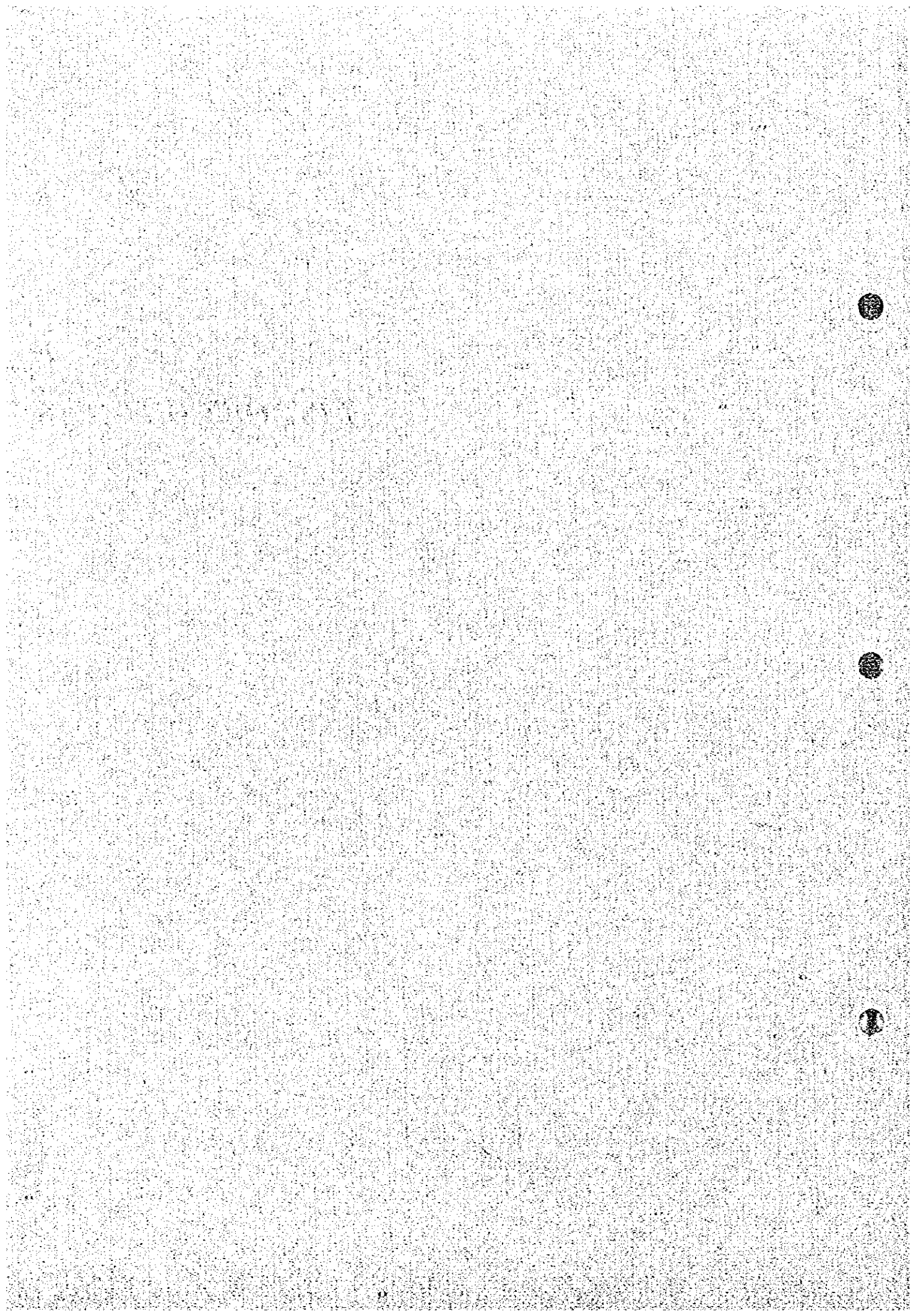
City	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total	%
San Pedro Sula	2	5	41	78	108	204	172	293	353	173	9	1,438	32.5%
Tegucigalpa	1	2	18	22	25	89	76	112	154	208	88	795	18.0%
La Ceiba			5	7	7	16	9	9	24	24	13	114	2.6%
El Progreso	1	1	6	7	5	20	18	16	19	22		115	2.6%
Comayagua			1	2	5	27	13	8	33	31	7	127	2.9%
Puerto Cortes		3	3	3	4	9	3	20	9	6	2	62	1.4%
S. R. de Copan			1	5	7	14	14	15	10	15	3	84	1.9%
Tela			3	3	2	11	9	11	24	17	6	86	1.9%
Chluteca			1		4	8	7	7	12	21	10	70	1.6%
Choloma			4	2	2	7	6	16	25	9		71	1.6%
Others		2	21	61	90	198	180	238	302	279	85	1,456	33.0%
Total	4	13	104	190	259	603	507	745	965	805	223	4,419	100.0%

source: AIDS/STD division, MSP

note: 2 male cases is unknown, thus total number of AIDS cases is 4,421

F

LIST OF CONTACTS



List of Contacts

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
1		Leticia	Dias	Area No.2(HRNo.7)	Administration		Catamarca		3/14/96
2		Takao	Itahara	ENA		Project Leader	Catamarca		2/20/96
3	Ing.	Rosalio	Perroto	ENA		Academic Coordinator	Catamarca		2/20/96
4	Ing.	José	Salbado	ENA		Sub-Director	Catamarca		2/20/96
5		Donis	Clark	PREDISAN		General Director	Catamarca	95-4341	3/14/96
6	Ing.	Kudo	Corrales	JICA/MODICA		Expert	Choluteca		3/4/96
7		Tilisa	Corrales	MSP	CESAMO los Prados	Nurse	Choluteca		3/4/96
8	Dr.	Juan	García	MSP	Health Region #4	Director	Choluteca		3/14/96
9	Dr.	Raúl	Grenier	MSP	CESAMO los Prados		Choluteca		3/4/96
10	Dr.	Carlos	Ramirez	MSP	Hospital del Sur	Director	Choluteca		2/13/95
11	Dr.	Francisco	Villatoro	MSP	Region No. 4	Director	Choluteca		2/13/95
12	Ing.	Herbert	Hernandez	SRN	Rural Development	Coordinator	Choluteca		3/4/96
13		José	Madrid	Alcaldía		Alcalde	Comayagua	72-1585	2/15/95
14		Carlos	Miranda	Alcaldía	Corporación Municipal		Comayagua	72-0159	2/15/95
15	Dr.	Francisco	Rodriguez	MSP	Region No.2	Director	Comayagua		2/15/95
16		Mitsutoshi	Kubota	Nissaku Co.	Proy. Abast. Agua Reg. No.		Comayagua	72-1284	3/22/95
17	Ing.	Nidia	Durán	SANAA			Comayagua	72-0247	3/22/95
18	Lic.	Gladys	Castellano	MSP	Regional Hospital Copan	Chief Nurse	Copan		2/29/96
19	Dr.	Arturo	Escobar	MSP	Health Region #5	Epidemiologist	Copan		2/29/96
20	Dr.	Eziel	Morales	MSP	Regional Hospital Copan	Deputy Director	Copan		2/29/96
21	Lic.	Rafael	Cantarero	AMHON	Health Affairs	Regidor	Cortés		3/5/96
22	Lic.	Guadalupe	López	AMHON			Cortés		3/5/96
23	Dr.	Walter	Perdomo	AMHON	Rural Health	Coordinator	Cortés		3/5/96
24	Lic.	Coralie	Barahona	MSP	Region No.1, Area No.1	Jefe Enfermería	Danlí	93-2318	3/14/95
25		Oscar	Mejía	CEDIN		President	Intibucá		3/12/96
26	Lic.	Ryuta	Okuyama	FHIA		Horticultor	Intibucá		2/22/96
27		Maria	Fernandez	MSP	Women Committee	Representative	Intibucá		3/12/96
28	Ing.	Fredy	Maradiaga	PDAE	Demons.Agriculture Project	Project Leader	Intibucá		2/22/96
29		Nector	Milla	Dept. of Intibuca		Governer	Intibuca		
30	Dr.	Luis	Barahona	Area No.1(HRNo.7)		Director	Juticalpa	85-2644	3/14/2
31		Gastan	Grenier	CIDA (ACDI)	"Pro. de Guayape Phase II"	Director	Juticalpa	85-2873	8/4/95

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
32		Camila	Elvir	FAMA	San Nicolas Community	Executive Director	Juticalpa		2/19/96
33		Francisco	Sarmiento	Guayape Fase II	Agricultural Production	Coordinator	Juticalpa		2/19/96
34		Ana	Lobo	Guayape Phase II	Agricultural Production	Assistant	Juticalpa		2/19/96
35		Miriam	Torres	Guayape Phase II	Education and Monitoring	Researcher	Juticalpa		
36	Dr.	Gustavo	Ayca	Hpt. San Francisco		Director	Juticalpa		2/11/96
37		Nery	Funez	Hpt. San Francisco			Juticalpa		2/15/96
38	Lic.	Argelia	Gallo	Hpt. San Francisco			Juticalpa		2/15/96
39	Dra.	Rina	Madrid	Hpt. San Francisco	Div. de Farmacia	Jefe	Juticalpa		8/4/95
40		Juan	Medina	Hpt. San Francisco			Juticalpa		2/15/96
41		Carlos	Rodriguez	Hpt. San Francisco			Juticalpa		2/15/96
42		Celin	Acosta	HRNo.7	Administration		Juticalpa		2/11/96
43		Denia	Almendarez	HRNo.7	Epidemiology		Juticalpa		2/11/96
44		María	Almendarez	HRNo.7	Nurse		Juticalpa		2/11/96
45		Aida	Ayala	HRNo.7	Maternal Health	Technician	Juticalpa		2/11/96
46		Bianca	Ayala	HRNo.7	Statistics		Juticalpa		3/18/96
47		Jesus	Caceres	HRNo.7	Infancy	Coordinator	Juticalpa	85-2644	2/11/96
48		Margarita	Calix	HRNo.7	Planning	Coordinator	Juticalpa		2/11/96
49		Alexis	Cerrato	HRNo.7	Food Control		Juticalpa		2/11/96
50	Dr.	Héctor	Escoto	HRNo.7	Juticalpa	Regional Director	Juticalpa		2/11/96
51		Olga	Garcia	HRNo.7	Microbiologist		Juticalpa		2/11/96
52		Thelma	Garcia	HRNo.7	Psicology		Juticalpa		2/11/96
53		José	Gevawer	HRNo.7	Personnel		Juticalpa		2/11/96
54		Celso	Gutierrez	HRNo.7		Controller	Juticalpa		3/18/96
55		Oscar	Gutierrez	HRNo.7	Odontology		Juticalpa		2/11/96
56		Liliana	Henriquez	HRNo.7	Nutrition		Juticalpa		2/11/96
57		Carmen	Lobo	HRNo.7	Maternal Health		Juticalpa		4/2/96
58		Eva	Nunez	HRNo.7	Epidemiology		Juticalpa	85-2122	2/11/96
59		Tania	Olivera	HRNo.7	Engineer		Juticalpa		2/11/96
60		Carlota	Vallecillo	HRNo.7	Psicology	Assistant	Juticalpa		2/11/96
61		Nazario	Zavala	HRNo.7	Human Resource	Coordinator	Juticalpa		3/18/96
62	Dra.	Sofia	Zavala	HRNo.7		Health Coordinator	Juticalpa		3/18/96
63	Dra.	Ana	Motino	IHSS		Medical Coordinator	Juticalpa		2/11/96

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
64	Lic. Héctor		Núñez	IHSS		Reg. Administrator	Juticalpa		2/16/96
65	Dr. Marcio		Varela	IHSS		President (Ical Chapter)	Juticalpa	22-8412	2/15/96
66	Lic. Olivia		Sabillon	MSP Region No. 7	Regional Warehouse	Jefe	Juticalpa		8/4/95
67	Elvia		de Gomez	Municipality	Juticalpa	Mayor	Juticalpa		2/11/96
68	Olivia		Andino	SITRAMEDYS		Vice-president	Juticalpa		2/15/96
69	Pedro		Mondez	SITRAMEDYS		(finance)	Juticalpa		2/15/96
70	Sandra		Meza	SITRAMEDYS		Secretary	Juticalpa		2/15/96
71	Angel		Osonio	SITRAMEDYS		Accountant	Juticalpa		2/15/96
72	María		Sanchez	Area No.1(HRNo.7)	Sector #1	Supervisor	Jutiquire		3/18/96
73	Dr. María		Behrens	Atlantida Hospital	Div. de Farmacia	Jefe	La Ceiba		8/11/95
74	Lic. Miriam		Flores	MSP No. 6	Depto. de Administracion	Jefe	La Ceiba	41-1685	8/11/95
75	Dr. Luis		Girón	CESAMO		Jefe de Area	La Esperanza	98-2184	7/20/95
76	Rosa		Girón	Esc. Normal de Occidente		Sub-Coordinator	La Esperanza	98-2016	7/20/95
77	Dr. Crisanto		Diaz	Hosp. Enrique Cerrato		Director	La Esperanza		2/14/96
78	Dr. Armando		Lemus	Hosp. Enrique Cerrato		Sub-Director	La Esperanza		2/14/96
79	Victoria		Garcia	Hospital Enrique Aguilar		Hosp. Worker	La Esperanza	98-2184	7/21/95
80	Dr. Jovany		del Cid	Hospital La Esperanza		Psychologist	La Esperanza	98-2184	7/21/95
81	Dr. Rommel		Carrasco	MSP	Hospital La Esperanza	Sub-Director	La Esperanza		2/16/95
82	Lic. Suyapa		Cruz	MSP	Hospital La Esperanza	Enfermera Profesional	La Esperanza		2/16/95
83	Dr. Sonia		Diaz	MSP	CESAMO la Esperanza	Director	La Esperanza		2/11/96
84	José		Gustavo	Municipality		Member	La Esperanza		3/22/96
85	Dr. Octavio		Zelaya	Area No.3(HRNo.7)	Sector #2		La Union		3/19/96
86	Dr. Felix		Chu	MSP	CMI Marcala	Médico en Servicio Social	Marcala		2/16/95
87	Lic. Edil		Santos	MSP	CMI Marcala	Enfermera Profesional	Marcala		2/16/95
88	Demetrio		Marting	Municipal Government		Coordinator	Nacome	81-4064	8/30/95
89	Jesus		Paz	Hermandad Honduras		Director	Ocoateque		2/28/96
90	Dr.		Fuentes	MSP	Hospital San Marcos		Ocoateque		2/28/96
91			Israel	MSP	Hospital San Marcos	Auxiliary Nurse	Ocoateque		2/28/96
92	Santos		Reyes	Area No.1(HRNo.7)	Sector #2		Nueva Palestina		3/26/96
93	Leticia		Cardona	Area No.4(HRNo.7)		Nurse	Olancho		3/25/96
94	Dr. Miguel		Sarmiento	Area No.4(HRNo.7)	Sector #2		San Esteban		3/25/96
95	Dr. Jorge		Christiansen	CPA	Guyape Phase II	Potato Seed Specialist	Juticalpa		3/16/96

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
96		David	Menjivar	Guayape Project		Farmer	Juticalpa		3/6/96
97		Mariano	Villalobos	Guayape Project		Farmer	Juticalpa		3/7/96
98	Dr.	Reiniery	Espinoza				Olancho		7/4/95
99	Dr.	Lisandro	Martinez	Area No.3(HRNNo.7)		Director	Salama		3/19/96
100			Saavedano	Alcaldia		Alcalde	San Lorenzo		2/13/95
101	Dr.	Jorge	Arias	MSP	Reg. No.4, Area No. 2	Jefe	San Lorenzo		2/13/95
102		María	Reina	Alcaldia		Jefe de Protocolo	San Pedro Sula	53-4646	1/30/95
103		Nidia	Rodriguez	Alcaldia		Sub-jefe de Protocolo	San Pedro Sula	53-4646	1/30/95
104		Walter	Quan	ARQ	Trading company	Representative	San Pedro Sula	53-1773	3/26/96
105	Lic.	Mayra	Castejon	CESAMO Choloma	Area #1 Región 3	Jefe	San Pedro Sula	52-3108	7/4/95
106	Lic.	Edmundo	Espinal	Chamber of Commerce	Public Relations		San Pedro Sula	53-0761	2/22/96
107	Lic.	Juan	Gradelhy	COMVIDA			San Pedro Sula		2/20/96
108		Irma	Cano	DIEM	Information Department	Chief	San Pedro Sula		2/14/96
109		Suyapa	Flores	DIEM	Lybrarian	Chief	San Pedro Sula		2/14/96
110	Ing	Juan	Alvarado	DIMA	Development and Infrastructure	Chief	San Pedro Sula	53-2866	2/20/96
111	Ing	Julio	Bustamante	DIMA	Planning	Chief	San Pedro Sula	53-2866	3/7/96
112	Lic.	Oscar	Giron	DIMA	Financial Controller		San Pedro Sula		2/13/96
113	Lic	Roberto	Oviedo	DIMA	Financing	Credit official	San Pedro Sula	53-2866	2/20/96
114		Milton	Sagastume	DIMA	Hidrogeologia		San Pedro Sula	53-4029	7/3/95
115		Rosa	Sanchez	DIMA	Control de Calidad		San Pedro Sula	53-4029	7/3/95
116	Ing	Juan	Tróchez	DIMA	Project Designs	Chief	San Pedro Sula	53-2866	2/20/96
117	Ing	Héctor	Zúñiga Y	DIMA	Technician	Manager	San Pedro Sula	53-2866	2/20/96
118	Dr.	Oscar	Salinas	EMS	Emergency Medical	Medical Doctor	San Pedro Sula		
119		Arie	Hoekman	FNUAP	DIEM/SPS	Asesor Técnico Principal	San Pedro Sula	58-0076	1/30/95
120		José	Licona	FSP	2nd Regional Command	Police Major	San Pedro Sula	52-7285	2/21/96
121	Ing	Cordova	Alvarado	Hospital MCR	Maintenance	Deputy Chief	San Pedro Sula	56-2945	3/14/96
122	Dr.	Juan	Fuentes	Hospital MCR	Relaciones Publicas		San Pedro Sula	57-2944	7/7/95
123		Belkis	Lara	Hospital MCR	Bioquimica	Técnico	San Pedro Sula	57-2944	7/7/95
124	Ing	Daniilo	Nuñez	Hospital MCR	Maintenance	Chief	San Pedro Sula	56-2947	3/14/96
125		Jessica	Serpa	Hospital MCR	Relaciones Publicas		San Pedro Sula	57-2944	7/7/95
126	Dr.	Carlos	Leonardo	Hospital San Jose	Administración	Director	San Pedro Sula	53-1660	7/6/95
127	Mr.	Ricardo	Alberto	HR No.3			San Pedro Sula	52-1882	7/6/95

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
128	Lic.	Nelly	Amador	HR No.3	Laboratory		San Pedro Sula	56-1882	2/13/96
129	Dr.	Carlos	Benatton	HR No.3		Director	San Pedro Sula	56-1882	2/22/96
130	Dr.	Jaime	Bermúdez	HR No.3	Cesamo M.P. Barahona	Director	San Pedro Sula		2/14/96
131	Dr.	Victor	Borjas	HR No.3	Environmental Health	Chief	San Pedro Sula		2/14/96
132	Dr.	Roberto	Cacido	HR No.3		Hospital Supervisor	San Pedro Sula	56-1882	3/13/96
133	Dr.	Roger	Carbajal	HR No.3		Jefe	San Pedro Sula	52-3108	7/3/95
134	Lic.	Rosa	Chiesa	HR No.3		Nurse Supervisor	San Pedro Sula		2/13/96
135	Dr.		Chinchilla	HR No.3			San Pedro Sula	56-1882	2/14/96
136	Lic.	Lorena	Cordova	HR No.3		Psychologist	San Pedro Sula	56-1882	2/20/96
137	Dr.	Cleotilde	Flores	HR No.3		Nutrit. Program	San Pedro Sula	53-3198	7/7/95
138	Dr.	Abelardo	Gonzalez	HR No.3	Area Metropolitana	Director	San Pedro Sula		
139	Lic.	Tesla	Gutierrez	HR No.3	Health Educ. Depart.	Chief	San Pedro Sula		2/13/96
140	Dr.	Jaime	López	HR No.3	Occupational Health		San Pedro Sula		2/22/96
141	Lic.	Suyapa	Moreno	HR No.3			San Pedro Sula	56-1882	
142		Rosario	Peña	HR No.3	Environmental Health	Assitant Nurse	San Pedro Sula		2/14/96
143	Lic.	Corina	Ramón	HR No.3	Cesamo M.P. Barahona	Nurse Supervisor	San Pedro Sula		2/14/96
144	Ms.	Marta	Rodriguez	HR No.3	Depto. de Educacion		San Pedro Sula	52-1882	7/6/95
145	Lic.	Martha	Rodriguez	HR No.3	Metropolitan Area HR3	Nurse Supervisor	San Pedro Sula		2/14/96
146	Lic.	Guadalupe	Sanchez	HR No.3	Nutrition Department	HR3	San Pedro Sula	52-3108	2/13/96
147	Dr.	Jaime	Segura	HR No.3		Sub-director	San Pedro Sula		2/13/96
148	Dra.	Delia	Tercero	HR No.3		Epidemiologist	San Pedro Sula		2/13/96
149	Dra.	Mirna	Thiebaud	HR No.3		Asst. Director	San Pedro Sula	56-1882	2/14/96
150	Dr.	Edgardo	Umaña	HR No.3	Dept. SIDA/ETS	Director	San Pedro Sula	54-0206	2/13/96
151	Dr.		Vasquez	HR No.3			San Pedro Sula		2/14/96
152	Dr.	Alfonso	Zelaya	HR No.3		General Director	San Pedro Sula	56-1882	2/26/96
153	Dr.	Samuel	Zelaya	HR No.3		General Director	San Pedro Sula	52-1320	1/30/95
154	Lic.	Martha		HR No.3	Depto. de Educacion		San Pedro Sula		7/6/95
155	Dr.	Marcelino	Abadie	IHSS	Medical Service	Director	San Pedro Sula	53-4162	2/22/96
156	Lic.	Jessie	Paz	IHSS		Professional Nurse	San Pedro Sula		2/22/96
157	Dr.	Ahmad	Ponce	IHSS		Director of the Hosp.	San Pedro Sula	53-2909	2/22/96
158	Dra.	Ada	Rivera	IHSS	Medicina Preventiva	Jefe	San Pedro Sula	53-4163	1/30/95
159	Dr.	Benjamin.	Abdú	MSP	Hosp. M. Catarino Rivas	Sub-director	San Pedro Sula		2/14/96

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
160	Dr.	Oscar	Rodriguez	MSP	Hosp. M. Catarino Rivas	Director	San Pedro Sula		2/14/96
161	Dr.	Samara		MSP	Hosp. Leonardo Martinez	Director	San Pedro Sula		2/14/96
162	Dr.	Edmundo	Andrés	MSP HR3	Odontology Department	Chief	San Pedro Sula		3/8/96
163	Ing	Angel	Antunez	MSPS	Cleaning	Director	San Pedro Sula	56-9191	3/7/96
164	Lic	Héctor	García	MSPS	BID/MSPS Coordinator	Director	San Pedro Sula	58-1504	3/6/96
165	Ing	Gerardo	Núñez	MSPS	Environment	Director	San Pedro Sula	56-8432	2/21/96
166	Dr.	Edgardo	Vasquez	MSPS	Municipal Health unit	Assist. for Dr. Isai,	San Pedro Sula	53-4646	3/14/96
167	Ms.	Tatiana	Alvarado	Mun. Government	Planning Division	Ingeniero	San Pedro Sula		7/5/95
168	Lic.		Gale	Mun. Government	Planning Division		San Pedro Sula	55-0021	7/5/95
169	Lic.		Gale	Mun. Government	Planning Division		San Pedro Sula	55-0021	7/5/95
170	Dr.	Isai	Gutiérrez	Mun. Government	Health	UNDP Advisor	San Pedro Sula		2/13/96
171	Dra.	María	Luna	Mun. Government	Health		San Pedro Sula	58-1080	2/13/96
172	Dr.		Pineda	Mun. Government	Health		San Pedro Sula	57-7177	7/7/95
173	Dr.	Humberto	Rodriguez	Mun. Government	Health		San Pedro Sula	57-4667	2/13/96
174	Arq.	Israel	Rubi	Mun. Government	Planning Division	Director	San Pedro Sula	55-0021	7/5/95
175	Ing.	Armando	Sierra	Mun. Government	Planning Division	Director	San Pedro Sula	55-0021	7/5/95
176	Lic.	José	Inias	Red Cross SPS	Transportation	Administrator	San Pedro Sula		3/29/96
177	Ing	Wifredo	Fajardo	SECOPT	Water works	Director	San Pedro Sula		2/21/96
178	Ing	Margarita	Bueso	SECOPT	Project Office	Director	San Pedro Sula		2/21/96
179	Lic.	Marcelo	Pisani	UNDP	Design	Coordinator	San Pedro Sula	57-7177	7/5/95
180	Arq.	Mario	Flores	UNDP	Planning and Budget Dept.		San Pedro Sula	57-7177	2/14/96
181	Lic.	Narda	Valle		Laboratory	Biologist	San Pedro Sula		2/23/96
182	Lic.	Rubin	Caballero	CESAMO Atima			San Pedro Sula		2/13/96
183	Dr.	María	Caballero	MSP	Women's April 26	Coordinator	Snta. Barbara	64-2720	7/5/95
184		Israel	Sarmiento	MSP	Promotor Salud		Snta. Barbara	64-2822	7/5/95
185	Dr.	Enrique	Martinez	Hopital Evan		Director	Suguatepeque	73-2179	2/15/95
186	Dr.		Nasrallah	Hopital Evan		Visiting Physician	Suguatepeque	73-2179	2/15/95
187	Lic.	María	Ordoñez	AIDSCAP		Comm. Officer	Tegucigalpa	39-5406	2/21/96
188		Daniel	Barahona	AMDC		Gerente General	Tegucigalpa	36-8211	7/27/95
189		Lisandro	Caldorón	AMDC	Div. Servicio Publico		Tegucigalpa		3/17/95
190		Norman	Zuniga	AMDC	Ingenieria de Transito		Tegucigalpa		3/17/95
191				AMDC	Metroplan	Gerente	Tegucigalpa		3/17/95

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192		Ruben	Guevara	BANADESA	Creditos	Gerente	Tegucigalpa	37-8507	8/15/95
193		Javier	Valladares	BANADESA	Unid. Cont. Riesgo	Jefe	Tegucigalpa	37-0256	8/15/95
194	Lic.	Silvio	Salinas	Banco Central	Estudios Economicos	Economista	Tegucigalpa	37-1413	7/31/95
195		Violeta	Zúñiga	BCH	Dpto. Estudios Económicos	Asste. Sec. Cuentas Nac.	Tegucigalpa	37-2743	2/2/95
196	Ing.	Carlos	Ramirez	BID	Food Programme	Especialista Sectorial	Tegucigalpa	32-4838	1/26/95
197		Gloria	Manzanares	CARE		Director	Tegucigalpa	39-4204	2/29/96
198	Sr.	Syujj	Matsunoto	CENAMA		JOCV	Tegucigalpa	36-8683	3/6/96
199	Ing.	Carlos	Montalban	CENAMA		Director	Tegucigalpa	31-0530	3/10/96
200		Herald	Erichsen	COHASA	Mision Alemana	Jefe	Tegucigalpa	32-0289	8/28/95
201	Dra.	Elsa	Palau	Col.Médic		Presidente	Tegucigalpa		2/2/95
202	Lic.	Armida	López	DGEC		Directora	Tegucigalpa	22-3279	3/24/95
203	Dr.	Leopoldo	Alvarado	DICTA/SRN	Technology	Sub-Director	Tegucigalpa		2/15/96
204		Ian	Walker	ESA		Director	Tegucigalpa	38-8570	1/25/95
205	Lic.	Carlos	Belinda	FAO	Assistance Program	Officer	Tegucigalpa	36-7321	9/6/95
206		Carlos	Zelaya Elvir	FAO		Director	Tegucigalpa		2/14/96
207		Mercedez	Hernandez	FEDECOH		Director	Tegucigalpa		2/26/96
208	Ing.	Marcial	Maier	FHIS	Mejoramiento de Vivienda	Asesor Ejecutivo	Tegucigalpa	36-6447	1/30/95
209			Maier	FHIS	Program		Tegucigalpa	36-6447	1/30/95
210		Lorena	Montalban	FHIS			Tegucigalpa	36-6447	7/17/95
211		César	Salgado	FHIS			Tegucigalpa		1/30/95
212	Ing.	José	Figueroa	FHIS II	"PROCATMER"	Director de Proyecto	Tegucigalpa	36-6334	9/5/95
213		Mario	Espinal	FOSOVI			Tegucigalpa		2/29/96
214		Wilfredo	Roderozo	GTZ	Proy. Asesoria Planif.	Executive Director	Tegucigalpa	37-6516	2/10/95
215		Bosco	Welie	GTZ	Proy. Asesoria Planif.	Asesor Principal	Tegucigalpa	37-6516	2/10/95
216	Mr.		Kuzasa	Hosp. San Felipe		Coordinator	Tegucigalpa	36-8059	6/21/95
217	Ms.		Murakami	Hosp. San Felipe		Nurse Education	Tegucigalpa	36-7619	6/21/95
218	Dr.	Mario	Rossi	Hosp. San Felipe		Director	Tegucigalpa		8/25/95
219	Ms.		Sugawara	Hosp. San Felipe		Project Leader	Tegucigalpa	36-7143	6/21/95
220	Ms.		Tomishima	Hosp. San Felipe		Nurse Education	Tegucigalpa	36-7157	6/21/95
221	Dr.	Franklin	Cerrato	Hospital Torax		Director	Tegucigalpa		8/25/95
222		Ricardo	Estrada	IHMA	Gerencia	Gerente General	Tegucigalpa	35-3180	7/25/95
223	Dr.	Elias	Alemán	IHSS	Unidad Materno Infantil	Sub-Director	Tegucigalpa	33-8290	3/14/95

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224	Lic. Tulio	Arguijo		IHSS	Finanzas		Tegucigalpa	33-6115	8/3/95
225	Lic. Rosa	Cárcamo		IHSS	Planificar	Chief	Tegucigalpa	33-8312	8/3/95
226	Dr. Nancy	Calderon		IHSS	Programacion	Jefe	Tegucigalpa	37-4583	7/19/95
227	Dr. Patricio	González		IHSS	SILOS/Seguro Social	Director	Tegucigalpa		2/17/95
228	Lic. José	Molina		IHSS	Estadística	Jefe	Tegucigalpa	34-4771	7/27/95
229	Dra. Olga	Salgado		IHSS	Servicios Medicos	Directora	Tegucigalpa	37-4223	2/6/95
230	Dr. Elio	Sierra		IHSS	Cons. Ext. Hosp. Med. Qui.	Jefe	Tegucigalpa		3/3/95
231	Lic. Héctor	Flores		IMN	Meteorología	Director	Tegucigalpa	33-8075	3/21/95
232		Amelia		INA			Tegucigalpa	32-4248	7/31/95
233		Silvia		INFOP	Technical Cooperation	Coordinator	Tegucigalpa	39-0173	8/9/95
234	Dra. Yuniko	Egami		JICA	Div. de Hosp. MSP		Tegucigalpa	22-1034	1/24/95
235		Roberto		JUNTA	Family Community Dev.	Coordinator	Tegucigalpa	39-1012	8/7/95
236	Ing. Jorge	Quiñonez		LUPE		Director	Tegucigalpa		2/16/96
237	George	Quinonez		LUPE		Director	Tegucigalpa		8/11/95
238	Lic. Ana	Perez		M.T.P.S.	Org. Sociales	Jefe de Dept.	Tegucigalpa	22-8530	6/27/95
239	Belinda	Aguiar		MEP	Proy. Educ. Preventiva	Responsable	Tegucigalpa		2/7/95
240	Lic. Israel	Moya		MEP	Planificación Educativa	Sub-Director	Tegucigalpa		2/7/95
241	Lic. Xiomara	Portillo		MEP	Planificación Educativa		Tegucigalpa	22-4320	1/24/95
242	Dr. Lorena	Alvarez		Min. de Economía	Depto. de Drogeria	Director	Tegucigalpa		
243	Licda Orbelina	Navarro		Min. de Economía	Comercio Interior	Directora	Tegucigalpa	22-3592	7/31/95
244	Lic. Carlos	Hernández		Min. de Finanzas	Dpt. Producc. y Consumo	Coordinator	Tegucigalpa	22-0111	2/9/96
245	Lic. Adrian	Gómez		Ministry of Finance and Pub. Cdt.	Direction of Budget	General Director	Tegucigalpa		2/9/96
246	Oswaldo	Munguia		MOPAWI		Executive Director	Tegucigalpa	37-7210	8/9/95
247	Will	Diaz		MPE	Environm. Education Dept.	Director	Tegucigalpa	38-1357	8/8/95
248	Lic. José	Amaya		MSP	Int'l Relations Unit		Tegucigalpa		3/21/96
249	Dr. Julio	Arita		MSP	Region No.1	Director	Tegucigalpa		2/20/95
250	Reyna	Beltonado		MSP	Metropolitan Region	Professional Nurse	Tegucigalpa		2/23/96
251	Lic. Adan	Barahona		MSP	UPS	Lic.	Tegucigalpa	38-0969	7/11/95
252	Dr. Fidel	Barahona		MSP	Un Ciencia y Tecnologia	Jefe	Tegucigalpa		3/3/95
253	Dra. Rosario	Cabañas		MSP	División de Hospitales		Tegucigalpa	22-1034	3/3/95
254	Lic. Jorge	Cano		MSP	Dirección General	Asistente Especial	Tegucigalpa	38-2141	7/21/95
255	Dr. Sericios	Cañas		MSP	Dir. Planificación	Jefe	Tegucigalpa		8/3/95

No.	Title	First	Last	Institution	Unit	Function	Location	Phone	Date
256	Dr.	Sergio	Canas	MSP	Division de Hospitales	Jefe Vigilancia Epidom.	Tegucigalpa	22-1034	7/28/95
257	Dr.	Marco	Carranza	MSP	Div. Epidemiologia		Tegucigalpa		2/17/95
258	Dra.	Maria	Castillo	MSP	Metropolitan Region		Tegucigalpa		2/23/96
259		Edmundo	Diaz	MSP	Metropolitan Region	Social Worker	Tegucigalpa		2/23/96
260	Lic.	Melida	Durón	MSP	Division de Hospitales		Tegucigalpa	22-1034	3/20/95
261	Dra.	Virginia	Espinosa	MSP		Vice Ministra Riesg. Pob.	Tegucigalpa		1/22/95
262	Dra.	Maria	Ferrera	MSP	Dpto. Registro Div. Farmac	Jefe de Departamento	Tegucigalpa		8/1/95
263	Lic.	Irma	Flores	MSP	Unidad de Participación Social		Tegucigalpa	38-0969	7/11/95
264	Lic.	Luis	Gamboa	MSP	Division des. RR HH		Tegucigalpa	22-1306	3/14/95
265	Ing	José	Gomez	MSP	Environment	Chief	Tegucigalpa		3/17/96
266	Dr.	Alvaro	González	MSP	Div. Salud Materno Infant	Jefe	Tegucigalpa	22-1257	2/18/95
267	Dra.	Daisi	Guardiola	MSP	Dirección Planificación	Un. Dos. Sistemas	Tegucigalpa	22-1656	3/14/95
268		Yolanda	Guevara	MSP	Environmental Health		Tegucigalpa		2/23/96
269		Oswaldo	Guijarro	MSP	Metropolitan Region	Director	Tegucigalpa		2/23/96
270		Rigoberto	Henríquez	MSP	Environmental Health		Tegucigalpa		2/23/96
271		José	Hernandez	MSP	Metropolitan Region	Supervisor	Tegucigalpa		2/23/96
272		Roger	Hernandez	MSP	Metropolitan Region	Social Worker	Tegucigalpa		2/23/96
273	Dr.	Jorge	Higuero	MSP	Región Metropolitana	Director	Tegucigalpa		2/7/95
274	Ing.	José	López	MSP	Int'l Relations Unit	Vice Minister	Tegucigalpa		3/21/96
275	Lic.	Luis	López	MSP	Institutional policies		Tegucigalpa		1/22/95
276	Lic.	Douglas	Manzanares	MSP	Division Agua y Saneamiento	Fortal. Des. Munic.	Tegucigalpa	22-1927	3/15/95
277		Ramón	Matamoros	MSP	Metropolitan Region	Patronato President	Tegucigalpa		2/23/96
278	Dr.	Jorge	Medina	MSP	Div. DRH	Jefe	Tegucigalpa		1/30/95
279	Dr.	Victor	Meléndez	MSP	Div. de Hospitales	Jefe	Tegucigalpa	22-1034	1/22/95
280	Dr.	Andres	Menjivar	MSP	Division SIDA/VETS		Tegucigalpa	38-3270	3/14/95
281	Dra.		Molina	MSP	Centro Nacional Biologico	Jefe	Tegucigalpa	36-5036	9/4/95
282	Lic.	José	Montes	MSP	Div. Educación para la Salud		Tegucigalpa	36-7995	3/14/95
283	Dra.	Ana	Morales	MSP	Division de Farmacia	Pharmacist	Tegucigalpa	38-6288	3/24/95
284	Dr.	Juan	Paredes	MSP		Vice Ministro Red Serv.	Tegucigalpa	22-1034	1/22/95
285	Lic.	Carlos	Pareita	MSP	Dirección Administrativa		Tegucigalpa	38-2141	3/14/95
286	Dra.	Nerza	Paz	MSP	Health Region Metro	Director	Tegucigalpa		3/19/96
287	Dra.	Nohemy	Paz	MSP	Division Epidemiologia	Jefe	Tegucigalpa	38-1103	3/15/95

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288	Dr.	Carlos	Pineda	MSP	Div. Especial Proceduria	Jefe de Division	Tegucigalpa	39-3917	3/18/96
289	Dra.	Mirza	Ponce	MSP	Div. Materno Infantil	Jefe	Tegucigalpa	22-1257	8/9/95
290	Lic.	Olga	Portillo	MSP	Division Salud Mental	Dpto. de Fomento de la Salud	Tegucigalpa	22-0466	3/14/95
291	Dra.	Daisy	Ramos	MSP	Division de Farmacia	Jefe de Division	Tegucigalpa	22-8523	6/28/95
292	Dr.	Oscar	Reyes	MSP	Metropolitan Region	Area Chief	Tegucigalpa		2/23/96
293	José		Reyes	MSP	Environmental Health		Tegucigalpa		2/23/96
294	Dra.	María	Rivas	MSP	Vice-Secretaría RS	Asistente Técnica	Tegucigalpa		1/23/95
295	Lic.	Roberto	Rivera	MSP	Almacén Central	Jefe	Tegucigalpa		6/27/95
296	José		Romero	MSP	Metropolitan Region	Educator	Tegucigalpa		2/23/96
297	Dra.	María	Romero	MSP	Division Salud Mental	Jefe Invest and Strategy	Tegucigalpa	22-0466	3/14/95
298	Lic.	María	Saldoval	MSP	Dir. Planificación		Tegucigalpa	38-0976	1/22/95
299	Dr.	Enrique	Samayoa	MSP	MSP	Ministro	Tegucigalpa		3/2/95
300	Lic.	Moises	Sanchez	MSP	Dir. Alimentación/Nutric	Director	Tegucigalpa	37-3709	2/9/95
301	Dra.	Janina	Sierra	MSP	Metropolitan Region	Psychologist	Tegucigalpa		2/23/96
302	Mirma		Solis	MSP	Metropolitan Region	Chief Nurse	Tegucigalpa		2/23/96
303	Ing.	Astul	Soto	MSP	Nutrition and Health Pro.	Director	Tegucigalpa	375-5380	3/12/96
304	Lic.	Rosario	Torres	MSP	Div. Educación para la Salud		Tegucigalpa	36-7995	3/14/95
305	Dr.	Manfredo	Turcios	MSP	Hospital Escuela	Dir. Servicios de Apoyo	Tegucigalpa		2/1/95
306	Dr.	Heladio	Ueles	MSP	Div. Saneamiento Ambiental	Jefe	Tegucigalpa		2/22/95
307	Dr.	Gaspar	Vallecillo	MSP	Hospital Escuela	Director	Tegucigalpa		2/1/95
308	Dr.	Mauricio	Varela	MSP	IHSS	Executive Director	Tegucigalpa		2/19/96
309	Dr.	Danielo	Velásquez	MSP	Un. Relaciones Internac.	Sub-Jefe	Tegucigalpa	37-0915	1/22/95
310	Ana		Yañez	MSP	Metropolitan Region	Social Worker	Tegucigalpa		2/23/96
311	Dr.	Anita		MSP No. 1		Director	Tegucigalpa		9/6/95
312	Lic.	Jorge	Sierra	MSP No. 1		Epidemiologico	Tegucigalpa		9/6/95
313	Dra.	Melisa	Lazo	MSP/Red Cross	International Relations		Tegucigalpa	37-8654	2/6/96
314	María		Salazar	Municipal Government	Social Working Division	Manager	Tegucigalpa	31-0954	8/14/95
315	Lic.	Rosibel	Gómez	OPS	Computer Center		Tegucigalpa		3/18/96
316	Dr.	Ramón	Granados	OPS		Oficial Médico	Tegucigalpa	39-0916	1/26/95
317	Dr.	César	Hermida	OPS		Representante	Tegucigalpa	39-0916	3/13/95
318	Dra.	Isabel	Seaman	OPS		Advisor	Tegucigalpa	32-3911	7/18/95
319	Dra.	Berta	Gómez	PAHO	AIDS	Consultant	Tegucigalpa		2/19/96

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320		Miguel	Reyes	Police Unit		Chief	Tegucigalpa		3/21/96
321		Rosario	Aguilar	PRAF	Materno Infantil	Gerente	Tegucigalpa	37-4610	6/28/95
322		Rosario	Aguilar	PRAF	Materno Infantil	Gerente	Tegucigalpa	37-4610	6/28/95
323		Gonzalo	Erazo	PRAF		Consultor	Tegucigalpa	38-0899	6/28/95
324		José	Moncada	PRAF	PBMI	Jefe de Supervision	Tegucigalpa	38-0899	6/28/95
325	Licda	Magdalena	García	PRODEPAH		Economista	Tegucigalpa	39-4413	9/1/95
326	Dr.	Milton	Munoz	PRODEPAH			Tegucigalpa	39-4413	7/28/95
327	Dr.	Norma	Ali	PRODIM		Project Director	Tegucigalpa		7/28/95
328	Dr.	Sadith	Caceres	PRODIM		Director	Tegucigalpa	32-7540	7/20/95
329	Lic.	Marta	Canias	Project HOPE		Consultant	Tegucigalpa		2/17/95
330		Martin	Barahona	Project P.P.E	Proy. Pobl. Pobreza & Emp		Tegucigalpa	38-1680	2/8/95
331		Rubén	Hernández	Project P.P.E	Proy. Pobl. Pobreza & Emp		Tegucigalpa	38-1680	2/8/95
332	Dr.	Manuel	Gamero	PRONASSA		Gerente	Tegucigalpa	22-1502	3/14/95
333	Lic.	Lopez	Lopez	PRONASSA			Tegucigalpa		7/28/95
334	Ing.	Ronis	Salavaria	PRONASSA	Engineering Dept.		Tegucigalpa	22-1502	3/10/96
335	Dr.	César	Núñez	Public Health Ministry	Dept. SIDA/ETS		Tegucigalpa		2/19/96
336	Dra.	Mayte	Paredes	Public Health Ministry	Dept. SIDA/ETS	Director	Tegucigalpa		2/19/96
337	Dra.	Meneca	Mencia de	Red Cross Honduras		National President	Tegucigalpa	37-8876	2/6/96
338		Gilberto	Galvez	RRNN	Un. Plan. Sectorial Agricultura	Jefe Dpto. Info. Agrícola	Tegucigalpa	32-4105	2/9/95
339		Edith	Larios	RRNN	UPSA		Tegucigalpa	35-3452	7/25/95
340		Marco	Michelletti	RRNN	DIGEPESCA		Tegucigalpa	39-1982	8/15/95
341		Marcelo	Moncada	RRNN	Un. Plan. Sectorial Agricultura	Jefe Dpto. de Proyectos	Tegucigalpa		1/24/95
342		Adalberto	Sorto	RRNN	Desarrollo	Director	Tegucigalpa	39-3771	7/1/95
343		Justo	Torres	RRNN	Un. Plan. Sectorial Agricultura	Secretario Adjunto	Tegucigalpa	32-4105	1/24/95
344		Ramon	Vasquez	RRNN	Recursos Hidricos	Jefe de Dept.	Tegucigalpa	32-6193	6/27/95
345		Pablo	Flores	RRNN, UPSA	Project Department	Chief	Tegucigalpa		2/13/96
346		Francisco	Zepeda	RRNN, UPSA	Information Department	Chief	Tegucigalpa		2/13/96
347	Dr.	Luis	Duque	RTA Social		Especialista en Salud	Tegucigalpa	39-4551	3/3/95
348	Lic.	Gustavo	Aguilar	SANAA		Asesor Econ.Financ.	Tegucigalpa	37-5975	6/28/95
349	Ing.	Benjamin	Canias	SANAA		Asesor Medio Ambiente	Tegucigalpa	37-2575	3/20/95
350	Lic.	Manuel	Flores	SANAA	Asesoría Planificación	Jefe	Tegucigalpa	37-4878	2/10/95
351		German	Gómez	SANAA	Ext. Abast. Agua El Picac	Jefe Turno de Dia	Tegucigalpa		3/17/95

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352		Alejandro	López	SANAA	Dir. de Planificación		Tegucigalpa	37-4878	2/8/95
353	Ing.	Roberto	Medrano	SANAA	Planta Concepcion		Tegucigalpa	32-8903	6/28/95
354		Miguel	Montoya	SANAA	Proyecto SANAABIA	Director	Tegucigalpa	37-4618	6/28/95
355	Ing.	Rodolfo	Ochoa	SANAA	Underground Water Dept.	Chief	Tegucigalpa	32-8903	3/15/95
356	Ing.	Pedro	Ortiz	SANAA	SANAA-UNICEF	Project Chief	Tegucigalpa	37-4609	3/18/96
357	Ing.	Walter	Pavón	SANAA	Secretaría	Secretario General	Tegucigalpa	37-3663	6/28/95
358	Ing.	Marcio	Rodriguez	SANAA	Development Division	Joint Director	Tegucigalpa	32-2028	3/21/96
359	Ing.	Manuel	Romero	SANAA		Gerente	Tegucigalpa	37-9200	6/13/95
360	Lic.	Zuleyma	Sánchez	SANTAS		Sub-gerente	Tegucigalpa		2/20/95
361		Luis	Amendola	Save The Children de Honduras	Salud y Nutrición	Coordinator	Tegucigalpa	39-2421	2/26/96
362	Ing.	Gilberto	Hernández	SECOPT	Vial Planning	Jefe	Tegucigalpa	33-7078	2/27/96
363		Herman	Velasquez	SECOPT		Sec. de Estado	Tegucigalpa	33-7690	9/8/95
364	Lic.	María	Ayes	SECPLAN	Un. de Indic. Sociales	Coordinadora	Tegucigalpa		1/23/95
365	Lic.	Sofía	Botero	SECPLAN	Com. Moderniza. Estado		Tegucigalpa	34-2211	6/28/95
366		José	Escoto	SECPLAN	Proy. Sist. Inv. Sect Pub.	Economista	Tegucigalpa	37-5395	2/14/95
367	Lic.	Mayra	Espinoza	SECPLAN	Un. de Indic. Sociales		Tegucigalpa		1/23/95
368		Rosa	Gómez	SECPLAN	Seguridad Alimentaria	Coordinadora	Tegucigalpa	37-5971	2/6/95
369	Lic.	Liah	Galindo	SECPLAN	USP		Tegucigalpa	38-0969	6/28/95
370		Guillermo	Molina	SECPLAN		Ministro	Tegucigalpa		1/24/95
371	Lic.	Ana	Munillo	SECPLAN	Proy. de Desarrollo Mun.		Tegucigalpa	22-6673	6/28/95
372	Lic.	Martha	Obando	SECPLAN	Proy. de Desarrollo Mun.		Tegucigalpa	33-7714	6/28/95
373	Lic.	Francisca	Ordoñez	SECPLAN	Trabajo Social FHIS		Tegucigalpa	37-5583	6/28/95
374	Dra.	Desirée	Pastor	SECPLAN	Social Route		Tegucigalpa	37-0315	2/9/96
375	Lic.	Nubia	Pineda	SECPLAN	Unidad Técnica		Tegucigalpa		3/3/95
376	Ing.	Gerardo	Reyes	SECPLAN	Censo Nacional Agropecuario	Coordinador Nacional	Tegucigalpa	39-2325	3/9/95
377		Marisela	Zuniga	SECPLAN	Social Project	Coordinator	Tegucigalpa	37-7210	8/17/95
378	Ing.	Gino	Brizzio	SEDA	Environment Control	Sub Director	Tegucigalpa	37-5667	2/26/96
379	Sr.	Greuil	Madrid	SEDA	D.P.P.A.	Director	Tegucigalpa	32-7718	6/27/95
380	Ing.	Myriam	Narváez	SEDA	Environment	Jefe	Tegucigalpa	37-5667	2/25/96
381	Lic.	Minam	Narváez	SEDA	Políticas y Plan. Ambiente		Tegucigalpa	38-4685	1/24/95
382		Carlos	Posas	SEDA	Facultad de Medicina	Director	Tegucigalpa	38-4685	2/7/95
383		Tetsuo	Dokiya	SRN/JICA		JICA Expert	Tegucigalpa		2/13/96

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384	Lic.	Gerardo	Boñas	UNAH	Depto. de Biología	Decano	Tegucigalpa	32-2110	6/28/95
385	Dr.	Jorge	Sierra	UNAH		Oficial de Programas	Tegucigalpa	32-3975	2/2/95
386	Dr.	José	del Cid	UNDP			Tegucigalpa		3/13/95
387	Dr.	Raphael	del Cid	UNDP	Food Security		Tegucigalpa		2/28/96
388	Jorge		Guevara	UNDP	Environment & Rural Devip.	Programme Officer	Tegucigalpa		2/16/96
389	José		Rafal	UNDP	Social Development	Program Officer	Tegucigalpa	39-0216	2/16/96
390	Bernardo		Cameratti	UNICEF		Representante	Tegucigalpa	31-1612	1/26/95
391	Dra. Mirceya		Carbajal	UNICEF	Prog. Against Violence	Education Officer	Tegucigalpa		3/22/96
392	Ms	Regina	Duron	UNICEF	Strengthening Mnpl. Prg.		Tegucigalpa		2/19/96
393	Luis		Ebelime	UNICEF	Neighborhood Water Sys.	Director	Tegucigalpa	31-1612	2/6/96
394	Dr.	Luis	Escoto	UNICEF	Oficina de Salud y Nutrición	Oficial de Salud y Nutrición	Tegucigalpa	31-1614	1/26/95
395	Diego		Leon	UNICEF			Tegucigalpa	31-1612	6/28/95
396	Ana		Mojiman	UNICEF	Water and Sanitation		Tegucigalpa		2/26/96
397	Dr.	Gustavo	Bardales	USAID	Health Sector Project II	Director	Tegucigalpa	37-8332	3/18/96
398	Ing.	Herb	Caudill	USAID	Agua y Saneamiento	Oficial	Tegucigalpa	38-5114	1/28/95
399	Peter		Hearne	USAID	Agriculture Department		Tegucigalpa		2/14/96
400	David		Losk	USAID	Health, Nutrition, Population	Oficial	Tegucigalpa	38-5114	1/26/95
401	Richard		Monteith	USAID		Technical Officer	Tegucigalpa		3/14/96
402	Mario		Guevara	World Vision		Coordinator	Tegucigalpa		3/21/96
403	Dr.	Edmundo	Osorno	World Vision	Office Tegucigalpa	Coordinator	Tegucigalpa		3/22/96
404	Virginia		Zavala	World Vision			Tegucigalpa		3/21/96
405	Gilberto		Lagos			Arquitecto	Tegucigalpa	32-1711	3/20/95
406	Dr.	Basil	Varclzis			HIV and TB Advisor	Tegucigalpa		3/12/96
407	Lic.	Alberto	Eguigure	Banco Central	Analisis y Economía		Tegucigalpa		
408	Dr.	Carlos	Rivera	MSP			Tegucigalpa		2/19/96
409	Dr.	Stanley	Terrell	USAID			Tegucigalpa		3/14/96
410	Delia		Ecucceda	MSP	CESAR El Tránsito	Assistant Nurse	Valle		3/4/96
411	Carmen		Aguilar	CODEM			Yamaranguila		3/21/96
412	Juana		Mercedez	SSO		Teacher	Yamaranguila		3/12/96
413	Dr.	Alberto	Bonilla	Arca No.3 (HR.No.7)			Yocon		
414	Luis		Pinel	EAP	Project Formulation	Assistant	Zamorano		2/15/96