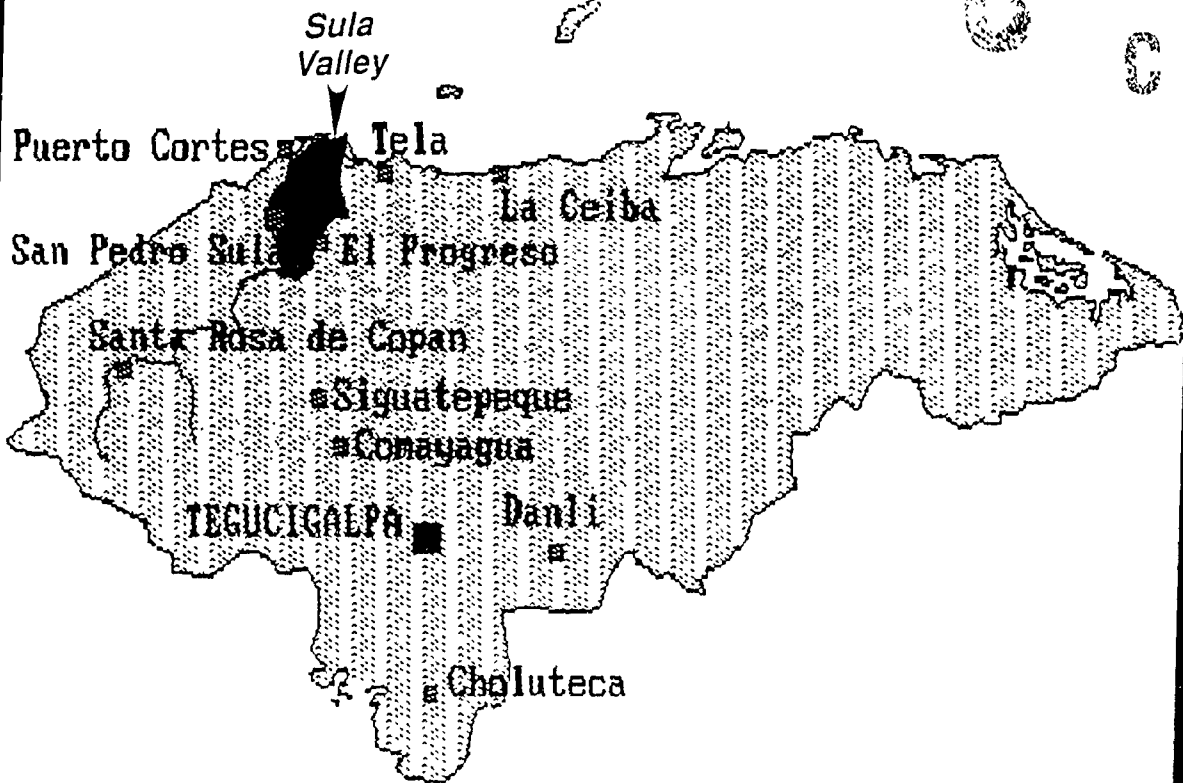




COFSAM/PDM-91,0001

INITIAL ASSESSMENT
NATION ASSISTANCE OPPORTUNITIES
Sula Valley, Honduras
Central America

DTIC
 ELECTE
 JUL 01 1991
 S C D



U. S. Army Corps
 of Engineers
 Mobile District



APRIL 1991

91-03742



ACKNOWLEDGEMENT

This assessment is provided as part of a SOUTHCOM engineer's initiative to use DOD assets in support of Honduran civilians as well as military institutions. It complies with the CINC's intent to assist nations in building sustainable institutions and uses the strategy outlined in The-American Cooperation Primer (Draft 22 Feb 91).



REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER COESAM/PDM-91/0001	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Initial Assessment Nation Assistance Opportunities, Sula Valley, Honduras Central America		5. TYPE OF REPORT & PERIOD COVERED Technical Assistance Nation to Nation April 1991
7. AUTHOR(s) Donald J. Chatelain, P. E.		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Engineer District, Mobile Military Planning Branch Planning and Environmental Division (CESAM-PD-M)		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE April 1991
		13. NUMBER OF PAGES 66
		15. SECURITY CLASS (of this report) Unclassified
16. DISTRIBUTION STATEMENT (of this Report) UNLIMITED		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Flood Control Emergency Operations		Accession For DTIC GRAAL <input checked="" type="checkbox"/> DTIC TAB <input type="checkbox"/> Unannounced <input type="checkbox"/> Justification By Distribution/ Availability Codes
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		Avail and/or Dist Special A-1



EXECUTIVE SUMMARY

Flooding in the Sula Valley in November and December 1990 prompted the U.S. Embassy to request SOUTHCOM to provide assistance in flood control and emergency operations. SOUTHCOM, through the MILGP in Honduras, sponsored the Mobile District, Corps of Engineers, to complete this initial assessment. Our findings are that a SOUTHCOM-USACE partnership with the the Government of Honduras (GOH) is both welcomed and needed. Such a partnership would greatly enhance the economic development of Honduras during a transition period of the positive actions underway. Because of our limited understanding of the evolving institutional changes in Honduras, the entities of the GOH which would play an active role in that partnership will have to be established as time progresses. The Corps role in this partnership would not be to plan, design and construct; but rather to assist and advise the Honduran government in reaching their ultimate goal. The types of assistance which are especially appropriate in the water resources area are: overall technical assistance in the water resources development of the Sula Valley; the development of an emergency management program for Honduras; and the installation of a flood-warning system for the Sula Valley. It should be emphasized that the first item is the most paramount need at this time. The establishment of the Sula Valley Authority is now being pursued. The ultimate disposition of this action is key to the development of the Sula Valley--the highest priority of President Callejas. Thus, the most beneficial Corps assistance which could be provided in this transition period is a partnership with the appropriate GOH officials in this endeavor. The next step in this process is to develop a partnership plan and seek funding for the execution of that plan. The Corps of Engineers is exploring possible funding from SOUTHCOM, USAID/OFDA, and the Inter-American Development Bank. Once we more clearly define the available funding, we will be in a position to negotiate the partnership agreement. This document is being circulated to all involved parties for their consideration. The results of this study and identified funding sources will be briefed to the SOUTHCOM Engineer, MILGP Commander, then to the U.S. Ambassador in Honduras.

INITIAL ASSESSMENT - NATION ASSISTANCE OPPORTUNITIES
IN THE SULA VALLEY, HONDURAS, CENTRAL AMERICA

INTRODUCTION

Background. Flooding in the Sula Valley in November and December 1990 prompted the U.S. Embassy to request SOUTHCOM to provide assistance in flood control and emergency operations. In response to that request, SOUTHCOM sponsored a U.S. Army Corps of Engineers, Mobile District team to visit Honduras from January 21-24, 1991. That team consisted of LTC Martinez, Deputy District Engineer, and Pat McFarlane, Acting Chief of the Emergency Management Division. Their emphasis was on evaluating the emergency management infrastructure in Honduras. Following that visit, SOUTHCOM sensed a possible need for water resource planning assistance beyond emergency management. Thus, a second team from the Mobile District was dispatched to Honduras from March 11-15, 1991 to assess the overall water resource development needs of the Sula Valley. That team consisted of three senior professional engineers specializing in water resources planning and hydraulic design--Don Chatelain (team leader), Howard Danley and Ken Underwood. Accompanying the Mobile District Team were Norm Edwards, OCE, and Gordon Daniels from the State Department. Mr. Edwards' purpose was to assure continuity with the Corps Washington Office and to provide him with background information for future assistance to the Mobile District in exploring potential avenues of funding. Mr. Daniels was invited to accompany the team to provide him background information for future training of Corps of Engineers employees dealing in Central America. A listing of the in-country officials consulted by the two Mobile District teams is attached as Appendix A.

Purpose. After the request from the U.S. Embassy, SOUTHCOM proposed a three-phase approach to this initiative: Phase I - Assessment; Phase II - Develop a Partnership Plan; Phase III - Execute Partnership Plan. This report documents the findings of

Phase I. More specifically, the purpose of the Phase I assessment was to determine what type of water resource planning and emergency management assistance the Corps could provide to support the Government of Honduras (GOH) in their efforts. This included matching the Corps unique expertise with the desires and needs of the GOH as well as exploring potential funding sources. The resulting potential actions to assist the GOH in emergency preparedness, emergency operations, flood mitigation and, most importantly, the overall water resources development of the Sula Valley, will be submitted through SOUTHCOM Engineer and MILGP Commander to the U.S. Ambassador for his consideration.

Prior Studies. According to Honduran officials, there have been numerous studies conducted through the years on the flooding situation in the Sula Valley. Further, the Mobile District has provided small-scale technical assistance on several dozen occasions. There are two studies which are especially pertinent to the current situation in the Sula Valley--a consortium HARZA-CINSA report entitled "Informe del Plan Maestro Para el Desarrollo Integral y Control de Inundaciones en el Valle de Sula," dated March 1979, and "US Army Corps of Engineers, Reconnaissance Report, North Coast of Honduras Flooding," dated March 1988. The 1979 HARZA-CINSA report is the most comprehensive study ever conducted on the Sula Valley, consisting of a three-year effort and 14-volume report. That study evaluated numerous flood control alternatives in the Sula Valley. The recommended plan consisted of a leveed floodway, diversion structures and canals in the lower Sula Valley plus numerous other works in the upper basin. That plan is discussed in more detail in Appendix B. The 1988 reconnaissance report of the Mobile District was very limited in scope and therefore suggested a process for proceeding in lieu of specific project recommendations. In the short-term, the Corps recommendations were: (a) programmatic implementation of phased construction considering affordability to the GOH, (b) establishing an ad hoc water resources commission to determine project

priorities and (c) installing a flood warning system in the Sula Valley to prevent loss of life. The future action plan consisted of dredging in the lower Rio Ulúa, temporary blockage of flow into Canal Melcher, non-structural work and a comprehensive reevaluation of structural flood control alternatives in the Sula Valley.

Level of Detail and Costs. The emergency management aspects of this assessment could be either regional or national. However, water resources development needs were limited to considerations in the Sula Valley because of the emphasis given this area by the GOH. The study was based on seven days of in-country visit, thus the findings are primarily professional opinions. The cost estimates generated for this report are highly variable depending on how the development of Honduras evolves and the extent of Corps participation. Thus, these estimates should be recognized as order of magnitude numbers based on professional judgment. Perhaps the best characterization of this study would be a follow-up to the 1988 Mobile District report, i.e., how various initiatives in the Sula Valley are progressing and how might the Corps help the GOH in their endeavors.

THE SULA VALLEY

Description. The Sulva Valley lies in the northernmost portion of the Rio Ulúa/Chamelecon basin (See Exhibit 1). The Sula Valley consists of the rich agricultural flood plain lands fed by the Rio Ulúa and Chamelecon along the western portion of the northern coast of Honduras. The total area of the Sula Valley floor is approximately 190,000 hectares with 50,000 hectares in cultivation. Primary cities in the valley are San Pedro Sulà, El Progreso and La Lima. Water resources projects in the area consist of numerous drainage canals, levees and flow diversion structures built by the fruit companies to facilitate their agricultural development. The only major river control structure within the upper basin is the El Cajón dam located about 30 kilometers south of El Progreso. This massive hydroelectric dam is reportedly the seventh highest dam in the world and provides much of the electricity for Honduras. Although designed exclusively for hydropower, this project offers potential for reducing flood flows in the Sula Valley.

Economy. The Sula Valley is a major contributor to the overall Honduran economy. Agriculture and industrial production in the Sula Valley represents 50% of the Honduran Gross Domestic Product (GDP) and 60% of all exports. The Sula Valley is also the "bread basket" of Honduras with agricultural production accounting for 40% of the agricultural production in all of Honduras. This statistic is especially significant when one considers that agriculture is the most important economic sector in Honduras--accounting for nearly 30% of Gross National Product (GNP), over 60% of the labor force, and two-thirds of exports. The most important crops are bananas, African oil palm, plantain, sugar cane, pineapple, citrus (orange and grapefruit), and basic grains (corn, maize and rice). Other crops include coffee, cocoa, vegetables (tomato, lettuce, cabbage), beans, soybeans, mango, papaya, and melons (cassava and watermelon).

Flooding. Periodic flooding in the Sula Valley has plagued the area for many years. The valley is especially vulnerable to flood impacts because of the thousands of campesinos living in low-lying areas and the fact that only 13% of agricultural land is protected from flooding. Records of catastrophic flooding resulting from hurricane rains date back to 1934, 1954 and 1969. Torrential rains spawned by Hurricane Fifi in 1974 resulted in a heavy loss of human life and severe damages to property and agriculture. Reportedly, eight to ten thousand or more people in the town of Choloma were killed in that flood. Property and agricultural damages were the equivalent of \$100 million U.S. The most recent floods of November and December 1990 caused damages approaching \$40 million. Even minor floods which occur annually pose a threat to property and human life. Local officials estimate that physical property and agriculture losses average between 15 and 35 million dollars per year.

Sula Valley Development. Several Honduran officials indicated that the development of the Sula Valley is the highest priority of the GOH. They point out that only 50,000 hectares of the available 190,000 hectares in the valley are under cultivation. Of this 190,000 hectares, there are 120,000 hectares which could be developed to some degree. Of this, a total of 50,000 hectares of "prime" agricultural lands are not under cultivation. Increasing the hectares under cultivation and reducing heavy flood losses in the valley would be a tremendous economic boom for all of Honduras. To promote this development, President Callajas established the Sula Valley Commission in 1990 by executive order. This commission is staffed with a full-time executive director, Ricardo Bermudez, and non-paid engineers and businessmen appointed by the President. Their purpose is to promote and prioritize development projects in the Sula Valley. This group has made notable progress; however, they have been constrained by the lack of financial resources and institutional difficulties.

Sula Valley Authority. To further enhance the development of the Sula Valley, the President is supporting legislation that would establish the "Sula Valley Authority". Local officials indicated that the Tennessee Valley Authority had given them the idea. However, the actual model of the Sula Valley Authority was patterned after a similar concept in the Cauca River Valley in Colombia, South America. In its present draft form, that legislation (copy attached as Appendix E) would give sweeping authority to the members of the Authority. The ten members of the Authority, six private sector members appointed by the Chambers of Commerce and four sector public members appointed by the President, would have total jurisdiction over the natural resources development of the Sula Valley. Decision of the Authority could be approved by the President without Congressional approval or coordination with other Ministries. In fact, it was reported that the President directed each of his eleven Ministers to modify their authority to preclude multi-jurisdiction in the Sula Valley. Another interesting section of the draft legislation is that relatives of members of the Authority would not be allowed to accept contracts in the execution of the Authority's projects and programs. The authority would also have a two layered taxing authority. First would be a property taxing authority of three lempiras per 1,000 evaluation. The producers would receive a bond for this levy which would be credited toward the second tax to be levied after improvements are completed. Culmination of action on the proposed legislation is expected in 3 or 4 months. The ultimate passage of this legislation and possible modifications thereto are uncertain at this time. However, this controversial legislation is considered by many to be the transition point in the President's program for the development of Honduras.

Development of Master Plan. Government of Honduras officials indicated their intentions of retaining HARZA Engineering to update the comprehensive study they conducted in 1979 in order to develop a master plan for the development of the Sula Valley. The

recommended plan of development in that report is described in detail in Appendix B. In summary, that plan calls for a leveed floodway in the Sula Valley with a system of diversion structures and interior drainage canals. Ultimately, these improvements could double or triple the agricultural productivity in the Sula Valley through flood damage reduction and reclamation of flood plain lands. This project would be a major undertaking with today's construction cost approaching a billion dollars U.S. Thus, the GOH plans to ask HARZA to develop a master plan with phased construction. The size and location of the various phases is not yet determined; however, local officials indicated that the four original phases may be subdivided into scores or maybe even a hundred financially affordability mini-projects.

Financing of Construction in the Sula Valley. The GOH officials do not appear to have any firm commitment on financing of the water resources work in the Sula Valley. They are clearly hopeful that they will receive international assistance. One high-level Honduran official indicated that recent conversations with the Inter-American Development Bank (IDB) had given him reason to believe that the government would receive funding to proceed with the economic development of the Sula Valley. Another individual stated that IDB had indicated its willingness to fund Stage I of the HARZA report in the past. While the second team was in-country, a newspaper article indicated that the IDB planned to loan \$700 million to Honduras. A translated copy of that article is attached as Exhibit 2. Forty million dollars was reportedly to be made available soon for the development of agriculture and industry. GOH officials we met on the second trip were unaware of such a proposal. They did, however, state that they would pursue this matter. Representatives of OCE also intend to discuss this matter with the bank's main office in Washington, D.C. We also intend to explore the ground rules for such a loan.

Emergency Operations. Another element of the development of the Sula Valley is in the emergency management arena. For the most part, emergency response and preparedness to flooding as well as any other national disaster are difficult to coordinate and institutionally cumbersome. The many societal demands on scarce resources have caused the GOH to divert its financial resources to the pressing daily demands of its people rather than the infrequent tragedy of a natural disaster--a situation similar to the United States' lack of legislation and funding to effectively cope with drought. Planning and coordination of emergency response efforts does not occur before or after a disaster due to the lack of a budget within the government for emergency planning. This has led to a situation where there is no national emergency plan developed to date. In fact, current legislation dictates that emergency operations can only be activated during an actual disaster. Current legislation also classifies a national emergency declaration by the President as implying martial law, which has obvious implications. Thus, the Honduran people and various agencies respond independently as best as they can to disaster. Often this leads to duplications by responding agencies, thereby causing delays in needed assistance.

Our discussion with President Callejas indicated that he is well aware of the emergency management situation in his country. He welcomed any type of advice or assistance we might provide. Perhaps the first step toward improvement in the situation has been taken. It is our understanding that the emergency management agency, COPEN, has not been funded in 1991 and a new organization, COPECO, is being established. This could allow an opportunity to streamline Honduras' emergency management structure if the emerging organization is supported by appropriate enabling legislation and funding. We would like to offer two early-on observations on COPECO. First, it would be desirable to place this organization under civilian control because of interactions we sensed in Honduran society. Secondly, we would suggest the Ministry of

Communications and Public Works be included on the COPECO "Board". It would seem that they would be an important member of COPECO, since they have jurisdiction over much of Honduras' construction equipment and are a center of expertise for construction contracting.

NATION ASSISTANCE OPPORTUNITIES FOR SOUTHCOM AND USACE

General. The Corps of Engineers enjoys an extremely good reputation in Honduras. Comments regarding our potential involvement with the GOH were well received. Several officials indicated a need for a "sister organization" such as the Corps to assist Honduran engineers and officials in the development of the Sula Valley. Further, many officials indicated that Corps involvement would help the GOH obtain a better quality product and would add credibility in their efforts to obtain international funding.

The general attitudes of those we met in Honduras were very positive toward the development of the Sula Valley. They recognized the shortfall in the current bureaucratic system in Honduras; yet, they remained optimistic of a significant improvement in the near future. Several officials indicated that even if the Sula Valley Authority legislation failed, they would pursue development by other means. All signs are that the GOH is on a very positive course in the development of their country. However, this will be a long and arduous process given the technical, institutional and financial considerations involved. A partnership between the GOH and SOUTHCOM-USACE would greatly facilitate the development envisioned by the country's leadership. The Corps' role would not be to plan, design and construct; but rather to assist and advise the Honduran government in the process for reaching their goal. Areas where Corps expertise could enhance the Honduran efforts are summarized in the following paragraphs.

Master Plan for the Sula Valley. Perhaps the most pressing need for Corps' assistance is in the development of the Sula Valley. Several in-country officials indicated that the other forms of assistance in other areas were clearly subordinate to this need during this time of transition in the Honduran government. This process will require the resolution of countless technical and institutional problems over an extended period. (Officials conservatively estimate that the development of a master plan will take 1-1/2 years). Examples of the types of questions which must be addressed are: (a) How can the Sula Valley Authority legislation be modified to satisfy the legislature and maintain the effectiveness of the authority? (b) What type of environmental assessment will be required? (c) What type of economic evaluation criteria does the IDB or others use as an evaluation for loans? (d) How will siltation affect the long-range maintenance of the project? (e) What impacts will an implementation of the individual mini-projects have on other interests in the basin? (f) What is the best sequence of construction weighing technical considerations along with institutional ones? (g) What is an appropriate safety factor in the design and the protection provided? (h) What is the most practicable long-range plan for soil conservation and reforestation? (i) What type of agricultural experimentation should be undertaken to maximize production? (j) What environmental measures should be included in the development? (k) What institutional framework within the GOH should be used to effectively foster economic development? (l) What type of public involvement program will be needed to maintain the support of the local citizens, the legislature and the international community? ETC.

The questions in the previous paragraph can only be answered by determining what is in the best interest of the Honduran people. That is a question the Honduran people must answer, since the needs of any country or society vary through time. One good example of this is the utilization of the benefit-to-cost ratio. In the

United States a baseline of National Economic Development (NED) is used as a basis for deciding which actions may be in the national interests and warrant Federal participation. This process limits the quantification of intangibles such as health, social well-being and employment. These concerns are normally addressed by other government programs not subjected to the benefit-to-cost criteria. Further, regional economic gains are normally not included because they are viewed as an economic transfer from one section of the country to another. Obviously, in a country like Honduras, basing decisions only on the NED approach is totally inappropriate. Health and social well-being are vital factors. Further, the regional economic development of the Sula Valley would greatly improve the country's balance of trade and stimulate the entire Honduran economy. In turn, the economic stability of Honduras is in the interest of U.S. security. These considerations make a partnership between the GOH and SOUTHCOM-USACE an attractive proposition.

The Corps could provide valuable assistance to the GOH in answering questions such as those posed previously. Our long history of developing the water resources of the United States through changing times and values has prepared us well for such an endeavor. The needs for the Corps' assistance will vary considerably according to how the development of the Sula Valley evolves. One extreme would be to provide a full-time senior water resource planner in-country for the entire two-year period during the consideration of the Sula Valley Authority legislation and development of the master plan. Our judgment indicates that will not be necessary. We would suggest that the Corps representative be initially dispatched to Honduras for several weeks to become thoroughly familiar with the plan and the players. This initial visit is especially important for the Corps representative to gain an understanding of the institutional and technical framework involved. After this initial visit, he/she should be able to provide adequate assistance--with supporting staff in Mobile and

through periodic visits to Honduras, maybe one week per month. Examples of the types of assistance this individual and support staff would provide are: advanced planning and scheduling, preparing scopes of work, reviewing plans for technical accuracy, preparing feasibility studies for the master plan, monitoring design or construction contracts and helping develop special program requirements such as public involvement. From time-to-time it would be necessary to send a team of specialists to Honduras to assist in the resolution of unique problems, such as environmental assessments, economic analysis, and technical design. In summary, the Corps support package would include a dedicated water resources planner for the duration of the effort on a 1/2 to 1/3-time basis, specialized personnel or teams to conduct in-country evaluations as necessary and support from District staff in Mobile. The cost of these services is expected to range from \$200,000 to \$400,000 per year. It should be emphasized that this estimate is extremely speculative and should be modified according to actual needs.

Emergency Management. The suggested Corps of Engineer's assistance in the emergency management (EM) arena is in three general areas: (a) defining the emergency management infrastructure; (b) development of an emergency management plan and (c) establishment of an emergency management exchange program. Each of these issues are discussed in detail in Appendix C. The first step toward defining the EM infrastructure is to involve all of the in-country players. Thus, we suggest that a conference be sponsored by USAID/OFDA to start the dialogue necessary to establish an effective infrastructure. Secondly, an integral part of an effective EM program is the development of a planned strategy. We suggest that U.S. emergency management specialists be retained to assist in the development of that plan with Honduran officials in-country. The third suggestion is that an EM exchange program be established between the Honduran government and a state in the United States. The experience and training from this program

should be beneficial to both countries. The cost of the Corps involvement in these areas will vary considerably according to the assistance desired. Our best judgment is that these costs will range from \$40,000 to \$90,000 initially. If the technical exchange program and conferences are adopted on a continuing basis, the annual cost of Corps' participation would be about \$15,000.

Flood Warning System. The key to effective emergency preparedness for flooding is a warning mechanism. This is especially true in the Sula Valley because many floods are of the flash variety originating in tributary mountain streams. The tragic flood spawned in 1974 by Hurricane Fifi is a grim reminder of this potential in terms of human lives and material damages. Appendix D contains a description of a state-of-the-art automated flood warning system. This system consists of the installation of combination river-stage rainfall gages and relay stations throughout the basin. The data gathered at these gages would be instantaneously transmitted by radio signal to a central station. Technicians at these stations would be equipped with computers, displays and software necessary to monitor rainfall and runoff and simulate flood conditions well in advance of the actual flood. In the Sula Valley, this would allow from several hours to more than one-day's warning before flood peaks reached the population centers. This warning coupled with an effective emergency preparedness plan would greatly reduce the potential of loss of life and to some extent property damages. The cost of a flood warning system for the Sula Valley is estimated to be \$470,000. The cost of an expanded system for the entire Rio Ulúa/Chamelecon basin would be about \$1,400,000.

CONCLUSIONS

Our findings are that a SOUTHCOM-USACE partnership with the GOH is both welcomed and needed. Such a partnership would greatly enhance the economic development of Honduras and thus be in the best

interest of the United States. The paramount question is the source of funding. The total support package discussed in this report would require an initial investment of about 3/4 of a million dollars (Emergency management Program - \$40,000 to \$90,000; Sula Valley flood warning system - \$470,000; technical assistance - \$200,000 to \$400,000 per year). The most urgent need of technical assistance would range from \$250,000 to \$500,000 per year. Potential funding sources are USAID/OFDA, SOUTHCOM, GOH and the private sector. The next step is to involve all these parties to determine how much is available for each endeavor. Then, we can move to Stage II--developing a partnership plan. The purpose of this report was to document our assessment of the situation in preparation for those deliberations.



VICINITY MAP

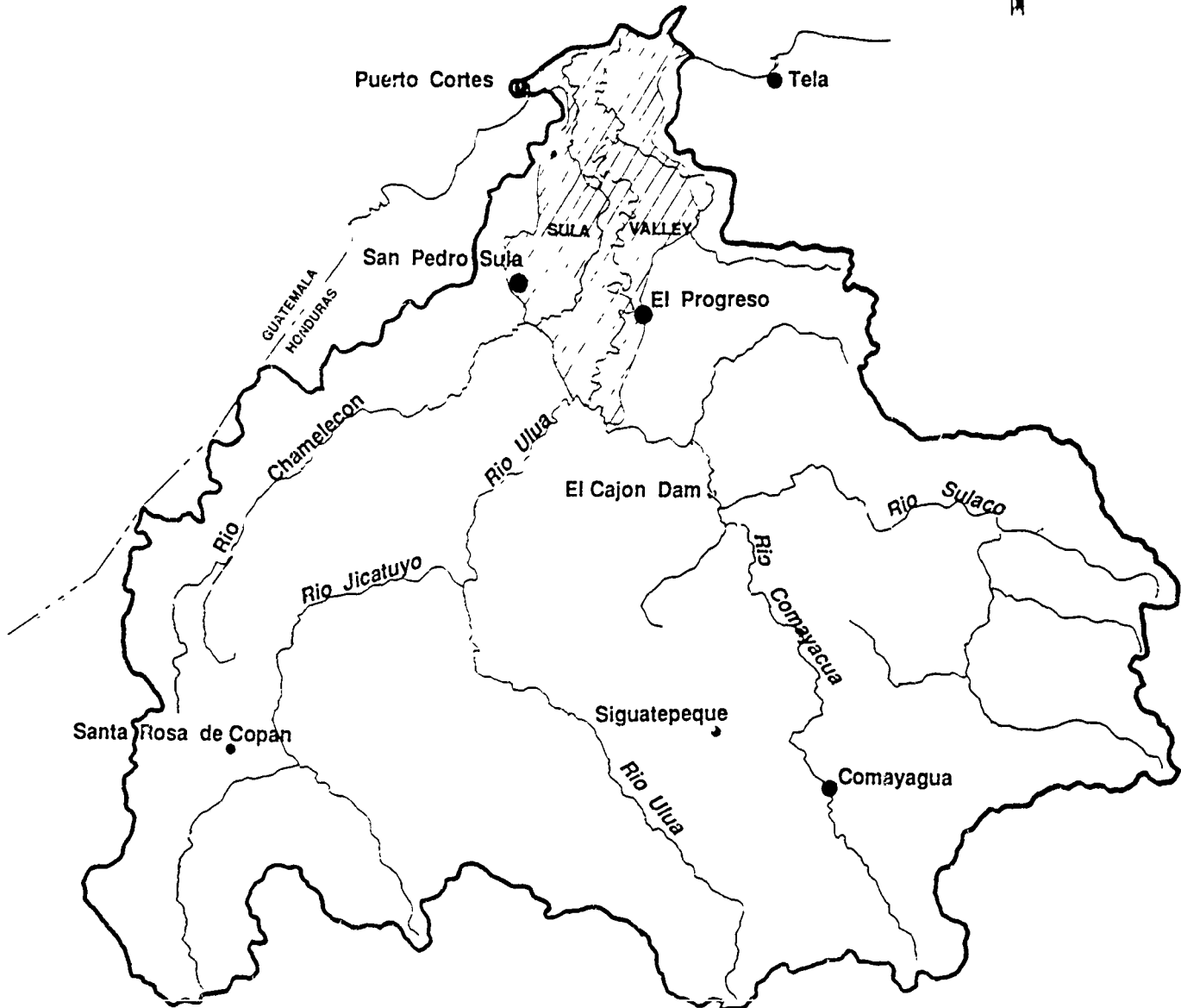
LEGEND



SULA VALLEY



CARIBBEAN SEA



BASIN MAP
RIO ULUA/CHAMELECON

IDB To Lend \$700 Million To Honduras

The president of the Inter-American Development Bank (IDB), Enrique Iglesias, on Sunday said that IDB will grant \$3,000 million in loans to Central America and Panama over the next four years.

The announcement by Iglesias was made during a press conference at the conclusion of the fifth meeting of IDB's Central American Governors, which was held in Tegucigalpa over the weekend.

With regard for Honduras, Iglesias said an IDB technical mission will arrive in the country during the next few days to work with the administration of President Rafael Leonardo Callejas in the preparation of a triennial plan, which could receive up to \$700 million in credits.

He added that of this amount, \$200 million would be used for energy programs.

\$270 million for potable water, wastewater and environmental projects, \$60 million for transportation sector projects, \$40 million for agricultural and industrial programs, and the rest for various social projects.

To date he said Honduras has received an estimated \$1,000 million in credits from IDB, included a \$120 million loan last year.

In IDB's more than 25 years of existence, the bank has lent the Central American nations approximately \$6,000 million, of which 30 percent has been used for electrification projects, while smaller percentages have been used for water, environmental, agricultural, industrial, health, science and educational projects.

During the meeting's opening ceremony on Saturday evening, Iglesias said the Central American region is currently confronting difficult economic times, brought on by the political, social and economic transformations and changes during the last few years.

Although there is still much ground to cover, he said, "I believe we are now seeing the light at the end of the tun-

nel of this difficult period in the region."

He added that the standard of living of Central Americans has been thrown back at least 13 years, and in certain countries up to 20 years. In other words, for many Central Americans today's standard of



Enrique Iglesias

living is inferior to living conditions at the beginning of the 1970's.

In spite of the region's difficult economic situation, Iglesias said he is optimistic that things will improve, since the economies of several nations have begun showing signs of vigorous growth.

APPENDIX A - OFFICIALS CONSULTED

APPENDIX A - OFFICIALS CONSULTED

The in-country officials consulted by the two Mobile District teams were as follows:

FIRST TEAM

LTC Louis J. Martínez	- Deputy District Engineer
Patrick A. McFarlane	- Acting Chief, Emergency Management Division
Major Steve McIntire	- Honduras Area Office
Mike Valladaras	- " " "

Bob Adams	- AID Engineer
Ricardo Bermudez	- Executive Director, Sula Valley Commission
LTC _____	- CODERE Representative Emergency Management Team for San Pedro Sula
Hector Lazo	- Representative of Ministry of Gobernación Justicia (Interior Dept.).
Ricardo Callejas Virgilio Trapero	- Engineer planner, Ministry of Comunicaciones, Obras Públicas y Transporte (Communications, Public Works and Transportation)
Dr. César Castellanos	- Ministry of Salud Pública y Asistencia Social (Public Health and Social Assistance)
Mrs. Meneca de Mencia	- President of la Cruz Roja Hondurena (Honduran Red Cross)
Roberto Rodríguez Borjas	- Cuerpo de Bomberos (Fire Dept.)
Orlando Aviles	- Engineer, Director de Recursos Hidráulicos (Reservoir Resources)
Miguel Angel Matute	- Engineer, Sub-Secretario de Comunicaciones y Transporte (Communications and Transportation)

Mr. Mauro Membreño	- Minister of Communications, Public Works and Transportation
Pablo Gomez	- General Director of Economic International Affairs, Ministry of Relaciones Exteriores (Foreign Relations)
Manlio Martinez	- Minister of Planificación, Coordinación y Presupuesto, SECPLAN (Planning, Coordination and Budget)
Ambassador Arcos	- US Ambassador to Honduras
President Callejas	- President of Honduras
Dr. Marcos Carias Zapata	- Ministerio de Relaciones Exteriores (Foreign Relations)
Lic. Manlio Martinez Cantor	- Ministro de SECPLAN

SECOND TEAM

Don Chatelain	- Engineer/Team Leader, MDO
Howard Danley	- Water Resources Planner, MDO
Ken Underwood	- Hydrology and Hydraulics Design Engineer, MDO
Mike Valladaras -----	- Honduras Area Office, MDO
Del Junker	- Political Officer, American Embassy
Bob Adams	- AID Engineer
Maurio Membreño	- Minister SECOPT
Ricardo Bermudez	- Executive Director, Sula Valley Commission
Roberto Aguerro Nero	- AID Engineer
Mike Soto	- Assistant to Executive Manager International Relations and Tourism, Chamber of Commerce and Industries, Cortes

Roberto Leiva

- President, Chamber of Commerce and
Industries, Cortes

Fredrick Karl Koch

- General Manager, United Fruit Co.

Carlos Fuenes

- Engineer, United Fruit Company, and
member of Sula Valley Commission

APPENDIX B

TECHNICAL ASPECTS OF SULA VALLEY PROJECT UNDER CONSIDERATION

(This appendix presents a technical description of the Sula Valley project under consideration as we understand it. This level of technical detail was included so that Honduran engineers and technicians could verify our understanding of the plan.)

APPENDIX B

TECHNICAL ASPECTS OF THE SULA VALLEY PROJECT UNDER CONSIDERATION

Description. The Sula Valley lies in the northernmost portion of the Rio Ulúa/Chamelecon basin (See Exhibit 1). The two primary rivers draining this basin into the Caribbean Sea are the northerly flowing Rio Ulúa and Rio Chamelecon with a combined total drainage area of approximately 23,030 square kilometers. The drainage basin limits extend from near Tela on the north coast south-southeasterly to near the Capital city of Tegucigalpa, thence westerly close to the border with El Salvador to near Guatemala, and then northeasterly to the north coast near Puerto Cortez. The Rio Chamelecon enters the Sula Valley from the west near the town of Chamelecon, while the Rio Ulúa enters the southern end of the valley near Santiago.

The Sula Valley is that rich agricultural flood plain area of the Rio Ulúa and Rio Chamelecon Basin located along the western portion of the north coast of Honduras. The total area of the Sula Valley floor is approximately 190,000 hectares with 50,000 hectares in cultivation. The Sula Valley is approximately 75 kilometers long with a width that varies between 6 and 33 kilometers in the east-west direction. Primary cities within the Sula Valley are San Pedro Sula, El Progreso, and La Lima. Development of the valley was begun by fruit companies during the 1930's time frame. Those companies constructed railroads, drainage canals, levees, and flow control structures to facilitate their agricultural development. While some of these structures have been abandoned, many of the original infrastructure facilities are in use today.

The only major river control structure within the upper basin is the hydroelectric dam, El Cajón, located on the Rio Ccmayagua, a

tributary to the Rio Ulúa. This structure was designed to operate for power generation, but has potential for use in reducing flooding within the Sula Valley. El Cajón is located approximately 30 kilometers south-southeasterly of the upper Sula Valley village of Santiago. El Cajón is a concrete arch type dam located in a narrow gorge with a total height of approximately 200 meters above the river bed. The powerhouse is built into the mountains which serve as the left dam abutment. Presently 4 units are in operation with expansion capability and space for 4 additional units. Each of the operating units are rated at 75 megawatts maximum capacity. During past Sula Valley flood events this project was not operated to mitigate the problem but flood control discussions are ongoing.

During March 1979 a consortium of HARZA-CINSA (Consortio: HARZA-CINSA) completed a master plan for flood control in the Sula Valley. The report was entitled "INFORME DEL PLAN MAESTRO PARA EL DESCARROLLO INTEGRAL Y CONTROL DE INUNDACIONES EN EL VALLE DE SULA". The portion of the report which described the elements of the project in the Sula Valley is contained in "APENDICES J - ELEMENTOS DEL PROYECTO".

The recommended alternative identified in Appendix J and presented to the Team from the Mobile District during the week of 11-15 March 1991 consists of a floodway system with several flood control structures and an extensive internal drainage system along either side of the floodway. The primary floodway is referred to as "Canal De Alivio" and it is designed to convey flood flows originating within the upper Rio Ulúa and Rio Chamelecon basins to the Caribbean Sea. The Rio Chamelecon diversion channel is designed to convey flood flows from a point near the western valley town of Chamelecon to Canal De Alivio.

Plate 1, taken from Appendix J, gives a plan view of the project. As can be seen, the flood control project begins immediately downstream of the confluence of the Rio Comayaqua with the Rio Ulúa near Santiago. The total flow of the Rio Ulúa will be captured by Canal De Alivio levees which tie into high ground on either side of this narrow portion of the Sula Valley. Between Santiago and El Progreso the Rio Ulúa will be realigned to a new path within Canal De Alivio because the meander band width exceeds the floodway width. The city of El Progreso lies along the eastern side of the valley between the mountains and the Rio Ulúa. Near El Progreso a flow control structure in the east leave of Canal De Alivio will maintain low flows in the Rio Ulúa. From El Progreso the Rio Ulúa will flow to the Caribbean Sea without further modification.

From the western side of the Sula Valley near El Progreso, the Rio Chamelecon flood flows will be conveyed to Canal De Alivio via a diversion channel that begins near the town of Chamelecon. The Rio Chamelecon diversion channel will flow easterly and pass to the south of La Lima. All flows will be contained within the Rio Chamelecon diversion channel from Chamelecon to La Lima where a flow control structure in the north levee will discharge low flows into the natural channel of the Rio Chamelecon. From the La Lima flow control structure to Canal De Alivio the Rio Chamelecon diversion channel will convey flood flows. Beginning at the La Lima flow control structure the Rio Chamelecon flows north-easterly approximately 15 kilometers where all flows are conveyed into Canal De Alivio via the smaller floodway near Laguna Jucutuma. From the Laguna Jucutuma location north to Campana the Rio Chamelecon is not free flowing as the alignment is crossed several times by the west levee of Canal De Alivio. Between Campana and the Caribbean Sea the Rio Chamelecon will serve as a portion of the internal drainage system.

The internal drainage system is designed to convey those other flows originating over the Sula Valley floor and those delivered to the valley via the many tributary streams originating within the mountains to the east and west of the valley. The system of primary drainage canals will follow existing canal alignments along many reaches with some new primary canals required to complete the system. Secondary and tertiary canals will convey tributary flows and locally generated flows to the primary canals.

The internal drainage plan along the valley east of Canal De Alivio consists of two separate canal systems. From the southern or upstream project limits near Santiago to El Progreso the primary drainage canal alignment will flow roughly parallel to Canal De Alivio on the west and the valley wall to the east. This canal will convey flows originating in the mountains to the east and within this portion of the valley. From El Progreso, the eastern primary canal flows northerly across the valley floor between the mountains to the east and the Rio Ulúa to the west. This eastern primary canal discharges into the Caribbean Sea via an existing canal near the Laguna el Diamante.

A primary internal drainage canal between the Rio Ulúa and east Canal De Alivio levee will provide relief for that middle portion of the valley from El Progreso northward toward the sea. This middle canal will roughly parallel Canal De Alivio and flow into the north coast lowlands at an existing canal discharge point east of Campana.

That portion of the Sula Valley west of Canal De Alivio will be served by three separate internal drainage canal systems. The two most southerly or up-basin systems include pumping stations to lift flows into Canal De Alivio. The upper valley primary canal system has two branches which flow to a pumping station located west of El Progreso in the west levee of Canal De Alivio. A northerly

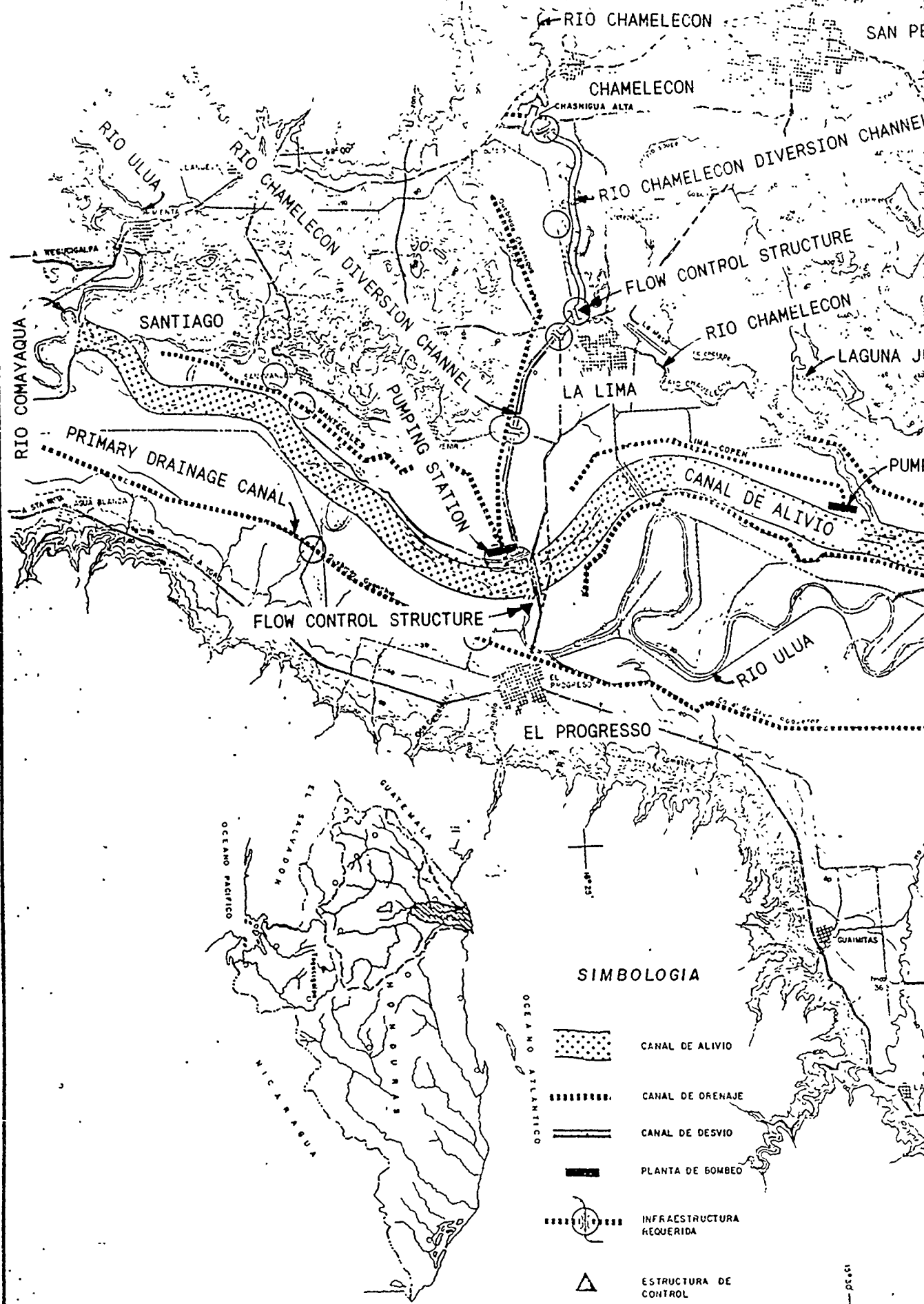
flowing canal beginning near Santiago will roughly parallel the west levee of Canal De Alivio and handle flows from the valley and the mountains to the west. An easterly flowing canal originating near Chamelecon will convey flows from the mountains to the south and the valley between the mountains and the Rio Chamelecon Floodway levee to the north.

The next portion of the internal drainage system is located west of Canal De Alivio and in the vicinity of La Lima. This system consists of a northerly flowing primary canal with a pumping station to lift those flows to Canal De Alivio. The pumping station is located in the Canal De Alivio west levee near the Laguna Jucutuma and the Rio Chamelecon intersection with Canal De Alivio. This system will handle those flows generated over the valley area defined by the Rio Chamelecon Floodway on the south, the Rio Chamelecon and floodway to the west, and the Canal De Alivio levee on the east.








The largest internal drainage system west of Canal De Alivio will handle flows generated within the valley from near Laguna Jucutuma in the south to Campana in the north and from the Canal De Alivio on the east to the tributary head waters in the mountains to the west. North of Campana the primary canal will discharge into the Rio Chamelecon and thence to the Caribbean Sea.

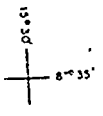
The GOH plans to have the Sula Valley Master Plan updated by HARZA in the near future. During this restudy effort, reconsideration should be given to basin hydrology, adequacy of meteorological and hydrological gaging stations, land use, sediment transportation and deposition, levee heights and design, environmental impacts, structural design, and project operation and maintenance. With a project of this scale, construction should be phased in increments

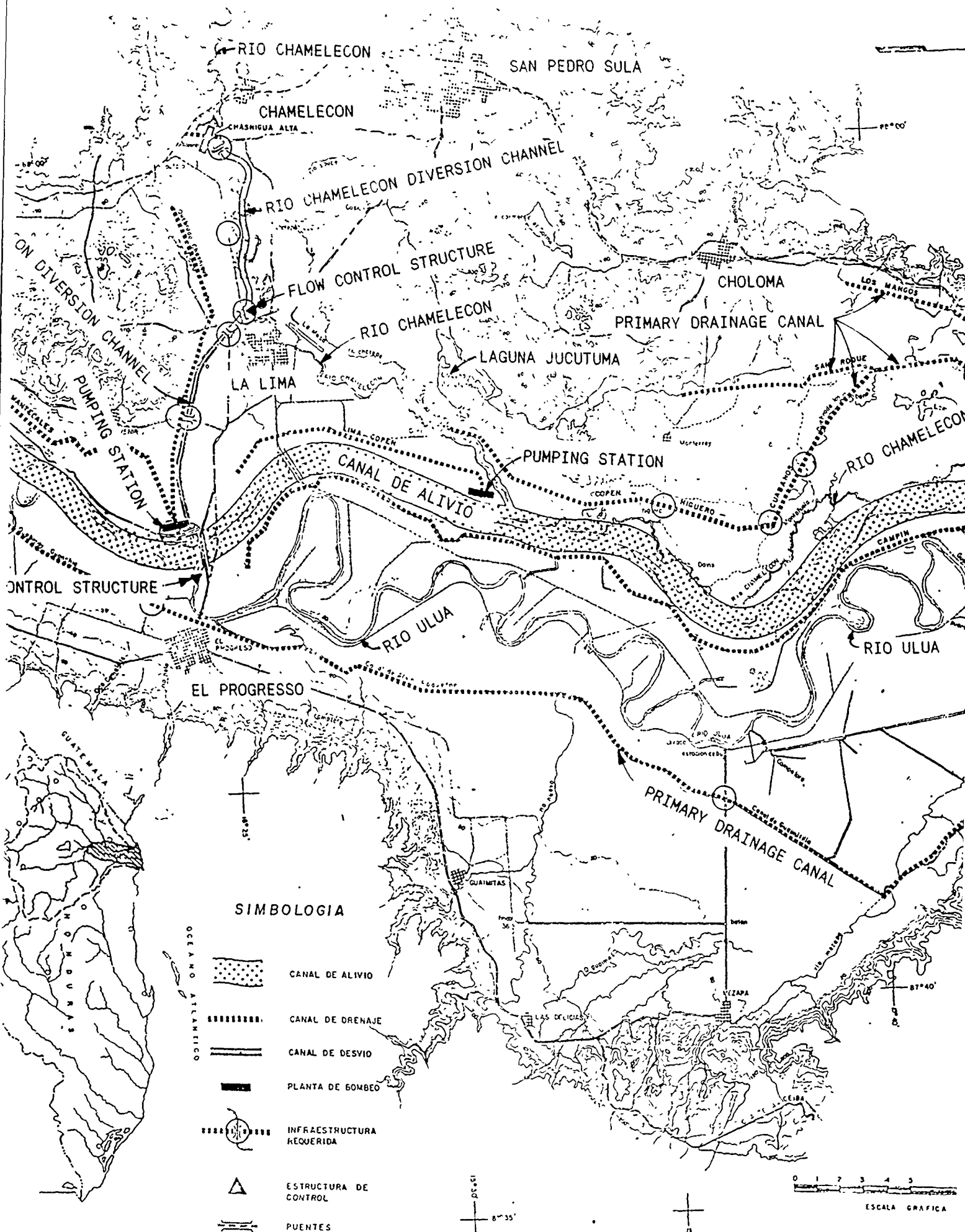
affordable by the GOH. But because of the interrelationship of project components, it will be necessary to carefully consider phased construction. A certain phase of construction may provide final project flood protection goals for a given sector of the valley and increase flood hazard potential within an adjoining sector. This temporarily induced flood hazard could create or exacerbate flood problems in a sector.










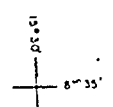
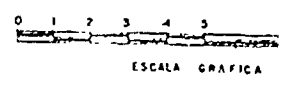
SIMBOLOGIA

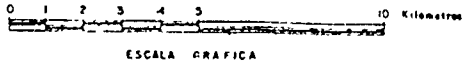
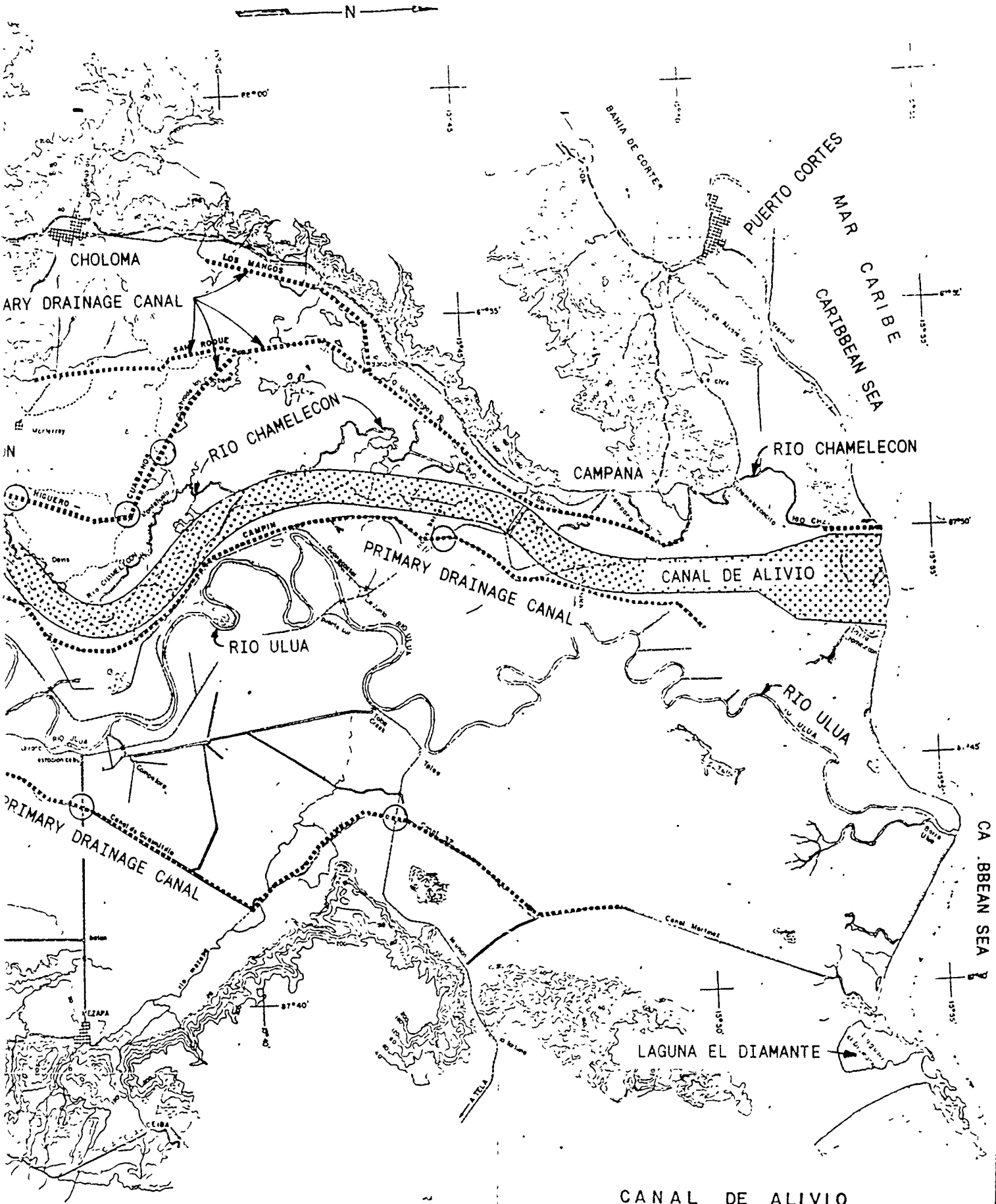
-  CANAL DE ALIVIO
-  CANAL DE DRENAJE
-  CANAL DE DESVIO
-  PLANTA DE BOMBEO
-  INFRAESTRUCTURA REQUERIDA
-  ESTRUCTURA DE CONTROL
-  PUENTES





- SIMBOLOGIA**
-  CANAL DE ALIVIO
 -  CANAL DE DRENAJE
 -  CANAL DE DESVID
 -  PLANTA DE BOMBEO
 -  INFRAESTRUCTURA REQUERIDA
 -  ESTRUCTURA DE CONTROL
 -  PUENTES





CANAL DE ALIVIO
 ALTERNATIVA No. 3
 RIO CHAMELECON

3-3

APPENDIX C - EMERGENCY MANAGEMENT

APPENDIX C - EMERGENCY MANAGEMENT

ISSUE #1

Topic: Lack of Defined Emergency Management Infrastructure

Background: In 1969, the Government of Honduras (GOH) formed an emergency management organization called COPEN. This organization was designed to be managed by the military and activated only during an emergency. Because of the way COPEN was legislated, numerous organizational and political characteristics limited the effectiveness of emergency recovery efforts. In January 1991, an amendment was passed by the Honduran Legislature to form a new emergency management organization called COPECO. COPECO is designed to be governed by the President of Honduras with numerous government ministers residing on an advisory board. The President and the advisory board would oversee the administrative functions of COPECO. Also, the President would appoint an individual, preferably a civilian, to manage the day to day operation of COPECO. It is important to note that COPECO has not been activated and that COPEN is still the emergency management agency in Honduras.

Discussion: As stated above, COPEN suffers from numerous organizational and political challenges, many of which the organization has little or no control over. Two of the major ones are 1.) COPEN is not supplied an annual budget by the GOH and 2.) COPEN is only activated during an emergency. Because of these two issues, no planning or coordination meetings take place between COPEN and other Honduran agencies prior to or after a disaster. Consequently, no formal emergency management plan exists for the country of Honduras which outlines the tasks and responsibilities of each organization during a disaster. Therefore, a majority of the agencies respond independently to an emergency which causes duplication of relief efforts.

The military control of COPEN presents two major drawbacks due to perception. With the military in charge of the disaster response, relief agencies around the world are hesitant to provide aid. This has been a major problem for the Hondurans in past disasters. Also, with the military in charge, it appeared to civilians that the response was biased, i.e., wealthy areas received priority treatment while the poorer areas suffered. This caused the mayors and leaders of some local cities and villages to be non-responsive to the relief efforts of COPEN. These are not necessarily problems caused by the military, however, they can still reduce the effectiveness of COPEN in performing its duties. It should be noted that the successful resolution of a national emergency/disaster is very dependent upon the cooperation and trust displayed between the civilians and their government

The COPECO legislation resulted from a move in the country to reduce the size and burden of the government, i.e. reduce military involvement in civilian affairs, to a strengthening of the private sector. The civilian control of COPECO will eliminate the perceptions noted above; however, the new organization has its own challenges. First, the COPECO legislation is not very clear and concise to many. Secondly, there are some that question how effectively COPECO would work in the framework of the bureaucracy under existing political and legal realities. For example, if the President of Honduras declares a national emergency, under current legislation, he could be enacting marshall law. This could be a major concern for the President in a time when rapid response is necessary to prevent suffering and loss of life.

For COPECO to work more effectively, current emergency legislation would need to be modified and new emergency legislation would need to be enacted. Numerous other issues will need to be addressed and resolved at the highest levels of government to allow COPECO more flexibility to become a functioning emergency management group capable of rapid response to any contingency.

The concerns identified above with COPEN and COPECO are primarily institutional and not organizational. Whether looking at COPEN or COPECO, the Legislature of Honduras and the President must make the necessary changes required to allow the development of an emergency management organization. This type of commitment is the key to the long-term stability of crisis management in the country.

Recommendation: AID/OFDA should sponsor an Emergency Management Conference for the GOH. Organizations/ministries involved in emergency planning, response and mitigation activities should be invited. Conference objectives would be to gain a better understanding of the current limitations of COPEN/COPECO and to identify and resolve these areas of concern. With the backing of the President of Honduras these objectives could be met. It is important to note that the Hondurans must be proactive in developing their own internal emergency response program. This will insure a lasting commitment by the GOH to the emergency management process.

The Corps of Engineers could assist AID/OFDA in the planning and preparation of the Conference. Also, the Corps technical expertise could be utilized during and after the conference in helping to resolve complicated issues. Funding for this initiative could be provided by SOUTHCOM or OFDA. The cost of the envisioned Corps' assistance should be about \$10,000. The overall cost to the sponsoring agency would range from \$35,000 to \$50,000.

ISSUE #2

Topic: Development of an Emergency Management Plan

Background: To date, there has been no formal emergency management plan prepared for the country of Honduras which outlines the tasks and responsibilities of each organization during a natural disaster.

Discussion: During the recent flooding in Honduras, several of the agencies responded independently to the emergency which caused duplication of relief efforts. This has been a common problem experienced by a majority of the organizations/ ministries who participate in emergency response activities. Planning and coordination is essential among these organizations to ensure that the maximum and most effective effort can be applied to the disaster relief activities.

Recommendation: The Corps of Engineers could assist the GOH in the development of an Emergency Management (EM) Plan based on the current Honduran EM organization. Even with the issues discussed in Issue #1, the efficiency of COPEN/COPECO could be improved dramatically with the development of a well coordinated plan. The Corps could provide the GOH with several good examples of EM plans which could be adapted/modified for use in Honduras. It is important to note that the plan should be a Honduran plan developed by Hondurans and that the Corps will be there for technical assistance and advice only. A Corps of Engineers' Emergency Management expert could be placed in country to assist the Hondurans in the development of an effective emergency plan. Funding for this assistance could be provided by OFDA. Naturally, the cost of the Corps support will vary considerably according to the time spent in-country. It is our judgment that the cost should range from \$20,000 to \$70,000.

ISSUE #3

Topic: Development of an Emergency Management (EM) Exchange Program

Background: A vast majority of the managers in the various ministries and organizations that respond to natural disasters in Honduras have not been directly involved in disaster

response/recovery efforts and thus lack on-the-job training. Further, formal training in the emergency management arena is not currently available in Honduras.

Discussion: N/A.

Recommendation: An exchange program could be developed between Honduras and a State Emergency Management Office, i.e. Alabama, Mississippi, Georgia, Tennessee, or Florida, which would be beneficial and rewarding for both parties. The State EM Office could provide training for several Hondurans through participation in State run natural disaster exercises or participation in an actual State emergency. The State EM's could travel to Honduras and lend technical assistance and advice to the Honduran EM players. Additionally, the State EM s could be called to Honduras to assist in an actual emergency. Both parties would gain from the unique opportunities presented by the different cultures. Funding for this issue could be provided by SOUTHCOM or OFDA. The cost of this program should range from \$7,500 to \$10,000 per year.

APPENDIX D
AUTOMATED FLOOD WARNING SYSTEM

APPENDIX D - AUTOMATED FLOOD WARNING SYSTEM

Rio Chamelecon and Rio Ulúa have parallel drainage basins extending deep into mountainous inland areas and both flow to the Caribbean Sea through the Sula Valley of northwest Honduras. The Sula Valley has extensive agricultural development along with many populated areas subject to periodic flooding. Substantial losses have occurred in recent history in terms of human lives and material damage. While the greatest potential for flood losses may be in and around Sula Valley, there are other areas of concern throughout the basins.

Rio Chamelecon drains the western edge of Honduras along the Guatemalan border. The basin is approximately 120 kilometers long with an average width of about 30 kilometers. Once inland from the coast the terrain is very rugged with some peaks exceeding 2,100 meters in elevation. The main stream of the Rio Chamelecon enters the Sula Valley near La Lima about 60 kilometers from the coast. Throughout its length, the main stream is fed by numerous tributaries that wind their way through valleys and gorges where flash flooding is common.

The Rio Ulúa drainage basin is similar to that of Rio Chamelecon except that it is several times larger with a length of approximately 180 kilometers and an average width of about 130 kilometers. There are several large tributaries along with many potential flood damage areas within the basin. There is some development of the streams including one high rise concrete dam near El Cajón on Rio Comayagua that may influence flows.

From an observation of basin characteristics it is obvious that a modern automated flood warning system can provide some additional time to react during rainstorms and prior to peak flooding. The length of additional time will be dependant on location, antecedent conditions, distribution and timing of rainfall and the ability of responsible officials to provide information to the public. It

appears that several hours of warning time may be available for most flash flood events near the mountains to more than one day for floods in the valleys caused by rain in upstream headwater regions. Planning and developing the proper flood warning system for a large and complex basin requires a good understanding of the objectives as well as hydrological parameters. For this reason it may be best to analyze alternative systems that can provide various degrees of warnings.

An initial assumption will be that priority for flood warnings will be in the Sula Valley. First emphasis will be to develop a system to warn the valley followed by expansions to that system to include other regions. It is recognized that gaging stations presently exist and other equipment is available to expand this existing gaging network, but the specialized nature of real time reporting coupled with improved hardware encourages new purchases. However, as part of the design of a flood warning system, incorporation of the available equipment not presently installed in the existing gaging network will be explored.

Due to the rugged terrain, remote locations and necessity of dependable reports, all field equipment should be designed to be self-sufficient. All transmissions would be by radio to a central site for display and archival. Field equipment consists of automated river-stage and/or rainfall gages housed in metal standpipes or other suitable, weather-tight enclosure. Radio and river stage monitoring electronics are to be located in the lower portion of each standpipe and the rainfall gage will be in the top portion. The radio antenna is attached to the side of the standpipe and waterproof conduit will extend from the bottom to the stream where a pressure transducer is to be used to measure water depth. Solar panels and batteries will be the power source and, with proper selection, should require service at 6-month intervals. Each standpipe is to be located on a high bank or mounted on a pole above any expected flood level.

Because long distance radio transmission from a stream located in a mountainous valley is difficult, a radio repeater for each river gage site may be a necessity. It is expected that line of sight transmission to a repeater at a high elevation will be required, and then from that repeater to another or to the central station. Radio repeater equipment is to be housed in standpipes similar to the gages and will also be powered by solar panels and batteries.

The central station should be located in the office of an agency responsible for directing emergency response efforts. An ideal location for this central station is in San Pedro Sula with communications from there to other sites in and around the valley. It is possible to install redundant central stations when necessary thus providing an expanded warning system that covers inland, headwater areas.

MINIMUM WARNING SYSTEM FOR SULA VALLEY

A minimum warning system should provide reliable, real time information to make decisions involving lives and property. Evacuation of the threatened population and protection of most critical facilities should be aided with additional warning time.

A minimum system would include combination river-stage/rainfall gages within the valley near El Progreso on the Rio Ulúa and near La Lima after Rio Chamelecon emerges from the mountains. There is also a need for river-stage gages located several kilometers into the mountains on each major stream and two river-stage gages upstream from Choloma. Since the addition of rainfall gages to River-stage gages is a relatively small cost and will provide valuable data, all gages would include a rain gage. Also a rain gage would be installed at each repeater station. For adequate monitoring of incoming flood waters it appears that six river-stage stations should suffice in the mountain areas. Where possible these stations should be near highway crossings to

facilitate servicing. Streams requiring gages include Rio Chamelecon, Rio Ulúa, Rio Guaimas, and other streams with uncertain names. The following tabulation gives the projected costs for a minimum flood warning system serving Sula Valley.

COSTS (BASED ON PRICES IN U.S.A.)

	UNIT COST	NO.	TOTAL COST
Automated Combination river-stage rainfall gages	\$6,000	10	\$60,000
Radio repeater stations with rain gages	\$10,000	10	\$100,000
Central station with computer central display, software, printer, phone modem, decoder, and connections (assumes an existing radio tower)	\$30,000	1	\$30,000
Test equipment and spare parts including remote station tester, battery testers, wattmeters, antennas, gages, cables and assorted items.	\$60,000	1	\$60,000
TOTAL EQUIPMENT COST			\$250,000
Installation			\$60,000
Contingencies			\$62,000
Engineering & design			\$60,000
Supervision & administration			\$30,000
Software calibration (assuming no forecast package)			<u>\$6,000</u>
TOTAL			\$468,000

EXPANDED FLOOD WARNING SYSTEM

Developing a plan for an expanded flood warning system to include additional damage areas is difficult for a basin as large and complex as this because of the almost limitless possibilities. However, with certain assumptions, overall dimensions of an appropriate system can be developed. Assumptions are that headwater gages will provide additional warning time for Sula Valley and that other populated areas along the streams can be provided information by installing central stations near these

areas. For example, the installation of three combination river-stage\rainfall gages upstream from Comayagua coupled with a local central station, should provide adequate warning in that locality.

A very large number of gages would be desirable for a basin such as this but, if limited to a number providing the most valuable information, about twenty gages may be sufficient. An additional three central stations will be needed to provide local information. These gages will be installed at selected sites to give optimum results. Two relatively tall (60 meters) repeater towers will be needed if existing radio towers are unavailable.

COSTS (BASED ON PRICES IN U.S.A.)

	UNIT COST	NO.	TOTAL COST
Automated Combination river-stage rainfall gages	\$6,000	30	\$180,000
Radio repeater stations with rain gages	\$10,000	35	\$350,000
Central station with computer central display, software, printer, phone modem, decoder, and connections (assumes an existing radio tower)	\$30,000	4	\$120,000
Test equipment and spare parts including remote station tester, battery testers, wattmeters, antennas, gages, cables and assorted items.	\$120,000	1	\$120,000
TOTAL EQUIPMENT COST			\$770,000
Installation			\$160,000
Contingencies			\$193,000
Engineering & design			\$160,000
Supervision & administration			\$80,000
Software calibration (assuming no forecast package)			<u>\$24,000</u>
TOTAL			\$1,387,000

APPENDIX E
SULA VALLEY AUTHORITY LEGISLATION

APPENDIX E - SULA VALLEY AUTHORITY LEGISLATION

LEY

DE LA AUTORIDAD PARA
EL DESARROLLO INTEGRAL

DEL VALLE DE SULA

(ADIVAS)

CREACION DE LA AUTORIDAD DEL VALLE DE SULA

ARTICULO 1o.- Créase La Autoridad para el Desarrollo Integral del Valle de Sula.

ARTICULO 2o.- La Autoridad para el Desarrollo Integral del Valle de Sula será de duración indefinida, tendrá personería jurídica, patrimonio propio, será apolítica y gozará de autonomía administrativa; su fin primordial es promover la conservación de los recursos: agua, tierra, flora y fauna de la zona, así como el desarrollo de los territorios que constituyen su jurisdicción, la cual está constituida por la cuenca hidrográfica que forman los ríos Chamelecón y Ulua, sus afluentes, las vertientes del Océano Atlántico vecinas a éstas, los terrenos aledaños que le están relacionados o que sean afectados por sus actividades, las cuales deberán estar encaminadas a la realización de un plan integral para la protección y aprovechamiento de los recursos naturales de la región.- Para los fines de este artículo, se entiende por cuenca u hoya hidrográfica, un área físico-geográfica debidamente delimitada, en donde las aguas superficiales y subterráneas vierten a una red natural mediante uno o varios causes de caudal continuo o intermitente, que confluyen a su vez en un curso mayor que desemboca o puede desembocar en un río principal, en un depósito natural de aguas, en un pantano o directamente en el mar.

Para los efectos de esta Ley, se entiende por desarrollo integral, la ejecución de proyectos dirigidos a la elaboración, construcción y/o habilitación de obras de infraestructura que incidan en la recuperación de tierras inundables, apertura de carreteras, mejoramiento de puertos aéreos, marítimos y fluviales, proyectos hidroeléctricos; de aprovechamiento de los recursos, tierra, agua, flora y fauna, y en general, todos aquellos proyectos cuya ejecución conlleve beneficios socio-económicos al territorio en que la Autoridad ejerza su jurisdicción.

ARTICULO 3o.- La Autoridad para el Desarrollo Integral del Valle de Sula podrá ser distinguida por las siglas ADIVAS.

ARTICULO 4o.- Para todos los efectos jurídicos, el domicilio de la Autoridad es la ciudad de San Pedro Sula.

PATRIMONIO DE LA AUTORIDAD

ARTICULO 5o.- El Patrimonio de La Autoridad para el Desarrollo Integral del Valle de Sula lo constituyen : a) Todas las tierras nacionales que se encuentren dentro de su jurisdicción; se exceptúan aquellas tierras cuyo dominio pueda ser probado con documentos públicos extendidos o inscritos en legal forma; b) Las tierras que a cualquier título le sean transferidas por instituciones de derecho público, de derecho privado o por particulares; c) Todos los recursos hídricos superficiales y subterráneos que se encuentren localizados dentro de su jurisdicción; d) Los recursos minerales que se hallen localizados dentro de la jurisdicción de La Autoridad, exceptuándose aquellos que antes de la vigencia de esta Ley hayan sido denunciados legalmente ante la autoridad competente; e) La fauna, la flora, y en general todos los recursos naturales renovables y no renovables que se encuentren dentro de los límites en que La Autoridad ejerza su jurisdicción; f) Las herencias, legados y donaciones que se le hagan a La Autoridad; g) Las aportaciones del sector Público y Privado.

ARTICULO 6o.- La Autoridad para el Desarrollo Integral del Valle de Sula, a través de su Organismo correspondiente, podrá reglamentar el uso y destino que le dará a cada uno de los recursos que constituyen su patrimonio, según las necesidades que en cada momento las circunstancias lo requieran, con el propósito de hacer más dinámico el logro de sus objetivos.

FUNCIONES DE LA AUTORIDAD

ARTICULO 7o.- Además de las contenidas en esta Ley, son funciones de La Autoridad para el Desarrollo Integral del Valle de Sula :

- a) La regulación de las corrientes de agua, para evitar inundaciones.
- b) La utilización de las fuentes de agua para la irrigación;
- c) La distribución y reglamentación de las aguas de uso público dentro del territorio de su jurisdicción, para fines domésticos, agropecuarios, industriales o de abastecimiento público, ya sean éstas superficiales o subterráneas.
- d) La protección de las aguas contra la contaminación;
- e) El mejoramiento de los cauces de los ríos para sus distintas utilidades;
- f) La recuperación y mejoramiento de las tierras con obras de drenaje o por otros medios;

- g) La conservación de los suelos y de los bosques; la reforestación;
- h) Reglamentar la explotación de la flora y fauna y la preservación de la misma.
- i) Fomentar y exigir el uso apropiado de la tierra, con el propósito de que ésta sea utilizada racionalmente en función de su rentabilidad y de su vocación;
- j) Fomentar la explotación racional de los recursos naturales renovables y no renovables;
- k) El mejoramiento de las comunicaciones, puertos, carreteras y sistemas de transporte, en coordinación con las instituciones correspondientes;
- l) Cooperar en el desarrollo de la educación, la salud pública y con los programas de acción comunal de la región;
- m) Promover las actividades industriales, agroindustriales y turísticas de la región;
- n) La Zonificación de la tierra, con el objetivo fundamental de reglamentar las construcciones que puedan obstaculizar la ejecución de obras o servicios que tenga proyectados La Autoridad dentro de las zonas sujetas a inundaciones;
- ñ) Promocionar y participar en sociedades destinadas a prestar servicios públicos, al fomento de la economía de la región o al aprovechamiento de los recursos naturales ubicados en los límites de la jurisdicción de La Autoridad;
- o) Reglamentar la construcción y operación de las obras de drenaje y protección contra inundaciones ejecutadas por terceros;
- p) Fomentar proyectos de naturaleza ecológica con el propósito de restablecer, mejorar y preservar el eco-sistema de la región.
- q) Realizar todos aquellos actos que tengan como finalidad el mejoramiento de su patrimonio en términos económicos.

ARTICULO 8o.- Los planes y proyectos de desarrollo que adopte La Autoridad a través de su Consejo Directivo, no requerirán de ser consultados ni ratificados por ningún otro organismo.

ARTICULO 9o.- En la realización de sus funciones, La Autoridad aplicará la técnica y métodos de administración que utiliza la empresa privada moderna, con el objeto de que su función administrativa sea expedita y efectiva.

ARTICULO 10.- Las actividades de La Autoridad encaminadas a la realización de un plan Integral para el aprovechamiento de los recursos naturales de la región, se desarrollarán de tal manera que sirvan como programas demostrativo y de adiestramiento tanto para los territorios bajo su jurisdicción como para otras regiones del país.

ARTICULO 11a.- La Autoridad tendrá la responsabilidad de que las obras que ejecute, revertan las Inversiones efectuadas y faciliten la formación de un capital que ayude a cumplir las sucesivas etapas de sus programas.

ARTICULO 12a.- La Autoridad, en el desarrollo de sus programas, podrá dar participación a la empresa privada, con el propósito de estimular su iniciativa y de crear nuevas oportunidades para la acción del sector privado en el desarrollo de la región.

ARTICULO 13a.- Para la realización de sus fines, La Autoridad podrá obtener la cooperación de las Instituciones del Sector Público y de las autoridades civiles y militares, las cuales devienen obligadas, sin dilación, a prestar dicha colaboración cuando se trate de la realización de obras que incidan en la vida económica y social de la región.

ARTICULO 14a.- La Autoridad tiene todas las atribuciones que sean necesarias para el logro de sus fines y especialmente las siguientes:

- a) Dictar las normas reglamentarias que crea convenientes y tomar las decisiones concernientes a la realización de sus objetivos de acuerdo a las facultades que le otorga la presente Ley.
- b) Celebrar toda clase de contratos, ya sea obligándose o adquiriendo derechos, de conformidad a las normas de esta Ley. a la reglamentación que adopte su Consejo Directivo.- Los actos y contratos que celebre La Autoridad no necesitan ser aprobados por ningún organismo estatal para su validez; en consecuencia, no le serán aplicables las normas que en cuanto a la materia contengan otras leyes.
- c) Adquirir bienes muebles e inmuebles, conservarlos, mejorarlos, y enajenarlos.

- d) Tomar dinero en préstamo y garantizar éstos con bienes de su propiedad, ya sea constituyendo hipotecas, prendas o cualquier otro gravámen; emitir bonos y obligaciones para su financiación, girar, endosar, aceptar o recibir cualquier clase de títulos valores u otra clase de instrumentos negociables y en general celebrar negocios de toda índole con entidades de derecho público o privado, ya sean nacionales o extranjeras.

- e) Administrar, desarrollar y mejorar los bienes de su dominio, construyendo en los inmuebles las obras que fueren necesarias para el logro de sus fines, ya sean directamente o por medio de contratos con terceras personas.

ARTICULO 15o.- Los bienes necesarios para alcanzar los fines de La Autoridad, se consideran de utilidad pública.- Cuando sea necesario adquirir un bien determinado, sin que se obtenga su enajenación voluntaria por parte del dueño, la correspondiente declaración de necesidad la hará el Poder Ejecutivo a solicitud de La Autoridad.- La demanda de expropiación será presentada por el representante legal de La Autoridad y se tramitará en la forma establecida por la Ley.

ARTICULO 16o.- La Autoridad tendrá derecho de ocupación de vías públicas y de imposición de servidumbres, cuando las obras que realice sean con fines de servicio público.

ARTICULO 17o.- La Autoridad tendrá la propiedad y por consiguiente el derecho sobre toda la energía hidráulica de las corrientes superficiales y subterráneas situadas dentro de los límites de su jurisdicción, en consecuencia queda autorizada para explotar este recurso, haciendo del mismo una fuente de ingresos que coadyuven al logro de sus fines.

ARTICULO 18o.- La Autoridad queda facultada para imponer tasas por los servicios que preste a las tierras que no sean urbanas y que se encuentren dentro de su jurisdicción, de conformidad al reglamento que con tales propósitos emita.

ARTICULO 19o.- El Consejo Directivo será el máximo organismo de La Autoridad para el desarrollo integral del Valle de Sula.

ARTICULO 20. El Consejo Directivo de La Autoridad estará compuesto por diez miembros propietarios con sus respectivos suplentes, nombrados en la siguiente forma:

- a) Cuatro miembros pertenecientes al Poder Ejecutivo, nombrados directamente por el Presidente de la República.
- b) Tres miembros nombrados por la Junta Directiva de la Cámara de Comercio e Industrias de Cortés;
- c) Un miembro nombrado por la Junta Directiva de la Cámara de Comercio e Industrias de Puerto Cortés;
- d) Un miembro nombrado por la Junta Directiva de la Cámara de Comercio e Industrias de El Progreso, Departamento de Yoro.
- e) Un miembro nombrado por la Junta Directiva de la Cámara de Comercio e Industrias de Tela, Departamento de Atlántida.

ARTICULO 21.- En caso de extinción, abstención o negativa para integrar el Consejo Directivo por parte de cualquiera de las entidades que de conformidad a esta Ley correspondan los respectivos nombramientos, la elección del o los miembros cuyo nombramiento no se haya realizado, la harán las Cámaras de Comercio que en ese momento participen en la elección.

En caso de muerte, remoción o renuncia de cualquiera de los miembros del Consejo Directivo, la vacante será llenada por nombramiento de la entidad que quedó sin representación, previo aviso del Consejo Directivo; mientras se realiza el nombramiento, la vacante será llenada por el respectivo suplente.

ARTICULO 22.- El Consejo Directivo de la Autoridad estará compuesto por un Presidente, un Vicepresidente, y ocho vocales.- Estos nombramientos serán realizados por

las personas a que se refiere el artículo 20 de esta Ley, en la primera reunión que concerten, mediante elección interna y directa.- En la misma reunión elegirán un Secretario, el cual podrá ser uno de los miembros del Consejo Directivo, o un tercero.

ARTICULO 23.- Los miembros del Consejo Directivo de La Autoridad durarán en sus funciones un período de dos años y podrán ser reelectos en sus funciones indefinidamente.

ARTICULO 24.- Los miembros del Consejo Directivo de La Autoridad deben de ser ciudadanos hondureños, del estado seglar, mayores de treinta años, con experiencia en el ramo de la administración, de reconocida solvencia moral y a excepción de los nombrados por el sector público, los demás deben ser y haber sido residentes por más de 5 años del territorio de La Autoridad.

ARTICULO 25o- A los miembros del Consejo Directivo de La Autoridad les está confiado realizar los fines de la misma y cualquiera que sea el origen de su nombramiento, solo representan en su seno los altos intereses del bienestar colectivo; en consecuencia sus actos y decisiones deben de estar orientados exclusivamente a todo aquello que conlleve el desarrollo socio-económico del territorio en que La Autoridad ejerza jurisdicción.

ARTICULO 26.- Ningún miembro del Consejo Directivo puede contratar con La Autoridad para la ejecución de obras o prestación de servicios, por sí o por medio de otra persona; en caso de contravención, el responsable de tal acto será removido de su cargo, sin perjuicio de las acciones legales que contra él correspondan.

Se presume que habrá contratación por medio de terceras personas, cuando los contratantes sean parientes del miembro del Consejo Directivo dentro del cuarto grado de consanguinidad o segundo de afinidad, cuando la contratante sea una Sociedad Mercantil de la cual el miembro Directivo sea socio o cuando los actos que rodean la contratación denoten de conformidad a las reglas de la lógica y el criterio humano, que el contratante lo está haciendo por encargo de un miembro del Consejo Directivo.

ARTICULO 27.- El Consejo Directivo se reunirá ordinariamente por lo menos dos veces al mes, en el día, hora y sitio que el mismo acuerde.

ARTICULO 28.- El Consejo Directivo podrá ser convocado a reuniones extraordinarias por su Presidente y en ausencia de éste por el Vicepresidente o por el Director Ejecutivo, cuantas veces sea necesario.

ARTICULO 29.- En el Consejo Directivo tendrán voz, pero no voto, el Director Ejecutivo de La Autoridad, los Directores de Departamentos, el Auditor Interno y los Asesores, cuando hayan sido convocados, y los miembros suplentes de dicho Consejo, cuando no se hallen llenando vacantes.

ARTICULO 30.- Para que haya quórum en las sesiones del Consejo Directivo, se requiere la asistencia de seis de sus miembros propietarios.- En caso de que previa convocatoria, alguno de los miembros propietarios no asistiera a la sesión, su vacante será llenada por el suplente respectivo.

ARTICULO 31.- Toda decisión del Consejo Directivo, para que pueda ejecutarse necesita de seis votos favorables de sus miembros.

ARTICULO 32.- Los miembros del Consejo Directivo desempeñarán su cargo ad-honorem. En consecuencia, no recibirán dietas ó retribuciones en dinero ó en especie.

ARTICULO 33.- De todas las sesiones celebradas por el Consejo Directivo, se levantará el acta correspondiente, la cual será firmada por el miembro que haya presidido la sesión y por el Secretario.- Las actas se glosarán y numerarán en forma continua, debiendo formarse con las actas de cada año calendario, un tomo encuadernado que permita su más segura conservación.

Harán fe de lo que conste en las actas, las copias obtenidas a través de cualquier medio técnico, que con su firma expida el Secretario.

ARTICULO 34.- Son funciones del Consejo Directivo y por consiguiente queda facultado para:

- a) Aprobar, para períodos anuales, el presupuesto de ingresos, egresos é inversiones de La Autoridad.
- b) Estudiar los límites territoriales dentro de los cuales ejerza su jurisdicción, a efecto

de proponer ante quién corresponda, las adiciones o eliminaciones que encuentre justificadas en atención a los planes que se propone desarrollar;

- c) Ordenar que se hagan los estudios, investigaciones y experimentos necesarios para la realización de los fines de la Autoridad.
- d) Aprobar los planes y proyectos para el desarrollo de la región, después de un análisis detenido de los informes y estudios correspondientes, ordenar la ejecución de dichos proyectos y tomar toda clase de decisiones con relación a ellos;
- e) Elegir y remover al Director Ejecutivo;
- f) Declarar que se hagan los balances extraordinarios de La Autoridad, fijar la fecha de su presentación y disponer el día en que se debe de presentar el balance ordinario, el cual debe corresponder al año calendario.
- g) Dar su aprobación a los balances y el informe anual del Director Ejecutivo y ordenar en forma motivada las modificaciones que a estos debe introducirse;
- h) Establecer el sistema contable de La Autoridad;
- i) Autorizar al Director Ejecutivo para la celebración de todo contrato cuyo monto exceda de la suma que fije el Consejo Directivo.
- j) Emitir todos los reglamentos que sean necesarios para el logro de sus fines.- Los reglamentos que emita el Consejo Directivo de La Autoridad tendrán vigencia y observancia inmediata.
- k) Fijar las tarifas de los servicios que preste La Autoridad.
- l) Disponer cuales de las obras que realice La Autoridad darán lugar al cobro de tasas por servicios y reglamentar el cobro de los mismos.
- m) Autorizar la enajenación de los bienes muebles e inmuebles propiedad de La Autoridad, así como la constitución de gravámenes sobre dichos bienes, con el propósito

de constituir garantías para respaldar sus propias obligaciones.

- n) Autorizar la obtención de préstamos de dinero, ya sea de fondos internos o del exterior.
- ñ) Aprobar, improbar o modificar los proyectos de creación de oficinas, departamentos o secciones que le presente, con especificación del personal requerido, el Director Ejecutivo.
- o) Aprobar, improbar o modificar las normas generales que han de regir el empleo, las escalas de salarios y la administración del personal general de La Autoridad, que prepare y presente el Director Ejecutivo.
- p) Autorizar al Director Ejecutivo para que promueva, funde, administre y participe en sociedades o establecimientos destinados a prestar servicios públicos, al fomento de la economía en general o al mejor aprovechamiento de los recursos naturales de la región.
- q) Someter las diferencias de La Autoridad con terceras personas, a la decisión de árbitros o amigables componedores.
- r) Celebrar convenios con entidades nacionales o internacionales para promover los objetivos de entrenamiento y de experimentación que requiera La Autoridad.
- s) Designar los auditores externos que verifiquen sus estados financieros.
- t) En general, el Consejo Directivo, como el órgano supremo de dirección de La Autoridad, tiene todas las facultades necesarias para la ejecución de todos los actos tendientes al cumplimiento de sus objetivos.

ARTICULO 35.- Las decisiones tomadas por el Consejo Directivo que hayan de tener efecto sobre los habitantes de la región o terceros, se denominarán ACUERDOS.

DEL DIRECTOR EJECUTIVO

ARTICULO 36.- El cargo de Director Ejecutivo es el de mayor jerarquía dentro de la función administrativa de La Autoridad y estará sujeto a las normas de la presente Ley y a las que oportunamente dicte el Consejo Directivo.

ARTICULO 37.- Para ser Director Ejecutivo se requiere ser ciudadano hondureño, del estado seglar, mayor de treinta años, con experiencia en la organización y administración de empresas estatales o privadas de reconocida importancia.

ARTICULO 38.- El Director Ejecutivo será el representante legal de La Autoridad.

ARTICULO 39.- Las personas que desempeñen cargos de Directores de Departamentos y empleados de diferentes categorías, estarán directamente subordinados al Director Ejecutivo, cumplirán sus órdenes y deberán someterse a su autoridad en el desarrollo de sus labores; se exceptúan de esta disposición los miembros del Consejo Directivo, el Auditor Interno y los auxiliares de éste.

ARTICULO 40. El Director Ejecutivo tendrá a su cargo la dirección y coordinación de los diferentes departamentos administrativos de La Autoridad, asegurando la ejecución de la política y las decisiones del Consejo Directivo de acuerdo con las funciones que a cada uno de los departamentos les haya sido señalado.- Servirá de vínculo entre el Consejo y los diferentes directores de departamentos de La Autoridad, vigilando el cumplimiento de sus deberes de acuerdo con las funciones que se les hayan asignado y los métodos de dirección que se hayan adoptado; en consecuencia, tendrá las siguientes responsabilidades:

- a) Representar jurídicamente a La Autoridad, en toda clase de asuntos, ya sea ante particulares o ante autoridades judiciales o administrativas.
- b) Celebrar toda clase de contratos, a excepción de aquellos para los cuales necesita autorización del Consejo Directivo.
- c) Ejecutar o hacer ejecutar todas las disposiciones del Consejo Directivo;

- d) Constituir, previa autorización del Consejo Directivo, mandatarios o apoderados que representen a La Autoridad en cualquier género de negocios en que al Director Ejecutivo le corresponda dicha representación.
- e) Delegar en funcionarios especialmente indicados por el Consejo Directivo, u o varias de las atribuciones que le sean propias, conservando su responsabilidad en el desempeño de esas atribuciones.
- f) Preparar y presentar a la aprobación del Consejo Directivo un informe anual de las cuentas que cubren cada ejercicio fiscal.- El informe debe ser completo en sus aspectos descriptivo, económico, financiero y estadístico y debe de contener indicaciones sobre el desarrollo que debe dársele a los planes de La Autoridad.
- g) Informar al Consejo Directivo sobre los diferentes asuntos de La Autoridad cada vez que se lo soliciten o sea necesario según su criterio.
- h) Proponer al Consejo Directivo la creación de oficinas, departamentos o secciones necesarias para el desarrollo de las actividades administrativas de La Autoridad, indicando las funciones de tales dependencias, especificando el personal requerido y sus asignaciones y determinando sus gastos globales dentro del respectivo presupuesto.
- i) Nombrar y remover el personal cuyos cargos haya autorizado el Consejo Directivo.
- j) Presentar ante el Consejo Directivo, para su aprobación, los proyectos de reglamento sobre servicios que preste La Autoridad.
- k) Proponer a la consideración del Consejo Directivo, para su aprobación, los proyectos sobre tarifas que vayan a ser cobradas por los servicios que presta La Autoridad.
- l) Presentar los proyectos relativos a la valorización de tasas por servicios, los cuales deben contener la estimación del costo de las obras a que se aplicarán, y el reglamento relativo a dicha valorización.

m) Vigilar, manejar, administrar, desarrollar y mejorar las propiedades o bienes del dominio de La Autoridad, entendiéndose que estas atribuciones le corresponden como Jefe de la Administración y habrá de desempeñarlas por medio del personal subalterno que al efecto se haya creado, ejerciendo solo la inspección o dirección superior.

n) Las demás funciones que le señale el Consejo Directivo.

ARTICULO 41.- El Director Ejecutivo será nombrado por el Consejo Directivo y éste podrá revocar su nombramiento en los siguientes casos:

- a) Abandono de funciones.
- b) Contravención a las normas legales y reglamentarias relativas a su cargo.
- c) Desobediencia sistemática a cumplir los mandatos que el Consejo Directivo decida en atención a sus facultades.
- d) Descuido en el manejo de los bienes de La Autoridad o malversación de los mismos.
- e) Incapacidad o negligencia a juicio del Consejo Directivo, en el desempeño de su cargo.

Es aplicable al Director Ejecutivo, lo dispuesto en el Artículo Veintiseis (26) de esta Ley.

Las decisiones tomadas por el Director Ejecutivo y las de los demás directores de departamentos facultados para tomarlas, se denominarán RESOLUCIONES.

ARTICULO 42.- El Director Ejecutivo podrá tomar decisiones que faciliten la ejecución de las disposiciones y de los acuerdos del Consejo Directivo cuya ejecución le corresponda.

ARTICULO 43.- El Director Ejecutivo, los Directores de Departamentos y demás empleados de La Autoridad ejercerán sus funciones de conformidad al principio contenido en el artículo nueve (9) de esta Ley.

ARTICULO 44.- La Dirección Ejecutiva tendrá un Secretario, cuyo nombramiento lo hará el Consejo Directivo.- Si así lo dispone el Consejo, el Secretario de éste podrá ser el mismo del Director Ejecutivo.

DE LA AUDITORIA

ARTICULO 45.- La Autoridad tendrá un Auditor Interno el cual dependerá del Consejo Directivo, su nombramiento será facultad de dicho Consejo.- El personal subalterno del Auditor Interno será determinado por el Consejo Directivo y nombrado por aquel.- La remuneración del personal y demás gastos de la Auditoría Interna serán fijados por el Consejo Directivo.

En el desempeño de sus funciones el Auditor Interno adoptará sistemas apropiados a la naturaleza de La Autoridad, aplicando técnicas y métodos modernos que ofrezcan resultados confiables en las operaciones de La Autoridad.

Las funciones del Auditor Interno serán fijadas por el Consejo Directivo de La Autoridad.

ARTICULO 46. Las cauciones a que de conformidad con La Ley o con las disposiciones emanadas del Consejo Directivo, están obligadas las personas que contraten con La Autoridad o las que rindan las personas a quien dicho Consejo imponga esta obligación, deberán ser constituidas a favor de ésta, otorgándose garantía hipotecaria, prendaria, depositaria, fianza bancaria o de compañía de seguros, prorrogables.

La cuantía de las cauciones será fijada por el Consejo Directivo, previo dictámen del Auditor Interno; en ningún caso dichas cauciones serán inferiores al 15% de los montos o valores de los contratos.

Las cauciones fijadas a empleados de La Autoridad, no serán inferiores a las fijadas para estos casos, por la Contraloría General de la República.

ARTICULO 47.- El Director Ejecutivo de La Autoridad señalará dentro de un plazo de sesenta días hábiles, las funciones del personal subalterno, las cuales deberán de ser aprobadas por el Consejo Directivo; dentro de ese mismo término gestionará la asignación de sueldos ante dicho organismo.

Las personas que presten sus servicios a La Autoridad tendrán la categoría de empleados públicos; se exceptúan aquellas con las que se haya firmado contratos por servicios técnicos, las cuales tendrán la condición que se fije en dichos contratos.

ARTICULO 48.- Los miembros del Consejo Directivo y el Director Ejecutivo de La Autoridad tendrán la misma inmunidad de que gozan los Diputados al Congreso Nacional, y la misma será suspendida de conformidad a los términos contenidos en el Artículo 200 de la Constitución de La República.

ARTICULO 49.- Las contribuciones en dinero o en especie que La Autoridad haya recibido antes de la vigencia de esta Ley, a través de La Comisión Ejecutiva para el Desarrollo Integral del Valle de Sula, creada por el Poder Ejecutivo mediante Decreto Ejecutivo Número 13-90 de fecha 20 de agosto de 1990 tendrán la condición de "bonos de progreso acelerado", los tenedores de los mismos tendrán los derechos que el Consejo Directivo determine.

DEL IMPUESTO SOBRE INMUEBLES RURALES PARA OBRAS DE FOMENTO ECONOMICO

ARTICULO 50.- Créase un impuesto sobre las propiedades Inmuebles situadas en la jurisdicción del Valle de Sula, equivalente al tres por mil (3^o/100), sobre el monto de los avalúos catastrales.

El producto de este impuesto será administrado por La Autoridad, quien lo destinará a la ejecución de planes y obras de fomento socio-económico dentro de la región.- Las sumas pagadas por concepto de este Impuesto serán acreditadas a los valores que se cobren por tasas de valorización a los propietarios de inmuebles beneficiados con las obras que se ejecuten con los fondos del mismo.

Se exceptúan de este impuesto, las tierras urbanas y las parcelas rurales pertenecientes a personas naturales cuyo patrimonio no exceda de Veinte y Cinco Mil Lempiras (L.25,000.00).- Las tierras urbanas que se beneficien con las obras provenientes de este impuesto pagarán las tasas de valorización correspondientes.

El Consejo Directivo de La Autoridad, emitirá el reglamento respectivo para normar todo lo relativo a este impuesto. .

ARTICULO 51.- La Autoridad queda exonerada del pago de Impuestos, tasas, sobretasas por servicios, así como del uso del papel sellado y timbres.

DISPOSICIONES FINALES

ARTICULO 52.- Las disposiciones legales contenidas en la presente Ley tienen preeminencia sobre cualquier otra norma legal en cuanto a la materia que regulan; en consecuencia quedan derogadas todas aquellas disposiciones legales que se opongan al espíritu de las mismas.

ARTICULO 53.- La presente Ley entrará en vigencia al siguiente día de ser publicada en el diario oficial de la República "LA GACETA".

.San Pedro Sula, 30 de Octubre de 1990