WATER AND SANITATION FOR HEALTH PROJECT

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DIAGNOSIS AND RECOMMENDATIONS FOR RURAL WATER AND SANITATION SYSTEMS IN HONDURAS

WASH FIELD REPORT NO. 69

JANUARY 1983

Prepared For:
USAID Mission to the Republic of Honduras
Order of Technical Direction No. 101

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January 26, 1983

Mr. Anthony Cauterucci
Mission Director
U.S. Agency for International Development
Tegucigalpa, Honduras

Attention: Mr. William H. Smith

Dear Mr. Cauterucci:

On behalf of the WASH Project I am pleased to provide you with 10 (ten) copies of a report on Diagnosis and Recommendations for Rural Water and Sanitation Systems in Honduras.

This is the final report by Charles S. Pineo and Henry Van and is based on their trip to Honduras from November 10, 1982 to December 10, 1982.

This assistance is the result of a request by the Mission on May 6, 1982. The work was undertaken by the WASH Project on June 29, 1982 by means of Order of Technical Direction No. 101, authorized by the USAID Office of Health in Washington.

If you have any questions or comments regarding the findings or recommendations contained in this report we will be happy to discuss them.

Sincerely,

Raymond B. Isely

Raymond B. Isely, M.D., D.T.M., M.P.H.
Acting Director

cc. Mr. Victor W.R. Wehman, Jr.
S&T/H/WS

DBW:cdej

WASH FIELD REPORT NO. 69

HONDURAS

DIAGNOSIS AND RECOMMENDATIONS FOR RURAL WATER AND SANITATION SYSTEMS IN HONDURAS

Prepared for the USAID Mission to the Republic of Honduras
under Order of Technical Direction No. 101

Prepared by:

Charles S. Pineo, P.E.
and
Henry Van, P.E.

January 1983

Water and Sanitation for Health Project
Contract No. AID/DSPE-C-0080, Project No. 931-1176
Is sponsored by the Office of Health, Bureau for Science and Technology
U.S. Agency for International Development
Washington, DC 20523

TABLE OF CONTENTS

ACRONYMS

MOH	Ministry of Public Health
OHE	Office of Health Education
O&M	Operation and Maintenance
P/MOH	Component of the MOH assigned to the PRASAR project
P/OHE	Component of the OHE assigned to the PRASAR project
P/SANAA	Component of SANAA Assigned to the PRASAR project
PRASAR	Rural Water and Sanitation Project
SANAA	National Water Supply and Waste Water Disposal Service

EXECUTIVE SUMMARY

The Rural Water Supply and Sanitation Project (PRASAR) in Honduras (USAID Project No. 522-0166) was initiated with the signing of the project agreement on March 31, 1980 to improve the health status and practices of rural people in five northwestern departments of Honduras through full community participation in all aspects of their own water supply and sanitation installations. Financing for the project was provided by: (a) a $10,000,000 loan by the United States Government (USG) through AID, plus a $500,000 grant; (b) counterpart funds of $3,778,158 from the Government of Honduras (GOH) and (c) $3,916,613 in cash and kind from the communities that will benefit from the project. The project was originally scheduled to be completed by September 30, 1983.

The project consists of the construction of 180 water supply systems, 21 sewerage systems, and 3,000 wells with handpumps; rehabilitation of 50 water supply systems and 800 wells; and the installation of 18,000 pit privies, 14,000 Colombia-type water-seal latrines and 25 windmills (the latter for investigation purposes). The project also includes a strong component for health education, training, and promotion to assure that the villagers understand the benefits of satisfactory water supply and sanitary excreta disposal and that they help in the installation, operation and maintenance of their own systems.

The project was to be carried out under a project committee (PC) composed of a project coordinator appointed by USAID, and three project directors--one responsible for the National Water Supply and Wastewater Disposal Service (P/SANAA)* inputs (water supply and sewerage systems); one responsible for the Ministry of Health (P/MOH) inputs (privies, wells and windmills); and one responsible for the health education and training inputs (P/OHE). The P/SANAA inputs, such as design, construction and purchasing, were to be carried out by the on-going departments of SANAA. The P/MOH environmental sanitation inputs were to be handled directly by the project director for P/MOH, and the health education portion was supposed to be handled by the project director for P/OHE.

The cumbersome administrative and organizational structure of SANAA has caused long delays in the project because of: (a) slow handling of documents through the SANAA and GOH hierarchy; (b) slowness in obligating and disbursing funds in accordance with GOH regulations resulting in workers having to wait four to five months to receive their first salary payment after being contracted (a new contract is required each year) and long delays in paying per diem for travel in the field and (c) the difficulty or near impossibility of purchasing gasoline, tires, and cement.

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* P/ indicates that the organization is a PRASAR unit.

In spite of these hinderances, the project staff has accomplished a lot, and good progress has been made in some aspects of the project. However, overall progress has fallen so far behind schedule that USAID was requested by the GOH to make an in-depth analysis of the administrative structure and procedures to ascertain the bottlenecks and to recommend methods to improve project implementation.

A number of causes for the delays have been pointed out in this report. One of the principal problems is that the project committee does not function as originally intended when the project was being planned. The project committee has not been set up as originally contemplated in the project agreement because the P/OHE has not been established nor does it has its own project director. Nor has the USAID project coordinator been given the functions of a coordinator of the project in the project committee. The result has been a lack of communication and coordination among the three sections responsible for assuring the smooth interaction and timely participation of the elements for which the three offices are responsible.

The details of the causes of delay mentioned above are contained in the report. Conclusions and recommendations address changes in component sizes, fixing of a more realistic project completion date; bringing the project committee up to strength by the designation of P/OHE project director and defining the responsibilities of the project coordinator; establishing a method for advancing funds directly to the project with a method of avoiding the long SANAA administrative procedures; improvement in other administrative matters such as personnel, studies and designs, purchasing, warehousing and transportation; and procedures for speeding up construction and improving operation and maintenance, promotion, and community participation. Special emphasis is given to the importance of making a task analysis for the personnel involved in the project in order to serve as a basis for developing training programs specific to their needs.

ACKNOWLEDGEMENTS

This report is the result of frank discussions with the many people listed in Appendix C. The report is based on their comments and suggestions. The function of the consultants was to gather, analyze, and synthesize these comments.

The assignment was greatly facilitated by the support given by USAID/Honduras particularly by Engineers Richard Dudley, William Smith, Ray Baum, Edmundo Madrid, Peter Deinken, and Lic. Rolando Barahona.

The overviews provided by the Director General of SANAA, Eng. Tomas Lozano, Director of the SANAA Technical Division, Eng. Ricardo Mairena, and by Dr. Corrales, Director General of the Ministry of Health, provided important background insights into the participation of these institutions in the PRASAR project.

Details of the various aspects and components of the project were generously supplied by Eng. Oscar Diaz, Project Director, P/SANAA; Eng. Efrain Giron, Project Director, P/MOH; Prof. Luis Canales, Technical Director P/OHE; Eng. Jorge Trivino and Dr. Oscar Vigano, consultants to the project; also by Lic. Leticia Torres, Admnistrator P/SANAA, and Eng. Isabel Giron, P/MOH, Eng. Gabriel Rivera, and Eng. Rigoberto Cerna, P/SANAA.

Details of field implementation were discussed with project staff in Santa Barbara, Santa Rosa de Copan, Ocotepeque and San Pedro Sula. Equally important were the observations and comments of the project's beneficiaries made in the 10 villages visited.

Without the most valuable assistance of Sra. Amy de Jimenez in typing the first draft of the report and of Sra. Mariana de Sandoval in translating it into Spanish, it would have been impossible to have completed the draft of the report in both languages during the period of the assignment in Honduras.

Our heartfelt appreciation to all of the above for their contribution to this review and assessment of the Rural Water and Sanitation Project in Honduras.

Chapter 1

INTRODUCTION

Based on a request from USAID/Honduras, Order of Technical Direction (OTD) No. 101 was issued by the AID Office of Health on June 29, 1982 requesting The Water and Sanitation for Health (WASH) Project to provide technical assistance to the Government of Honduras (GOH) as follows:

Conduct an informal administrative review of AID Project No. 522-0166 (Rural Water and Sanitation Project) known as PRASAR in Honduras. The review was to be action and product oriented and was to cover the technical, admnistrative and financial processes being utilized by the GOH project directors in each of the subsystems of the project. The team was also asked to make recommendations as to what and how improvements might be made in these areas to facilitate implementation.

Dr. Henry Van and Mr. Charles Pineo were assigned to carry out the diagnosis and prepare recommendations. They arrived in Tegucigalpa on November 9, 1982, completed their assignment and prepared a draft report in English and Spanish on December 11, 1982.

The report is based principally on discussion with the people directly involved in the project both in Tegucigalpa and in the project area and on the study of background documents. The names of the people who have contributed to the analysis of problems and formulation of recommendations are listed in Appendix C.

Chapter 2

PROJECT BACKGROUND

2.1 Objectives and Goals

The principal project objective is to improve the health status of rural Honduran inhabitants in the departments of Cortes, Santa Barbara, Santa Rosa de Copan, Ocotepeque and Lempira through full community participation in all aspects of their own water supply and sanitation installations.

To reach this objective, the following goals were established in the project agreement.

Water Systems

- Construct approximately 3,000 new wells and repair approximately 800 existing wells and pumps.
- Install approximately 25 windmills on an experimental basis where there is adequate wind.
- Construct approximately 180 new aqueduct systems and improve 50 existing aqueducts.

Human Waste Disposal Systems

- Construct 18,000 simple pit latrines, 14,000 water-sealed latrines and 21 sewer systems.

Maintenance Systems

- The project would provide on-the-job training for community representatives during system installation as well as technical training seminars conducted jointly by P/SANAA and P/MOH staff through formal workshops at the regional level.
- Rural Water and Sanitation Project (P/MOH) Maintenance Program

  P/MOH promoters would assist the village health committees establish a user fee which would cover all maintenance expenses. Individuals selected by the village health committees would be trained in basic preventive maintenance procedures. Maintenance guides and pamphlets would be provided to individuals responsible for maintenance. The AID loan would finance equipment, tools, spare parts, and materials which the P/MOH promoters would use for maintenance.

o P/SANAA's Maintenance Program

P/SANAA would be involved in constructing only piped water systems for villages where the water committee would agree to provide the unskilled labor and local materials (sand, gravel, and bricks) and to sign a tariff contract which would support the maintenance program. The user fee arrangement would finance operation, repair, maintenance, and a limited amount of expansion of the water systems. The water committee of the community would be responsible for administration, operation, and preventive and routine maintenance. Backstopping would be provided by the SANAA Operation and Maintenance (O&M) Division.

Community Promotion and Health Education

One of the principal functions of the community promotion process would be to provide health education to the target group and to assist them to organize so they could participate in the installation of their own health facilities. The objective of health education would be to change sanitary and related health practices in order to achieve the desired impact on health through improved water and sanitation systems. Technicians, promoters and local village health representatives would help the inhabitants of rural communities understand the links between clean water, hygiene, and health. The promotion work should improve the understanding that adequately designed, used and maintained water-supply and excreta-disposal systems help lower disease rates.

2.2 Project Area Maps

The area covered by the project, namely the departments of Cortes, Santa Barbara, Santa Rosa de Copan, Ocotepeque and Lempira, is shown on the map in Figure 1. The MOH has divided the country into eight sanitary regions shown on Figure 2. Region 5 covers Santa Rosa de Copan, Ocotepeque, and Lempira. Region 3 includes Yoro, which is outside the project area, as well as Cortes and Santa Barbara.

2.3 Schedule

The project agreement was signed in March 1980 with a completion date of September 30, 1983. Figure 3 indicates the planned schedule for major events during the life of the project. the major events are described as follows:

1. While awaiting authorization, P/MOH and P/SANAA, with the assistance of the AID mission, was to begin to prepare bidding documents for equipment and materials to be procured with loan funds. In addition, the mission was to complete the first implementation letter and a draft of the loan agreement in preparation for negotiation with the GOH.

2. The loan agreement was to be signed no later than March 31, 1980.

3. By April 20, 1980 the executing agencies were to be presented with the first implementation letter.

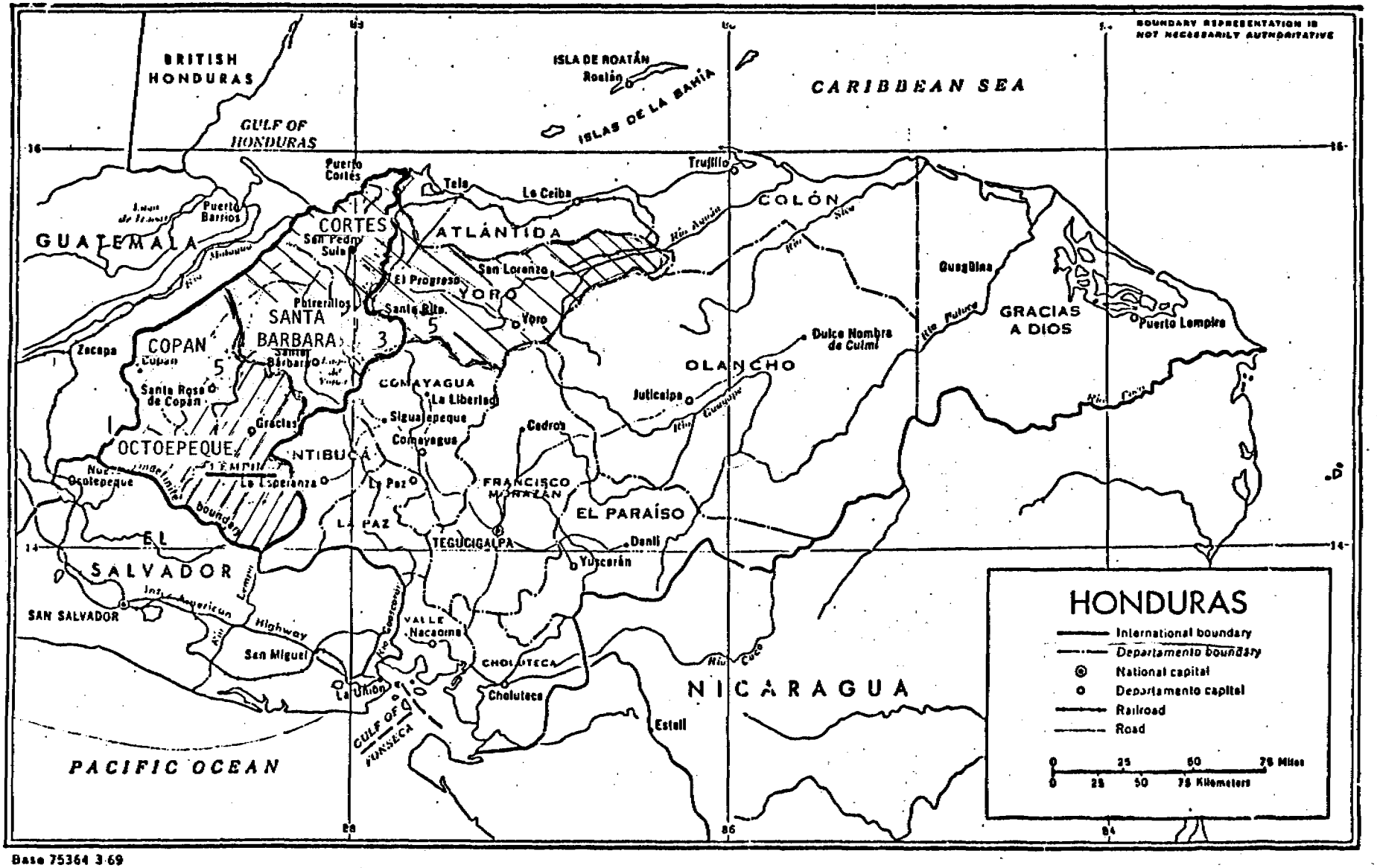

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Figure 1

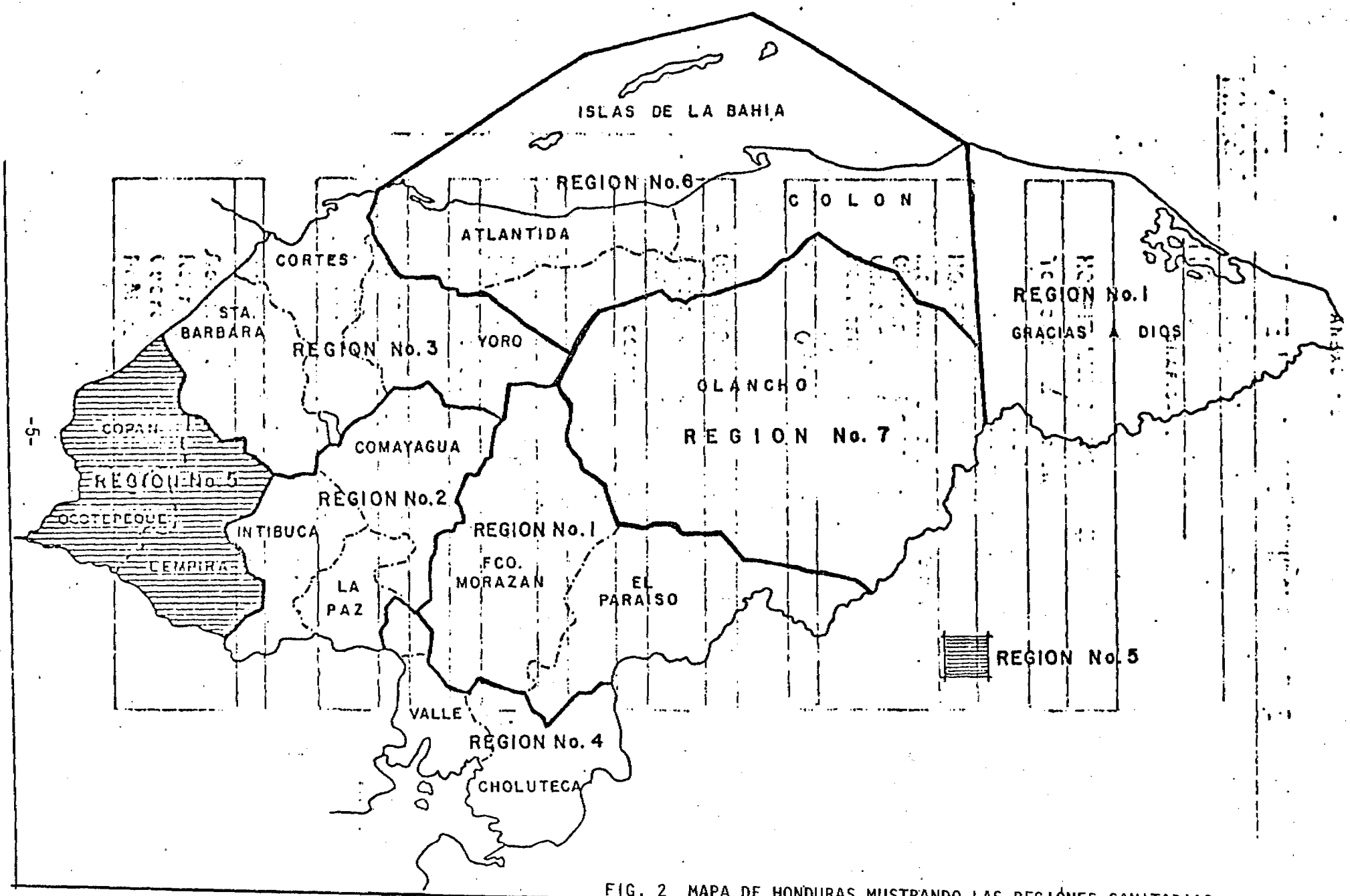


FIG. 2 MAPA DE HONDURAS MUSTRANDO LAS REGIONES SANITARIAS

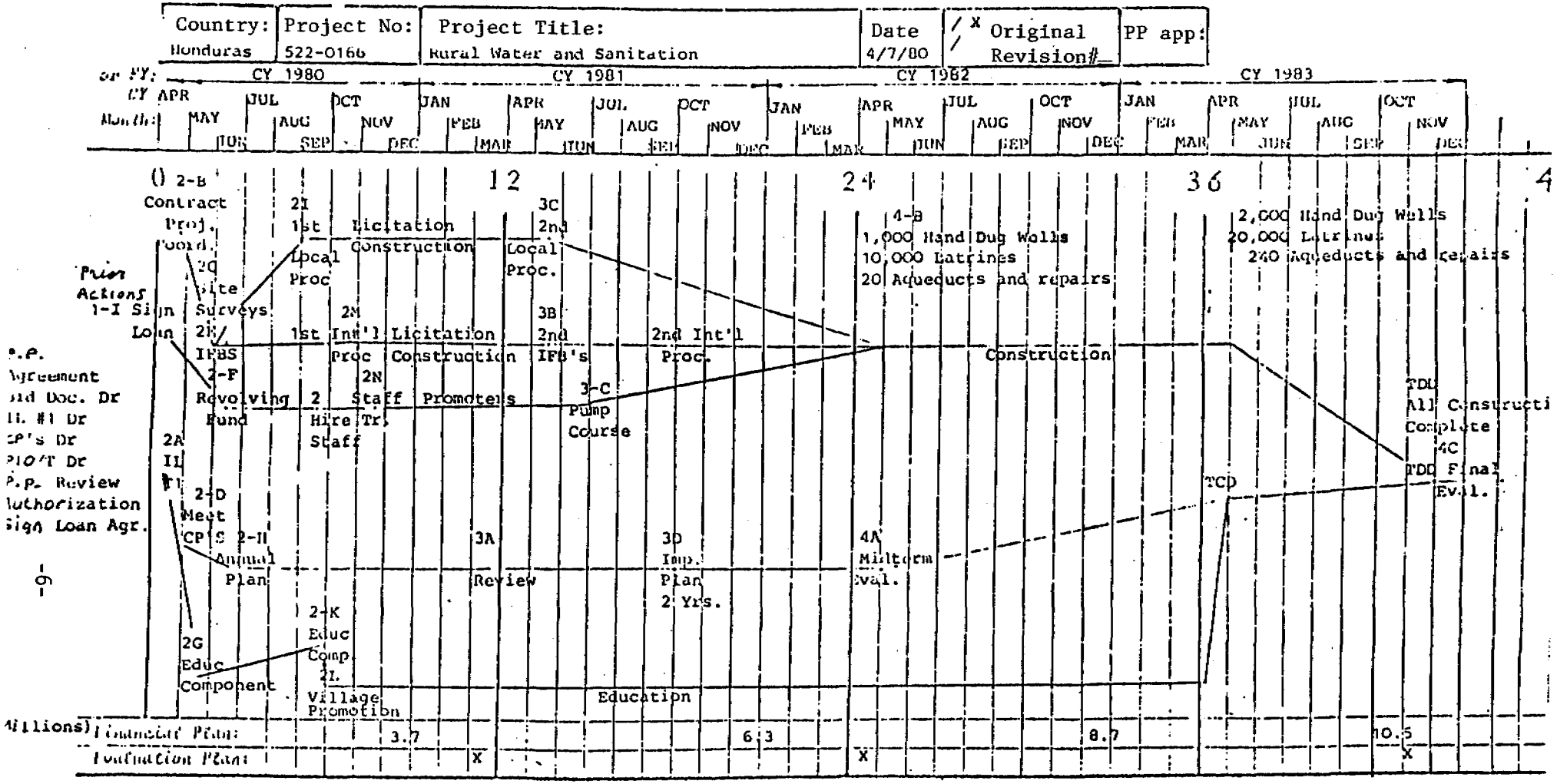


FIG. 3 PROJECT PERFORMANCE NETWORK

4. Bidding documents for major procurement were to be issued no later than April 30, 1980.

5. The AID project coordinator was to be contracted by April 30, 1980.

6. A contract for the long term educational advisor was to be awarded by May 30, 1980.

7. The long term administrator was to be contracted and in country no later than June 1, 1980.

8. Equipment was to arrive in Honduras no later than September 30, 1980 with construction beginning about 30 days later.

9. The results of the mid-term evaluation were to be presented by April 30, 1982.

10. All water and waste disposal systems to be constructed with project funds were to be completed by the estimated project completion date of September 30, 1983.

At some point the schedule was extended unofficially to 1984 and all projections were based on that extension.

2.4 Administrative Structure

As the project is composed of three separate elements, water supply, sanitary excreta disposal and health education, the project paper provided that three separate executing agencies be involved in implementing the project, namely the Ministry of Public Health (MOH) through the Rural Water and Sanitation Program (P/MOH), the Office of Health Education (P/OHE), and the National Water Supply and Wastewater Disposal Service (P/SANAA). See Figure 4 for the organization developed to carry out the administration of the project.

Each of the three executing agencies would designate a project director who would have the authority to make decisions concerning disposition of the project resources involved in his particular area of responsibility. The project agreement indicated the responsibilities of each of the project directors, among which was the responsibility for obtaining the administrative and technical support needed by the project from their respective institutions.

The three project directors, along with the AID project coordinator, formed a project committee. The committee's duties included developing project implementation plans meeting periodically to review progress and problems in implementation, and participating in all project evaluations.

The implementation of the three elements of the project was the responsibility of the respective executing agencies, namely P/MOH, P/OHE and P/SANAA, coordinated by a coordination committee through the project directors. See Figure 5 for a chart indicating the planned sequence of activities.

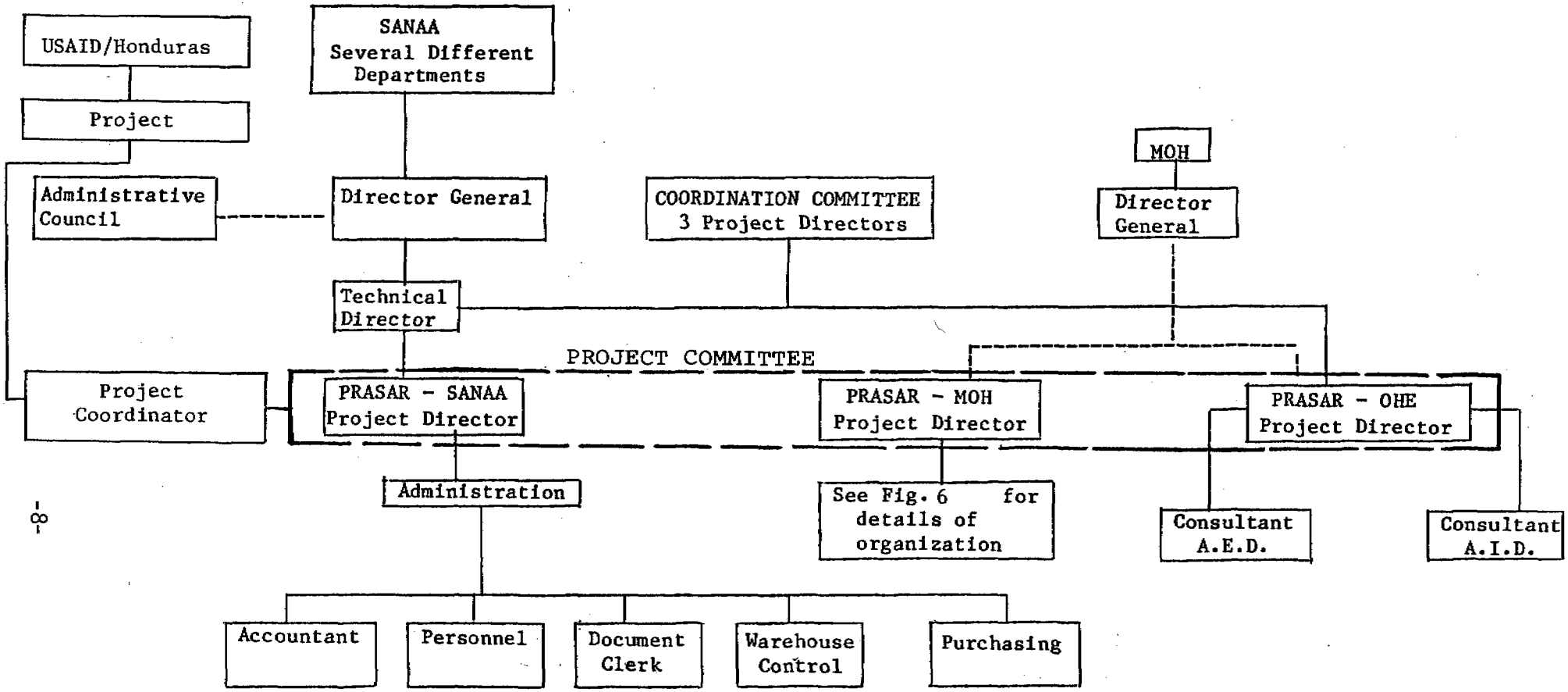
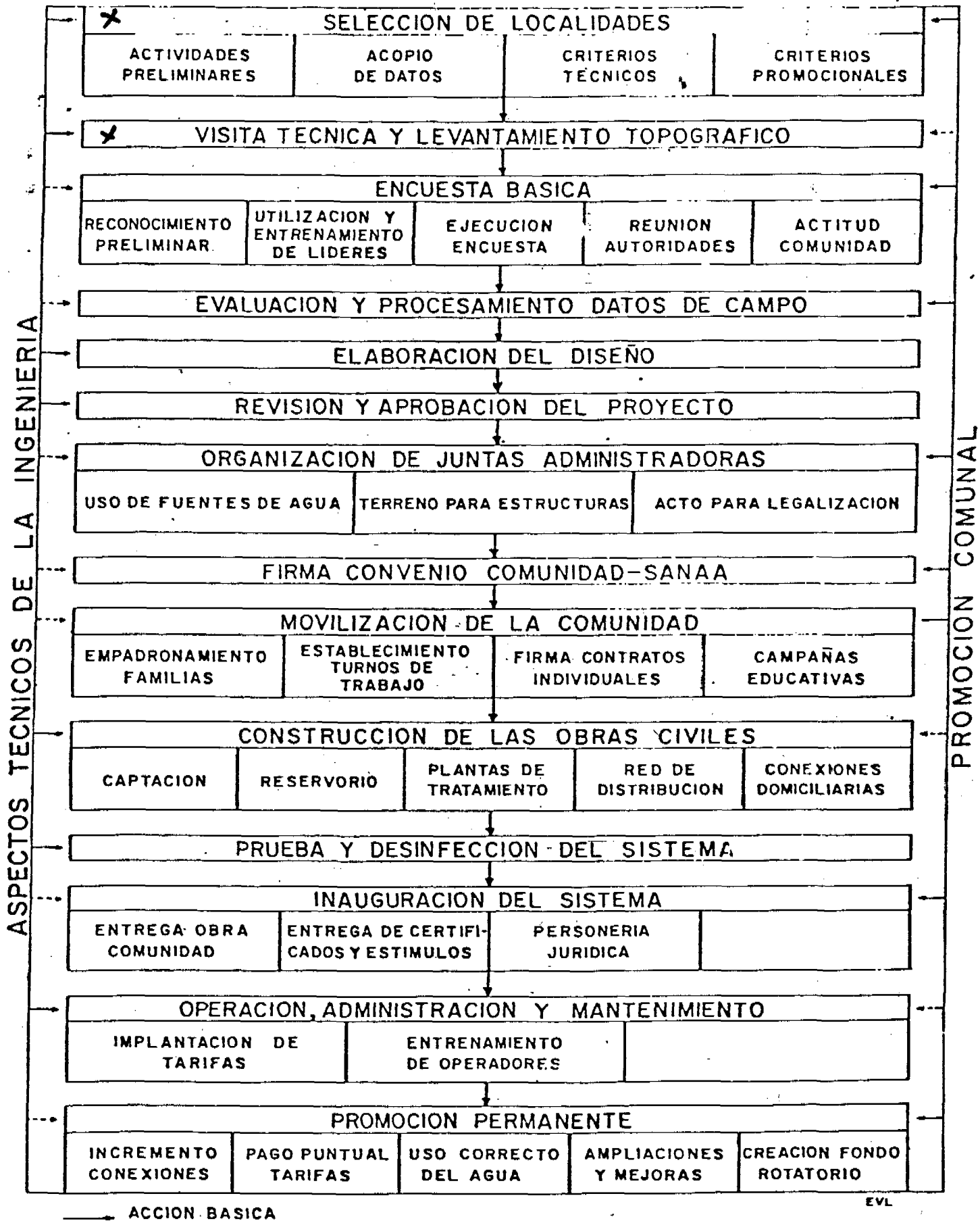


FIG. 4 PRASAR Project Organizational Diagram

SERVICIO AUTONOMO NACIONAL DE ACUEDUCTOS Y ALCANTARILLADOS

FIG. 5 SECUENCIA DE ACTIVIDADES



——→ ACCION BASICA

- - - - → ACCION DE APOYO

P/MOH had the responsibility for the installation of 3,000 new wells, the repair of 800 existing wells, the installation of handpumps, the installation of 25 experimental windmills, and the installation of 14,000 water seal latrines and 18,000 standard type pit privies. P/MOH carried out its activities through approximately 90 first level promoters (Promoters I) located in the villages covered by the project. For every five Promoters I there was one supervisory second level promoter (Promoter II). Every three Promoters II there was one supervisory third level promoter (Promoter III) located in the regional offices of the MOH. The P/MOH also had two engineers in the regional offices directing the activities for which P/MOH was responsible. These activities would be carried out under the direction and responsibility of the project director for P/MOH located in the project office in Tegucigalpa.

P/SANAA was responsible for the design and construction of 180 gravity water supply systems, the rehabilitation of 50 existing systems, the construction of 21 sewerage systems, carrying out a census of all existing water supply systems, and training related to the water supply and sanitation sector of the project. The O&M Division of SANAA was responsible for backstopping and assisting the communty water committees in operating the systems once they were built and turned over for operation and maintenance.

Purchasing for the entire project was the responsibility of SANAA. Warehousing and control of the materials was one of the responsiblities of a small project administrative staff assigned directly to P/SANAA for the project. The accounts for P/SANAA activities on the project were maintained by this office as well as the accounts for purchase of materials, supplies and equipment.

The project paper indicated that there would be a project director for the third element of the project (P/OHE), namely health education and training. This element had two basic objectives: first to prepare the project staff to carry out their responsibilities and second to help the villagers understand the need for changes in sanitary habits and the importance of participating as a community in developing facilities for improving health conditions. It was the responsibility of P/OHE to analyze the specific training needs required to meet the two objectives, prepare the necessary training materials, and use them to train the staff and villagers. The implementation method was different from that being used by P/MOH and P/SANAA. Technical assistance was being provided by a full time advisor hired by AID through a contract with the Academy for Educational Development (AED) which provided a second consultant for health in education and for preparing training materials.

2.5 Financial Arrangements

The flow of loan funds was to be initiated by an advance of funds from AID, in the form of a check, to the Ministry of Budget (Ministerio de Hacienda y Credito Publico) which acted as a representative of the GOH in the project. These funds were to be assigned to the General Directorate of Public Credit (Direccion General de Credito Publico) for their management. The directorate was to deposit the funds in a special account in the Honduran Central Bank. The Ministry of Budget was to delegate partial authority to the MOH and the SANAA with respect to the physical execution of the project, thus maintaining

the authority for the management of national and foreign funds as well as the financial relationship with AID. At the beginning of the project, the decision was made to have SANAA conduct all purchasing of materials and equipment for the project. The purchasing was to be conducted on a competitive basis. Those suppliers selling materials and equipment for over $2,000 to SANAA were to be sent to the Directorate of Public Credit for payment of these items.

The flow of counterpart funds was to be initiated by the issuance of a check for $100,000 from the Republic of Honduras General Treasury to SANAA which in turn was to deposit the funds in the Honduras Central Bank. In essence this was to be a revolving fund. However, items costing more than $1,000 could not be paid for out of this fund but would have to be paid for by the General Directorate of Public Credit.

During 1981 AID made an advance of $200,000 to the project through the agencies mentioned above. In November 1982 AID made another advance of $121,500.

Chapter 3

PROJECT PROBLEMS

3.1 The Project for Rural Water and Sanitation/National Water Authority (P/SANAA)

3.1.1 Schedule

The project paper scheduled the arrival of equipment and material for the project no later than September 30, 1980 with construction to start by the end of October 1980. Actually the equipment did not arrive until July 1981, and construction was not started until November 1981 when work was started on 13 water supply systems. The following sections discuss the reasons for the project's slow progress.

Estimates of progress as of October 31, 1982 as a percentage of the work to be completed by the end of 1984 is as follows:

	Actual%/Programmed %
Construction of 180 water supply systems	30/45
Improvements of 50 water supply systems	16/35
Construction of 21 sewerage systems	8/5
Census of rural water supply systems	8/34
Overall advance of the P/SANAA portion of the Project	27/40

3.1.2 Project Committee

The project committee (PC) meets periodically to review progress, plan activities, coordinate the programs of the three executing agencies and consider implementation problems. Up to the present, however, the PC has lacked decision-making and executing power to the extent that it depends on the central administrative units of its respective organizations. Thus, direct lines of execution which the PC should have are non-existent. As a consequence, the PC is allowed only to make recommendations but not to make decisions and it does not have project control due to its dependence on the management infrastructure of the parent agencies and the slow bureaucratic processes, especially those of SANAA. Apparently the P/MOH portion of the project has a more direct line of communication with its executing management sector, thus facilitating the execution of its decisions. Unfortunately, the P/MOH portion of the project depends on SANAA's infrastructure for procurement of fuel, materials and equipment.

When the PC members agree on a particular recommendation for a specific problem, that recommendation has to be submitted to its organizations' management infrastructure which may or may not agree with the PC's recommendation. In the case of P/SANAA, the recommendation made at the PC level has to be submitted for review and approval to the technical and general directorates.

At times, the decision has to be submitted by the director general to SANAA's administrative council. The council is composed of the director general, two ministers and the president of the engineering college. Often it takes several weeks for the council to meet, thus delaying the project. In essence, the PC has no authority to make its own decisions for solving its own problems.

3.1.3 Organizational

Figure 4 shows the relation of the three elements of the project and of the project committee. It details the organization which was originally contemplated for the P/SANAA and P/OHE elements of the project. The organization for the P/MOH element is shown on Figure 6. Figure 7 is the organization chart for SANAA.

The PRASAR organizational structure which should make the coordination of the activities of the three project elements easy and effective is not functioning as planned. Each of the elements is working comparatively independently.

This has been exacerbated by the infrequent meetings of the project committee and by the lack of communication between the three executing agency representatives and even within the agencies themselves.

P/MOH is not advised when P/SANAA engineers are going to make the field studies for community water supply systems, so promotion and community organization have not taken place. The topographic study group arrives and the community is not prepared to help with the field work. This results from lack of communication between the agencies involved at both national and regional levels.

This is further complicated by the fact that many of the project documents have to go through SANAA administrative procedures for review and signature causing endless delays before action can be taken. The problems are detailed in the following sections.

The project director has no control after the documents leave his hands. Although a member of the P/SANAA administrative staff has been designated expediter to speed the handling of the documents from one SANAA department to the next, this has proven ineffective because the expediter does not have access to the in-boxes of the heads of the various departments. In many instances documents have been lost that had taken considerable time to prepare. The reason is that the document has to be processed through many offices and, at times, even through different government agencies.

FIG. 6 ORGANIGRAMA PRASAR M.S.P.

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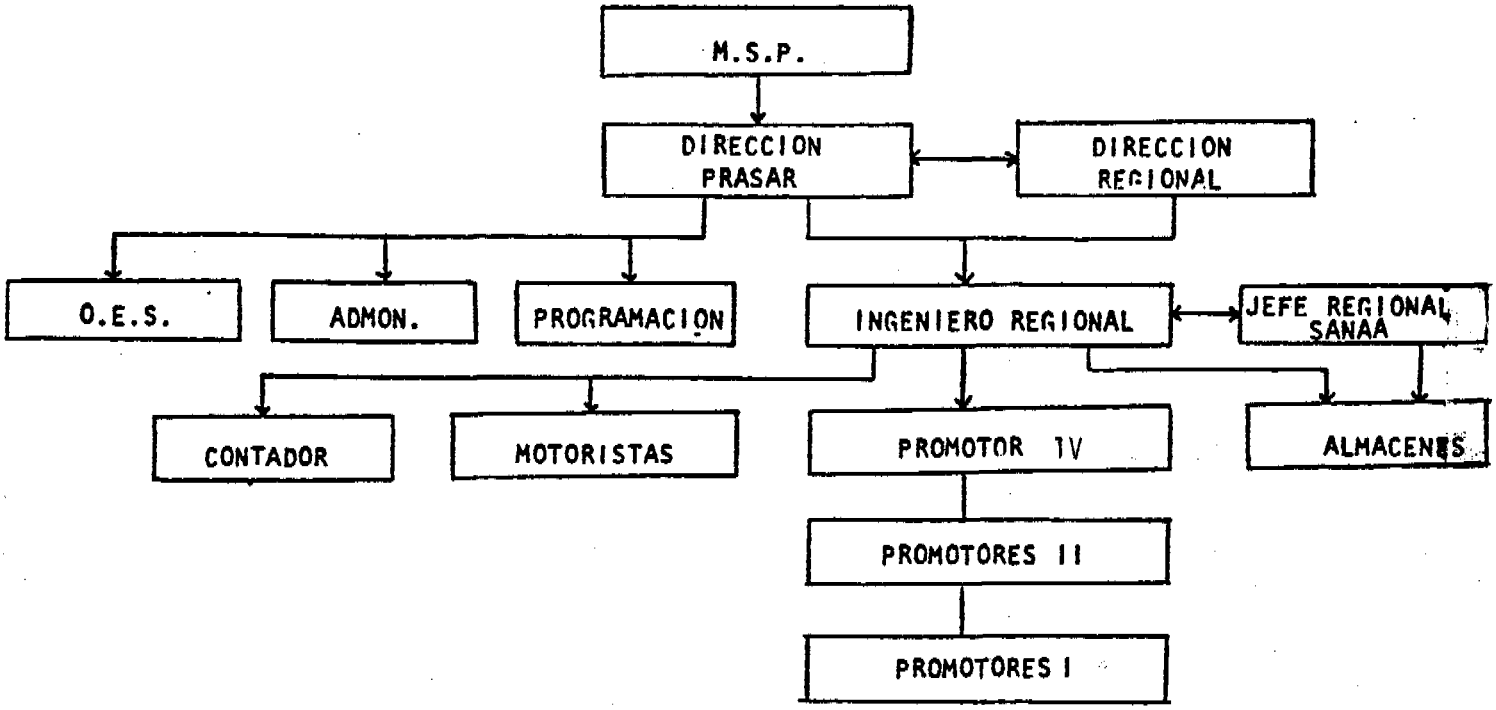

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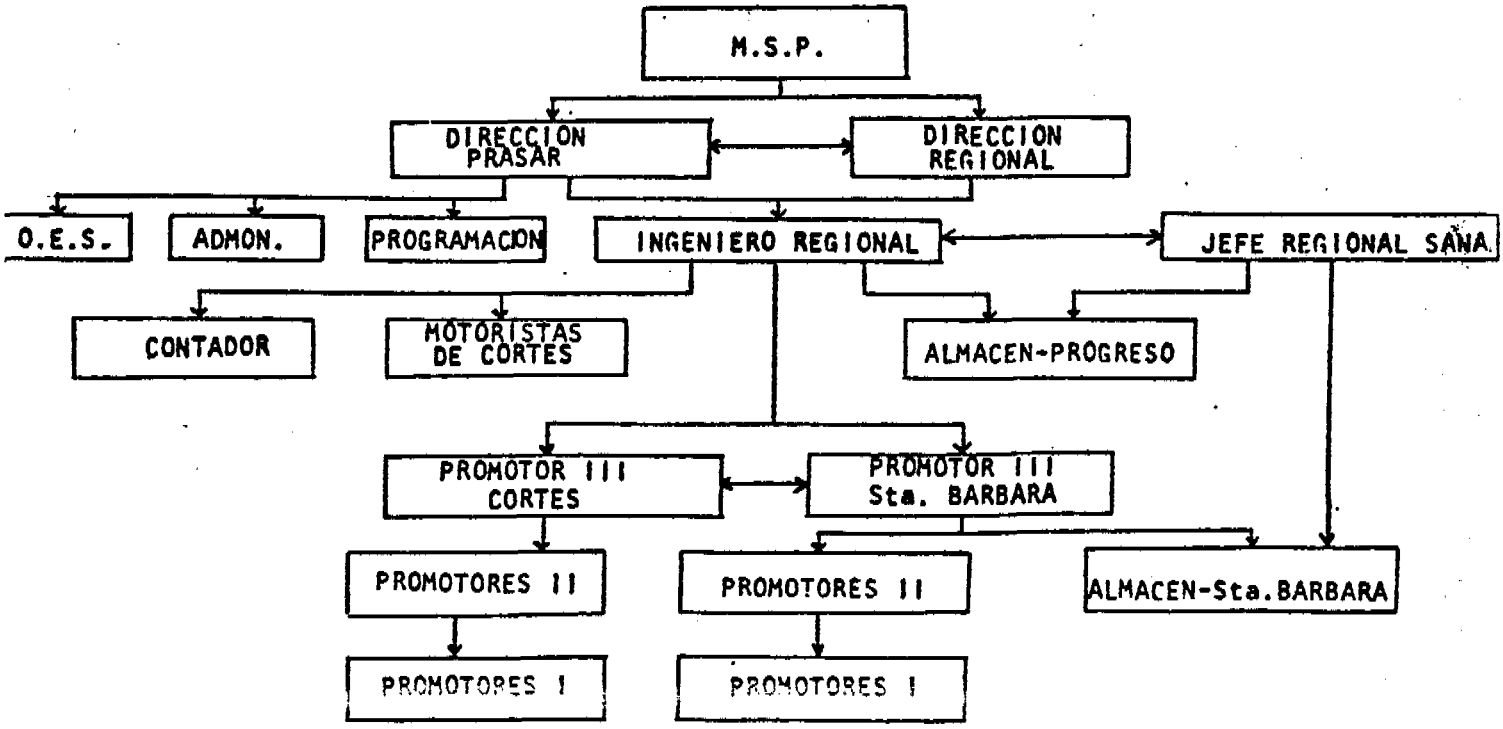


3.1.4 Administrative

Financial

Although a revolving fund was set up in 1981 with $200,000 loan funds, the project has had severe delays because it lacked of counterpart funds. This was caused by the critical economic crisis that Honduras experienced during 1981. The crisis caused a shortage of national counterpart funds severely affecting the issuance of travel advances and causing the cancellation of field trips by engineers and technicians who could not afford to go out and supervise the construction of the project systems. This was especially critical in the case of P/SANAA. The P/MOH restricted its project activities to those areas where the promoters resided, leaving unattended other areas where travel advances were required. In addition, as a result of this crisis, the P/MOH faced serious labor problems due to a delay in salary payments to the promoters, many of whom resigned. Since travel funds were not available, SANAA drivers were not able to deliver needed materials to the field.

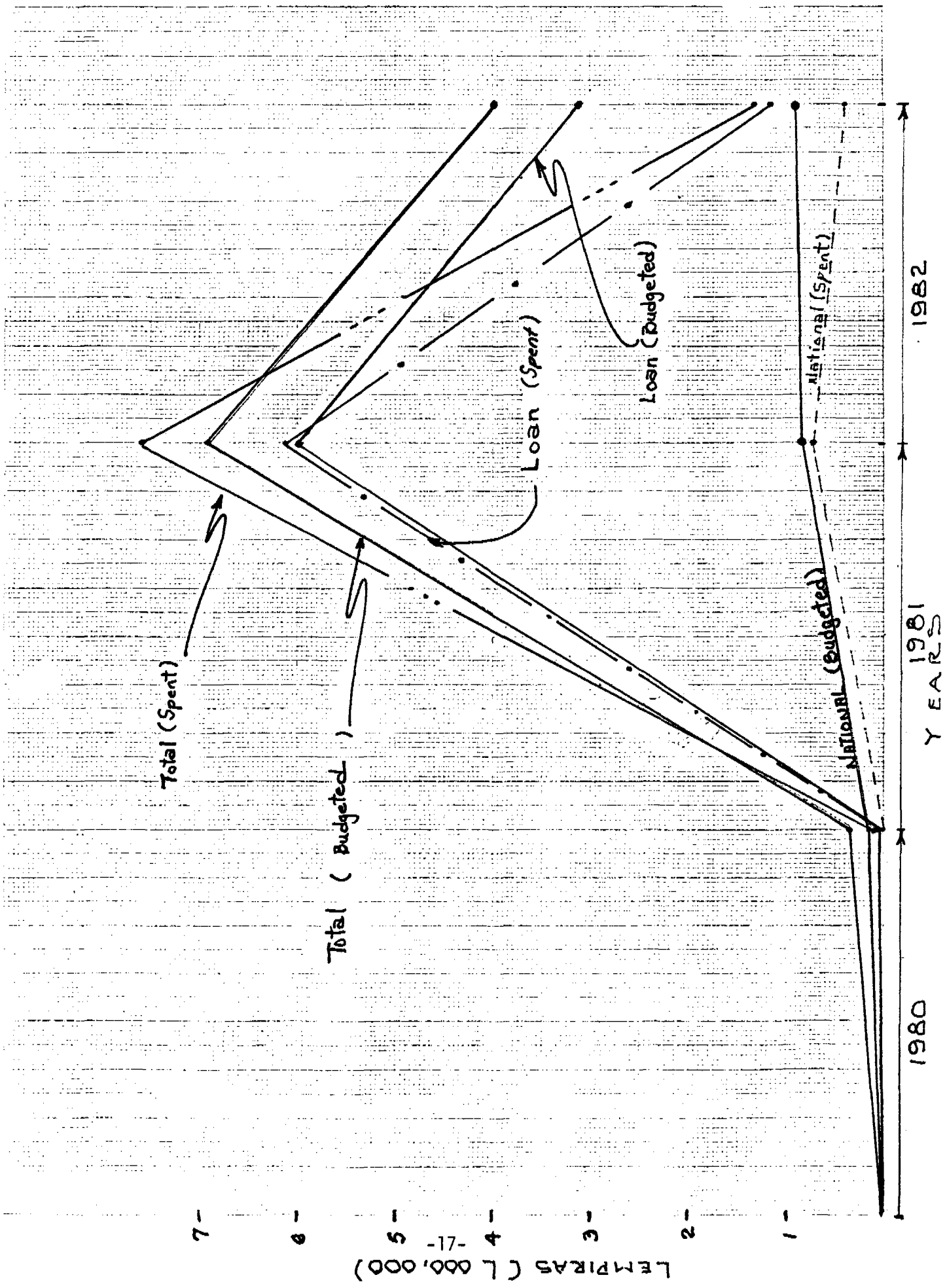
Travel funds were not approved by the GOH until January 1982. Also, whereas the national counterpart funds requested by SANAA amounted to $650,000, the amount assigned was $473,200. Travel advances covered by this amount permitted the personnel to travel during only one quarter of 1982. In addition the travel funds had to be approved by the General Directorate of Budget, a process that took some time.

During the first quarter of 1982 employee's salaries and travel advances were not paid, severely affecting progress of the work. Frequently employees have not received their salaries for periods of up to four months, causing the following negative consequences:

- Demoralized personnel.
- Resignation of trained personnel.
- Loss of training funds spent due to resignations of personnel.
- Loss of time, as well as increase in project cost due to re-training required for new personnel.
- Delay in field activities during periods in which the project should have been advancing because of the good weather, especially during periods when the communities would be most available to participate in project activities.
- Delay in materials transportation because drivers lacked travel advances.
- Credit loss due to delays in paying suppliers.

Figure 8 shows a three-year plan of the funds budgeted and spent for the project. Large material procurement using loan funds can be observed in 1981.

BUDGET FOR 1980,1981 and 1982 SHOWING FUNDS SPENT FIG. 8



Financial problems have been severe also because of the change of government in 1982. To obtain a travel advance the following procedure is required:

- o P/SANAA project director submits the request for travel advance to the technical director of SANAA who approves it and sends it to the general director for approval.

- o The general director submits it to the accounting division which issues the check and sends it to the auditing department for its approval and recording. From there the check is sent to treasury which delivers the check.

The above process takes 15 days or more. Even when the money is available careful advance planning is required for sending personnel to the field. However, it is not always possible to foresee when personnel will have to go to the field. The long lead time needed to obtain a travel advance, therefore, causes problems, and often the trips are cancelled. This delays the project.

Personnel

P/SANAA has two major personnel problems--contracting personnel and keeping them.

Contracting

The procedure for hiring personnel at all levels is the following:

- o The project director submits the personnel action document to the technical director who sends it to the general director. He submits the personnel action to the minister who sends it to the Office of Civil Service which obtains approval from the Office of National Budget. At this point the decision is made to hire or not to hire the candidate.

- o If the personnel action is approved, the minister signs it and submits it for the president's approval.

The above process takes up to five months. This has caused severe delays.

P/SANAA has had problems in hiring qualified personnel for its warehouses, first, because personnel trained for this work are difficult to find in the country and, second, the hiring process has discouraged some candidates. Only recently P/SANAA found an individual that meets the requirements and the personnel action has been initiated.

Salaries

Due to the hiring process, salary payments have been delayed up to four months causing frustration for project personnel, some of whom resign because of the lack of pay. Also, personnel contracted by the project do not get the fringe benefits that regular government employees receive. Vacations are not paid, and the personnel do not qualify for social security benefits which include

doctor's fees, medicines and hospitalization. All of this creates a low morale, but the major cause of frustration is not receiving the pay on time.

Studies and Designs

Fortunately there have been few administrative problems in carrying out the studies and designs for water supply systems, except for the lack of coordination between promotion and topographic surveys mentioned above. The fact that 147 of the required 180 studies and designs have been completed indicates success in this area. The record is not as good for studies and designs for sewer systems. This is discussed in more detail below in Section 4.1.2.

Field studies can be carried out only during the three dry months of the year because of the difficulty of reaching many of the project communities and because the water sources have to be measured at minimum flow.

In selecting the villages to receive water supply systems, several parameters have been established. One of these is that no system shall be included in the project if the water source is more than four kilometers from the community. This has prevented the construction of systems in many communities which need and want the systems. In some cases this could be alleviated by making it possible for the community to either purchase the extra pipe required beyond the four kilometers to reach the water source or to obtain it from another agency such as CARE or other private voluntary organization.

P/SANAA is also responsible for making a survey of all existing rural water supply systems in the country. Very little progress has been made on this and consideration is being given to contracting with a local firm to do it.

Purchasing

At the begining of the project P/SANAA and P/MOH agreed that SANAA would handle the purchasing of fuel, materials and equipment. The reason was that SANAA is a semi-autonomous decentralized government agency and would have less bureaucratic steps for the procurement of items required by the project. However, SANAA has had many problems procuring materials. The purchasing process is quite involved especially when purchases have to be made internationally. Moreover, even the purchase of local materials such as tires, cement and fuel takes several months. When the local purchase is under $5,000 approval from only the technical and general directors is required, but if it is over this amount, the director general must obtain the approval of the administrative council. This may take up to six months. An international purchase takes up to 15 months.

Due to the shortage of counterpart funds, SANAA has not been able to pay its debtors promptly, creating a bad credit rating. Shortage of fuel has been common since the beginning of the project simply because either there was no credit or the approval took considerable time to obtain. All these purchasing problems have delayed the project, affecting especially the field personnel who construct water and waste disposal systems. For example, during the first quarter of 1982 field offices practically stopped all activities due to the

lack of fuel (diesel and gasoline). As a result of lack of materials and fuel the aqueduct construction group has been building an average of only two aqueducts per month instead of an average of eight aqueducts as required to meet the goals of the project. If the ability to purchase project items does not improve, progress will continue to be hindered.

Warehousing

At the beginning of the project there were only two warehouses for storing construction materials, and they were distant from the construction sites. Qualified warehouse personnel were not available, making the storing and control of the materials difficult. The delivery of materials was hampered by the location of these warehouses and the lack of fuel, thus causing delays for the project.

At present, the project has four warehouses located in El Progreso, Santa Barbara, Santa Rosa de Copan and Gracias. The original two warehouses were located in El Progreso and Santa Barbara.

Supervision

Warehouse supervision has been minimal since the project has had problems finding qualified personnel to handle this task. At the beginning of the project high school graduates were hired by P/SANAA and P/MOH to supervise the warehouses.

During 1981 a course in warehouse supervision was given to these individuals. However, project management thinks that this was not enough and although the situation improved somewhat the warehouse staff still has problems due to the lack of experience. Recently P/SANAA identified a qualified individual for general warehouse supervisor and initiated the hiring process. It is hoped that this individual will be hired early in 1983.

Materials Acquisition

The procedure for withdrawing materials from the warehouses has not been standardized and has caused problems. Both P/SANAA and P/MOH need materials from the warehouses, but, the withdrawal forms are different for each of the organizations. To add to the confusion it was found that the forms often were not used and instead simple pieces of paper were signed stating only the name and quantity of the item taken. This informal method of keeping track of the movement of materials has caused problems for the accounting office in Tegucigalpa and has complicated the procurement of additional materials in a timely manner. Many times delays are also caused by improper cataloging which makes it impossible to place a value on the material withdrawn and to record it for inventory purposes.

Inventory

The inventory of materials has been difficult because of the problems stated in the above section. To aggravate those problems warehouse inventory is done by hand and not by computer.

Although SANAA has a computer system, the manpower required to operate it was not available. Only a few weeks ago talks were initiated with the computer division of SANAA to see how the inventory process of PRASAR could be computerized. A viable solution has not been developed so far.

As a result of the above problems the value of the warehouse inventory data is doubtful.

Transportation

Transportation has been one of the big bottlenecks since the project started. First, the long time required for all the paper work, signatures, advertising for bids and delivery of material made it impossible to start implementing the project as rapidly as programmed.

There has been constant difficulty in the purchase of gasoline. Because it takes so long for the bills to be paid, it has been impossible to get gasoline without chits issued against a mass purchase of gasoline arranged ahead of time. Access roads to the project communities are so rough that tires wear out quickly and vehicles are tied up for a month at a time until new tires can be purchased.

Vehicles are lacking. Eight construction engineers, who are each assigned five water supply projects to supervise, have to make do with six vehicles which restricts their travel. The effectiveness of project vehicles has been diluted by their use for other SANAA activities.

The vehicles are presently assigned as follows:

6 Pickups	To construction engineers
8 Pickups	To O&M Division for improvement of water supply systems and for O&M of systems constructed by the project.
2 Pickups	To P/SANAA in Tegucigalpa
2 Double cabin pickup	For topographic studies
3 Jeeps	To P/SANAA in Tegucigalpa
2 Trucks	For distribution of materials and supplies
1 Bus	For seminars and training courses.

Rainy seasons make many of the villages inaccessible for long periods of time making it impossible to deliver materials and equipment required for construction. This situation has been alleviated to some extent through the cooperation of the U.S. Southern Command which has loaned helicopters for short periods of time to transport materials to isolated communities during the rainy season.

3.1.5 Construction

The construction division has had many problems since the initiation of the project. Many of the problems have been discussed in previous sections. Some that have had a drastic negative impact have been the following:

- Construction activity was initiated with only ten construction foremen instead of the required 20. The reason was lack of counterpart funds to pay the extra foremen.
- Only one truck had a driver and there were no counterpart funds to hire a driver for the second truck.
- Lack of petty cash to pay local labor to unload the truck as well as to pay additional small but vital expenses.
- The lack of salaries and travel expenses lowered the efficiency of construction personnel.
- Lack of advanced promotion caused communities to decline construction of the aqueducts which were already designed, because the communities were not apprised ahead of time of their responsibilities.
- Lack of fuel has caused severe delays in the construction of the systems.
- Shortage of construction materials has caused delays.
- There are only six pick-up trucks for eight construction supervision engineers. Therefore, they have to team up. This delays the supervision.

New Aqueducts

To date 54 aqueducts have been constructed. The number of aqueducts programmed to have been constructed at this time is 81. The delay has been caused by the problems listed in the previous section. The quality and enthusiasm of the project personnel is very high and the delays are not a reflection of their professional capability but, rather, are due to factors that are beyond their control.

Improvement of Existing Aqueducts

Of the 18 systems programmed for rehabilitation by this date, only eight have been improved.

New Sewers

To date only one sewer system has been designed and none constructed. The thinking is that the goal of 21 new sewer systems is extremely high for the existing resources and will not be met under present conditions.

3.1.6 Operation and Maintenance

The project agreement stipulates that, in the case of aqueducts and sewers, promoters would assist the village health committee establish a users' fee which would cover all maintenance expenses. To date over 54 aqueducts have been constructed, but none of the communities have an organized operation and maintenance committee. At the beginning of the project the decision was made to set a monthly user fee of US $1.25 per household, but in some communities, after three months of using the system, residents believe this fee is too high.

The construction of aqueducts has suffered from a considerable lack of promotion. To date P/SANAA has not issued a standard agreement, to be signed by both the community and P/SANAA, indicating the responsibilities of both parties, and providing for a water rate and for operation and maintenance responsibilities. Only in late summer 1982 did the field construction division draft an agreement between the community and P/SANAA. This document was necessary to assure community participation since there were times when a community selected by P/SANAA did not want the aqueduct. However, even in this construction agreement the community does not commit itself to pay any fee. The maintenance of these systems will suffer if this situation is not corrected.

After the construction of an aqueduct is completed, the system is supposed to be turned over to SANAA's Rural Operation and Maintenance Division.

SANAA's Rural Operation and Maintenance Division

This division is responsible for backstopping the operation and maintenance of the systems SANAA builds in the rural areas. It is responsible for 286 aqueducts constructed by SANAA and SANAA-InterAmerican Development Bank projects. The country is divided into four O&M regions. So far the division has not been notified of the aqueducts completed under the PRASAR project. This reflects a lack of coordination and communication between P/SANAA and SANAA-O&M. The O&M division does not know how it will handle the work load that the P/SANAA aqueducts entail.

The SANAA O&M personnel in each region consist of the following:

1 Supervising Engineer
1 Secretary
1 Regional Engineer
1 Regional Plumber
1 Driver
1 Supervisor who makes periodic visits to the systems and coordinates activities with the community.

A portion of the money collected by the O&M committee in each community for the operation and maintenance of the water system is deposited in the central bank for future use after deducting the funds required for the local operation and maintenance of the system.

SANAA plans to organize O&M cooperatives in the future which they think will work better than the present arrangement.

The problems faced by the project are the lack of an agreement with the community with respect to O&M and the lack of coordination between the construction and O&M divisions of SANAA.

3.1.7 Promotion

P/SANAA has no promoters assigned to the project. P/MOH is supposed to carry out the promotional activities for P/SANAA projects. Serious problems have occurred because of lack of promotion before P/SANAA starts its work in the communities, beginning with a study of the factors important in the design, construction, operation and maintenance of the systems. This problem is in the process of being solved by the assignment by P/MOH to P/SANAA of seven Promoters I (as discussed in project memo PJTI-525-82 dated 22 October 1982). The promoters will help develop community participation, organize the water supply committee (WSC), assure that the community understands its responsibilities and those of P/SANAA, assure that the community wants the water supply enough to cooperate in its construction, arrange that the WSC sign an agreement with P/SANAA covering the cooperative construction of the water supply system, the payment of a monthly fee for operation and maintenance costs and the care of the system when it is completed. In the past there have been cases where the community has not been advised of its responsibilities and, when the construction was completed, the community has said it does not want the system.

A detailed analysis of the status of the health education program as it affects project promotion is contained in a report by Dr. Adriana Gomez de Rothkegel under the title Sub Proyecto de Educacion para la Salud PRASAR - Donacion AID No. 522-U-036.

3.1.8 Community Participation

Because of the lack of advance promotion and health education, some communities have either refused to cooperate or have done so with little enthusiasm. As a result, one of the basic objectives of the project has not been achieved. However, a number of villages are cooperating with enthusiasm. In fact the community contribution in this project provides a larger percentage of the overall cost of the project than is usual in many other countries. According to the project agreement the community contribution was expected to be almost 22 percent of the total project cost. The percentage may be even greater in some communities where the materials have to be carried to the village from the nearest all-weather road, then carried, often on the shoulders of the men and women, up to the captation and storage tank. The locally furnished materials include the sand, gravel and brick for constructing the water storage tank.

3.1.9 Health Education and Training

The above-mentioned report of Dr. Adriana Gomez de Rothkegel gives a complete analysis of the health education components of the P/SANAA and P/MOH programs. Some advances have been made since the report was prepared. A flip chart has

been prepared and is in use by some of the promoters, and 16 out of 60 proposed radio programs are being broadcast. A number of additional training courses have also been given.

However, many of the recommendations of the report have not been carried out such as the naming of a project director for the Office of Health Education. Nor have the duties and responsibilities of the promoters and others involved in the project been analyzed to ascertain the tasks each one is to perform as a basis for developing programs.

Unfortunately the report does not recommend the selection and training of a health educator to strengthen the health education activities of the project and later those of the MOH. This report makes that recommendation in Section 5.9.2.

Also the present staff of P/OHE is inadequate for carrying out its responsibilities and should be augmented. See the recommendations.

Nothing has been done toward the long-term training of four P/SANAA and two P/MOH personnel in sanitary engineering. Such training may not contribute much to carrying out the more immediate objectives of the project but would certainly benefit future activities in water supply and sanitation programs. One of the basic objectives of all AID-financed programs is to strengthen the infrastructure in the country and one of the best methods is to help train capable people to support the infrastructure.

3.2 Ministry of Public Health - PRASAR (P/MOH)

3.2.1 Schedule

The implementation of the components assigned to the P/MOH has been slowed by the same factors which impeded progress on the P/SANAA components.

Estimates of progress as of November 20, 1982 are tabulated below:

	Programmed	Actual
Construction of 3,000 wells	367	118
Rehabilitation of 800 wells	0	0
*Installation of 10,000 pit privies	2,235	2,836
*Installation of 14,000 water-seal latrines	4,917	3,820
Installation of 25 windmills		0

*Reprogrammed

3.2.2 Project Committee

A description of this committee was given in Section 3.1.2. The director of the P/MOH is a member of the PC. However, since he has a more direct line of communication, decisions taken by the PC for P/MOH action are reviewed and acted on more rapidly than in SANAA's case. Unfortunately, P/MOH depends on

P/SANAA for its purchases, and processing purchase requisitions through SANAA takes a long time. Because of the lack of financial authority the PC has to wait for management decisions in its respective organizations, which may take months. This has occurred at times when the problem required immediate attention.

3.2.3 Organizational

The MOH has divided the country into eight health regions. Region No. 5 covers the Departments of Ocotepeque, Lempira and Copan and Region No. 3 covers Santa Barbara and Cortes, which are within the project area and Yoro which is outside the area. See Figure 2 for a map of the health regions. Also see Figure 6 for the organization chart developed for the P/MOH element of the project. In Region 5 the director of P/MOH is the director of its activities in the entire health region while in Region 3 he is the director of the P/MOH activities which are located only in Santa Barbara and Cortes but not in Yoro.

The direct line of authority of the director of P/MOH under the director general of the MOH simplifies the administrative procedures he must follow and gives him a much freer hand in carrying out P/MOH activities. He is not as restricted as the P/SANAA project director.

3.2.4 Administrative

Financial

Since the beginning of the project promoters have experienced serious personal financial problems due to the lack of pay for as long as four months. This has been common throughout the life of the project. In addition, travel funds have been curtailed due to the economic crisis Honduras has experienced. For example, from August 1981 through January 1982 all travel funds were frozen thus completely restricting all government employees' travel outside of their respective base offices. The financial problems have led to delays in the project, due principally to the inability to travel. Morever, the delays in salary payments caused the promoters to strike during 1981. This also caused problems for the project because the promoters are responsible for aqueduct promotion.

Personnel

The major problem faced by P/MOH is the hiring of personnel and keeping them. As was stated previously, the approval of the personnel actions takes between four and five months. During this period the promoters work without pay. Many promoters learn of this problem while being trained and leave to find work somewhere else right after their training. Usually, about 50 candidates for promoter positions are selected for training and approximately 30 (60 percent) finish.

Studies

P/MOH has the responsibility of carrying out the diagnostic studies of the communities to obtain the basic data needed to select the communities to be included in the project. The results of the studies are given to P/SANAA for selecting the communities to be included. If, as suggested under the subheading "Studies and Design," in Section 3.1.4 above, it is decided to give the community the option of securing the pipe beyond the four kilometer limit, then P/MOH promoters would approach the community to ascertain its wishes and to help work out the details. The method for doing this should be worked out in the promoter manual and should be covered in the refresher seminars for the promoters.

Purchasing

The subheading "Purchasing" in Section 3.1.4 describes in detail the purchasing process for the project. Purchasing problems within SANAA have delayed P/MOH activities. The slowness in procuring cement, tires and fuel causes the most serious delays.

Warehousing

The storage of P/MOH materials is handled by P/SANAA. The only problem P/MOH has had was the distant location of the first two warehouses at the beginning of the project which made it inconvenient and time-consuming to transport materials.

Transportation

There has been a constant problem for P/MOH activities because of the lack of gasoline and, more recently, the lack of tires to replace those worn out on the rough unpaved roads in the project area. Cars, trucks, and motorcycles have been tied up for a month at a time because of lack of these two items. This makes it practically impossible for the promoters and engineers to carry out their responsibilities.

The rainy season makes it impossible to reach many villages for weeks at a time. At times some assistance has been provided for P/MOH activities by helicopters furnished by the U.S. Southern Command.

The following vehicles are assigned for the use of P/MOH:

17 Pickups
3 Jeeps
2 Trucks
Plus motorcycles for each promoter.

3.2.5 Construction

The problems causing delays in the P/MOH project are the lack of the following:

- Fuel
- Cement
- Tires
- Salaries
- Travel expenses

These problems are caused by the lengthy procurement process P/SANAA has to go through in order to purchase materials and fuel (see subheading "Purchasing" in Section 3.1.4). In addition to the above, bad weather conditions have caused delays because several construction sites are not accessible for work or for the distribution of materials.

3.2.6 Operation and Maintenance

So far P/MOH has not had problems with O&M activities and does not anticipate any problems. They feel that the training of the promoters in health education will be adequate when a task analysis is complete and the courses are reformed accordingly. The health education activity is intended to include O&M training. Handpumps installed under PRASAR are the responsibility of P/MOH. At present only 118 handpumps have been installed, and they have not been operating long enough for serious problems to develop. Maintenance of the water-seal privies has been excellent because the porcelain stool is easy to maintain.

3.2.7 Promotion

The large number of latrines installed seems to indicate that promotion activities in the communities have been effective. It is important to note, however, that the basis for evaluating promoters is the number of latrines installed in the communities for which they are responsible. Promotion has been ineffective in other aspects of the project, resulting in difficulties for P/SANAA and P/MOH. For example, communities often do not participate in the construction of their water supply systems, and, without this cooperation the construction is delayed or even stopped. Lack of community participation is probably due, at least in part, to lack of effective promotion. One of the principal responsibilities of the promoters is to help each community form committees for construction and for operation and maintenance of the water systems.

Promotion also seems to have been ineffective in stimulating repair of existing wells and the installation of new wells and handpumps. This may be partially due to misplaced emphasis in the training, preparation and supervision of the promoters.

A strong disincentive has been the long delays caused by administrative steps required for the annual contracting of the promoters. It is not unusual for a promoter to have to wait up to four to five months before receiving his first pay check at the beginning of his contract. There have also been long delays in receiving per diem for field travel.

3.2.8 Community Participation

In most communities where adequate advance promotion has taken place, local participation has been enthusiastic. Even without adequate promotion some communities have been active in installing latrines. In fact, the demand for the water-seal latrine is so strong that some communities are even requesting a water supply system so that they will be eligible for water-seal latrines.

The construction of the latrine superstructure is a demonstration of the ingenuity of the villagers and of their desires. Some villagers have built brick structures with a water storage tank nearby for flushing the latrine. Others have built a shower stall adjacent to the latrine structure.*

The success of the community involvement in both water supply and sanitation activities is dependent on the quality of promotion and health education in the communities. If this is inadequate the objectives of the project often are not met.

3.2.9 Health Education and Training

The lack of a formal task analysis of the duties of the promoters has weakened the training courses for all three levels of promoters. The delay in preparation of materials for use by the promoters has handicaped their promotional activities. The lack of a project director for the health education element of the project has reduced the effectiveness of health education in the communities.

3.2.10 Water Quality Control

The loan agreement stipulated that, to assure water quality, the project would finance laboratory equipment for eight regional hospitals to strengthen the MOH water testing capabilities. To date this equipment has not been purchased because P/MOH has had problems obtaining price quotations from the United States. The equipment the project needs is of two types, Hach (for physico-chemical analysis of water) and Millipore (for bacteriological analysis of water). Both are of the portable type. Unfortunately, there are no local suppliers for these water quality testing kits.

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*"Acceptability of Colombia-Type Water-Seal Latrine in Honduras," December 1982, Charles S. Pineo, Interim Report under WASH Order of Technical Direction (OTD) No. 126.

Even after it receives the price quotations MOH will face the problem of purchasing the materials by means of international bids. It is estimated that this process can take approximately six to seven months.

P/MOH promoters are being trained by MOH in the use of these two water testing kits, and it is expected that the promoters will use the kits as soon as they are received. A Peace Corps volunteer assigned to Santa rosa de Copan is assisting in the water quality aspects of the project.

3.3 Office of Health Education (P/OHE)

3.3.1 Schedule

The contract for the long-term educational advisor mentioned in the project agreement (see Section 2.3) was signed with Engr. Jorge Trivino. A contract was signed with the Academy for Educational Development (AED) to prepare instructional materials for the project and for other health educational activities. Dr. Oscar Vigano was assigned to carry out this work. One of the duties under the AED contract was the preparation of task analyses for the various people involved in the project to serve as a basis for developing training material specific to their needs. Although some work has been done in this regard, much remains to be done.

The project director has not been appointed. Instead the P/OHE (O.E.S. on the organization chart, Figure 6) has been functioning under the P/MOH project director who, because of his multiple duties as director of P/MOH, has not been able to coordinate the various activities of the P/OHE element of the project as effectively as needed.

The production of communication and training materials has lagged far behind schedule so that the promoters have not had adequate materials to use in promoting the project activities, and health education activities are only now beginning to be carried out.

The results of these delays are reflected in the diagnosis of the health education component carried out by Dr. Adriana Gomez de Rothkegel (see Section 3.1.9).

3.3.2 Project Committee

The loan agreement stipulated that each implementing unit, P/SANAA, P/MOH and P/OHE, would designate a project director who would manage project inputs. However, changes were made, and P/OHE was placed under P/MOH administration thus removing any administrative power from P/OHE within the project committee.

3.3.3 Organizational

The principal organizational problem of the P/OHE is the fact that the project director has not been appointed, as has been mentioned previously. This has restricted the representation of health education concerns on the project committee. Communication with representatives of the other elements of the project has been informal rather than through the mechanism established by the project agreement. On a daily basis this has caused no problems but has caused problems in long term coordination and planning. The P/OHE has functioned as a part of the P/MOH element instead of as a co-equal with that element and with P/SANAA.

The lack of status which has resulted from the inclusion of P/OHE under P/MOH direction has created other minor problems such as the feeling among the promoters that the staff of P/OHE is less important in the hierarchy of the project than the staff of P/SANAA and of P/MOH. This has been demonstrated by the fact that representatives of P/OHE have not been invited to participate in the inauguration of water supply and latrine installations. Such participation would have provided feedback on the results obtained from the communication material prepared by P/OHE for the project.

3.3.4 Administrative

Financial

The OHE depends on the P/MOH for all its financial needs. All P/OHE expenditures must be previously approved by the P/MOH director. This financial dependence hinders P/OHE flexibility in implementating the health education program. Counterpart funds for traveling have been curtailed when health education courses for promoters have been proposed, thus affecting the quality of the courses because discussion of some topics had to be abbreviated or eliminated.

Personnel

P/OHE has a technical director, a technical assistant and a secretary. These persons keep very busy preparing educational materials and lectures. The program has reached a stage at which the shortage of personnel is causing problems. At present, a request for two additional people (an editor and a field evaluator) has been submitted to the P/MOH director for approval to initiate the hiring process. Because the lengthy GOH hiring process, however, it may take several months before these individuals can be hired.

Studies

As mentioned before, the task analysis required for the training that is to be carried out with P/OHE assistance has only been partially carried out. Although the project agreement contemplated a complete task analysis, it is still incomplete.

Considerable study and investigation have been carried out preparatory to the design of the posters, flipcharts, comic books and radio programs, and the resulting material has been field tested.

Transportation

Transportation for P/OHE activities had the same problems that have interfered with P/SANAA and P/MOH activities.

Chapter 4

PROBLEMS IN PROJECT COMPONENTS

4.1 SANAA

4.1.1 Water Supply Systems

New

To date 54 aqueducts have been constructed. The number of aqueducts programmed to have been completed by now is 81. The delay has been caused by problems discussed in Section 3.1. The quality and enthusiasm of the project personnel is very high. The delays experienced to date result from the lack of an adequate infrastructure within SANAA when the project began, the lengthy process of building up the infrastructure, the lack of counterpart funds and the change of the Honduran government administration during the early months of project implementation.

Rehabilitated

The rehabilitation of existing water supply systems is the responsibility of the SANAA O&M division. To date eight of the 18 systems programmed for rehabilitation have been improved.

4.1.2 Sewers

To date surveys have been carried out and designs have been prepared for one of the 21 sewerage systems that were programmed for the project. Construction has not been started on any of the systems and is not programmed until the beginning of 1983. All of SANAA's construction forces have been occupied in the construction of new and upgraded water supply systems.

Some of the systems originally scheduled have been cancelled because of lack of interest of the villagers. The sewerage systems require a lot of community participation, and the villagers do not see the same advantages in obtaining sewerage that they see in obtaining a water supply system. The necessary promotion and health education has not been provided to stimulate community interest.

It is particularly important that an agreement be signed between the community and P/SANAA stipulating the responsibilities of each before any action is taken by P/SANAA. Otherwise, surveys and designs may be completed and materials may be delivered to the site only to have the village decide it does not want the system badly enough to provide the local labor and material. This is what has happened with a few water supply systems.

4.2 Ministry of Public Health

4.2.1 Wells

New and Rehabilitated

Of the 3,000 wells programmed 118 have been installed to date. A number of reasons for the delays have been mentioned in other sections. Added to these is the fact that many villages are so anxious to have a piped water system that they do not want to participate in the construction of wells. The same argument applies to the repair of existing wells. The villagers would much rather cooperate in the installation of a new gravity system than to improve existing wells.

In some cases where the existing wells are on private property, to improve the well with project funds would mean that the well would have to be made available to neighbors for public usage and the present owners will not allow this.

P/MOH is considering the possibility of purchasing several light-weight, hand-operated drills such as the Deep Rock type (made by the Deep Rock Manufacturing Co. in Opelika, Alabama) for areas where such equipment could be used. The use of this equipment might speed up the program in the area around San Pedro Sula and should be considered in the light of experience with the equipment in other places. In this regard, the reader is referred to WASH Field Report No. 65 dated December 1982 by Dr. William M. Turner (Consultant Geologist to WASH) for a discussion of geological conditions in the project area and his comments and recommendations on the installation of wells.

4.2.2 Handpumps

In accordance with the loan agreement, where piped water systems are not feasible or economical, hand-dug wells will be the most likely alternative. These wells are being furnished with Dempster hand-operated water pumps. The programmed number of new handpumps for the project was 3,000. Another 800 pumps were to be repaired or replaced. To date P/MOH has purchased 1,200 handpumps of which only 118 have been installed. The construction of wells did not begin until January 1982. The number of handpumps to have been installed to date was 345, meaning that the program is 65.8 percent behind schedule. The reasons for this delay are discussed in Section 4.2.1.

4.2.3 Latrines

Pit Privies

The MOH has developed a metal mold for casting the risers for the pit privy which produces a well finished product, much better than that being made in most Latin American countries. In areas where water is not readily available the pit privies are entirely adequate. P/MOH had programmed the installation of 2,236 of them for November 20, 1982 and is ahead of schedule, having installed 2,836.

Water Seal Privies

The introduction of the Colombia water-seal latrine in the project area has revolutionized the acceptance of privies by the villagers. Now the villagers are requesting these latrines, whereas formerly much promotion and health education were required to persuade the villagers to cooperate in installing their own privies.* To date 3,820 water seal latrines have been installed.

So far the price of the Colombia-type toilet (US$6.25) delivered to Honduras is very attractive and makes the use of the latrine feasible. P/MOH has purchased 10,000 of them and plans to purchase 12,000 more, reducing the number of pit privies accordingly. If the present price can be maintained, the mix of water-seal and pit privies should be readjusted in favor of the water-seal type because of the acceptance of the water-seal latrine and its advantages over the simple pit privy. If possible, water-seal latrines should be used in all places where water is readily available to flush them.

Consideration should be given to extending the use of the water-seal latrine to other areas of Honduras. This could justify the manufacture of this type of latrine in Honduras.

4.2.4 Windmills

The loan agreement stipulated the installation of 25 windmills on an experimental basis in places where there was adequate wind. To date no windmills have been installed because windmill technology does not exist in Honduras nor are wind data available for the successful siting of windmills. However, it is planned to install five windmills on the mainland as a research project. The other 20 windmills would be installed on the Bay Islands where it is known that there is sufficient wind for most of the day. The five windmills would be installed by Volunteers In Technical Assistance (VITA).

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*Acceptability of Colombia-Type Water-Seal Latrine in Honduras," December 1982, Charles S. Pineo, Interim Report under WASH Order of Technical Direction (OTD) No. 126.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Whereas the preceeding chapters have focused on each of the three agencies of the project namely P/SANAA, P/MOH, and P/OHE, this chapter focuses on the PRASAR project as a whole. Under each item consideration is given to problems common to all three agencies, conclusions are drawn, and appropriate recommendations are developed. It is suggested that the recommendations in this chapter be implemented not later than two months after the date of this report.

5.1 Schedule

5.1.1 Conclusions

The project is far behind schedule. In fact, work is only now getting started on some of the components. Health education and promotional materials are only now being made available to the promoters. Construction of the first of the sewerage systems is supposed to start early in 1983. Construction of new wells is far behind schedule, and practically nothing has been done on the rehabilitation of existing wells. Very little has been done on the survey of existing rural water supply systems.

On the other hand, work is well advanced on the surveys and designs for water supply systems, and good progress is being made on the installation of both pit privies and water-seal latrines.

An analysis of the present situation indicates that the goals for some of the components must be changed. Some need to be reduced while a few should be increased. These changes will be recommended on the basis of a revised completion date.

5.1.2 Recommendations

It is recommended that the completion date of the project be extended to December 31, 1984 because of the large amount of work that still has to be done in order to complete the project.

Is it also recommended that the following goals be established:

Component	Present Goal	Revised Goals
Water Supply Systems		
New	180	190
Rehabilitated	50	50
Sewerage Systems	21	5

Component	Present Goal	Revised Goals
Latrines		
Pit Privy	18,000	10,000
Water Seal Latrine	14,000	30,000
Wells		
New	3,000	1,500*
Rehabilitated	800	200
Windmills		
Research		5
Installation	25	20

The above recommendations are based on past performance experience and expectation that recommendations on other aspects of the project will result in removing some of the existing bottlenecks, thus speeding up the project's managerial process. The number of new water supply systems should be increased from 180 to 190 because additional funds will be available from the sewerage program, which should be cut back. The number of water seal latrines should be increased because of their popularity and because of the success the project has experienced in its latrine installation program.

5.2 Project Committee

The project committee (PC) does not have the executive power required of it in the loan agreement. All recommendations made by the PC to solve project problems have to be approved by the central administration of the two implementing units (P/MOH and P/SANAA). This decision-making process is a time-consuming one and has caused delays in the project.

At present, the PC is composed of the directors of P/MOH and P/SANAA. P/OHE is under P/MOH management, whereas, according to the loan agreement, it should be equally represented in the PC.

The PC is not serving as the focal point of the project. It should be the point where communications are maintained among the three elements and where the coordination of activities of the project is developed. Failure to accomplish these tasks is doubtless caused by the infrequent meetings of the PC, the lack of a project director for P/OHE and the PC's not having executive power.

It is recommended that:

- o More decision-making power be given to the project committee in order to expedite solutions of project problems. This may be accomplished by obtaining approval for SANAA and MOH.

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*Or less than this if deemed appropriate.

- o A project director (OHE) be selected and appointed at once with the same responsibilities on the project committee as the other two project directors.

- o Project coordinator's responsibilities be expanded to include those stated in the loan agreement, namely: assuring that implementation plans are adequate, maintaining liaison between AID, SANAA and MOH, assuring that institutional contracts and procurement actions conform to AID and GOH legal and technical requirements, and assisting in preparation of documents related to these activities. USAID should strengthen its backstopping of the project coordinator in carrying out his responsibilities as a member of the project committee.

- o Communication and coordination be improved among members of the project committee through frequent regular meetings.

- o Communication be improved among the PRASAR staff in Tegucigalpa by weekly staff meetings.

- o Regular weekly staff meetings be held by P/MOH and P/SANAA staff in each region of the project.

5.3 Organization

5.3.1 Conclusions

One of the weaknesses of the present organizational structure is that the P/OHE is organizationally under the project director of P/MOH instead of being a separate unit with its own project director. This has resulted in handicapping the activities of P/OHE.

A second weakness is the cumbersome administrative procedures in SANAA resulting in long delays in processing project documents. SANAA is providing services to P/SANAA for studies, designs and construction, as well as for purchasing for all PRASAR activities. Control of these services comes under the technical director and director general of SANAA as well as other Honduran government offices which disburse project funds. The P/MOH does not have to struggle with these weaknesses as it has a direct line to the director general of MOH.

5.3.2 Recommendations

P/OHE

It is recommended that the P/OHE office be given the same status as the P/SANAA and P/MOH offices and that a capable project director be appointed to head that office with the same responsibilities and authority as the other two project directors, including membership on the project committee.

It is also recommended that work to be carried out by SANAA for PRASAR be done on the basis of a work order or a purchase order signed by the project director for the PRAASAR agency requesting the work. Reimbursement to SANAA would be made from the P/SANAA advance fund on the basis of bills presented to the P/SANAA administrative office.

5.4 Administration

5.4.1 Financial

Conclusions

The project has suffered from considerable delays, due both to the unavailability of counterpart funds to pay travel advances and salaries and to the lengthy process required to purchase materials and supplies.

Recommendations

It is recommended that a three month advance of project funds (loan and counterpart) be made to P/SANAA with full authority to pay all bills for PRASAR activities up to a limit of US$50,000. Procedures for obligations exceeding this sum will be those in use at the present time. P/SANAA would follow all regulations required by GOH and AID in obligating and disbursing these funds. The funds would be obligated and disbursed with the authorization of one of the members of the project committee and by the project coordinator. The project accounting staff should be trained in the accounting procedures required to carry out this recommendation.

5.4.2 Personnel

Conclusions

The complicated and lengthy annual personnel contracting process has caused delays every year for all three implementing units (P/MOH, P/OHE and P/SANAA). The difficulty in paying promoters on time has caused problems because of the resignation of trained personnel and the need to train their replacements.

P/OHE is understaffed for the duties assigned to it.

Recommendations

It is recommended that the contracts of P/MOH promoters be extended from one to two years.

If the above recommendation is not possible, advance funds should be used for paying promoters whose pay may be delayed up to four months, until their pay arrives, at which time the advance would be repaid.

It is recommended that the staff of P/OHE be expanded as follows:

- 1 Assistant project director
- 1 Supervisor for production of communication materials
- 2 Staff members for processing communication materials
- 1 Supervisor for seminars and short courses.

5.4.3 Studies and Designs

Conclusions

Very little work has been carried out on the loan-funded survey of all existing rural water supply systems in Honduras.

Good progress has been made on the studies and designs for the water supply systems, but studies and designs are far behind schedule for sewerage systems and for the modifications proposed for existing water supply systems.

Little planning has been done on the installation of the 25 windmills already purchased for the project.

Recommendations

P/SANAA

It is recommended that:

- o The survey of existing rural water supply systems be carried out under contract with a Honduran consultant or consulting firm which is knowledgeable about rural water supply systems, is experienced in conducting field studies, and is committed to carry them out in a six month period.

- o Where a community is willing to provide the extra pipe beyond the allowed four kilometers for conduction line; that the community be considered eligible for a gravity-fed, piped water supply and the necessary studies and designs be carried out based on an agreement signed between the community and P/SANAA.

- o Studies and designs be completed for the increased number of water supply systems mentioned in Section 5.1.2 as well as for water supply and modified water supply systems not yet completed.

- o The designs be completed for sewerage systems for communities where surveys have already been carried out and for which designs have already been started and that no further studies or designs be started for sewerage systems under this project.

P/MOH

- Studies be carried out by the recommended well section to determine the most adequate and appropriate technology to be used in providing water for villages where water systems with house connections are not feasible.

- A contract be let for the installation of five of the 25 experimental windmills based on a study of the existing wind patterns to determine the sites; and that the remaining 20 windmills be installed on the Bay Islands, where wind patterns are known. The latter should be done through a contract with someone who has experience in installing windmills. Provision should be made for supervised O&M of both sets of installations.

P/OHE

- Technical assistance be requested for task analyses for project personnel and appropriate course material be developed for refresher training courses based on the task analyses.

5.4.4 Purchasing

Conclusions

P/SANAA has had many problems in procuring materials and supplies for the project, basically due to the elaborate and lengthy purchasing process required by the GOH procuring agency and SANAA central administration. National purchases exceeding $5,000 may take from one to six months to be approved. International puchases may take up to 15 months to be completed. Purchasing documents are sometimes lost, and time is wasted in replacing them.

Recommendations

It is recommended that:

- For those items not bought through the advance fund (see Section 5.1.2), the need for materials and supplies be anticipated with ample time so as to begin the lengthy purchasing process sufficiently in advance to allow enough time for the materials and supplies to reach the project when they are needed.

- Documentation for requisition of materials and supplies be marked with an expediting tag for their rapid and easy identification when the document passes through the different offices.

5.4.5 Warehousing

Conclusions

The major problem in warehousing has been the inadequate inventory methods for project materials and supplies as well as the lack of a standard materials requisition procedure for both implementing units (P/MOH and P/SANAA). These problems have caused confusion in the project accounting department making it difficult to estimate the cost of times that are in stock and those that have been withdrawn from stock.

Recommendations

Technical assistance be requested to assess warehousing control and inventory requirements and to recommend an appropriate management system to facilitate efficient warehousing and inventory procedures.

5.4.6 Transportation

Conclusions

Lack of adequate transportation caused by lack of or inefficient distribution of vehicles and of unavailability of gasoline and tires has been one of the continuing problems of the project. Inaccessability of some of the villages during the rainy season has also delayed progress.

Recommendations

It is recommended that the present assignment of project vehicles be evaluated as to their use in carrying out project responsibilities and that vehicles be reassigned, if necessary, to obtain their most effecient use for project objectives; also that the project vehicle needs be assessed, based on present and future requirements, and extra vehicles be purchased to satisfy those needs (see Section 3.1.4 for present assignment of vehicles).

While the reassignment is being considered one more flat bed truck should be purchased at once for delivering materials to P/SANAA's construction sites.

5.5 Construction

5.5.1 Conclusions

The quality and enthusiasm of the project personnel is very high, and in spite of the numerous problems, many beyond their control, they have proved to be a hard working group. The project construction activity of both implementing units (P/MOH and P/SANAA) has experienced a series of problems because of

insufficient number of construction foremen and truck drivers, lack of fuel, lack of coordination between P/MOH and P/SANAA for the construction of aqueducts, delayed salary payments, delays in purchasing tires and lack of travel advances.

The construction of wells has been particularly slow and requires drastic action if the goal is to be achieved. Dr. Turner has indicated some of the problems involved.* Satisfactory water supplies may be obtained by methods other than gravity-flow systems with house connections, or hand-dug or drilled wells. For a few houses a nearby spring, properly protected and with a gravity line to one or two public faucets, would be adequate. Roof catchment and storage in cisterns is another alternative.

Part of the problem is the lack of emphasis by P/MOH on the installation of wells. Each promoter's rating is based primarily on the number of latrines he manages to promote.

5.5.2 Recommendations

It is recommended that:

- Funds from an advance fund which should be established in P/SANAA be used to pay construction foremen for travel expenses, and possibly salaries when regular salary paychecks are delayed. The salary payments would be reimbursed to the fund after the delayed paychecks are distributed.

- Supervision and coordination be strengthened within all subprojects and at all levels.

- Coordinated promotion be improved for the construction of aqueducts (see Section 5.7.2).

- The scope of the well progam be expanded to include the provision of satisfactory water for small communities by the use of alternative methods in accordance with the recommendations of WASH Field Report No. 65.

  A person who is knowledgeable about well construction and the use of other methods of obtaining and providing satisfactory water for smaller communities should be added to the P/MOH staff to direct, stimulate, and manage the well section of the project. This person would select the most appropriate technology for those situations where water supply systems of the type for which P/SANAA has responsibility are not appropriate. He would also be responsible for the windmill program. Adequate transportation and other necessary support should be provided for the personnel responsible for these activities.

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*WASH Field Report No. 65, Feasibility of Rural Groundwater Development in Honduras, Water and Sanitation for Health Project, Arlington, VA, December 1982.

- The recommendations of Dr. William Turner be carried out as far as feasible (see WASH Field Report No. 65). Special attention should be given to his recommendations on improving geological and hydrogeological expertise and on contracting for some on the well-drilling work.

- One small portable well drilling rig similar to that mentioned in Section 4.2 be purchased and operators be trained in its use. The chief of the wells section would direct the use of the rig. The most suitable area for this use would be around San Pedro Sula. If the rig helps improve the progress of the well-drilling program substantially another four rigs should be purchased.

5.6 Operation and Maintenance

5.6.1 Conclusions

To date, an agreement between each community and P/SANAA has not been developed which stipulates the responsibilities of the community and SANAA as well as the users' fee to cover maintenance expenses. However, an unofficial agreement does exist stipulating community and P/SANAA participation during the construction phase of the aqueducts. The coordination between P/SANAA and SANAA's Rural Operation and Maintenance Division has been limited. Although construction of 30 aqueducts was completed about three months ago, the rural O&M division of SANAA has not received official notification to begin providing O&M support for these aqueducts. Also, there are no aqueduct maintenance manuals for distribution to the communities.

5.6.2 Recommendations

It recommended that:

- An official agreement be prepared and used as soon as possible, indicating the responsibility of the community water committee and P/SANAA for the construction and operation of the system as well as stipulating the users fee to be collected by the committee.

- Communication and coordination between P/SANAA and the SANAA rural O&M division be improved by frequent meetings and by the assignment of an O&M engineer to provide liaison between the two divisions.

- The construction engineers and the O&M liaison engineers inspect systems together before they are turned over to O&M's responsibility to assure that the construction is completed according to plan and that the system is acceptable to the O&M division.

- The O&M division liaison supervisor make contact with the construction division through periodic visits during construction of an aqueduct to obtain a better idea about the system and how it is being built. Moreover, after the O&M division assumes responsibility for a water-supply system it would be helpful if its personnel provided feedback about the system's performance to the study, design and construction personnel.

- The present capability of the SANAA O&M division be assessed to determine the impact on it of the addition of the 180 water supply systems being built by the project and to determine whether the equipment and spare parts furnished to the SANAA O&M division are sufficient for it to handle the additional systems. If not, the project should strengthen the O&M division as required.

5.7 Promotion

5.7.1 Conclusions

Indications are that the promotion has been adequate for the latrine program but has been less so for other aspects of the project.

Obviously not all delays in progress are due to inadequate promotion, and some are doubtless due to an imbalance in priorities for the various components of the project. For instance, improvements in water supply systems lag behind progress in constructing new ones; construction has not even begun on the programmed sewerage systems; and well construction and rehabilitation are far behind schedule. All of this may be due to a failure to set priorities.

Inadequate promotion has definitely caused problems in the construction of new water supply systems where villages have not been prepared to meet their responsibilities for the systems.

5.7.2 Recommendations

It is recommended that:

- The seven promotors suggested in PRASAR memo PJT1-525-82 of 22 October 1982 be appointed at once, be trained, and be authorized to proceed immediately to work with the communities in which water supply or sewerage systems are to be, or have been constructed.

- Coordination between P/SANAA and P/MOH be improved so that P/MOH is advised well in advance of even preliminary work on a system so that promotion can be started and the community will be ready for the project.

- In the meantime, an agreement be prepared and used to specify the obligations of the village and of P/SANAA or P/MOH for the installation and maintenance of water systems (new or improved), sewerage systems, wells and handpumps, latrines, and windmills.

- Manuals and materials for the use of the promoters, health workers, village committees, operation and maintenance personnel and for others working on the project be completed and distributed as soon as possible so that the material may be used at once.

- Sufficient emphasis be placed on the supervision of the promoters and others at all levels.

5.8 Community Participation

5.8.1 Conclusions

Community participation has been very good in many places in the project area and has been forthcoming in some places even without promotional efforts by the project. There have been a few places where the villagers have not understood the benefits of a safe, convenient water supply system or of a sanitary privy and so have not been willing to cooperate. This has caused problems, particularly where a water supply system has been completed and then the village is not willing to provide for its operation and maintenance. The use of the agreement mentioned in Section 5.7.2 would avoid this.

It is doubted that the full value of community participation in this project, or for that matter in most projects of this kind, has ever been fully appreciated and evaluated, not only in the monetary value of this important input (estimated at 22 percent of the present project) but also in the inherent development value of this input for the village itself.

In some places communities have responded more readily to the community participation concept when the villagers have seen a more tangible reward for their labor than a community installation. This has been provided through the use of a receipt to each person who provides an input to the project, specifying that the bearer has worked so many hours on such a date and the value of the work is so much. The worker retains his receipts and later on the receipts are accepted toward the value of his house connection or his latrine or for his handpump users fee.

5.8.2 Recommendations

It is recommended that:

- Communities be fully involved in whatever aspects of the project may require their assistance and that community wishes be taken into consideration in all phases of their own project.
- A village be advised as early as feasible of the possibility of assistance in obtaining a water supply system, sanitary privies, or whatever facility the project may provide with a clear understanding of the responsibilities of each party. Undue expectations should not be aroused before the agreement for the installation is signed.
- A system of receipts be developed for work done by individuals as part of the community effort, the receipts to be used in partial payment of the cost of a house connection or latrine installation.
- To stimulate pride in the facility and to document the participation of the community as well as that of the GOH and the U.S., a permanent plaque be installed in some appropriate place to be unveiled at the inauguration of each facility.

5.9 Health Education and Training

5.9.1 Conclusions

The lack of status for the P/OHE and the lack of a P/OHE project director have hindered the progress of the work of that office. The lack of task analyses for the various project staff members to be used in preparing training programs has also made the work of this office more difficult.

These and other deficiencies as pointed out by Dr. Adriana Gomez de Rothkegel in her recent report have not been addressed.

Little if any progress has been made in the selection and preparation of candidates for the long-term training in sanitary engineering of four P/SANAA and two P/MOH personnel as stipulated in the project agreement.

The P/OHE is understaffed for the duties assigned to it.

5.9.2 Recommendations

The matter of P/OHE status and of the appointment of a project director has been covered in Section 5.3.2 and that of the task analyses has been covered in Section 5.4.3.

It is recommended that:

- The other provisions of Dr. Adriana Gomez de Rothkegel's report be evaluated and carried out.
- The P/OHE staff be augmented as recommended in 5.4.2.
- The number of persons to be trained in sanitary enginering be maintained at four from P/SANAA and two from P/MOH provided that candidates are available, the necessary arrangements can be made, and that one person be selected for long-term training in health education.

REFERENCES

Agency for International Development, Rural Water and Sanitation Project Paper (Project Number 522-0166), Washington, D.C., March 1980.

Agency for International Development, Project Loan Agreement (AID No. 522-U-036), Washington, D.C., March 1980.

Ministry of Health, Rural Water and Sanitation Project Progress Report for 2nd and 3rd Quarter, 1982, Tegucigalpa, Honduras, September 1982.

Agency for International Development, Rural Water and Sanitation Project Files, Tegucigalpa, Honduras, November 1982.

Gomez de Rothkegel, Adriana, Evaluacion del Sub Proyecto de Educacion Para la Salud (PRASAR), Creative Associates, Inc., Tegucigalpa, Honduras, July 1982.

Turner, William M., Feasibility of Rural Ground Water Development in Honduras, WASH Field Report No. 65, Water and Sanitation for Health Project, Arlington, Virginia, December 1982.

APPENDIX A

Water and Sanitation for Health (WASH) Project
Order of Technical Direction (OTD) Number 115
September 15, 1982

TO: Dr. Dennis Warner, Ph.D., P.E.
WASH Contract Project Director

FROM: Mr. Victor W. R. Wehman Jr., P.E., R.S.
AID WASH Project Manager
S&T/H/WS

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for USAID/Honduras for the Rural Water and Sanitation Project (522-0166)

REFERENCES: A) Tegucigalpa 7718, dated 9 Sept 82

1. WASH contractor requested to provide technical assistance to USAID/Honduras as per Ref A, para 1-5 (modified in this OTD).

2. WASH contractor/subcontractor/consultants authorized to expend up to 95 person days of effort over a four (4) month period to accomplish this technical assistance effort.

3. Contractor authorized up to 90 person days of international/domestic per diem to accomplish this effort.

4. Contractor to coordinate with USAID/Honduras (William Smith and Ray Baum), LAC/DR/HN (Linda Morse), LAC/DR/ENGR (Rod MacDonald), with the Honduras Desk Officer and should provide copies of this OTD along with periodic progress reports or ETA information as requested by S&T/H or LAC Bureau staff.

5. Contractor authorized to provide up to two (2) international round trips from consultants home-base through Washington D.C. (for briefing/preparation) to Tegucigalpa, Honduras and return to consultants home base through Washington D.C. for debriefing and report preparation.

6. Contractor authorized local travel expenses in Honduras NTE $1100 during the mission without the written approval of the AID WASH Project Manager. This travel can take place as appropriate and necessary.

7. Contractor authorized to obtain secretarial, graphics or reproduction services in Honduras as necessary to accomplish tasks. These services are in addition to the level of effort specified in para 2 and 3 above NTE $ 880 without the written approval of the AID WASH Project Manager.

8. Contractor authorized to provide for car rental/vehicle rental if necessary to facilitate effort. Mission is encouraged to provide mission vehicles if available and appropriate.

9. WASH contractor will adhere to normal established administrative and financial controls as established for WASH mechanism in WASH contract.

10. WASH contractor should definitely be prepared to administratively or technically backstop field consultants and subcontractors.

11. Contractor to have consultants leave coordinated field draft report with mission before return to the U.S. Final report due to S&T/H within 30 days of return of consultants to the U.S.

12. New procedures regarding subcontractor cost estimates and subcontractor/consultants justifications remain in effect.

13. Mission should be contacted immediately and technical assistance initiated as soon as convenient to USAID.

14. Appreciate your prompt attention to this matter. Good luck.

WASH Proj. Dir.

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AIDAC

FOR V. WEHMAN. S/T

E.O. 12356: N/A
SUBJ: RURAL WATER AND SANITATION PROJECT 522-0165

1. REQUEST WASH ASSISTANCE IN DEVELOPING RECOMMENDED MECHANICAL WELL-DRILLING PROGRAM TO EXPEDITE INSTALLATION OF 3,000 HAND-PUMPS IN WESTERN HONDURAS.

2. PROJECT STATUS: MINISTRY OF HEALTH PURCHASED 1120 DEMPSTER PUMPS DURING FIRST INTERNATIONAL SID. TO DATE 55 MINISTRY PROMOTORS HAVE INSTALLED ONLY 100 HAND DUG WELLS. PROJECT BY WASH TO DEVELOP LOCALLY MADE HANDPUMP ON SCHEDULE AND FACTORY AVAILABLE FOR PRODUCTION OF HANDPUMPS. PROJECT COMPLETION DATE IS 9 83. EXTENSION OF ONE YEAR CONTEMPLATED. NUMBER OF PROMOTORS TO BE INCREASED TO 80, HOWEVER, PROMOTORS ALSO RESPONSIBLE FOR INSTALLATION OF 32,000 LATRINES AND IMPLEMENTATION OF HEALTH EDUCATION COMPONENT.

3. DESCRIPTION OF AREA: MOST NEEDY AREAS ARE SW. MOUNTAINOUS REGIONS OF LEMPIRA AND OCCTEPEQUE DEPARTMENTS ALTHOUGH PROJECT AREA ALSO COVERS COPAN, SANTA BARBARA AND CORTES. GROUND WATER RESOURCES OF MOST NEEDY AREAS DESCRIBED AS "VERY SMALL TO SMALL QUANTITIES FROM VOLCANIC ROCKS; AT DEPTHS OF 50 TO 150 M; LOCALLY MODERATE QUANTITIES FROM VERY DEEP WELLS." RESOURCES OF CONTINGENT AREAS TO NORTH ARE DESCRIBED AS, "MEAGER TO VERY SMALL QUANTITIES FROM SANDSTONE; FROM LESS THAN 15 TO 200 M IN DEPTH." ROCK TYPE IN MOST NEEDY AREA DESCRIBED AS "RHYOLITE, IGNIMERITE, DACITE AND TUFF, MINOR BASALT." CONTIGUOUS ROCK AREA TO NORTH DESCRIBED AS, "SANDSTONE, SHALES, CONGLOMERATE, LIMESTONE, TUFF AND OTHER ROCK." RAINFALL SEASON OCCURS PRIMARILY IN JUNE THROUGH NOVEMBER.

4. SCOPE OF WORK: CONTRACTOR (S) TO INSPECT PROJECT AREA AND (1) RECOMMEND SUITABLE DRILLING PROGRAM AND EQUIPMENT TO BE UTILIZED FOR DRILLING OF 3,000 SHALLOW WELLS, IS MOSTLY LESS THAN 100 FEET BUT IN NO CASE MORE THAN 165 FEET WITH REASONABLE TIME FRAME REMAINING - NO MORE THAN TWO YEARS PRESENTLY EXPECTED. PRIMARY INTEREST IS IN PSSIBLE USE OF HAND-PORTABLE DRILLING EQUIPMENT, OR THAT WHICH COULD BE MOUNTED ON BACK OF JEEP OR PICK-UP. CONTRACTOR(S) TO ALSO RECOMMEND, (2) IN SUFFICIENT DETAIL TO BE OF PRACTICAL VALUE TO PROMOTORS OR WELL DRILLING RIG OPERATORS. THOSE LOCATIONS LIKELY TO BE MOST PRODUCTIVE.

5. SUGGEST BILL TURNER, PRESIDENT OF AMERICAN GROUND WATER INTERNATIONAL IN NEW MEXICO AS EXPERT CONSULTANT FOR WELL-DRILLING RECOMMENDATIONS. ALSO SUGGEST 60 DAYS TO COMPLETE SURVEY AND MAKE RECOMMENDATION. MINISTRY OF HEALTH ASSURES PROJECT VEHICLE AVAILABLE TO CONTRACTORS. LIMITED SECRETARIAL SERVICE ON AS AVAILABLE BASIS. ASSUME NO OTHER COSTS TO MISSION.
NEGROPONTE

Received. ST/H (Wehman) 9-14-82
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FOR RMACDONALD LAC/DS/ENG; VWEHMAN ST/H/WS/; LMORSE/H

E.O. 12356: N/A
SUBJ: WASH OTD NO. 101 EVALUATION; WASH OTD NO. 115 WELL STUDY

REF: WUT TELEXES OCT. 8 AND 12, 1982

1. DR. WILLIAM TURNER AND CHUCK PINEO HAVE COUNTRY CLEARANCE.

2. SCOPE OF WORK FOR DR. TURNER REMAINS AS OUTLINED IN OTD NO. 115. CHUCK PINEO SHOULD NOT EXPECT TO SPEND MUCH TIME UNDER THIS OTD SINCE PROBLEM OF PUMP INSTALLATION IS PRIMARILY TECHNICAL.

3. SCOPE OF WORK FOR PINEO UNDER OTD 101 IS BASED ON INPUT FROM HOST COUNTRY PROJECT COMMITTEE, MISSION CONSIDERATIONS AND CONVERSATIONS WITH V. WEHMAN. SCOPE IS ASCBMBLOWS: EVALUATION SHALL BE IN THE FORM OF AN INFORMAL, TECHNICAL MANAGEMENT REVIEW WHICH IS TO BE ACTION AND PRODUCT CRIENTED. THE CONTRACTOR SHALL CONSIDER THE TECHNICAL-ADMINISTRATIVE AND FINANCIAL PROCESSES BEING UTILIZED BY THE GOH PROJECT DIRECTORS IN EACH OF THE SUBSYSTEMS AND SHALL EVALUATE WAYS IN WHICH ADMINISTRATIVE AND INSTITUTIONAL ASPECTS ARE INFLUENCING PROJECT IMPLEMENTATION. CONTRACTOR TO MAKE RECOMMENDATIONS AS TO WHAT AND HOW IMPROVEMENTS MIGHT BE MADE IN THESE AREAS TO FACILITATE IMPLEMENTATION.

4. VERY LIMITED SECRETARIAL AND VEHICLE SUPPORT AVAILABLE EXCEPT THAT MINISTRY HAS COMMITTED FIELD VEHICLE SUPPORT FOR TURNER.

5. RECOMMEND PINEO BE GIVEN OPTION TO EXTEND STAY FROM THREE TO FIVE WEEKS.

6. RESERVATIONS MADE AT HOLIDAY INN FOR BOTH CONTRACTORS. ADVISE TIME OF ARRIVAL AND VEHICLE WILL BE REQUESTED TO RETRIEVE INDIVIDUALS FROM AIRPORT.
NEGROPONTE

Received ST/H (Wehman) 10-24-82
Passed to WASH 10-29-82

OCT 29 1982

UNCLASSIFIED

APPENDIX B

Itinerary

November 5	Briefing in WASH offices, Washington, D.C.
9	Arrive Tegucigalpa, Honduras.
10-17	Briefing in AID PRASAR, SANAA, MOH.
18	Santa Barbara - Discussion with Promoters III and II. Visited Barrio Suyapa, Gualjoco. Night in Santa rosa de Copan (also 19 and 20).
19	Santa Barbara - Meetings with SANAA and MOH engineers and Promoters III and II. Visited La Esperancita, El Zapote.
20	Vado Ancho, Ocotepeque - participate in inauguration of water supply system. Meet with Promoter II Visited Santa Anita, Vado Ancho.
21	Observe villages in Copan area. Night in San Pedro Sula.
22	Meet with MOH engineer and three promoters II also two Promoter I. Visited Gracias a Dios, Bijao, Colonia Esquipulas.
23	Returned to Tegucigalpa After visit to Choloma where a Promoter I demonstrated the flip-chart recently provided the promoters for use in the communities.
November 24 to December 7	Meetings in Tegucigalpa with representatives of PRASAR, SANAA, MOH, and AID. Report preparation in English and Spanish.
December 8	Debriefing for AID and PRASAR
9-10	Revise report.
11	Leave Honduras
12	Arrive at home bases.
16	Debriefing at WASH.
January 6	Debriefing at WASH for AID Latin America Bureau.

APPENDIX C

Officials Contacted

Tegucigalpa:

USAID	Eng. Richard Dudley Eng. William Smith Eng. Ray Baum Eng. Edmundo Madrid, Project Coordinator Eng. Peter Deinken, Office of Environment and Technology Lic. Rolando Barahona
MOH	Dr. Corrales, Director General
P/MOH	Eng. Efrain Giron, Project Director P/MOH Eng. Isabel Giron, Project Director Assistant
SANAA	Eng. Tomas Lozano, Director General Eng. Ricardo Mairena, Director of Technical Division Eng. Gabriel Rivera, Construction Supervisor Eng. Rigoberto Cerna, Project Programmer Eng. Roberto Gerlings, Director Operation and Maintenance Division
P/SANAA	Eng. Oscar Diaz, Project Director P/SANAA Lic. Leticia Torres, Administrator

Project Area

Santa Barbara

P/MOH	German Bueso, Promoter II Herman Guillen, Promoter II

Santa Rosa de Copan

SANAA	Eng. Giovani Espinal, Construction Division Chief
P/MOH	Eng. Samuel Alvarado, Regional Engineer (Region 3) Prof. Jesus Inestroza, Promoter III Prof. Mario Perdomo, Promoter II Mr. Jose Raul Odrez, Promoter II Mr. Jorge Reynaldo Henriquez, Promoter II Mr. Manuel Velasquez David, Promoter II Mr. San Angel Castro, Promoter II

Ocotepeque

P/MOH	Prof. Oscar Sandoval, Promoter II
GOH	Dr. Arturo Rendo Pineda, Presidential Designate Prof. Manual Sandoval, Substitute Deputy

San Pedro Sula

MOH	Eng. Jorge Flores, Regional Engineer (Region 5)
P/MOH	Prof. Julio Cesar Rivas, Promoter II Prof. Elias Martinez, Promoter II Prof. Abelardo Carcamo, Promoter II Mr. Lucas Carias, Promoter I Mr. Alexis Romero Martinez, Promoter I

Citizens of the 11 villages visited in the Project Area.