

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number

DOCUMENT CODE

3

2. COUNTRY/ENTITY

El Salvador

3. PROJECT NUMBER

519-0291

4. BUREAU/OFFICE

LAC

05

5. PROJECT TITLE (maximum 40 characters)

Health Systems Vitalization Amendment

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
 11 23 18 6

7. ESTIMATED DATE OF OBLIGATION

(Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 813

B. Quarter 4

C. Final FY 815

8. COSTS (\$000 OR EQUIVALENT \$1 = 02.50)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total	16,283	917	17,200	33,805	1,800	35,605
(Grant)	(1,700)	(0)	(1,700)	(12,225)	(0)	(12,225)
(Loan)	(14,583)	(917)	(15,500)	(21,580)	(1,800)	(23,380)
Other U.S.						
1.						
2.						
Host Country		1,313	1,313		20,294	20,294
Other Donor(s)						
TOTALS	16,283	2,230	18,513	33,805	22,094	55,899

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) HN	580	500	500	2,000	23,380	10,225		12,225	23,380
(2)									
(3)									
(4)									
TOTALS									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

530 570

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code
 B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To assist the Ministry of Health to (1) maintain existing levels of primary health care and emergency medical services by meeting the critical short-term needs of the Ministry for essential goods and services; and (2) vitalize the institutional capacity of the Ministry to more effectively execute their existing systems in health supplies management, maintenance and information management.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
 8 8 5 1 1 8 6

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a 52 page PP Amendment.)

17. APPROVED BY

Signature: *R. Schantz for*
 Title: Robin L. Gomez, Director

Date Signed MM DD YY
 9/30/81

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

HEALTH SYSTEMS VITALIZATION PROJECT
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I. SUMMARY AND RECOMMENDATIONS

A. Recommendations

USAID/El Salvador recommends authorization of a \$10.225 million increase in Grant funds for an Amendment to the Health Systems Vitalization Project (519-0291) (VISISA). This Project Amendment will increase USAID authorized Life of Project (LOP) funding from \$25.38 million (Loan \$23.38 million, Grant \$2.00 million) to \$35.605 million (Loan \$23.38 million, Grant \$12.225 million). GOES counterpart contributions to the Project will increase by approximately \$4.54 million, increasing total LOP cost to \$55.89 million.

Using its existing authorities, USAID/El Salvador has extended the Project Assistance Completion Date (PACD) from January 1, 1986 to December 31, 1986.

B. Grantee

The Government of El Salvador will be the grantee. The major implementing organization will continue to be the Ministry of Health (MOH). The Executive Management Group (EMG) within the Ministry, chaired by the Vice Minister of Health, will continue to be responsible for overall Project coordination and implementation. The Project will interact with all major divisions of the MOH, particularly the Department of Administrative Services and its Procurement Division, the Department of Data Processing, the Department of Operative Services, the Department of Human Resources and the Division of Malaria Control.

C. Amended Project Summary

The amended Project is designed to assist in the improvement of the health status of the Salvadoran population. Its purpose is to increase the level and quality of primary health care and medical services to the Salvadoran population by meeting the need for essential goods and services and developing the institutional capacity of the MOH. The Project will continue to be structured into four major components; (1) health supplies management, (2) public health infrastructure maintenance, (3) management information system, and (4) emergency medical services.

The Health Supply Management Component will still be composed of subcomponents for 1) health supplies management, 2) malaria control, and 3) drug quality control. Under Subcomponent 1, approximately \$4.6 million of essential pharmaceuticals will be purchased, and supply and inventory management technical assistance (T.A.) will be also provided to continue working towards improvements in the MOH's supply and inventory management systems.

To date, the Project has been fairly successful in meeting the MOH's short-term needs for essential pharmaceuticals and medical supplies for the last eighteen months. Essential, in this case, is defined as those basic medicines or commodities that are necessary to enable the health system to be able to provide treatment for the most common morbidities and for life-threatening situations. Pharmaceutical purchases under VISISA have equaled, and more recently, surpassed the average annual MOH pharmaceutical purchases of 10,000,000 (C\$4,000,000 equivalent). To a large extent, this is due to continuing cuts in the MOH's budget, and recent difficulties the Ministry has been experiencing in actually acquiring foreign exchange, although the foreign exchange has been allocated to the MOH for off-shore purchases. Thus, the financial resources of the MOH are presently insufficient to meet the minimum needs of the health system for medicines and supplies, without external sources of supply. Therefore, in order to have the funds under this Amendment meet the most basic gaps in the existing medical needs of the health system, a critical drug list consisting of 74 medicines was developed in coordination with the Ministry, USAID, and the Project's assistance team. These 74 vitally needed pharmaceuticals represent an even more narrowly defined list than the medicines that we have been bringing in to date, where the criteria for inclusion of a drug was based on their high demand in the system, their therapeutic value, and their efficacy in addressing the largest number of causes of morbidity and mortality.

Subsequently, a survey of all MOH warehouses was undertaken to determine existing stock levels for these 74 medicines and estimations of their usage rates were made. Although the Ministry had assured us that the inventory supplies were adequate for these pharmaceuticals, the discovery was made in August that there were stock-outs or near stock-outs of roughly twenty of these pharmaceuticals (See Annex C). These drugs include such fundamental antibiotics as penicillin, ampicillin, and erythromycin. These stock-outs can be attributed to several factors. First, the MOH's budget was cut recently by approximately 10%. Further in May, the Ministry went out for a public bid for several of the critical medicines that were near or at stock-out, but the foreign exchange required to complete the contracting was cut abruptly by the Ministry of Finance, and the bid was cancelled. The MOH is currently preparing for another public bid within the limitations imposed by the new level of financing. Finally, the lack of an effective inventory control system failed to alert the Ministry sooner to the rapidly decreasing levels of these drugs.

Based on the needs in the system, and taking into account recent pharmaceutical procurements by the USAID and expected procurements by the MOH over the next several months, as well as an anticipated follow-on project, a decision was made to fund those items that the MOH and USAID considered were most essential for a period of approximately one year, or until additional procurements under the project could come onstream. The level of needs (an estimated \$7.5 million), however, exceeds our

ability to cover, given the other essential inputs (T.A., bio-medical equipment, and spare parts) to keep the health system functioning. Thus, there may be stock-outs over the next year, but USAID will work closely with the MOH to avoid these. It is expected that P.L. 480 counterpart will be provided to the MOH to assist in covering local purchases of essential drugs in the short term, and the follow-on project will pick up those necessary pharmaceuticals which require foreign exchange in the end of 1986-1987. In the long-run, there are alternative solutions to the problems of lack of financial resources for these pharmaceuticals such as cost-sharing schemes which the MOH can adopt, increases in the MOH's budgetary allocation for this purpose, and an overall improvement of the economy. However, over the next two to three years USAID's assistance will be necessary to supply these inputs to sustain primary health care services.

To avoid the problem of stock-outs, supply and inventory management will be worked on to achieve major improvements in these systems. Therefore, technical assistance and training will be particularly focused on upgrading MOH capabilities in this regard. Additional funding is needed soon to finance this T.A., as existing monies under the Project will only carry these individuals through December, 1985. In order to assure a continuation of the T.A. until the new PACD, funding will need to be made available in November, 1985. With regard to Subcomponent 2, the reported incidence of malaria increased slightly between 1983 and 1984, and MOH capabilities to control the disease have just begun to be improved under the Project. T.A., antimalarial drugs, and insecticides will continue to be provided under this Amendment to continue ongoing activities, while the MOH's Malaria Division will also undertake a new emphasis on vector source reduction utilizing P.L. 480 counterpart funds. Under Subcomponent 3, the drug quality control laboratory will be equipped and will become operational with funds from this Amendment.

As the recent independent Project evaluation has confirmed, significant improvements have been achieved by the Project under the Public Health Infrastructure Maintenance Component, particularly with regard to an increased vehicle maintenance capability. Short-term technical assistance and training will be continued to ensure that the gains that have been achieved are institutionalized. Additional improvements in MOH capability are required for biomedical equipment maintenance. Thus T.A., equipment procurement, and training will continue under this Amendment.

While the MOH manual information and records systems function reasonably well within their inherent limitations, there continues to be an urgent requirement for an automated Management Information System (MIS), particularly to support inventory and supply management, to collect and analyze health statistics, and to assist in health planning. To establish the MIS, computer hardware, software, and T.A. will be procured as soon as possible after the signature of this Amendment and the MIS will become operational during the extended LOP.

The Emergency Medical Services Component will continue to concentrate on trauma training for health service and other "first responder" personnel. Under this Amendment, procurements of relevant medical equipment and supplies will be continued. The GOES, however, has determined that establishment of mobile surgical teams, planned under the original Project, was not required. When the Project was designed, it was determined that the Ministry needed assistance in dealing with civilian casualties from conflicts. At the present time, the MOH leadership considers that with the planned trauma training, their capacity to deal with such casualties from conflict situations is adequate.

II. BACKGROUND

A. Project Background

The Health Systems Vitalization (VISISA) Project, signed in the Fall of 1983, was conceived and designed to ameliorate the serious deterioration of the health status of the Salvadoran people which had occurred in large measure because of the civil conflict in the country and a shortage of financial resources. Limitations in the Government of El Salvador's (GOES) budget caused a sharp decline in the procurement of pharmaceuticals, medical supplies and equipment. The adverse effects of these shortages were exacerbated by deficiencies in the Ministry of Health management of its operations. VISISA was designed primarily to procure large amounts (over \$21 million out of total project funding of approximately \$25 million) of critical pharmaceuticals, medical supplies and equipment identified by the GOES. To begin to address requirements for improving the quality of MOH health services, the Project is also providing technical assistance, training and commodities to strengthen health supplies management, public health infrastructure maintenance, management information system, and emergency medical services.

This Project is part of an overall USAID strategy to assist the GOES to attempt to maintain basic public services, despite the civil conflict. To achieve this objective, this Project was designed in 1983 to provide those fundamental resources (pharmaceuticals, medical supplies, and basic bio-medical equipment) to enable the health system to continue operating for the short-term, while administrative, managerial, and other institutional improvements were initiated to assist the system over the long-term to operate more efficiently. At present, the Project has been successful in meeting its short-term objectives, but resource inputs are still needed to sustain the existing level of services provided by the MOH. In the longer term (3 to 4 years), it is difficult to foresee the MOH's budget being increased sufficiently to meet their resource needs, and hence local currency counterpart from PL 480 and ESF will be channeled to the MOH to assist them in purchasing medicines and other inputs which can be purchased locally. USAID's proposed follow-on

Project, which will have as its primary area of emphasis institution building, will continue to assist in covering the foreign exchange costs for essential inputs. Over the longer-term, it is expected that a general improvement in the economy, and consequently the GOES fiscal budget, and the increased efficiency of the MOH, will enable the GOES to maintain and even increase the level of health services without external support.

However, while the conflict has been decreasing in severity, the GOES budget is still stretched, and external assistance is required to prevent deterioration of health services. Clearly, support from various donors since 1981 has had a significant impact in maintaining the current levels of health services. Firm conclusions have yet to be drawn from recent analysis of data depicting the evolution of the health status of the general populace since 1983, because data is not yet available for 1984 and 1985. However, there have been noteworthy improvements in the MOH capability to deliver certain health services (e.g. immunizations and outpatient care) and there has been an upsurge in the provision of pharmaceuticals to rural areas from all sources over those available two years ago. Goods and services funded under the VISISA Project have been contributing factors to these improvements. A description of the Project and its accomplishments, by major component, is provided below and in the following section of this PP Amendment (Project Evaluation).

1. Health Supplies Management

This component is designed to provide the MOH with essential pharmaceuticals and medical supplies, and to improve its institutional management and planning capabilities and administration of its logistical supply system. At the present time, 85% of all pharmaceuticals and approximately 80% of all medical supplies which have been ordered under the Project through PIO/Cs issued before mid-August 1985, are in-country. ^{1/} All remaining pharmaceuticals and medical supplies to be procured under the PIO/Cs that have been issued will arrive in El Salvador by the end of January 1986. Expansion of the MOH's warehouse capacity is well underway, including construction of an

^{1/} The GSA and SER/COM recently informed the USAID of unneeded balances in a number of PIO/C's. These balances were utilized to place a pharmaceutical order in August, 1985.

expanded central warehouse and renovation of regional warehouse facilities. A technical assistance team has been in place since August 1984, working with the MOH to improve its planning and management of operations. A team of health monitors is tracking the distribution of pharmaceuticals and supplies. A computerized inventory control system for VISISA commodities is operational. This system will eventually form the basis for the MOH supply management information system. Technical assistance for malaria control is being provided, and sprayers, anti-malaria pharmaceuticals, and insecticides have been procured.

2. Public Health Infrastructure Maintenance

This component strengthens the MOH's capability to maintain and repair vehicles and bio-medical equipment. A management and administrative system with control indicators (MASCI) has been developed, tested, and is now operational for vehicle maintenance. This system tracks vehicle utilization, and costs of operating, maintenance and repairs. Upgrading of the central vehicle maintenance facility is near completion and training has been provided to vehicle mechanics. A Bio-medical Equipment Management System (BEMS) has been designed, tested, and made operational ahead of schedule. Training has also been provided to bio-medical technicians, and an initial countrywide survey of the status of biomedical equipment has been completed.

3. Management Information System (MIS)

The MIS Component supports development of the MOH data base for procurement, logistics, maintenance, health statistics, and health planning. This Component has been delayed significantly due primarily to the inability of the MOH to decide on an automated data processing system configuration. A decision was finally reached in July, 1985 and procurement of hardware, software and T.A. will commence as soon as the funds under this Amendment are available. Under this Component, recurrent costs and cost sharing studies were financed, as well as a needs assessment of teaching/learning materials for training of doctors, nurses, and other health care personnel. The recurrent cost analysis and cost sharing studies will assist the MOH and USAID to analyze various schemes for covering the MOH's recurring costs. The teaching/learning materials study is essentially to determine what additional needs exist in universities, nursing schools, and MOH training courses for textbooks and other instructional materials. This information will enable the GOES and USAID to develop additional trauma training modules and, during 1986, to design a human resource development component for a planned follow-on Project.

4. Emergency Medical Services

The MOH capability to treat serious injuries is being strengthened under this component. Development of trauma management training modules has been completed and training has been initiated. All commodities (e.g. emergency power generators, X-ray equipment, first-aid kits and surgical equipment) have been ordered and have arrived, or will arrive in-country by the end of January, 1986.

B. Project Evaluation

An evaluation and management assessment of the Project was conducted from June through August 1985 by the University Research Corporation (URC) and a private, U.S. based firm, Kraus International. These evaluations examined the general health status of the Salvadoran population, the capabilities of the MOH, health services delivery in the country and the performance of the Project in meeting stated objectives. The evaluators also made recommendations for improving Project content and implementation, as well as management operations of the MOH.

The primary purpose of the Project is to increase the availability to the general populace of primary health care and emergency medical services through fulfilling MOH short-term requirements for essential goods and services. A secondary, but corollary objective is to strengthen MOH capabilities for health supply and information management, and for the maintenance of vital medical and vehicular equipment. The evaluation found that while there had been delays --now overcome-- in the procurement of the pharmaceuticals and other commodities required in the medium term, that emergency drug procurements had been carried out expeditiously; and that within the nearly two years since the Project's commencement, although certain specific project targets had not been met, most of its major objectives had been achieved. Work remained to be accomplished in the areas of the management information system, where significant delays had occurred, trauma management training, and the establishment of the drug quality control laboratory.

Improvements had also been achieved in MOH management of its health service delivery systems, particularly in its transport system and the "cold chain" for delivery of vaccines and other commodities requiring refrigeration throughout the country. In this regard, the evaluation noted the significant VISISA contribution to the highly successful 1985 nationwide vaccination campaign. While these and other improvements in MOH operations have been effected largely through the Project, the evaluation noted long-term requirements for strengthening the Ministry and highlighted continuing problems in personnel management and human resources development. High employee turnover, low salaries,

the rigidity of the civil service system and financial management deficiencies are significant hindrances to achieving efficiencies in MOH operations. The evaluation also noted that the MOH budget has remained constant since 1981, inclusive of external assistance. Because this shortage of funding is likely to continue for the foreseeable future, a reordering of MOH priorities from the curative to the preventive and from high-cost, institutional care to community-based primary care was strongly recommended.

With respect to the general health of the population and the effects of MOH services on it, the evaluation found not enough time had elapsed to evaluate future trends from the last two years regarding service delivery and utilization rates and the incidence rates of major diseases. The evaluation said, however, that the MOH is providing a greater number, and to some extent, more effective services, given a constant budget which has been eroded by inflation. Total outpatient visits, prescriptions written, injections given, and radiology and minor surgery performed in hospitals and health centers increased significantly between 1983 and 1984. In view of budget constraints, the evaluation team characterized MOH efforts to provide health services to 85% of the population as "amazing." As to the performance of VISISA, the evaluators stated that "although we cannot claim that VISISA solved all of their (MOH) problems or made tremendous improvements in the health care system, the deterioration has been halted, and measurable improvements have been made in some areas. ^{2/}"

A summary of the evaluation's major findings on the attainment of project outputs is provided below, by project component:

1. Health Supplies Management System

A. Supply Management

Procurement of pharmaceuticals and medical supplies has increased dramatically during 1985 and more than 85% of pharmaceuticals, which had been ordered as of mid-August 1985, were in-country. Distribution of most pharmaceuticals to health facilities throughout the country appears

^{2/} VISISA Evaluation, McGriff, Pg. 20

to be moving smoothly, according to reports from USAID's health system monitors. This system of health system monitors or end-use checkers was instituted to get a precise fix on the flow of pharmaceuticals and other indicators of supply and service provision. On a preliminary basis, data collected by the health system monitors will be processed by USAID data processing units, with an eventual transfer of the software over to the MOH. An excellent country-wide cold chain has been developed. Warehouse construction and renovation is somewhat behind schedule, but all reconstruction/upgrading for both central and regional warehouses is expected by March, 1986. Training in warehouse management is still behind schedule. Other areas of MOH supply management, including inventory control, still need major improvement. Technical assistance in this area, provided by Westinghouse Inc., was not satisfactory. The health supply management advisor has been replaced by another advisor, who appears to be finally making progress towards achieving improved supply management and establishing a system of inventory control. However, supply management systems T.A. will be required for the time remaining under the Project and MOH initiated management improvements are required if its logistics systems are to function at peak efficiency.

B. Malaria Control

Approximately \$1.3 million in insecticides and spray equipment has been procured and is in-country, and training has been provided in operation of the equipment. Malaria control T.A. is being provided to the MOH to evaluate needs and to supervise the use and handling of insecticides.

Two 90 day house spraying cycles were initiated in May 1985, using MOH stocks and USAID procured Propoxur. Adequate stocks of the larvicide ABATE are on hand for use during the dry season, which commences in late 1985 and ends in April, 1986. USAID is exploring possible support through PL-480 Title I for source reduction projects in swampy areas along the coast.

C. Drug Quality Control

Selection of a site and an existing structure for the drug quality control lab was delayed significantly. Instead of remodeling the MOH central laboratory, a wing of a Ministry of Agriculture's (MAG) laboratory, which is fairly modern, will be adapted for drug quality control. This site has now been agreed upon by the MOH and MAG. Site inspection completed, specifications developed for equipment, supplies, and reagents, and procurement orders for these commodities have been issued.

2. Public Health Infrastructure Maintenance

A. Vehicle Maintenance/Repair

A preventive maintenance program has been designed and implemented. Significant improvements have been made in reducing vehicle downtime--the percent of vehicles deadlined has decreased from 40 to 25 percent. T.A. provided for this component has been very effective and this individual should be continued to assure continued progress. Maintenance area construction and numerous training programs have been largely completed.

B. Biomedical and Electro-Mechanical Equipment

A management system has been developed to track all phases of biomedical maintenance and a biomedical equipment inventory has been completed, as has a preliminary equipment needs analysis. Maintenance staff productivity has risen by 16 percent over the past year as measured by reduced repair turn-around time. There have been delays in procuring equipment but, 80% of all bio-medical equipment purchased under the Project is in-country and installed. The bio-medical T.A. provided by Westinghouse has been very effective and long-term T.A. should continue, and should be complemented by additional short-term T.A. |

3. Management Information System

This Component suffered serious delays because of the inability of the MOH to decide on a MIS hardware configuration, due in part to conflicting advice from PAHO and USAID consultants. An MOH decision was recently reached and implementation of this Component should now be accelerated as other Project activities depend upon it, particularly the management of health services and supplies.

4. Emergency Medical Services

All equipment and supplies to be procured under this Component have been ordered and 65% of these commodities have been received. Remaining commodities ordered through mid-August, 1985 will arrive in-country by the end of December, 1985. Training for ambulance drivers, general medical officers, and nurses was delayed and has been scaled back, but actually commenced in late August as the trauma training modules were completed in early August, 1985. The GOES decided that the three mobile surgical teams planned for development under this Project Component were not required. Data collection for a national trauma study has been completed and a preliminary report of results prepared. Final analysis of the trauma study will be completed by the end of September, 1985.

C. Other A.I.D. and Donor Assistance

1. AID Assistance

Other USAID assistance provided to the health sector is being channelled through the following projects and programs:

Health and Jobs for Displaced Families (519-0281)

The Project, which was originally signed in May, 1982, is providing preventive and curative health services designed to significantly reduce life-threatening deficiencies in health and nutrition among displaced persons and to improve the general level of health of the displaced population. The preventive health sub-component focuses on immunization for pregnant women and children under five years of age, and on oral rehydration therapy. The curative health sub-component is expanding health services to the displaced by building small dispensaries and providing primary health care in up to 33 areas covering 115 settlements and their host communities. This component is being implemented by Project HOPE, and now provides services to roughly 38,000 displaced persons. Since January, 1985, CONADES, which had previously provided medical services to the major displaced persons settlements, has been concentrating on an "outreach" program which reaches approximately 30,000 persons dispersed throughout the country. The Project also provides a basic food ration and supplementary and intensive feeding to the at risk members of the displaced families. The Project is also funding pilot resettlement efforts for the displaced population.

In addition to assistance provided through the USAID program, the United States Government (USG) provides the International Committee of the Red Cross (ICRC) financial assistance (\$3 million in FY 84) to provide humanitarian aid (food, medicines) throughout the region for displaced persons and refugees. El Salvador receives a large percentage of this funding.

Local Currency Generations

In 1984, a total of \$3.7 million (equivalent in colones) was provided to the MOH under PL-480 Title I for a series of sub-programs including the support this Project, budget support for the Rural Health Aide program, construction of a new Training School for the MOH (to replace the structure severely damaged by the 1982 earthquake) which provides in-house public health training to MOH personnel additional financing for the training of Social Year Physicians, and some counterpart for pharmaceuticals.

Integrated Rural Development (519-0300)

This five year Grant (\$3.65 million LOP) to the Save the Children Foundation seeks to improve the socio-economic well-being of families in four selected impact areas of El Salvador. The health component is helping to reduce child mortality and morbidity through a comprehensive primary health care program which includes training of community health workers, community wells, small water systems, latrines, communal dispensaries, and environmental sanitation campaigns.

Family Planning and Population

A three year private sector agency support Project (519-0275) is being implemented through a Cooperative Agreement with the Salvadoran Demographic Association (SDA), with funding at a level of approximately \$1.8 million per year. Now in its second year, the Project is supporting SDA activities in Contraceptive Social Marketing; Information, Education and Communication (IEC); Medical Services; Evaluation; Research and Training. The SDA also receives USAID support from the Bureau of Science and Technology, Office of Population (S&T/POP) and from other agencies such as Family Health International, Association for Voluntary Sterilization (AVS), and Development Associates.

Population Dynamics (No. 519-0210) is a new Mission-funded project which was signed by the GOES and SDA in August 1985. This \$10 million three year project will provide strong support for family planning and population activities, largely for the public sector. The principal recipient of this Grant Assistance is the Ministry of Health (\$ 2.3 million per year, and \$7 million LOP), with lesser amounts destined for the Social Security Institute (ISSS), the National Administration for Telecommunications (ANTEL) Hospital and the Ministry of Planning. The principal private sector participant will be the SDA, which will have primary responsibility for carrying out mass media and education programs.

2. Other Major Donor Assistance

a. Inter-American Development Bank (IDB)

The IDB has an approved \$21 million loan, as yet unsigned by the GOES, to carry out a rural water aqueduct and latrine project. Under the Project, 100 aqueducts benefiting 410 communities (230,000 persons) will be constructed nationwide. Approximately 75,000 latrines will also be installed in these selected communities.

The IDB is nearing completion of its \$22.5 million project, which funded construction of 56 Health Posts, five Health Units, and six Health Centers. The \$500,000 Grant portion of the Project financed technical assistance/training in medical equipment maintenance and management information system training. All activities have been completed under the Grant.

b. Pan American Health Organization (PAHO)

PAHO's program has continued to focus on three major areas: (1) strengthening of health service delivery, both in-hospital and out-patient facilities; (2) procurement for the MOH of vaccines for the immunization program; and (3) human resource development. PAHO also assisted in the recently completed National Vaccination Campaign, and with the planning of upcoming campaigns in Oral Rehydration/Diarrheal Disease Control and Acute Respiratory Infections (ARI).

c. United Nations Children's Education Fund (UNICEF) and European Economic Commission (EEC)

UNICEF supports oral rehydration therapy (ORT), breast feeding, immunizations and integrated care of children under five. UNICEF's Country Program is funded at approximately \$370,000 per year. Complementary to this is a 5-year program (1985-90) financed by the European Economic Community which supports UNICEF's "Child Survival Strategy." Approximately \$6 million over the life of the Project is to be provided.

Special note should be given to the significant technical and resource support which UNICEF provided to the National Vaccination Campaign, completed in April 1985. Prior to and throughout the Campaign, there was close coordination with USAID to avoid resource duplication. UNICEF estimates that slightly more than \$500,000 from their regular budget was used in support of the Campaign; and approximately \$630,000 was provided by USAID, out of this Project and PD&S funds. Almost a quarter of a million children under five years of age received vaccinations against polio, diphtheria, tetanus, whooping cough and measles.

3. Other Donors

During 1983 and 1984, there was a significant outpouring of donations of medicines, supplies, and equipment from interested citizens and groups in the United States. During the last six months of 1983 and throughout 1984, approximately \$33 million in pharmaceuticals and medical supplies were donated by these groups to El Salvador. A significant proportion of these donated commodities entered the public health system. Donations are continuing, with the imminent arrival of 32,000 pounds of medical supplies from the Americans for International Aid, from Marietta, GA., via the Denton Amendment, which are destined for the San Miguel Hospital and the Health Center at San Francisco Gotera. Individual donations have been received through the auspices of Congressman Wolf, Congressman McCollum, Congressman Weber, the Rotarians of Ohio, and Project HOPE, among others.

In addition, the International Rescue Committee (IRC) is carrying out activities in basic sanitation and primary health care in selected urban marginal and rural areas.

III. PROJECT RATIONALE AND STRATEGY

The original rationale underlying this Project and the strategy for its implementation remain essentially the same for the Amendment. Although no emergency medical procurements are planned with the new funds, there is a continuing need and existing shortages of pharmaceuticals, medical supplies, and bio-medical equipment. On the positive side, private and other donations of pharmaceuticals and medical supplies have increased substantially, although as the Project evaluation points out, these have not always arrived in good condition and the pharmaceutical imports were frequently not those included on the essential pharmaceuticals list. However, because of the influx of external medicines and medical supplies, including those financed by VISISA, the overall health of the general populace has not substantially deteriorated. In fact, there have been decreases in the incidence of such illnesses as polio and amoebic dysentery and a sharp decline in maternal mortality.

There are clear indicators of increased service delivery from 1983 to 1984 by MOH health service facilities, including a 5.1% increase in outpatient visits, a 12.2% increase in surgery performed, a 4.6% increase in prescriptions written and an 8.2% increase in the number of injections given. Statistics for 1985 are expected to indicate a major upturn in vaccinations, particularly as provided to children under five. While the health facility network has been strengthened, there is a need to assure continued essential resources (pharmaceuticals, supplies, trained staff) are available to it.

The "chronic lack of management systems" cited in the original PP as being a major cause of inefficiencies in the MOH's health care program is no longer as severe a problem, although as discussed elsewhere in this document, improvements in the supply management/logistics system and the continued need for an automated information system remain priority concerns. Other management systems are in place or will soon be in place. Therefore, major objectives of the Project are to ensure that management systems that are functioning well (e.g. transport and cold chain) do not deteriorate, and to strengthen weak supply and information management systems during the remainder of the LOP.

The Project strategy is no longer to rapidly infuse the health system with critically needed pharmaceuticals, supplies, equipment, and vehicles. Rather, the strategy is to maintain a continual flow of the essential commodities and provide basic equipment to assure that the current level of health services can be sustained. Additional assistance for and attention to supply management, malaria and drug quality control, and management information are essential to achievement of the Project purpose. A focus, therefore, during the remainder of the Project will be on strengthening these MOH management support systems initiated under the program.

Under a follow-on Project, Health Systems Management Improvement, the strategy of the Project will be to work with the MOH to better define its priorities, to assure that its organizational structure and the resource flows, however limited, are consonant with those priorities, and to implement the newly strengthened MOH management systems within this framework. While commodities that are basic to maintenance of the system will continue to be provided, it is expected that these will taper off over the life of the Project.

IV. PROJECT AMENDMENT DESCRIPTION

A. Project Goal

The goal of the Project will continue to be to improve the health status of the Salvadoran population.

B. Project Purpose

The purpose of the Project is to (1) vitalize the institutional capacity of the Ministry of Health; to execute more effectively their existing systems in health supplies management, maintenance, and information management and (2) maintain existing levels of primary health care and emergency medical services by meeting the needs of the Ministry of Health for essential goods and services.

C. Detailed Project Description

1. Component I - Health Supplies Management

a) Subcomponent - Health Supplies System

1) Current Procurement Process Limitations

Much of the analysis in the original Project Paper of the MOH procurement process remains valid. The system is still plagued by bureaucratic inefficiencies (e.g. excessive clearances and approvals for documents and procurement actions), lack of trained staff, and poor information and management systems. Arbitrary decisions are often taken on allocation of commodities between regions and hospitals; and hospital procurement is handled independently from that of other facilities. Inconsistent requirements for handling of shipping documents and other delays in the process have resulted in significant delays in retrieval of pharmaceutical products from customs. At times, these delays and other inefficiencies have resulted in pharmaceuticals eventually exceeding their expiration dates where shelf life is limited. Lack of continuity in management continues to be a problem adversely affecting the Procurement Department's operations.

There was a realization under the current Project in mid-1984 that Host Country (HC) Procurement procedures were not going to meet country needs or Project implementation deadlines. The largest of these HC procurements (approximately \$6 Million) was for pharmaceuticals where, upon bid analysis, it was found that virtually all offerors did not meet both the U.S. source and origin and local pharmaceutical registration requirements of El Salvador's equivalent to the USG's Food and Drug Administration (FDA). Other procurement modes might have been immediately utilized (General Services Administration (GSA) or Procurement Services Agents (PSAs) had a change in government not occurred at the time bids were being analyzed. The change of government triggered a rigorous and lengthy analysis by the new MOH leadership of all prior government decisions- pharmaceutical procurement was no exception. This failed bid resulted in A.I.D. taking over the procurement process for pharmaceuticals and medical supplies for the Project.

The MOH has been utilizing a basic pharmaceutical list (Cuadro Basico) that was developed in 1978 as the basis for procurement, warehousing, distribution, and prescribing decisions. This list includes over 800 products, many of which are obsolete, duplicative, combinations of pharmaceuticals, or have a low benefit to risk ratio.

Although there is no official unit or division within the MOH responsible for the development and maintenance of a formulary of essential pharmaceuticals, the head of the Division of Medical Assistance developed a draft update of the Cuadro Basico in 1984. This Cuadro Basico has not yet been approved by the Ministry. The 1984 Cuadro Basico contains about 360 generic entities and 560 different pharmaceutical presentations. This number of products is still greater than the ideal for a formulary of essential pharmaceuticals. It contains a number of non-essential products that could be considered for elimination. Although there is an opportunity for refinement, in general, this Cuadro Basico was rationally developed in that the pharmaceuticals selected were based on the available data on morbidities and mortalities in the country.

Consequently, the problems that the Ministry has in procurement procedures and in determining the number and types of pharmaceuticals to be purchased is reflected in the problems the Ministry has in keeping an adequate level of medicines and medical supplies flowing through the system. At times, the Ministry has had an overabundance of medicines with a short shelf life, but more frequently, the Ministry is unaware when there are no stocks of certain essential pharmaceuticals.

Therefore, one of the tasks that Project management has undertaken has been to contribute to the refinement of the drug selection process, instituting an approach for obtaining in-the-field input regarding perceptions of pharmaceutical's use and importance. A Delphi process was initiated to evaluate the 1978 edition of the Cuadro Basico. A questionnaire was distributed to 120 health facility directors, physicians, nurses, and others. Each respondent was asked to rank each

product on a scale of 0-3 in terms of frequency of use and importance. The means, standard deviations, and variances were calculated for each product, by type of health facility in the system. Additional lists, by facility type, were compiled of all products that received a mean rank of 2.0 or greater in either frequency of use and/or importance and were distributed for a second round of rankings. The results of the Delphi process are under study in the MOH.

To exploit fully the value of this Delphi process those products that consistently had a ranking of two or greater will be compared with the proposed 1984 Cuadro Basico, the World Health Organizations (WHO) Essential Drug List, the MOH statistics on prevalent morbidities, and the USAID's technical consultant's therapeutic criteria for essential pharmaceuticals. Where there is agreement among each of the sources on appropriateness of the selection of a given product, this should provide strong support for the inclusion of that product in the formulary of essential pharmaceuticals.

The updated 1984 edition of the Cuadro Basico has not yet assigned priority and level of use indicators to each pharmaceutical product. Prior editions of the MOH Cuadro Basico have included these elements and there are plans to assign priority and level of use indicators to each product. These assignments, if carefully applied, will allow for the rational allocation of limited funding to high priority pharmaceuticals with the greatest utility at the primary health care level. Therefore, as a covenant to this Amendment, USAID will require that the Cuadro Basico be finalized and approved by the Ministry.

The quantity of pharmaceuticals to be procured is currently being determined by procurement personnel based on the previous years' statistics on movement of pharmaceuticals within the health care system and budgetary limitations. The decision of how much of a pharmaceutical product to procure is a critical component of the procurement and distribution processes and is also dependent on the selection of essential pharmaceuticals. The quantity of each drug to be procured must be based on morbidity and usage rates and the alternative pharmaceuticals available. Inaccurate estimates of how much to procure has led to shortages of essential pharmaceuticals and overstocking of non-essential pharmaceuticals in the health system. Additionally, the inability to identify adequate quantities of pharmaceuticals to be allocated to each health facility contributes to the poor distribution of pharmaceuticals from the central warehouse.

In summary, therefore, an official division or unit within the Ministry of Health should be formed to assume the responsibility for the selection of essential pharmaceuticals, the assignment of priority status, the morbidity-based estimation of quantities of pharmaceuticals needed at each health facility, and to monitor drug use. This commitment by the MOH to a technical and therapeutic basis for the pharmaceutical logistics process is essential to the safe and effective use of pharmaceuticals in El Salvador, and thus the establishment of the Therapeutic Unit will be a covenant under this Amendment.

This past year, upon recommendation by VISISA Project management, a Project procurement committee was formed consisting of the Director General, the Sub-Director General, the head of the Procurement Department, the Chief of Medical Assistance, and the Chief of Operations. This Committee recommends which products can be cut back or eliminated. In principle, products of lesser importance or those that can be obtained locally by the service recipients are those that are eliminated. The Minister of Health approves the MOH's procurement requests, which the Procurement Committee submits to him.

More training of warehouse personnel in stock management, inventory control, record keeping, and order filling is needed. Minimum re-order points have to be established for each product, to prevent dwindling stocks from being completely depleted without any action.

Project Inputs under the Amendment

1. Technical Assistance:

As presently planned, approximately 27 person months of T.A. will be provided in the areas of supply management and the development procurement specifications for pharmaceuticals, medical supplies and bio-medical equipment (See Annex D for more detail). In addition, six person months of T.A. will be provided to assist the MOH in establishing an official Drug Formulary, which is expected to provide treatment norms for the most frequent morbidities, and serve as the basis for future MOH procurements.

2. Commodities:

Inventories were conducted by USAID's health monitors in July and August, which included collecting such data as inventories on hand, usage rates and expected donations. Based on these inventories, and in consultation with the technical assistance team and the MOH, a list has been developed of essential pharmaceuticals, for which additional stocks are necessary for the next 12 month period (August 1985- to August 1986) (See Annex C). A PIO/C containing this list of pharmaceuticals will be issued shortly after signature of the Amendment by the USAID to the GSA, through authority to be contained in the Amendment Agreement.

3. Training:

Continuing in-country training programs will be carried out by the technical assistance for Central and Regional administrators and supply managers which will include, but not be limited to: general supply management, procurement tracking procedures, improved receiving/inspection of commodities, physical distribution, inventory control, warehousing techniques, cold chain management, and use of the supply management information system.

In addition, training will be provided to health care providers in health facilities in such topics as: facility pharmacy management, inventory control, protection of stocks, care of cold chain equipment, and establishing minimum re-order points based on their usage rates and other factors.

End of Project Status:

1) More efficient supply management system in place, utilizing a management information system, with trained supply managers, that facilitates the delivery of supplies and services on central, regional, and local levels.

3) Reconstruction and/or renovation at the central and regional warehouses completed.

5) An operational re-order point system established which optimizes the utilization of MOH resources.

6) Supply managers at Central and Regional levels trained to assume management responsibilities for supervision and monitoring of the supply system.

7) Warehouse personnel at central and regional levels trained in inventory management.

8) A Drug Formulary, approved by the Ministry, that contains a list of essential drugs, their indications for use, contraindications, and prescribed dosages.

B) Subcomponent - Malaria Control

The MOH malaria program is expected to meet its short term goal of decreasing malaria morbidity by reducing and controlling vector populations and first and second priority breeding areas (Priority 1: hyperendemic zones, in the coastal areas up to 300 meters above sea level; Priority 2: moderate endemicity, in areas 301 to 600 meters above sea level). The program will accomplish the above by means of

systematic application of combined attack measures (house spraying, larvaciding, chemoprophylaxis of presumed cases) and a new effort involving permanent source reduction. This new program will carry out, with USAID controlled counterpart funding over a period of two to three years, activities of elimination, reduction and control of 80% of all breeding places. This strategy represents an innovative approach and is considered to be generally well-planned and unique compared to other Central American and Caribbean programs.

Statistics on malaria have shown a slight upturn in the number of reported cases during 1984/1985, and a slight decrease in the number of samples taken. USAID, at this point, is providing 100% of the Malaria Division's needs for insecticides and anti-malarial drugs.

1. Program

Specific control activities currently being undertaken by the MOH Malaria Division are as follows:

- Case detection through passive and active case systems, in addition to diagnosis in health facilities.
- The Malaria Division is also responsible for treatment of malaria cases. Presumptive treatment is given at voluntary collaborator posts, and the Division handles mass distribution of pharmaceuticals in selected areas for presumptive and radical cure. Drugs used are Chloroquine and Primaquine, single and combined.
- House to house spraying of residual insecticides (Propoxur-adulticide) in areas of susceptibility.
- Application of larvacides (ABATE) to attempt to eliminate mosquito larvae in areas of water accumulation, mainly during the dry season.
- Ultra Low Volume (ULV) spraying of insecticide (Pyrethroid-adulticide) in areas of high vector density.
- Simple source reduction activities consisting of drainage, cleaning and filling ditches and swamps.

A new activity, to be financed initially by PL-480 Title I generations, is permanent source reduction through the opening of estuaries and the construction of permanent drainage canals to the sea. The IDB has expressed considerable interest in financing the additional projects, of which there are three under design at the present time.

The passive case detection system (PCD) is considered an important part of the program. It consists of a total of approximately 2,500 voluntary collaborator (VC) posts, of which 1,150 (45%) are located within the hyperendemic zone and the remainder in other malarious areas. The present number of inhabitants covered by each VC is approximately 700. Lowering this ratio to one VC post per 250 is planned. The VC is responsible for delivering presumptive treatment to suspected cases of malaria and provides practically all basic epidemiologic information for the program by detecting approximately 80% of total reported cases in the country. The remaining 20% of cases are detected through active case detection by Malaria Division personnel.

2. Malaria Division

The Malaria Division has a total of 614 positions, of which 511 are field operations staff (zone chiefs, evaluators, supervisors, microscopists, spray men, drivers and contract day laborers). At the central level, the Division consists of a Division Chief, an Entomologist, an Administrator and 40 support staff (secretaries, mechanics, etc.).

The GOES budget for the Malaria Division for 1985 is C4,440,260 colones which is 2.24% of the total MOH budget for this fiscal year. As shown in Table I below, GOES financing of the Malaria program has dropped by nearly 40% between 1983 and 1985, largely in the personal services, insecticides and pharmaceuticals line items. To some extent, in the past year this decrease in GOES funding can be attributed to USAID picking up some of the costs of insecticides and anti-malarial drugs. The budget breakdown for the Division, by line_item is:

TABLE I

<u>Item</u>	<u>1983</u> (¢)	<u>1985</u> (¢)
Malaria Personal Services	242,940	121,200
Other Personal Services	3,788,750	2,829,070
Non Personal Services	41,540	43,540
Materials and Supplies	358,450	356,450
Equipment	(1)	(1)
Insecticides	2,500,000	-0-
Drugs	400,000	-0-
Grand Total	<u>¢7,331,680</u>	<u>¢4,440,260</u>

All commodities and services contemplated under the current Project (vehicles, spray equipment, insecticides, anti-malaria pharmaceuticals, spare parts, training and technical assistance) have been procured. With the exception of a few spare parts, all commodities and services (the short-term Malaria TA) have been received or are ongoing .

Project Inputs

A review of the current situation in Malaria Control by the Malaria Advisor indicates that the MOH has continuing commodity needs, over and above those projected in the original Project design, largely because of the shortage of foreign exchange and a governmental decree in 1980, which prohibited the import by the GOES of equipment. Needed under the Amendment will be additional vehicles, spray equipment, insecticides, and anti-malaria pharmaceuticals. (See Annex C for a listing of needed commodities, quantities, and estimated costs) In addition, approximately 6 person months of TA will be required during CY 86 to assure the proper use of USAID purchased insecticides and to assist the Malaria Division in the design of the source reduction campaign.

End Of Project Status (EOPS):

- a) P. falciparum Malaria decreases from its current level of 20% to less than 10% of all cases of malaria.
- b) The number of blood smear slides collected by the Voluntary Collaborators increased by 20% in 1985-86, over the same period in previous years.
- c) House spraying coverage exceeds 90% of the programmed number of houses to be sprayed during each cycle.

These EOPS are essentially the same as those which were established for the Project in the beginning. These objectives have essentially been

met, and the inputs under the Amendment should enable the Malaria Division to sustain this current level of activities.

C) Subcomponent - Drug Quality Control (DQC)

The rationale, strategy and sub-component elements remain essentially unchanged from those contained in the Project Paper (PP. 55-65), although the decision was made by Project management and the MOH to utilize an existing facility in the Ministry of Agriculture (MAG) rather than construct a new lab in the MOH. Delays in implementation of this sub-component are attributable to: (1) a delay in identifying qualified advisers willing to work in El Salvador to assist the MOH in establishing the DQC laboratory; and (2) delays in the MOH in reaching a time-sharing agreement between the MOH and the MAG, for the use of an already fairly well-equipped modern laboratory at a MAG installation. These two obstacles have only recently been overcome. The MAG and MOH currently have an agreement for use of the laboratory. However, the laboratory needs to be adapted for the specialized use of quality control for pharmaceuticals, and equipment uniquely for pharmaceutical use needs to be acquired.

Project Inputs under the Amendment

a) Technical Assistance

Under the Amendment, 14 person months will be provided in the areas of Drug Quality Control and Basic Drug Formulary development. Eight person months will be devoted to assisting the MOH in the establishment of a small Drug Quality Control laboratory, supervising installation of laboratory equipment, training of technicians and carrying out a review of current and proposed legislation with recommendations for establishment of a national drug quality control program in the future.

b) Equipment, Supplies and Materials

Commodities required for implementation of this project component are contained in Annex C and include selected equipment, supplies and reagents not now available at the Ministry of Agriculture laboratory.

End of Project Status (EOPS)

1. During the last six months of the Project, a small drug quality control laboratory functioning. Trained personnel will be performing basic tests for identification, drug stability determinations, bacterial sensitivity testing of antibiotics, and other simple tests.
2. An updated legal basis for a comprehensive national drug regulatory program drafted.
3. A plan developed to expand the laboratory's capability by equipping and training personnel to perform tests for purity, content and performance characteristics of drug products.

4. Linkages established with external reference laboratories — The Drug Enforcement Administration (LEA) and the Central American Technological Institute (ICAITI) — for specialized testing of pharmaceuticals and to evaluate the performance of the MOH Drug Quality Laboratory.

2. Component II - Public Health Infrastructure Maintenance

As discussed in Section III (B) above, significant improvements have occurred in the MOH maintenance systems for their vehicle fleet and bio-medical equipment. An important part of this improvement has to be attributed to the technical assistance provided by the Project advisors in vehicle and bio-medical equipment maintenance. Vehicle "downtime" has been reduced from 40% of the MOH fleet to 25%; and a 16% increase in the productivity rate of biomedical maintenance people, as measured by repairs completed, has occurred in the biomedical equipment maintenance area. To date, the management system for bio-medical equipment has been put into operation. It currently provides an adequate tracking system for all phases of the bio-medical activity, including the monitoring of work orders, equipment installation, training and time control. This system, however, needs to be institutionalized and spread to the other BEMs and a spare parts program needs to be put in place.

Project Inputs under the Amendment

1). Technical Assistance:

Planned under the Amendment are 24 person months of T.A.. Of this figure 16 months will be for a Senior Maintenance Advisor who will be responsible for both bio-medical and vehicle maintenance and eight months for a specialized bio-medical equipment expert. The rationale for the difference in level of effort is discussed in more detail in the Technical Analysis section. In brief, however, progress in Vehicle Maintenance management has been sufficient under the current Project to permit periodic consultancies which are supervisory in nature and designed to ensure that management systems now in place continue to function. Bio-medical maintenance is a much more complicated area of technical assistance which involves both management supervision and transfer of repair/maintenance technical skills. As discussed above, although excellent progress has been made in improving maintenance, due to the later than anticipated arrival of the T.A. under the ongoing Project systems such as continuing on-the-job training, a spare parts program and a policy for developing bio-medical equipment specifications for MOH facilities still need to be institutionalized.

2) Commodities:

The Bio-Medical and Vehicle Maintenance advisors were requested to provide their best estimates of equipment needed by the MOH, based upon their experience in-country as well as surveys and studies they have carried out over the last 12 months. If funds were unlimited, their estimates of MOH requirements would absorb most of the funds available under the Amendment. Based on the recently completed USAID/MOH survey of bio-medical equipment at all MOH hospitals and centers, a list was developed by the USAID bio-medical advisor prioritizing the needs. This shortened list was further refined to life-threatening critical equipment in coordination with the MOH and the level of funding that was available under the Amendment. A final list of this equipment, estimated cost, and proposed site of installation is provided in Annex C.

End of Project Status:

- a) An improved vehicle maintenance and repair system which reduces downtime from 40% registered at the beginning of the Project to a rate less than 20%.
- b) An improved bio-medical maintenance and repair system which increases productivity of the Maintenance Department from 60% of repair requests filled at the beginning of the Project to a rate which exceeds 90% by the end.

3. Component III - Management Information System (MIS)

As detailed earlier in this document, implementation of this component has been delayed due to the indecision on the part of the MOH concerning the configuration of the computer hardware. A decision was reached in August 1985 to proceed with the procurement of the hardware and software which represents the first stage of a phased development of a full MIS. Technical assistance to implement this phase will be provided by PAHO (See Annex E for TA plan and timing) and USAID under a contract with an 8A firm (See Annex C for Scopes of Work and Level of Effort for USAID financed TA).

In a proposal, jointly prepared by PAHO and USAID for presentation to the Minister in July 1985, the following inputs by the two agencies were agreed upon:

USAID:

Procure necessary hardware and software for Phase I of the MIS system.

Provide financing for maintenance contracts.

Provide financing for physical improvements necessary for installation of hardware.

Provide for training of MOH personnel in the use of the equipment.

PAHO

Develop the design and specifications for the required equipment.

Provide TA for the development and implementation of two subsystems (Supply/Maintenance Management and Health Statistics) under Phase I.

Provide coordination and TA in carrying out training programs for both operators and users of the MIS.

The following is the phasing proposed for full institutionalization of the MIS: (under the Amendment funding will be provided for only Phase 1.)

Phase I - Implementation of two "Microcomputer Centers," one for the Supply/Maintenance Management MIS, the other, for Health Statistics. Both Micro centers may eventually be linked to a frame Computer Center by a local area network (LAN) (See diagrams in Annex E).

Phase II - Establishment of Microcenters in each of the five Health Regions, linked by a LAN to two smart terminals (1 in the regional warehouse; 1 in Administration). (See diagram for example of a Regional Microcenter in Annex E)

Phase III - Gradual implementation of microcenters consisting of two personal computers in each of the hospitals to eventually link into the information systems for health statistics, and to facilitate coordinated health planning.

Project Inputs under the Amendment:

1. Technical Assistance:

In addition to T.A. provided by PAHO, the Amendment will provide approximately 38 person months of Assistance in the areas of overall MIS implementation, computer programming, systems analysis, hardware maintenance and operation, and health planning. (See Annex D for scopes of work).

2. Commodities:

Commodities to be procured under this component are contained in Annex C and include the necessary hardware, software, and supplies to establish two microcomputer centers.

3. Training:

Built into the Scopes of Work of the Technical Assistance financed by the Project and supplemented by PAHD, is training of MOH personnel in systems analysis, programming, data entry procedures, word processing, preventive maintenance and equipment operation.

End of Project Status:

- 1) Computer hardware procured and installed in MOH headquarters, for Supply/Maintenance Management, and Health Statistics Systems.
- 2) Simple, user friendly computer subsystems designed, installed and operational for daily management of Supply/Maintenance and Health Statistics data processing.
- 3) Computer center personnel, both operators and users, trained to use the subsystems.
- 4) Groundwork laid to expand the MIS to include personnel, accounting, finance, project management, facilities management and payroll.
- 5) Technical assistance provided to make efficient use of data generated by the MIS for medium and long-term planning.

The purpose of this Component is, therefore, to provide the MOH with the necessary resources to develop a comprehensive data base to support MOH activities in procurement, supplies and maintenance management, and health statistics. In the long run, the MIS should be capable of assisting MOH management in the following areas: personnel, accounting, finance, project management, facilities management, payroll, and data-based planning.

4. Component IV - Emergency Medical Services

Under the current Project, all the emergency equipment (ambulances, surgical lamps, first aid kits, generators, etc.) have been ordered and 65% of the commodities are in-country and distributed to health facilities. Most of the remaining commodities (boilers, pumps and generators) will arrive by the end of December, 1985. Because of an inability to identify advisors to conduct the Trauma Baseline Study and

to develop the Trauma Management Training Modules, the Mission negotiated an Amendment to the contract with Westinghouse in late 1984 to design and implement the Baseline Study. Data was collected on approximately 7,000 cases of trauma seen in selected MOH facilities around the country during the months of January through March 1985. A preliminary analysis of these data was performed in March 1985, and has served as the basis for development of the training modules under a contract with Kraus International. Prototype modules in each of the major areas of trauma--burns, fractures and wounds--have been developed for training of general medical officers, nurses and ambulance operators. Phase I training of MOH personnel began in August 1985, and has been completed.

Under the Amendment, most of the activities will center around completion of the training of personnel at all levels of the health system as well as other non-health, "first responder" personnel such as firemen, police, and if possible, taxi drivers. This focus is based on the fact that the preliminary analysis of the trauma data showed that over half of trauma cases are brought to the hospitals in vehicles other than ambulances and that taxis represented a significant means of emergency transportation. The modules will be reproduced sufficiently to provide training for the MOH, the nursing schools, the Salvadoran Red Cross, and the medical schools. Limited procurements of commodities are planned under the Amendment.

Project Inputs under the Amendment:

1. Technical Assistance: Technical assistance will be provided separately from the main technical assistance contract for the development of the additional trauma training modules.
2. Commodities: It is expected that 16 blood banks, and two mobile X-ray units will be purchased under the Amendment.
3. Training: The MOH will carry out trauma management training of approximately 500 medical, nursing and transport personnel using the Trauma Modules developed under the current Project. It is expected that such training activities will also be carried by the medical schools and the Salvadoran Red Cross for "first responders." Financing of local training costs for the MOH will be provided under the amendment.

V. COST ESTIMATES AND FINANCIAL PLAN

The total projected cost of the Project is now \$55.89 million, with an USAID contribution of \$35.605 million, including the \$10.225 million to

be added by this Amendment. Existing Project funding currently totals \$25.380 (Loan \$23.38 million and a Grant of \$2.0 million). The GOES counterpart contribution currently totals \$15.75 million, and under this Amendment will be raised to \$20.294 million.

A.I.D's funding under this Amendment will be directed first to the procurement of essential pharmaceuticals (45% of funding), and secondly, to the provision of technical assistance (15% of funding under the Amendment). Remaining funds will be allocated to to the purchase of insecticides and anti-malarial drugs, laboratory equipment and supplies for the drug quality control lab, bio-medical equipment and spare parts, and the computer hardware and software for the establishment of an MOH management information system.

The following table, Summary Cost Estimate and Financial Plan, presents the breakdown of USAID and GOES inputs under the new Amendment. Since the PACD has been extended for only one year, until December 31, 1986, all monies will be committed, and probably expended, in FY 1986 and the first quarter of FY 1987. Hence, an analysis of projected expenditures per annum is not provided.

SUMMARY COST ESTIMATES
((\$000s))

HEALTH SYSTEMS VITALIZATION PROJECT PAPER AMENDMENT
(519-0291)

<u>LINE ITEM</u>	<u>A. I. D.</u>			<u>GOES</u>	<u>TOTAL</u>
	<u>FX</u>	<u>LC</u>	<u>TOTAL</u>		
I. Technical Assistance	1,500	-	1,500	-	1,500
II. Component I -Health Supply.Man.					
Subcomponent 1A-Health Supply.Syst.					
Pharmaceuticals	4,600	-	4,600	4,000	8,600
Medical Supplies	400	-	400	85	485
Warehouse Equipment	26	-	26	-	26
Construction/Renovation		30	30	15	45
Executive Management Group		70	70	-	70
Salaries	-	-	-	85	85
	<u>5026</u>	<u>100</u>	<u>5,126</u>	<u>4,185</u>	
Subcomponent 1B-Malaria Control					
Insecticides	1,005	-	1,005	-	1,005
Anti-Malaria Drugs	-	128	128	-	128
Vehicles	74	-	74	15	89
Supplies	10	-	10	-	10
Salaries	-	-	-	150	150
	<u>1,089</u>	<u>128</u>	<u>1,217</u>	<u>165</u>	
Subcomponent 1C-Drug Quality Control Lab.					
Laboratory Equipment	50	-	50	-	50
Supplies	25	-	25	10	35
Construction/Remodeling	-	25	25	10	35
Salaries	-	-	-	25	25
	<u>75</u>	<u>25</u>	<u>100</u>	<u>45</u>	<u>145</u>
III. Component II-Public Health Infrastructure Maint. and Repair					
Biomedical Equipment	100	-	100	-	100
Tools/Maintenance Eqt.	50	-	100	-	100
Vehicle Spare Parts Tools	50	-	50	-	50
Biomedical/Spare Parts	50	-	50	-	50
Communications Spare	25	-	25	-	25
Parts/Equipment	-	-	-	-	-
Salaries	-	-	-	85	85
	<u>325</u>	<u>-</u>	<u>325</u>	<u>85</u>	<u>410</u>

IV. Component III- Management Info.
Systems (MIS)

Computer System(Hardware)	160	-	160	--	160
Software	40	-	40	--	40
Office Supplies	25	-	25	--	25
Construction/Renovation	--	30	30	10	40
Salaries	--	--	--	25	25
	<u>225</u>	<u>30</u>	<u>255</u>	<u>25</u>	<u>280</u>

V. Component IV-Emergency Medical
Services

Equipment for Emergency Medical Equipment	90	-	90	--	90
Trauma Training Modules	60	-	60	--	60
Other Training	40	55	95	--	95
Salaries	--	--	--	34	34
	<u>190</u>	<u>55</u>	<u>245</u>	<u>34</u>	<u>279</u>
Contingency/Shipment	1,457	-	1,457		
TOTALS	<u>9,887</u>	<u>338</u>	<u>10,225</u>	<u>4,539</u>	<u>14,764</u>

TOTAL AMENDMENT COSTS \$14,764,000

To underscore the need for this additional tranche of funds, the following Financial Summary is provided of existing Project funding:

FINANCIAL SUMMARY:

Health Systems Vitalization Project
(1983-1985)

COMP DESCRIPT.	AMOUNT OBLIGATED	EAR- MARKED	ACCRUED EXPENDITURES	PIPE- LINE
COMP I				
(L)	17,048,262	17,002,139	8,239,575	8,808,687
(G)	1,024,500	688,788	955,151	69,349
COMP II				
(L)	2,840,100	2,807,070	1,440,066	1,400,034
(G)	402,000	273,000	276,266	125,734
COMP III				
(L)	-0-	-0-	-0-	-0-

(G)	353,000	218,000	78,883	274,117
COMP IV				
(L)	3,454,283	3,454,283	2,106,304	1,347,979
(G)	173,500		-0-	173,500
CONTIN (L)	37,355	36,323	16,400	20,955
EVAL (G)	47,000	-0-	-0-	47,000
TOTAL LOAN	23,380,000	23,299,815	11,802,345	11,577,655
TOTAL GRANT	2,000,000	1,310,288	1,310,300	689,700
TOTAL PROJ.	25,380,000	24,610,103	13,112,645	12,267,355

As the Financial Summary above indicates, almost all existing funds have been earmarked or committed, and almost 50% have been expended. With the arrival of an additional \$6.2 million of commodities by December, the accrued expenditure figure will be almost \$ 18.4 million by the end of November, 1985.

VI. IMPLEMENTATION ARRANGEMENTS

A. Administrative Arrangements:

The Minister of Health will continue to have overall responsibility for implementation, with delegations to the Vice-Minister, Director of the Executive Management Group (EMG) and other senior executives, as appropriate. For a description of EMG responsibilities and organizational relationships, see pg. 26-27 of the original Project Paper.

The EMG will continue its coordination and support role with the several MOH Directorates, Divisions and Departments with implementation responsibilities under the Project. The Directorates most involved are: Administrative Services, Normative and Operative Services, and Planning. At the next organizational level, the following entities will be involved:

Procurement Division;

Warehousing and Supply Management Division;

Transport Department;

Maintenance Department;

Human Resources Department;
Central Laboratory Division;
Malaria Division; and the
Engineering Division

A Personal Services Contractor (PSC), supervised by the Deputy Office Director of the Human Resources/Humanitarian Assistance Office, will be the Project Manager. The Project Manager will be assisted by three direct USAID contractors in the areas of Procurement, Customs and Warehouse Expediting, and Accounting. A significant departure from the current administrative arrangements is a contract which USAID has just signed with an 8A firm which will provide:

1) follow-on T.A., including continuing one of the existing advisors to the Project; 2) additional T.A. identified as necessary during the course of the current Project, and 3) continue the services of the health monitors.

T.A. needs and approximate levels of effort: (This does not include T.A. planned for Component IV)

<u>T.A. Specialty</u>	<u>Proposed P/M</u>
Supply Management	16
Health Planning	16
Medical Eq. Advisor	8
Drug Formulary TA	6
MIS Advisor	16
Drug/Med. Inst. Spec.	3
Programmer	6
DQC Advisor	8
Vehicle Maintenance Tech.	16
Total P/M	95

*Does not give
w/ Annex D*

For detailed Scopes of Work for the T.A. under the Amendment, see Annex D.

B. Implementation/Procurement Plan

Under Component 1, where USAID will purchase pharmaceuticals, the pharmaceuticals can be divided into two types of procurement actions. For pharmaceuticals of U. S. source and origin, USAID will issue a PIO/C to the Bureau for Management/Office of Commodity Procurement (SER/COM) to

act as the authorized agent. Authorization for the procurement of these pharmaceuticals by USAID will be contained in the Project Agreement, and USAID will waive the two standard conditions precedent relating to designation of representatives and the confirmation that it is a binding agreement, so that this procurement can be initiated prior to the GOES meeting conditions precedent.

USAID will contract with local firms for the acquisition of locally produced anti-malaria drugs, which can not be purchased in the U.S. USAID will procure American Motors Corporation (AMC) jeeps, and other vehicles utilizing direct procurement procedures. A waiver will be included in the Project Authorization for sole source procurement of AMC.

Since the MOH has had a poor record of undertaking off-shore procurements, USAID is exploring alternative means of effecting the procurement of all other commodities. Although the arrival dates of some of the medical equipment is not as crucial as the procurement of pharmaceuticals, the procurement actions should begin as quickly after the signing of the PP Amendment as possible. For this reason, USAID is investigating the costs and benefits of the following alternative procurement modes.

a) Acquiring the services of a Procurement Services Agent (PSA) to procure all commodities, other than pharmaceuticals and vehicles.

b) Acquiring the services of a contractor who can combine the provision of technical assistance personnel with the management of the procurement process.

Refinement of the lists contained in Annex C for procurement under the Amendment may result in minor shifts from one commodity to another, or minor substitutions, but overall emphasis will not be changed.

The authorized source and origin of all commodities, except for locally produced anti-malaria drugs will be USAID Geographic Code 000, in accordance with Handbook 1B, Chapter 4. The remaining commodities (construction materials) will be procured in accordance with Handbook 11 from USAID Geographic Code 935. Construction services which have been started under the existing Project, have been contracted with local firms as no U.S. construction companies currently operate in El Salvador. This Amendment will provide a very small amount of money to complete the construction of some regional warehouses.

Funds have been included to permit transportation by air of all pharmaceuticals. All other commodities will be shipped by ocean transportation to the most appropriate port on the basis of CIF San Salvador. Suppliers will provide all risk marine insurance. See Annex C for additional details regarding expected delivery dates.

VII. PROJECT ANALYSES

A. Technical Analysis

The purpose of this analysis is to review critically the design of this Project Amendment, and determine whether or not the means and methods selected for Project implementation are technically the most suitable and cost effective. A recently completed mid-term Project evaluation concluded that the Project has "accomplished 95% of what it set out to do," and confirmed that the current Project design is still appropriate. The Project evaluation also provides a series of recommendations (See Annex F, Evaluation (Executive Summary)) which are relevant to both the Amendment and follow-on projects in the health sector.

The design of the Project Amendment can be characterized as: 1) a continuation of the provision of pharmaceuticals and medical supplies; 2) a consolidation or institutionalization of management improvements begun under the current Project in the areas of Medical Supply Management, Bio-Medical and Vehicle Equipment maintenance; and, 3) the completion of activities which were delayed for reasons described earlier in this paper. Thus, with the exception of the procurement under the Project of a new malaria insecticide (Permethrin), and the PL-480 financed mosquito source reduction project, no new technologies not already contemplated under the current project are being introduced. Environmental Impact Assessments began in August 1985 for both malarial interventions.

By Component and Sub-Component the following analyses are presented:

1. Health Supplies Management

A. Supply Management

As indicated earlier, the Amendment will not introduce new technologies. Rather, present supply management procedures will be updated and/or modified. The most significant change will be the introduction of a data-based system for reaching decisions regarding procurement, inventory control and distribution of pharmaceuticals and medical supplies. The installation of computer hardware, software and training under Component III for the Supply Management System will permit significant improvements to the system.

An area which must be addressed by the T.A. under the Amendment is procurement planning on the basis of rational estimates of demand for health supplies. At the moment, health supplies enter the system through GOES procurements, donations from other countries, private sector importation (both raw materials and finished products), as well as under this Project. A chart showing these expected inputs for the Life of the Project is included in Annex G. What is in the system, what quantities should be in the system, and at what point should how much be re-ordered are questions which at the moment cannot be answered. Answering these questions has also been complicated significantly by the large donations received in recent years in El Salvador. These donations fill needs, but also mask real demands upon the system for health supplies.

One other aspect of existing supplies management that distorts the true picture of needs is that of "hoarding." Warehouse chiefs and MOH program managers will tend to successively cut dispatch quantities in order to push off the moment of zero inventory. The hoarding instinct, when coupled with a certain inertia, which sometimes borders on indifference to the needs of service facilities, adds up to a ragged distribution system, with item stock-outs in locations where there should be supplies, and over-supply in others. The contracting by USAID of a group of Health Supply Monitors, who have been performing end-use checks, physical inventory and distribution assistance, has resulted in increased distribution rates by the MOH of both MOH and VISISA procured commodities. The increased availabilities of pharmaceuticals and supplies at service level has not gone unnoticed by the Minister and his advisors and will be one of the primary outputs under this Amendment. The Amendment should encourage and will covenant the institutionalization of this type of internal audit, end-use activity in the MOH.

B. Malaria Control:

As mentioned earlier, this sub-component will introduce technologies which are new to the current Project, but not to the country or to Malaria Control, in general. Permethrin, a pyrethroid adulticide, has been used in El Salvador for at least ten years, without incidents of human intoxication or pollution of the environment. The application of this insecticide has historically been targeted to areas of known vector susceptibility. A new environmental impact assessment for the Project was performed in August 1985 by the Regional Pest Control Advisor in collaboration with the Malaria Advisor, presently under contract to the Project. Results of this assessment are contained in Annex H.

Source reduction is a proven and highly effective method of Malaria control. While not financed directly by the Amendment, this project is considered to be an integral part of the Mission's effort to assist the GOES in dealing with an important cause of morbidity, and will receive funds from P.L. 480.

C. Drug Quality Control:

This sub-component was delayed, in part, because of difficulties in identifying technical assistance, but also due to bureaucratic delays between the MOH and the Ministry of Agriculture (MAG) in arriving at mutually agreed upon principles for a time-sharing agreement for laboratory facilities already available within the MAG.

The MAG laboratory facility was determined to be satisfactory (with a few minor remodeling suggestions) by a short-term consultant, who is a specialist in drug quality control. There are well-trained MAG laboratory staff who can, on an ad-hoc basis, assist MOH technicians in carrying out specialized procedures, and the laboratory is fairly modern.

2. Public Health Infrastructure Maintenance Systems:

A. Vehicle Maintenance:

Progress has been significant in this sub-component, largely due to the personal and technical skills of the Vehicle Maintenance Advisor. He has installed management information systems, developed training programs for both transport management personnel as well as mechanics and other support personnel, and, generally, raised awareness in the MOH regarding the importance of modern vehicle maintenance and repair programs, all within the context of cost-containment. Continued technical assistance is considered necessary, not to introduce new technologies, but rather to ensure that the management systems thus far introduced become completely institutionalized from the highest levels down to the last "grease monkey." Technology is not the issue in this sub-component, since vehicle repair and maintenance is known around the world--rather, it is to change attitudes leading to the establishment of a "maintenance ethic" in the MOH.

B. Bio-Medical Maintenance:

Unlike vehicle maintenance and repair, the technology in the biomedical equipment field is vast, complex and changing daily with the introduction of new generations of equipment. While neither the current Project nor the Amendment will introduce equipment which differs significantly in sophistication from that which is already in use in El Salvador, continued technical assistance will be required under the Amendment. Current technical assistance has been very successful in installing maintenance management information systems and developing in-service training programs. Indeed, productivity of the Maintenance Department has increased significantly over the last year, in terms of equipment repaired and maintained. The need for the additional technical assistance is due to several factors: 1) the variety of bio-medical

equipment (from bathroom scales to X-rays, anesthesia and EKG machines, to boilers and emergency power generators, etc.) and 2), that this equipment is used by personnel with varying degrees of knowledge and concern for proper use and minimal, first echelon maintenance.

3. Management Information Systems (MIS):

As proposed under the Amendment, the MIS will begin in a small way, addressing only the supply management and health statistics areas. Technically and psychologically, the approach is sound. On the one hand, it gradually introduces a fairly high degree of technology; on the other, because the beginning is "small," the initial, emotional reaction to reject the computerized world and hold on to the tried and true hand calculator and ledger may be minimized. The Project, however, must ensure that all programs developed be extremely "user friendly" and generate truly useful reports. In other words, use of the system and outputs from the MIS must be oriented toward relevant and felt needs of managers and decision makers; if not, the investment will soon languish in a forgotten corner of the MOH.

4. Emergency Medical Services:

The prototype trauma modules have received excellent reception by potential users in the MOH, medical and nursing schools, and PVO's involved in providing emergency services. Initial pre-tests of the modules during August 1985 in training situations indicated that they are well-designed, complete and easy to use. The modules are likely to be more easily integrated into ongoing in-service and continuing education programs of the MOH, as they are seen as immediately useful in dealing with the trauma problems confronted on a daily basis. More difficult, and the longer term intent beyond the time-period of this Project is the incorporation of these modules into medical and nursing education curricula.

B. Economic Analysis

The Health Systems Vitalization Project Amendment aims at sustaining the current levels of primary health care and emergency medical services available to the Salvadoran population. The Mission's strategy to achieve this objective is to provide the Ministry of Health with supplies, and appropriate technical assistance, which in turn should improve the institutional capacity of the Ministry to provide a wide range of health services. In economic terms, the Project consists of providing the GOES with the financial resources and technical assistance necessary to utilize its existing public investment in health. Orthodox economic analysis of this type of activity would call for an economic cost/benefit analysis which would weigh the economic benefits of improved health (improved productivity, reduced curative health care costs, reduced absenteeism, etc.) which would result from implementation of the Project against its costs.

There are, however, a number of elements which make such an undertaking unfeasible. The measurement of the impact of the Project is a literally impossible endeavor because there is no timely data gathering system within the Ministry of Health which would permit the measurement of services provided. For example, it may take as long as two years for information from a health post to reach central administration. For the management information system and supplies management components of the project the measurement problem is compounded by the almost impossible task of quantifying the linkages between improvement in these areas and the level of services provided.

However, there are important financial issues concerning the sustainability of the GOES' health programs under the current fiscal austerity regime. The financial position of the Ministry has experienced a substantial transformation over the last five years; this is documented in the recently completed recurrent cost study. The study includes a thorough analysis of the Ministry of Health's (MOH) budgetary expenditures over the last five years and a preliminary assessment of budgetary requirements for 1985-1990. Table 2 shows overall expenditure patterns of the MOH for the 1980-84 period. The figures show a dramatic decline in the amount of resources available to the Ministry to carry out its programs. In nominal terms, the Ministry's expenditures grew 6.6% between 1980 and 1984. In constant terms, the Ministry's resources were reduced over 34% for the same period. When these results are weighed against population dynamics, nominal expenditures per capita declined over 3%, while real expenditures per capita declined over 40%.

TABLE 2

Ministry of Health Budgetary Expenditures
(Millions of Colones)
1980-1984

	1980	1981	1982	1983	1984	% Change 1980-1984
Total Expenditures	147.5	152.2	149.8	143.5	157.2	6.6%
Total Real Expenditures (12/84=100)	115.6	103.9	91.6	77.5	76.0	- 34.2%
Current Exp./capita	32.6	32.8	31.5	29.5	31.4	- 3.4%
Real Expendit/capita	25.5	22.4	19.3	16.0	15.2	- 40.4%
Memorandum:						
CPI Deflator (12/1978=100)	1.2775	1.4644	1.6359	1.8507	2.0674	
Population	4.53	4.64	4.75	4.86	5.00	

Source: Ministry of Finance, Ministry of Planning, Central Bank and IMF Statistics.

In response to the reduction in real financial resources, the Ministry implemented a shift in the composition of expenditure categories. As expected, the share of wages and salaries increased, while expenditure for supplies, machinery and equipment declined. This is the typical response of a country attempting to maintain employment levels. Table 3 presents the share of major expenditure categories for centralized and decentralized functions (hospitals, clinics, etc.) of the Ministry. In all instances there is a clear pattern where the share of resources allocated for the purchase of supplies, machinery and equipment has experienced substantial reductions while the share of resources allocated for personal services has increased dramatically. In the case of decentralized functions, the share of personnel services increased ten percentage points over the five year period. Another striking finding is that machinery and equipment purchases were practically eliminated over the last three years for both centralized and decentralized functions. This resulted from the introduction by the GOES of a moratorium on equipment purchases. The trajectory of investment and associated recurrent costs for the period, reflects financial developments which are shown in Table 4.

TABLE 3

Expenditure Composition of the Ministry of Finance - 1980-1984
(In Percentage Terms)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Centralized Functions	100.0	100.0	100.0	100.0	100.0
Personal Services	64.6	70.1	66.6	73.3	75.6
Non-Personal Services	1.6	1.3	1.8	1.2	1.7
Supplies	32.4	28.2	31.5	25.4	22.6
Machinery & Equipment	1.2	.2	.05	-	-
Current Transfers	.2	.2	.05	.1	.1
Decentralized Functions	100.0	100.0	100.0	100.0	100.0
Personal Services	74.5	79.1	80.7	80.7	84.0
Non Personal Services	2.7	2.4	2.7	2.5	2.2
Supplies	22.6	18.4	16.5	17.1	13.6
Machinery & Equipment	-	-	-	-	-
Current Transfers	.2	.1	.1	.01	.2

Source: Recurrent Cost Study, Kraus International, Inc.

Investment expenditures for the period declined sharply from \$30.9 million in 1980 to half that figure in 1981 and 1982, then they gradually returned to the 1980 level in 1984. Recurrent costs associated with these investments remained quite steady for the whole period.

TABLE 4

INVESTMENT AND RECURRENT COSTS - MINISTRY OF HEALTH - 1980-84
(Millions of Colones)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Investment	30.9	14.8	15.8	26.8	34.3
Recurrent Costs	1.2	1.3	.8	.7	.8

Source: Kraus International, Inc. Recurrent Costs Study.

The recurrent cost trend can probably be explained by the fact that most of the investment may have been in its gestation period during which counterpart contributions were small. Also, USAID assistance during this period did not cause substantial recurrent costs since such assistance consisted of expendable commodities and the replacement of essential machinery and equipment.

The implications of the figures presented in Tables 2 through 4 are quite simple. One of the main reasons the Ministry of Health has been able to improve health services is the massive influx of U.S. supplies, equipment and technical assistance. The proposed Project Amendment should sustain and protect the progress made to date in improving the overall level of services provided by the Ministry, at least for the duration of this Project.

According to the recurrent cost study, if the Ministry attempts to meet its health care delivery goals for 1985-1990, the budget of the Ministry of Health would have to increase by over four times the size of the 1985 budget (see Table 5). This poses an important question: After the USAID assistance ends, what sources of finance, other than the GOES budget allocations, can the Ministry tap in order to finance not only the current level of services, but the increments necessary to keep up with population growth and those necessary to improve the overall level of health of the Salvadoran population?

TABLE 5

PROJECTED BUDGET REQUIREMENTS - 1985-1989
(Millions of Colones)

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
<u>I. CURRENT EXPENDITURES</u>					
Senior Management	.7	.7	1.1	1.9	3.8
Admin. Services	21.3	21.3	31.9	54.9	108.1
Health Service					
Programming	2.7	.7	1.1	1.9	3.7
Health Engineering	.7	.7	1.0	1.8	3.5
Technical Services					
for Operations	6.6	6.7	10.1	17.3	34.0
Regional Health Serv.	45.7	45.6	68.5	117.8	231.8
Training	-	2.3	3.5	5.9	11.7
Sub Total	77.7	78.0	117.2	201.5	396.6
<u>II. CURRENT TRANSFERS</u> (Hospital Operating Costs)					
Administration	18.1	18.3	27.5	47.3	93.2
Health Services	73.9	70.2	105.3	181.1	356.5
Sub Total	92.0	88.5	132.8	228.4	449.7
<u>III. INVESTMENT</u>					
Health Service					
Expansion	27.9	11.3	17.0	29.2	57.4
Construction	.1	-	-	-	-
Rural Health	3.1	4.7	7.1	12.2	24.0
Urban Latrine Program	.4	.4	.7	1.2	2.3
Counterpart Contribution					
to Invest. Prog.	1.4	1.4	2.0	3.5	6.9
Nutrition	-	-	-	-	-
Construction of "Sara					
Zaldivar" Building	-	.1	.2	.3	.5
Construction & Equip.					
of "San Rafael" Hosp.	-	-	-	-	-
Sub Total	32.9	17.9	26.9	46.3	91.1
TOTAL	202.6	184.4	276.9	476.2	937.4

Source: Ministry of Health: Planning and Financial Divisions.

The Ministry is painfully aware of this problem, and as a result, it agreed to USAID's proposal to carry out a study exploring the feasibility of recovering costs from public health service users. The first stage of the study has been carried out, and its preliminary results are mildly encouraging. Following is a summary of the main findings:

- While there is not a systematized cost recovery scheme for public health services, there are informal cost recovery schemes in operation at different levels of the health system.
- In 1984, 80% of patients receiving outpatient care at the hospital level contributed voluntarily for each consultation.
- At the hospital level, voluntary contributions make up only 1.8% of resources utilized by the hospital, while other charges for services make up an additional 1.8%.
- The hospital system offers its physical facilities for patients who want to use their own doctor. In this case hospital services are charged to the patient on an itemized basis.
- Interviews with public health service users suggest a willingness on their part to increase their contribution, provided there are service improvements.

The findings of this study suggest the existence of an unrealized cost recovery potential. At this point, it would be difficult to guess the amount of resources which well designed cost recovery schemes might generate over the medium term. In any event, it is unlikely that such resources will meet the objectives for the 1986-1989 period. As a result, the Mission will continue not only to focus on this initiative, but others as well, such as reviewing the priority the Central Bank attaches to the purchase of health supplies. This is an essential part of its strategy to address the medium term sustainability of the GOES' health investment program. There is no question that, should the war effort continue to claim the current level of resources beyond the completion of this Project, even with a cost recovery scheme fully implemented, the GOES will not be able to continue improving the health of the Salvadoran population.

C. Institutional/Administrative Analysis

Certain hypotheses and other aspects of the original institutional/administrative analysis have been borne out or otherwise remain valid, including those contained in the discussion of the legal, financial and organizational status of the MOH. Other aspects of the original assessment of MOH capability to manage this Project, including the

capability to procure large quantities of pharmaceuticals expeditiously from the U.S. and on the availability of certain counterpart staff, were not borne out during Project implementation. Early procurement problems aside, the Executive Management Group (EMG) has relatively effectively managed Project activities with the assistance of the advisory team. The EMG will continue to be directly involved in all aspects of Project implementation during the extended LOP. An assessment follows of the Project's administration thus far, including requirements for improvement and continuation of assistance.

1. Health Supply Procurement and Distribution

The majority of the commodities purchased have arrived, including more than 85% of all pharmaceuticals which had been ordered prior to August, 1985. The current status of procurement belies the six to nine month delay in ordering non-emergency pharmaceuticals experienced early in the Project. The original decision to procure \$6 million in pharmaceuticals under a host country contract proved to be a mistake. Despite the best efforts of USAID and the EMG, Salvadoran drug procurement regulations, the high price of the pharmaceuticals to be ordered from the U.S., the inability of U.S. bidders to fulfill specifications and other factors combined to stymie procurement of these pharmaceuticals until a decision was reached to procure them directly through the GSA. Factors internal to the MOH which mitigated its ability to react quickly to commodity procurement requirements and thus also were responsible for delays, revolved around senior level personnel changes and a subsequent review of all procurement decisions.

Data is incomplete, however surveys taken in April 1985 and before have indicated that, overall, pharmaceuticals and medical supplies procured are being widely distributed to hospitals, health posts and units. Included among those items for which data demonstrating high availability has been obtained are penicillin, oral rehydration salts, xylocaine, anti-malarial pharmaceuticals, tetanus toxoid, syringes, sutures and other surgery supplies (see URC VISISA Project Evaluation, McGriff, pg. 17). The supply management and logistics system of the MOH, aside from the transport service and the cold chain, continues to experience problems stemming from lack of trained personnel, low salaries and bureaucratic red tape. For lack of initiative and a committed counterpart, the technical assistance provided for health supplies management under the Project was unsuccessful. For the extended LOP a highly qualified and motivated supply management adviser has been assigned to the Project. The initiation of the automated management information system (see subsection 3. below) will be key in assisting the MOH to strengthen the supply and logistics system. Also during the extended LOP, USAID will utilize an SA firm to provide all technical assistance and a procurement services agent to procure all commodities other than the pharmaceuticals which, along with the experience gained to date by the EMG in implementing the Project, should ensure continued improvements in commodity procurement and Project implementation, in general.

2. Biomedical Equipment and Vehicle Maintenance

MOH capabilities in biomedical equipment and vehicle maintenance have improved significantly (see II.B. Background, Project Evaluation), due in large part to the efforts of the two respective Project advisers and the commitment of their MOH counterparts. The presence of sufficient skilled mechanics and other vehicle maintenance specialists and the fact that maintenance systems are in place make it likely that the transport system will continue to function well in this regard, although continued T.A. is advisable. Additional vehicles are also required to replace those which can no longer be repaired on a cost-effective basis. Biomedical equipment maintenance specialists continue to be in short supply. Therefore, additional training and continued long-term T.A. is needed.

3. Management Information System

The original analysis asserted that a key element in ensuring administrative feasibility was the establishment of a decision-oriented management information system critical for the tracking of USAID-financed commodities. This prediction has been borne out in-so-far as an MIS has not been established and it can be assumed that this development was a major factor for the continued problems in health supply management. The active phase of this Project component has recently commenced and the original hypothesis on the benefits of an MIS for tracking inventory, quantities, location, and flow of commodities remains valid. Furthermore, it is expected that other benefits for health planning and financial/records management will be accrued by the development of a management information system.

4. Administration of Other Project Components and Subcomponents

Delays have occurred in the implementation of the Drug Quality Control Subcomponent and Emergency Medical Services Component of the Project. The original proposal for building a new laboratory was discarded after the Project was underway in favor of establishing the laboratory at an existing site. Further delays were experienced in obtaining a GOES decision on a site, but one was selected during mid-August 1985 and it now appears that all hindrances to the successful administering of this component during the extended LOP have been removed (see Section II.B., Project Evaluation above). Requirements for administering the emergency medical services component have changed in that the GOES has decided that mobile surgical teams are not required to treat trauma cases, given present surgical facilities. However, training of a variety of medical personnel in trauma care and the development of a national program in trauma management are still high priorities. Training was delayed under the Project, but will commence shortly and will continue throughout the extended LOP. Technical assistance will be provided to implement recommendations from the completed national trauma study.

The recent evaluation frankly assessed the institutional weaknesses of the MOH which hinder it from providing optimal health services to the majority of the Salvadoran population which it purports to serve. Some of these weaknesses, e.g. lack of trained staff and low salaries, are correctable most likely in the long-term only. The evaluators were clearly impressed, however, with the improvements in certain MOH capabilities, which are partially attributable to VISISA. The Project has largely achieved its objectives for provision of pharmaceuticals and medical supplies required in the short-term and must now concentrate on further strengthening MOH capabilities. The capability of the MOH to administer the Project, including the procurement of pharmaceuticals, has been established. Efforts must now be concentrated on accelerating implementation of components which have lagged, and particularly that for the establishment of a functional Management Information System. This analysis concludes that the institutional and administrative capability exists for the revised objectives of this Project to be achieved by the PACD.

VIII. REVISED EVALUATION PLAN

The original evaluation plan called for three Project evaluation activities; a baseline study, a mid-term evaluation, and a final evaluation. In fact, a number of baseline studies/assessments and a comprehensive mid-term evaluation have been carried out prior to the completion of the second year of the Project. First, a survey of the status of health facilities nationwide was carried out over a two week period in February/March 1984. A representative sampling of 63 health facilities were visited and their operations were examined, including aspects of supervision, inventory control, functioning electrical and water systems, staffing and building maintenance. Also, the availability of five basic pharmaceuticals was assessed. The conclusions of this group, known as the Klassen Committee, were that contrary to charges by a private U.S. physician, most health facilities in urban and rural areas were open and functioning well, although the rural health posts did occasionally experience shortages of certain of the five pharmaceuticals.

Next, in July and August 1984, assessments of health policies and programs (Nichols Report) and of human resources in the health sector (Correa Report) were accomplished. The conclusions, in general, of these were that the GOES health system should become more primary care-oriented and community-based and that there was a potential surplus of physicians in the coming years, but there were shortages of other health personnel, particularly auxiliary nurses.

Follow-up surveys on the status of health facilities and availability of the five basic pharmaceuticals were carried out by the MOH and USAID in February and April of 1985, respectively. The health facility survey

reached the same general conclusions, i.e. that most facilities were functioning, as the Klassen Committee reported, but the drug survey concluded that the availability in rural areas of the more critical pharmaceuticals had improved significantly.

The results of the mid-term project evaluation and management assessment have been detailed in II.B. above. A follow-up to the management assessment will be undertaken during the fall of 1985.

Since not enough time had elapsed between the original assessment of health in El Salvador (Nichols Report) and the mid-term evaluation to allow measurement of changes in many health indicators, an additional follow-up is planned for the spring of 1986. The results of this should allow for final changes in program direction, as feasible, under VISISA and will assist in the design and implementation of a new health sector project.

The final Project evaluation will be conducted in November/December 1986, to measure progress since the mid-term evaluation toward attainment of Project objectives.

IX. CONDITIONS/COVENANTS

In addition to the two standard conditions precedents requiring designation of GOES representatives and evidence that the Agreement Amendment is considered a legally binding obligation of the Government, the following covenants will be added to the Project Agreements:

Covenants

(A) Within 45 days of signature of this Agreement Amendment, the MSPAS will establish, with the agreement of A.I.D., a list of pharmaceuticals and medical supplies designated as essential for life-threatening morbidities and mortalities. A.I.D. procurement of pharmaceuticals and medical supplies under funds from this Amendment will be restricted to this list.

(B) The Ministry of Public Health and Social Assistance hereby agrees that within four months of signature of this Amendment it will institutionalize internal audit systems, including end-use checks of the pharmaceuticals, medical supplies, and bio-medical equipment in the MSPAS logistical system; and

(C) The Government of El Salvador hereby agrees to provide an increase of 10% over the 1985 budgeted level for the MSPAS for essential pharmaceuticals and medical supplies each year for the next two GOES fiscal years (1986 and 1987).

(D) Within 90 days of signature of this Amendment, the Ministry of Public Health and Social Assistance (MSPAS) will finalize and give its formal approval to the Cuadro Basico drafted in 1984.

(E) Within 60 days of signature of this Agreement Amendment, the Ministry of Public Health and Social Assistance will establish a Technical Therapeutic Unit within the MPHSA which will:

1. Within eight months of signature of this Agreement Amendment, develop and approve a Drug Formulary;
2. Develop treatment norms for the most common morbidities in El Salvador within six months of signature of this Agreement; and
3. Update biannually (add or delete) pharmaceuticals from the Drug Formulary.

ANNEXES

- A. Amended Logframe
- B. Letter of Request from GOES
- C. Illustrative List of Commodities
- D. T. A. Scopes of Work
- E. PAHO T. A. and Microcomputer Configurations
- F. Evaluation/Executive Summary
- G. Health Supplies Input by Source for 1983-1985
- H. Revised IEE

REVISED LOGFRAME

From FY 1983 to FY 1987
Total U.S. Funding 35.605 M

Project Title and Number: Health Systems Vitalization Project No. 519-0291

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<u>Program or Sector Goal:</u>	<u>Measures of Achievement:</u>		
To improve the health status of the Salvadoran population.	Morbidity and mortality rates reduced, particularly among lower-income Salvadorans	MOH reports and surveys	That increase and improvement in the primary health care services will not be offset by other factors (e.g. civil violence, epidemics, declining economic conditions).
<u>Project Purpose:</u>			
To assist the MOH to (1) increase existing levels of primary health care and emergency medical services to the Salvadoran population by meeting the critical short-term needs of the MOH for essential goods and services, and (2) revitalize the institutional capacity of the Ministry to more effectively execute their existing systems in health supplies management, maintenance, and information management.	<p>(1) Increase by 20% the quantity of essential pharmaceuticals, medical supplies, and equipment for the primary health care system.</p> <p>(2) Reduction of procedures/ time needed for MOH to procure and distribute medical commodities by 20%.</p> <p>(3) Decrease of 30% in loss of pharmaceuticals, supplies in the health care system and 40% drop in numbers of days medical equipment and vehicles are not operational.</p>	MOH Department of General Administration Services procurement and inventory records; MOH hospital, health center, unit, post patient records. MOH Dept. of Statistics reports, Division of Malaria Statistics site visits and supervision reports.	<p>MOH continues its commitment to improvement of primary health care services.</p> <p>Civil conflict does not create further disruptions in these systems.</p> <p>T.A. will collaborate effectively with MOH.</p>

Project Title and Number: Health Systems Vitalization Project No. 519-0291

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
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(4) Logistical and maintenance systems adequately staffed with trained personnel and functioning in accordance with established procedures/policies.

(5) All health centers, units, posts exhibit at 5% increase in patient load and/or prescription/pharmaceuticals administered.

Outputs:

Magnitude:

1. Increased availability of drugs/medical supplies in MOH facilities.

1. Increase of 20% of essential pharmaceuticals and medical supplies located in hospitals, health centers, health units, and health posts.

Health care facilities reports

MOH is able to acquire and will devote adequate resources to 1) improvement of systems specified and 2) to the primary health care services.

2. Additional medical equipment installed/functioning in hospitals, health centers, and health units.

2. All hospitals, health centers, health units have medical equipment purchased under the project installed and functioning.

Site visits/supervision reports.

Persons will be available on a timely basis to be trained.

3. Additional warehouse space available.

3. Construction at Matazano Central Warehouse and upgrading of the five regional warehouses completed.

Site visits, construction reports.

4. Completion of the nation-wide cold chain.

Construction of 2 cold rooms, refrigerators and freezers installed and functioning.

Site visits to cold rooms.

Project Title and Number: Health Systems Vitalization Project No. 519-0291

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
5. MOH printing/reproduction equipment capability improved.	Installation/functioning of printing machine, press, reproduction equipment.		
6. Incidence of malaria in most prevalent areas is reduced.	6. Decrease of 5% in incidence of malaria in places which contain 85% of the malaria cases. Full spraying takes place from 1985 thru 1988.	Division of Malaria reports.	
7. Improvement in MOH drug quality regulatory capacity.	7. Establishment of a small drug quality control lab in the MAG and lab personnel trained in-country by Drug Quality Control Advisor.	Site inspection.	
8. Maintenance/repair capability for the MOH improved for vehicles, physical plant, medical and other equipment.	8. Average cost of repair and maintenance per vehicle reduced by 10%. A reduction to less than 20% of the number of deadlined vehicles by the end of the project.	Division of transport statistics/ inspection of vehicle fleets.	Adequate availability of spare parts.

Project Title and Number: Health Systems Vitalization Project No. 519-0291

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
9. Improvement in maintenance/capability for medical electro-mechanical, sanitation equipment and physical plant.	9. Maintain productivity of B-Med maintenance at 1985 levels.	Department of Maintenance Records.	Adequate availability of spare parts.
10. Efficient and effective procurement, maintenance, and supply management systems, developed and established for the Ministry.	10. MOH information needs assessed, management information system designed, computer and software procured and installed; development of sub-system packages for procurement, maintenance supply management, and health statistics.	Department of General Services Administration records.	
11. Improve Ministry's capacity to provide emergency services, specifically for war-related trauma, for El population.	Approximately 300 medical personnel, including surgeons, general medical officers, nurses, auxiliary nurses, and ambulance drivers/attendants, trained in wound stabilization, first-aid skills, and patient handling techniques.	MOH/consultant reports.	

Project Title and Number: Health Systems Vitalization Project No. 519-0291

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
			Life of Project From FY 1983 to FY 1987 Total U.S. Funding 35.605 M.
<u>A.I.D./Inputs</u>			
<u>LINE ITEM</u>	<u>A.I.D.</u>	Controller's Records	Timely availability of funds.
	<u>TOTAL</u>		
. Technical Assistance/Training	4,408		
Pharmaceuticals/Medical Supplies/ Other Commodities	24,598		
Facility Construction/Maintenance	1,176		
Bio-Medical Equipment	2,729		
Contingency/Evaluation	<u>2,694</u>		
TOTAL	35,605		



MINISTERIO DE SALUD PUBLICA
Y ASISTENCIA SOCIAL
REPUBLICA DE EL SALVADOR, C. A.

San Salvador, 10 de Septiembre de 1985

Sección PLAN. SAL. #1044

Asunto: Solicitud de financiamiento. Proyecto
VISISA.

Sr. Robin Gómez
Dtor. Agencia Internac. para el Desarrollo. AID
P r e s e n t e

Como es de su conocimiento, este Ministerio ha sufrido dentro de su presupuesto general una disminución y se afirma que para el próximo año se reduzca en un 10% más, lo que significa mayor disminución en la compra de medicamentos y suministros básicos, así como menos fondos para ampliación, reparación, mejoras y mantenimiento a los establecimientos de Salud.

Ha sido a través de los fondos del Convenio 519-0291 y el Préstamo 519-U-033, Proyecto Vitalización de los Sistemas de Salud, el que se esté subsanando en gran medida esta problemática.

En vista de los logros obtenidos en este Proyecto y siendo que está por finalizar la asignación de dicho Préstamo, esta Secretaría de Estado solicita a esa Agencia, se gestione el financiamiento de \$10.5 millones al préstamo 519-U-033, en refuerzo al Proyecto, a fin de seguir fortaleciendo la capacidad operacional de este Ministerio.

Los términos y condiciones de este Préstamo, deseáramos fueran objeto de revisión con esta Secretaría de Estado.

En espera de una resolución favorable, aprovechamos la ocasión para saludarle muy cordialmente.



Dr. Benjamin Valdez h.

MINISTRO

MAN/mfe.-

ANNEX C

TABLE I - Component I-A:	Illustrative List of Pharmaceuticals: Stocks on Hand, Distribution Rates and Needs Through August 1986
TABLE II - Component I-A:	Illustrative Bio-Medical Equipment and Medical Vehicles
TABLE III - Component I-B:	Malaria - Insecticides, Pharmaceuticals and Vehicles
TABLE IV - Component I-C:	Illustrative Drug Quality Control Equipment Procurement
TABLE V - Component II:	Vehicle Maintenance Tools, Equipment and Spare Parts Procurement
TABLE VI - Component II:	Bio-Medical Equipment Spare Parts and Communication Parts Procurement
TABLE VII - Component III:	Illustrative Management Information System Equipment Procurement
TABLE VIII - Component IV:	Equipment For Emergency Medical Service Procurement

Annex C-Table 1
 ILLUSTRATIVE LIST OF PHARMACEUTICALS:
 STOCKS ON HAND, DISTRIBUTION RATES AND NEEDS
 THROUGH AUGUST 1986

<u>ITEM AND PRESENTATION</u>	<u>UNIT COST</u>	<u>STOCK ON HAND</u>	<u>EXPEC. ARRIVAL FROM OTHER SOURCES</u>	<u>EST. AVERAGE NEED PER MONTH</u>	<u>QUANTITIES NEEDED THRU 8/86</u>	<u>TOTAL VALUE OF PROCUREMENT</u>	<u>ESTIMATED MONTH TO ZERO INVENTORY WITH CURRENT STOCKS</u>
*1. Ampicillin Powder Injections (as sodium salt) 500 Mg. Vial	2.70	876	0	3,080	36,084	97,426	0
*2. Benzathine Penicillin G 1.2 M 5 ml. Vial	0.70	556	0	6,600	78,644	55,050	0
*3. Potassium penicillin 1 ml. Vial	0.70	990	0	121,000	1,451,010	1,015,707	0
*4. Trimetropine Sulpha Sus. 40/200 (lts)	7.70	11,764	0	20,000	228,236	1,757,417	0
*5. Ampicillin Powder 250mg/ 5ml. oral sus. Vial	1.33	7,726	0	7,700	84,674	112,616	1
6. Cloramphenicol, ophthalmic ointment, tube	4.80	4,603	0	3,300	34,997	167,985	1.4
*7. Cloramphenicol, IV/IM Succinate injection Vial 1 gr.	2.25	39,756	628	5,500	25,616	57,636	7.1
*8. Phenoxymethyl Penicillin (sodium) 250 mg. tab.	2.75/100	0	0	500,000	6,000,000	165,000	0
*9. Phenoxymethyl Penicillin Powder for oral sus. 250 mg. vial	1.87	0	0	10,080	120,960	226,195	0
10. Diazepam 5 mg. tablet	22.36/100	1,400	0	339,000	4,066,600	909,291	0

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ITEM AND PRESENTATION	UNIT COST	STOCK ON HAND	EXPEC. ARRIVAL FROM OTHER SOURCES	EST. AVERAGE NEED PER MONTH	QUANTITIES NEEDED THRU 8/86	TOTAL VALUE OF PROCUREMENT	ESTIMATED MONTH TO ZERO INVENTORY WITH CURRENT STOCKS
11. Erythromycin Stearate tab 250 mg.	9.52/100	106,100	0	343,400	4,014,700	382,199	0
12. Nystatine 100,000 U.I. tab	19.80/100	0	0	89,166	1,069,992	211,840	0
*13. Lidocaine w/out epinephrine 2%	111/1000	0	0	5,816	69,792	7,659	0
*14. Mebendazole Vermox 100 mg. tab 100's	85.16/36	614,000	0	689,016	75,016	177,388	0.9
15. Metronidazole 125 mg. 5 ml. sus. vial	9	329	3,000	1,262	11,815	106,335	2.6
*16. Metronidazole 500 mg. tab. 100's	15/100	200	0	274,250	3,290,998	493,635	0
*17. Hydrochlorothiazide 50 mg. tab	10/100	181,600	0	136,450	1,592,250	159,220	0
*18. Isoniazid 100 mg. tab.	6/100	200,500	0	133,300	1,399,100	83,946	1.5
19. Chlorpromazine 25 mg. vial 2 ml.	1.32	9,618	0	2,780	23,742	31,339	3.4
TOTALS						6,217,884	

NOTE: The items with asterisks fall into the "vital" category. The others were included because they are considered as essential by the MOH and were reaching stock out levels. Essential in this case meaning of greatest demand and highest usage based on prevalent diseases in El Salvador.

(1) All pharmaceuticals being procured under the PP amendment are expected in-country NLT April 86. Partial shipments will be encouraged for those items reaching stock-out point. If PIO/C is issued by November 15, 1985, items can be airlifted in as soon as December, 1985.

(2) Commodities being ordered are expected to cover MOH needs for these pharmaceuticals until August, 1986.

(3) Without additional funds the majority of items to be procured (17 of 19 items) will reach stock out level (0) in less than three months.

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TABLE II - COMPONENT I-A

ILLUSTRATIVE BIO-MEDICAL EQUIPMENT AND MEDICAL SUPPLIES PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
- BIO-MED EQUIPMENT			
Electrocardiograph	7	5,000	35,000
Infant Respirator	2	3,000	6,000
Defibrillators	14	3,500	49,000
Spectrophotometer	5	10,000	50,000
Thoracic Suction	1	500	500
Suction Machine	2	500	<u>1,000</u>
		TOTAL	\$141,500
- MEDICAL SUPPLIES			
Radiographic Film, Processing Machine	3	10,000	30,000
Radiographic Film 10x12"	600	85	51,000
Radiographic Film 9x10"	600	55	33,000
Radiographic Film 14x17"	600	160	96,000
Radiographic Cassette, w/o grid, 10x12"	25	175	4,375
Radiographic Cassette, w/o grid, 8x10"	25	150	3,750
Radiographic Cassette, w/o grid, 14x17"	25	230	5,750
Exsanguination Transfusion Set for Newborns	500 set	20	10,000

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Adult Urine Collection Bag	5,000	2	10,000
Black Silk Suture for Ophthalmic Use, No. 8-0	25 Doz.	65	1,625
Pudenz Valves, Complete with reservoir	50 ea.	168	8,400
Set for Peritoneal Dialysis with "y"	1000 set	7	7,000
Bags for Plasma of 300 ml, empty	200 ea.	2	400
Cardiovascular Black Silk Suture, No. 0000	250 doz.	11	2,750
Penrose Soft Drain of 1/2 inch, No.607	60 Cs.	52	3,120
Penrose Soft Drain of 1 inch No. 607	30 Cs.	52	1,560
Monofilament No. 10-0 w/ double needle and spatula	200 doz.	100	20,000
Tigon tubes of 3/8 inch and 1/16 inch No. 002	100 set	20	2,000
Positionable Wide Retractors, No.3080-003-002, 2 x 3-1/2"	8 ea.	100	800
Hypodermic Needles, 22 x 1-1/2"	3,000 doz.	3	9,000
Surgical Straight Bevel Needles	1,000 doz.	3	3,000
Nylon Scrub Brushes	1,000 ea.	1	1,000
Marking tape indicating sterilization 1/2" width No.268004	3,000 Ro.	2	6,000

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Surgical Hemostatic Gauze 2"x3" No. 1953	100 doz.	80	8,000
Surgical Hemostatic Gauze 4"x8" No. 1952	100 doz.	140	14,000
Surgical Hemostatic Gauze 2"x14" No. 1951	100 doz.	130	13,000
Polyethylene Tubes No.240 and 190	100 doz.	68	6,800
Dexon Ophthalmic S-Green Suture No. 8-2	100 doz.	120	12,000
Silicone-Latex Foley Catheter Size 16 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 18 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 20 Fr.	500 Bx.	10	5,000
Silicone Latex Foley Catheter Size 22 Fr.	500 Bx.	10	5,000
Silicone Latex Foley Catheter Size 24 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 20 Fr.	500 Bx.	10	5,000
Levin Tubes, sizes: 8, 16, 14 and 18 Fr.	500 Cs.	15	7,500
		TOTAL	\$401,830

-WAREHOUSE EQUIPMENT

Fork lift, gasoline motor, warehouse heavy duty, lift weight 1 ton	1 ea.	26,000	26,000
		TOTAL	\$ 26,000

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Surgical Hemostatic Gauze 2"x3" No. 1953	100 doz.	80	8,000
Surgical Hemostatic Gauze 4"x8" No. 1952	100 doz.	140	14,000
Surgical Hemostatic Gauze 2"x14" No. 1951	100 doz.	130	13,000
Polyethylene Tubes No.240 and 190	100 doz.	68	6,800
Dexon Ophthalmic S-Green Suture No. 8-2	100 doz.	120	1,200
Silicone-Latex Foley Catheter Size 16 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 18 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 20 Fr.	500 Bx.	10	5,000
Silicone Latex Foley Catheter Size 22 Fr.	500 Bx.	10	5,000
Silicone Latex Foley Catheter Size 24 Fr.	500 Bx.	10	5,000
Silicone-Latex Foley Catheter Size 20 Fr.	500 Bx.	10	5,000
Levin Tubes, sizes: 8, 16, 14 and 18 Fr.	500 Cs.	15	7,500
		TOTAL	\$395,830

-WAREHOUSE EQUIPMENT

Fork lift, gasoline motor, warehouse heavy duty, lift weight 1 ton	1 ea.	26,000	26,000
		TOTAL	\$ 26,000

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TABLE III - COMPONENT I-B
 MALARIA
 INSECTICIDES, PHARMACEUTICALS AND VEHICLES

<u>INSECTICIDE</u>							
Propoxur 50Z	\$ 12.00 kgs.	20,000 Kgr.	60,000 Kgr.	40,000 Kr.	October/85	April/86	\$ 480,000
Pyrethroid	\$150.00 gal.	-0-	2,000 gals.	2,000 gals.	October/85	April/86	\$ 300,000
						TOTAL	\$ 780,000

<u>PHARMACEUTICALS</u>	<u>COST</u>	<u>AMOUNT AVAILABLE 12/31/85</u>	<u>ESTIMATED ANNUAL USAGE RATES</u>	<u>AMOUNT NEEDED THRU 8/26</u>	<u>WHEN NEED TO ORDER</u>	<u>ESTIMATED ARRIVAL IN COUNTRY</u>	<u>TOTAL PROCUREMENT VALUE</u>
Chloroquine-Primaquine (combined adult use) 150 Mg. Plus 15 Mg.	C 64.50 Btl. of 1,000	2,050,000	6,050,000	4,000,000	Nov./85 (local purchase)	January/86 (local purchase)	C 258,000
Chloroquine-Primaquine (combined children use) 75 Mg. Plus 15 Mg.	C 55.80	80,000	1,480,000	1,400,000	Nov./85 (local purchase)	January/86 (local purchase)	C 78,120
Primaquine (adult use) (15 Mg.)	C 49.25	17,000	417,000	400,000	Nov./85 (local purchase)	January/86 (local purchase)	C 19,700
Primaquine (children use 15 Mg.)	C 39.75	-0-	300,000	300,000	Nov./85 (local purchase)	January 86 (local purchase)	C 11,925
						Exchange rate 2.5	\$ 147,098

TABLE III COMPONENT I-B, CONTINUED

<u>VEHICLES</u>	<u>COST</u>	<u>AMOUNT NEEDED THRU 8/26</u>	<u>WHEN NEED TO ORDER</u>	<u>ESTIMATED ARRIVAL IN COUNTRY</u>	<u>TOTAL PROCUREMENT VALUE</u>
Pick-Ups J-10 Model 25 for mounting one ea. ULV machines	12,800	5 Units	October/85	March/86	64,000
Jeep CJ-7 diesel, for supervision	11,500	1 units	October/85	March/86	11,500
				TOTAL	\$75,500

TABLE IV - COMPONENT I-C

ILLUSTRATIVE DRUG QUALITY CONTROL EQUIPMENT PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Dissolution Tester	1	1,500	\$ 1,500
Tablet Tester (rolling)	2	750	1,500
Tablet Tester (breaking)	2	750	1,500
Incubator (NAPCO)	1	2,000	2,000
Stirring Bars M-27's	10	5	50
Stirring Bars M-33's	5	10	50
Calculator (programmable)	2	600	1,200
Chromator, Ultraviolet	1	2,200	2,200
Liquid Chromatography System	1	25,000	25,000
Gas Chromatography System	1	15,000	15,000 50,000
Misc. Chemicals/Reagents and lab supplies	N/A		25,000
		GRAND TOTAL	\$75,000

TABLE V - COMPONENT II

VEHICLE MAINTENANCE TOOLS, EQUIPMENT AND SPARE PARTS PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
<u>-VEHICLE MAINTENANCE TOOLS AND EQUIPMENT</u>			
Presses and brakes various sizes	5	\$ 3,500	\$ 17,500
Wheel bearing packers	5	355	1,775
Body repair tools	2	220	440
Ramp and pump assemblies	2	360	720
Wedge type hydraulic set	2	335	670
Forges	2	1,220	2,440
Valve seat grinder set	2	1,200	2,400
Valve face grinder set	2	2,900	5,800
Folding body cranes	2	1,900	3,800
Truck transmission jack	2	1,650	3,300
Pipe benders	2	1,720	3,440
Brake deligner & riv.	2	2,100	4,200
Power-Hack saw	1	1,500	1,500
Pliers, locking various sizes: 5, 7-1/2, 10" (5 ea.)	20	8	160

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Battery fillers	5	400	2,000
Roller cabinets	5	300	1,500
Steel platform tracks 2539T24	5	400	2,000
Spark plug tester/ cleaner	5	250	1,250
Metal shears 36"	5	900	4,500
Key sets	10	10	100
Expansion reamers	5	500	2,500
Screw drivers standard edge various sizes U.S. gauge	30	3	90
Welding equipment acetyline	4	200	800
Maintenance tool kits	10	100	1,000
Mechanic tool boxes (metric)	10	600	6,000
Grease guns with hose	6	20	120
Steam solvent 32004	5	30	150
Winches and hoists	5	200	1,000
Tire changing stand	2	540	1,080
Tire tool service 6691A1	2	250	500
Tire tool service 6691A2	2	370	740
Tire changing impact tool	2	130	260

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ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Centrifugal pumps	5	260	1,300
Floor jacks	6	300	1,800
Jointer planer	2	500	1,000
Hydraulic pit hoist	1	843	843
		TOTAL	\$100,648

- VEHICLE SPARE PARTS

Oil filter	2,600	\$ 3	7,800
Air filters	1,100	3	3,300
Gas filters	550	3	1,650
Spark plugs	2,100	2	4,200
Caps	140	4	560
Rotor	250	2	500
Control Unit	25	12	300
Reluctor	25	2	50
Magnetic pick-up	25	11	275
Coil	60	9	540
Regulator	130	5	650
Ignition wire	100	16	1,600
Alternator brush set	50	4	200
		TOTAL	\$ 21,625

- TIRES

Polyester G30, size G78/15 black	150	44	6,600
Right Truck H36, Size 7"00/15 black	145	49	7,105

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Kight Truck KS2, Size 750/16, balck	120	61	7,320
Kight Truck K48, Size 9.50/16.5 black	110	67	7,370
		TOTAL	\$ 28,395
		Grand total	\$ 50,000

TABLE VI - COMPONENT II

BIO-MEDICAL EQUIPMENT SPARE PARTS AND COMMUNICATION PARTS PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
-BIO MED MAINT. EQUIP.			
Defibrillation	4	\$1,581	\$ 6,324
Clamp-on Ammeter	8	150	1,200
Insulation Tester	8	800	6,400
Wheatsone Bridge	8	363	2,904
Resistance Decade	8	260	2,080
Test Lead Probes	16	17	272
Test Mobiles	16	198	3,168
Safety Inspector	8	440	3,520
Hospital Power System Test Set	8	462	3,696
Biomedical Electrical Test Set	8	1,045	8,360
Hospital Safety Meter	8	495	3,960
Line Leakage	8	616	4,928
Receptable Contact Tester	8	33	264
Flectrode Impedance Analyzer	9	561	5,049
Equipment Labels	12 Lot	40	480
Thermocouple Indicator	10	1,045	10,450

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
ECG Generator	8	341	2,728
Multicorder	8	548	4,384
Chart Paper	16	40	640
		TOTAL	\$70,807

-BIO-MED EQUIPMENT SPARE PARTS

Spare parts for Chayes equipment (Chayes Virginia Corp., Evansville Ind.)	3,000
Ohio Medical products (Madison, Wins)	6,000
Clay Adams medical equipment	1,000
Kitter medical equip. (Rochester, N.Y.)	2,000
Picker medical equip. (Cleveland, Ohio)	10,000
GE medical equipment	15,000
Hudson oxygen equipment	1,500
Air Shields (incubator spare parts)	2,000
Collins spirometer spare parts	1,400
American optical equipment	3,000
Birtcher Corp. medical spare parts	500
Baush-Lomb spare parts	500

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Castle Sykron medical spare parts; sterilizers, autoclaves, lamps			4,100
		TOTAL	\$50,000
<hr/>			
<u>-COMMUNICATIONS EQUIP.</u>			
SPARE PARTS			
2 years repair parts for each radio model procured under PIO/C 519-029-5-30087			\$10,000
Misc. communication spare parts; coaxial cable, diodes, transistors, etc., for equipment on hand and not included in (1) above			6,000
Misc. communication test instruments, volt meters, generator testes, bridges, oscilloscopes, sweeps, ect.			9,000
		TOTAL	\$25,000

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TABLE VII - COMPONENT III

ILLUSTRATIVE MANAGEMENT INFORMATION SYSTEM EQUIPMENT PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
<u>-HARDWARE</u>			
Computer AT .640 K; with disk drive, monitor and accessories	1	\$ 6,500	\$ 6,500
Computer AT .512 K; wt, disk drive monitor and accessories	1	6,000	6,000
Computers PC (smart terminals) 256 K wt disk drive, monitors and accessories	10	5,500	55,000
Matrix printers with accessories	5	2,000	10,000
Daisy wheel printers with accessories	4	2,200	8,800
File servers	2	3,000	6,000
PC network translator unit	2	1,500	3,000
PC network adapter	2	1,500	3,000
UPS (1000 watts) 20 min., op. time	1	2,000	2,000
UPS (400 watts) 20 min., op. time	1 1	2,000 2,000	2,000 2,000
Generator 275 Kw.	1	28,900	28,000
Installation materials;	N/A	N/A	27,700
			\$ 160,000

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ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
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<u>-SOFTWARE</u>			\$ 40,000
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PC network pack
 DOS 3.1
 BASIC 3.0
 dBase III
 Lotus 1, 2, 3
 Symphony
 Wordstar
 Other (canned programs i.e.
 stat programs
 inventory programs, etc.)

<u>-OFFICE SUPPLIES</u>			\$ 25,000
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Print paper
 Diskettes
 Daisy wheels
 Ribbon
 Stands
 Desk
 Chair

TABLE VIII - COMPONENT IV

EQUIPMENT FOR EMERGENCY MEDICAL SERVICE PROCUREMENT

NOTE: THE FOLLOWING COMMODITIES LISTED UNDER THIS TABLE NEED TO BE ORDERED BY 11/15/85 AND IN COUNTRY BY 4/15/86

ITEM DESCRIPTION	QTY	UNIT PRICE	EXTENDED PRICE
Undercounter blood bank refrigerator units	16	\$ 2,200	\$ 35,200
Voltage regulator for above units	16	300	4,800
Mobil X-ray units AMX-3	2	25,000	50,000
		TOTAL	\$ 90,000

Technical Assistance Contract
Scopes of Work

I. Overall Objective:

To provide technical assistance to key areas addressed by the Project, which is designed to rapidly restore, revitalize and provide for institutional development of the health system in El Salvador.

A. Administrative:

1. Key personnel - individual(s) considered essential to the work being performed. They will be fully responsible for providing resources required by the technical assistance team in El Salvador.
2. Home office back stopping - logistic support, procurement services, and the administrative and advisory services required by the technical assistance team in El Salvador from the home office for successful accomplishment of the assigned tasks.

B. Technical Assistance:

The Contractor shall provide:

1. Technical assistance to the Ministry of Public Health and Social Assistance (MOH) to facilitate the acquisition of critically needed commodities for infusion into the health supplies delivery system.
2. Technical assistance to continue to increase the administrative capability and effectiveness of the supply management functions of the MOH including procurement, inventory control, storage and distribution and institutionalization of this capability through, inter alia, a Management Information System.
3. Technical assistance to improve the MOH Maintenance Department's capacity to perform maintenance and repair of biomedical, electrical, and electromechanical equipment, and to develop a comprehensive preventive maintenance program and a computerized system integrated with the Management Information System.
4. An analysis of the MOH's maintenance program and assistance in the strengthening of small medical maintenance units in hospitals and health centers. Refine the needs for spare parts and develop standard documents for spare parts inventories needed for hospitals, health centers and regional centers.

5. Technical assistance and on the job training for both the administrative and technical staff of the MOH.
6. Provide technical assistance, additional equipment and training in the area of Drug Quality Control to ensure that the laboratory developed under phase I of the project ending 12/86 is completely operational with trained personnel and equipment for the provision of services to the MOH in place.
7. Technical assistance, equipment and training in the area of Management Information Systems to develop a computerized (hardware and software) management system to allow the MOH to monitor, assess and procure drugs, biomedical equipment, supplies, medical instruments, vehicle maintenance, and spare parts for all mechanical equipment. In addition, the system should include personnel, accounting and finance, health statistics, facilities management, and payroll.

Addendum I (entitled project excerpts) hereto, for your information and guidance, provides overall AID Project background, strategy, description, and all evaluations currently on record.

II. Statement of Work:

The specific statements of work for the technical assistance team are as follows:

A. HEALTH SUPPLY MANAGEMENT ADVISOR (16 P/M)

1) General Tasks

- a. With the MOH implement unit, the Executive Management Group (EMG) supervise the implementation of the supply management system at the central and regional levels.
- b. Implement total cost analysis of the supply management system, including costs of inventory, warehousing, distribution and administration. Submit a plan and implement activities to upgrade operations and reduce costs.
- c. Implement a continuing in-country training program for Central and Regional administrators and supply managers which includes the following topics: Supply management, physical distribution, cold chain management, warehousing, and evaluation.

- d. With the Bio-medical maintenance advisor(s) complete an inventory and classification of Bio-medical equipment and plant equipment (boilers, washers, dryers, generators, etc.), and develop a capital budget to purchase necessary stocks of spare parts and replacement equipment to cover a five year period.
- e. Supervise the ongoing management evaluation program and coordinate resulting activities with EMG and USAID.
- f. With the MOH develop and implement annual, quarterly and montnly work plans.
- g. Monitor with the EMG an internal auditing program. Make recommendations and implement actions that upgrade delivery of products and services within the MOH system.
- h. Produce and disseminate standard guidelines and manuals for MOH warehousing, supply management system, procurement, management information system and drug quality control.
- i. Develop and assist in the institutionalization of a national drug formulary for all levels of the health care system in El Salvador.

2) Specific Tasks:

a. Technical

- (1) Provide T. A. to the Executive Management Group (EMG) and implement a comprehensive supply management system necessary for the effective and sufficient utilization of equipment and supplies, including pharmaceutical products, hospital equipment, medical supplies, vehicles and cold chain equipment to be procured under the project.
- (2) Provide T.A. to the EMG to implement the VISISA project on both national and regional levels and ensure appropriate technical assistance be provided to the MOH Procurement Office, the Operational Services Department, Regional Health Offices and hospitals.

- (3) Provide T.A. to the EMG in the overall design and insure the implementation as well as the evaluation of a supply management system, including planning, procurement, inventory strategy and control and physical distribution.
- (4) Provide T. A. to complete the development and publication of guidelines and manuals for inventory management information systems, warehousing and physical distribution.
- (5) Provide T. A. to develop and implement a plan for the physical distribution of emergency medical supplies and equipment to regional level hospitals, warehouses, and health facilities.
- (6) Provide T. A. to the MOH to develop and implement an institutional capability to manage and supervise receiving and clearing operations.
- (7) Provide T. A. to assist the MOH in the design and executing of a complete management audit of the supply management system, including hospitals, regional units, and central administrative department. Recommendations should provide a basis for reducing costs and upgrading services provided by MOH.
- (8) Provide T. A. and assist in the planning and implementation of central level warehouse construction and repair and remodeling of central and regional warehouses.
- (9) Develop and implement a storage plan and system for the distribution of medicines, medical supplies, hospital equipment, cold chain supplies to operating units through central level and regional level warehouses.
- (10) Develop and implement training programs and in-country seminars on warehouse management and operations for MSPAS warehouse/logistics personnel.
- (11) Provide T. A. to the MOH and establish, implement and maintain a fully operational cold chain system in El Salvador.

- (12) Provide T. A. to prepare and standarize warehousing guidelines for utilization on national, regional and hospital levels.
- (13) Develop and ensure the implementation of a service policy that will provide the basis for the design of an optimal supply management system and facilitate performance evaluations for the MOH.
- (14) Provide T. A. to assist EMG in the development of annual implementation and evaluation work plans.
- (15) Participate with the EMG in monthly meetings with the VISISA Board of Directors.
- (16) Assist EMG to develop and evaluate programs to measure continuous, relevant aspects of material management performance to ensure effective and efficient operations.
- (17) Evaluate performance of EMG on a continual basis, recommending modifications of structure and function to upgrace efficiency and effectiveness.
- (18) Participate in the periodic donor project implementation coordination meetings, with PAHO, IDB, IBRD, UNDP and AID.

b. Administrative

- (1) The Contractor will perapare a detailed implementation plan within 30 days of arrival. The plan including a time chart is to be submitted to USAID for approval.
- (2) As team leader, provide guidance, manage and supervise, all long and short term technical advisors, in nis/her area, under the contract.
- (3) Provide USAID/El Salvador with written reports on weekly and/or monthly VISISA board meetings.
- (4) Provide USAID/El Salvador with copies of all guidelines, manuals, planning and implementation documents.

- (5) Present a Progress Report to USAID/El Salvador at three month intervals that includes a resume of all aspects of technical assistance to MOH. The report shall state the problems encountered, proposed solutions and planning for the next three months.

c. Desired Qualifications

Masters Degree or equivalent experience in an area such as supply management, logistics, distribution management, and three years direct experience as logistics manager in an LDC setting. Person must be able to relate effectively to medical professionals and Ministry personnel. Fluent Spanish and cultural sensitivity are essential.

B. BIO MEDICAL AND EQUIPMENT MAINTENANCE ADVISOR (16 P/M) NOW (12)

1) General Objective:

To provide T. A. to the MOH which will effect improvements to the present Biomedical Equipment Maintenance (BEM) system and to ensure institutionalization of these improvements.

2) Specific Tasks:

a. Technical

- (1) Strengthen the BEM units in hospitals, health centers and/or regional BEM's; includes recommended staffing and developing training requirements, using appropriate equipment.
- (2) Develop and install a scheduled preventive maintenance program for key biomedical equipment throughout the country.
- (3) Implement and equip unit and central level libraries for manuals. Libraries shall contain operating instructions/repair/maintenance manuals of biomedical equipment now on inventory.
- (4) Develop and conduct training programs on the utilization of all manuals for each appropriate level of personnel, as well as a combined BEM training program at all levels for the country.

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- (5) Assist MOH in implementing management and administrative improvements in the medical equipment repair/maintenance area.
- (6) Institutionalize an operational plan for the review on a continuing basis of equipment, due-in, update and revise scheduled installations.
- (7) Develop and install an operational system for adequate procurement within the MOH for all medical and maintenance equipment. Insure that standardization has been strictly adhered to.
- (8) Develop and install an operational procedure for reviewing on a continuing basis, equipment to be salvaged or scrapped and that documentation has been submitted for replacement.
- (9) Implement the biomedical equipment inventory/information system for maintenance and property control department of all health care facilities.
- (10) Implement a program for developing specifications of biomedical equipment, tools, and test equipment.
- (11) Develop and implement a radiation protection program for patients, technicians and doctors.
- (12) Development and implementation of the test, measurement and diagnostic equipment, maintenance and training program.
- (13) Implementation of improvements to the Biomedical Equipment Replacement Program.
- (14) Development and implementation of an equipment maintenance program for laboratories.
- (15) Development and implementation of the Basic Plant Equipment Maintenance Program for health care facilities.
- (16) Implementation of the Biomedical Equipment Maintenance System at Regional Shops.

- (17) Biomedical equipment maintenance installation and pre-installation program of new, used and donated equipment in the five regions.
- (18) Develop and implement with the MCH a plan for review on a continuing basis the status of space available for implementation of the medical equipment maintenance program.
- (19) Follow-up on target dates for establishment of medical maintenance department in hospitals and medical centers.
- (20) Review on a continuing basis the establishment of preventive maintenance programs for hospitals and medical centers and respective target dates.
- (21) In coordination with the Management Information System advisor, develop the information needs for the biomedical maintenance system, including, but not limited to: stock and inventory control of spare parts, preventive maintenance scheduling, equipment status reports, etc.
- (22) Assist external evaluators in identifying indicators which may provide a basis for measuring improvement in the medical equipment maintenance system.
- (23) Provide T. A. to assist EMG in the development of annual implementation and evaluation work plans.
- (24) Assist the EMG to develop and evaluate programs to measure continuous, relevant aspects of material management performance to ensure effective and efficient operations.

b. Administrative

- (1) The Contractor will prepare a detailed implementation plan within 30 days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.
- (2) Submit reports and recommendations to the Team Leader on a monthly basis.

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(3) Prepare monthly work plans to coordinate activities with the MOH and technical assistance team.

(4) Prepare and submit an end of consultancy report.

c. Desired Qualifications

Professional biomedical equipment repair/preventive maintenance experience is essential. Highly desirable is experience in overall management of biomedical maintenance/repair program for a large hospital. Experience in Latin America and fluent Spanish is essential.

C. HEALTH PLANNING ADVISOR (12 P/M)

1) General Objective

Develop a data-based system for resource allocation (human, financial and material) and to provide overall T A and coordination for all operational research activities contemplated under the project.

2) Specific Tasks

a. Perform an overall review of the present health planning methodology, with particular emphasis on information needs and central and regional level participation in the planning process. The review will have as its outcome, a set of recommendations of methodological improvements to the health planning process.

b. In coordination with the MIS Advisor, develop data collection systems which will facilitate medium and long-term planning for the MOH.

c. Supervise the development and implementation of the end-of-project evaluation. As specified in the Project Agreement, the areas covered by this evaluation is as follows:

(1) Examination of the overall health needs of the people of El Salvador.

(2) Review and evaluation of existing and proposed AID health programs.

- (3) Make recommendations regarding the provisions of health systems in El Salvador and the AID program.
 - (4) Address the need to train new paramedics and upgrade the skill of nurses and other health personnel.
- d. On the basis of the results of the final evaluation, recommend additional TA (type and length) to carry out the resulting recommendations under this project and/or in a follow-on-project. A probable area for additional TA is in Human Resource Development, particularly in Continuing Education.
 - e. Identify, develop and implement management indicators which will provide the basis for measuring improvement in the health planning system..
 - f. Plan, coordinate and evaluate with EMG and USAID the day-to-day activities of technical assistance provided under the project, and covered by this contract.
 - g. Provide TA to assist EMG in the development of annual implementation and evaluation work plans.
 - h. Assist EMG to develop and evaluate programs to measure continuous, relevant aspects of material management performance to ensure effective and efficient operations.
 - i. Evaluate performance of EMG on a continual basis, recommending modifications of structure and function to upgrade efficiency and effectiveness.

3) Administrative

- a. The Contractor will prepare a detailed implementation plan within 30-days of arrival. The plan is to be submitted to the Team Leader for presentation to USAID for AID approval.
- b. Submit reports and recommendations to USAID.
- c. Prepare monthly work plans to coordinate activities with EMG and technical assistance team.
- d. Prepare and submit an end of consultancy report which includes but is not limited to the following:

- (1) Prioritized recommendations for future AID involvement in the Health Sector.
- (2) Recommendations for staffing and training needs of the Planning Division.
- (3) Recommendations for improvement to MSPAS health planning procedures.

D. MANAGEMENT INFORMATION SYSTEM ADVISOR (12 P/M)

1) General Objective:

Coordinate and implement the computerization of the supply management information system with suppliers of equipment, MIS advisors, MOH personnel, and MOH property officer. The purpose of the MIS component is, therefore, to provide the MOH with the necessary resources to develop a comprehensive data base to support MOH activities in procurement, supplies and maintenance management, and to implement a distributed data processing system which responds to MOH administrative needs.

2) Specific Tasks:

a. Technical:

- (1) Collaborate in the adaptation or development of the following programs for the computer system

- Personnel
 - Accounting
 - Finance
 - Maintenance Management*
 - Procurement Management*
 - Supply Management*
 - Project Management
 - Health Statistics*
 - Facilities Management
 - Payroll
 - Diagnosis
- * Starting with these areas and laying groundwork for the rest.

- (2) Collaborate in and ensure the development of basic and fundamental data needed to execute periodic planning process for both the regional and central levels.

- (3) Collaborate in and ensure the development of analysis programs of data on the more significant pathologies in order to establish adequate control mechanisms.
- (4) Develop, plan, and conduct training programs for personnel involved in the MIS program.
- (5) Develop and execute computerized evaluation systems to monitor the operation of health programs.
- (6) Provide TA to develop the computer center for the MOH and equipment procurement. The TA should also include the development and implementation of training courses in preventive, as well as corrective maintenance.
- (7) Develop and implement a training program for the personnel in charge of the computer equipment, in the areas of programming and operation.
- (8) Coordinate and assist in the implementation of the mechanized systems for vital statistics.
- (9) Develop, implement and assist in the installation of the computer systems for the regional centers and hospitals.
- (10) Provide TA to assist the EMG in the development of annual implementation and evaluation work plans.
- (11) Assist the EMG to develop and evaluate programs to measure continuous, relevant aspects of material management performance to ensure effective and efficient operations.

3. Administrative:

- a. The Contractor will prepare a detailed implementation plan within 30-days of arrival. The plan is to be submitted to the Team Leader for presentation to USAID for AID approval.
- b. Submit reports and recommendations to the team leader.

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- c. Prepare monthly work plans to coordinate activities with EMG and technical assistance team.
- d. Prepare and submit an end of consultancy report.

E. DRUG QUALITY CONTROL ADVISOR (8 P/M)

With the EMG, coordinate the installation and operation of the drug quality control operation of the MOH.

1) General Objective:

Provide the MOH with technical assistance for the establishment of a Drug Quality Control (DQC) laboratory.

2) Specific Tasks:

a. Technical:

- (1) Supervise and ensure the proper installation of DQC equipment, as required.
- (2) Develop a plan for pre-site remodeling of the laboratory site, as required.
- (3) Prepare a detailed outline of DQC staff training needs, long/short term, off-shore and in-service, and identify off-shore training sites.
- (4) Conduct in-service training activities as identified in (3) above.
- (5) Develop a detailed standard operating procedures manual for receiving, recording, processing and reporting of drug quality control tests.
- (6) Prepare an initial review of El Salvador's current drug regulatory system, including but not limited to, existing and draft legislation and make recommendations for short and long term improvements, with an estimated budget to accomplish same.

- (7) Establish linkages between the DQC laboratory in El Salvador and reference DQC laboratories in the Region in order to ensure that high quality, accurate testing is being carried out by the MOH laboratory.
- (8) Develop a plan for accessing technical assistance, training and other resources which may be available under the AID/PAHO Cooperative Agreement on "Essential Drugs."
- (9) Within the last month of the technical assistance period, prepare a report which contains detailed recommendations for follow-up of the DQC program with a view to institutionalizing DQC activities within the government's drug regulatory program.
- (10) Provide TA to assist the EMG in the development of annual implementation and evaluation work plans.
- (11) Assist EMG to develop and evaluate programs to measure continuous, relevant aspects of material management performance to ensure effective and efficient operations.

3) Administrative:

- a. The Contractor will prepare a detailed implementation plan within 30-days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.
- b. Submit reports and recommendations to the team leader.
- c. Prepare monthly work plans to coordinate activities with EMG and technical assistance team.
- d. Prepare and submit an end of consultancy report.

4) Qualifications:

- a. Medical doctor, pharmacist, chemist with relevant experience (5 years or more) in the areas of drug program management, inspectional or drug evaluation services, drug quality control laboratory management.

- b. Fluent in Spanish or English with functional capability in the other language.

F. DRUG FORMULARY ADVISOR (6 P/M)

1) General Objective:

To assist the MOH in developing the Official Drug Formulary, by level of health facility (Hospital, Health Center, Health Unit and Health Post).

2) Specific Tasks:

a. Technical:

- (1) Coordinate and ensure the establishment of a drug therapeutics committee that provides a continual oversight of the drug formulary and recommends changes and additions when and where applicable.
- (2) Perform a detailed analysis of existing basic drug lists and work accomplished towards developing a full formulary.
- (3) Prepare the final basic drug list for Ministerial approval.
- (4) Select from various models the presentation (format) to be used for the Drug Formulary.
- (5) Convert the Basic Drug List into a full formulary which includes, but is not limited to, generic names, indications, contraindications, dosage instructions (pediatric and adult), major side effects and their management, etc. The Formulary should be presented by level of facility (Hospital, Centers, Units and Post).
- (6) Provide guidance to the MOH in determining the types of health personnel who should be authorized to administer each drug in the formulary.

b. Administrative:

- (1) The Contractor will prepare a detailed implementation plan within 30-days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.

- (2) Submit reports and recommendations to the team leader.
- (3) Prepare monthly work plans to coordinate activities with EMG and technical assistance team.
- (4) Prepare and submit an end of consultancy report.

c. Qualifications

- (1) Physician Pharmacologist with at least 5 years experience in the field of pharmacology in Latin America or the equivalent.
- (2) Fluent in Spanish.

G. VEHICLE MAINTENANCE ADVISOR (6 P/M)

1) General Objectives

To assist the MOH in effecting additional improvements to the present Vehicle Maintenance System and to promote institutionalization of these improvements.

2) Specific Tasks

a. Technical

- (1) Establish and strengthen regional and central level vehicle maintenance shops; including recommended staffing and training requirements.
- (2) Institutionalize the scheduled preventive maintenance program for the MOH vehicle fleet.
- (3) Continue the development of regional and central level libraries of manuals for operating instructions/repair/maintenance of vehicles on inventory.
- (4) Develop and implement an in-service vehicle maintenance/repair training program.
- (5) Ensure that needed spare parts are on inventory or on order.

(6) Write specifications for vehicles which are programmed to be replaced taking into consideration:

- Type of service required
- Type of roads to be used
- Availability of fuel
- Availability of drivers
- Standardization policies

(7) Write specifications on "vehicle fast moving" spare parts and maintenance supplies.

(8) Ensure and supervise the implementation of a proper kilometer-based maintenance system.

(9) Develop specifications on the equipment and tools necessary for the operation of a diesel laboratory.

(10) Design and organize the operation and service procedures for the diesel laboratory.

(11) Design and Develop a mechanical repair shop for rebuilding engines. Design should include:

- Specifications for equipment and tools needed
- Training program for appropriate personnel
- Operational plan

(12) Design and implement a shop for brake shoe and disk plate reconditioning. Design should include:

- Specifications for equipment and tools needed
- Training program for appropriate personnel
- Distribution and control procedures of items reconditioned.

(13) Design and implement a shop for wheel balancing and alignment. Design should include:

- Specifications for equipment and tools required
- Training program for appropriate personnel

- (14) Develop and institutionalize training programs to improve the performance of the mechanical shops in the Hospitals, Regions, and Central areas.
- (15) Provide periodic supervision of vehicle maintenance workshops.
- (16) In coordination with the MIS Advisor, institutionalize the information needs for the vehicle maintenance systems, including, but not limited to: stock and inventory control of spare parts, preventive maintenance scheduling, vehicle status reports.
- (17) Assist external evaluators in identifying indicators which may provide a basis for measuring improvement in the vehicle maintenance system.

c. Administrative

- (1) The Contractor will prepare a detailed implementation plan within 30 days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.
- (2) Submit reports and recommendations to the team leader.
- (3) Prepare monthly work plans to coordinate activities with EMG and the technical assistance team.
- (4) Prepare and submit an end of consultancy report.

c. Desired Qualifications

Professional experience in management of a large vehicle maintenance/repair program operation is essential. Experience in Latin America and fluent Spanish is also considered essential.

H. MEDICAL EQUIPMENT AND SPECIFICATION SPECIALIST (3 P/M)

1) General Objective:

To analyze, define and develop all appropriate specifications and documents for the purchasing of medical equipment for the project.

2) Specific Tasks:

a. Technical:

- (1) With the bio medical maintenance advisor, MOH and the bio-medical survey specialists, develop specific specifications and budgets to purchase necessary stocks of spare parts and replacement equipment.
- (2) Develop appropriate documentation for medical equipment and specifications for the procurement of all equipment designated under the project.
- (3) Implement the development of standardized specifications for recurring requirements as identified by the biomedical maintenance advisor.
- (4) Assure that all equipment specifications developed adhere to relevant procurement laws, regulations and procedures which will maximize competition.
- (5) Provide TA to assist the ENG in the development of annual implementation and evaluation work plans.

b. Administrative

- (1) The Contractor will prepare a detailed implementation plan within 5 days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.
- (2) Submit reports and recommendations to the team leader.
- (3) Prepare work plans to coordinate activities with ENG and the technical assistance team.
- (4) Prepare and submit an end of consultancy report.

c. Desired Qualifications

Professional experience in biomedical specification development and installation as well as familiarity with AID procurement procedures and documentation. Experience in Latin America and fluent Spanish is also considered essential.

I. PHARMACEUTICAL AND MEDICAL INSTRUMENT SPECIFICATION SPECIALIST
(3 P/M)

1) General Objective:

To analyze, define and develop all appropriate specifications and documents for the purchasing of pharmaceuticals and medical supplies and instruments under the project.

2) Specific Tasks:

a. Technical:

- (1) With the MOH, the drug formulary advisor and the biomedical advisor, develop specifications and budgets to purchase all necessary commodities and medical supplies for the project.
- (2) Develop appropriate documentation for pharmaceutical and medical equipment specifications for the procurement of all pharmaceutical and medical equipment designated under the project.
- (3) Implement the development of standardized specifications for recurring requirements as identified by the drug formulary advisor.
- (4) Assure that specifications developed adhere to relevant procurement laws, regulations, and procedures which maximize competition.
- (5) Provide TA to assist the EMG in the development of annual implementation and evaluation work plans.

c. Desired Qualifications

Professional experience in pharmaceutical and medical instrument specification development as well as familiarity with AID procurement procedures and documentation. Experience in Latin America and fluent Spanish is also considered essential.

J. COMPUTER PROGRAMMER FOR THE MANAGEMENT INFORMATION SYSTEM (3 P/M)

1) General Objective:

To analyze and define systems requirements and develop appropriate programs for each of the areas specified under the project.

2) Specific Tasks:

a. Technical:

- (1) Develops and prepares diagrammatic plans for resolution of business, scientific and technical problems by means of ADP equipment.
- (2) Analyzes programs outlined by the systems analyst in terms of:
 - i Types and extent of information to be transferred from storage units.
 - ii Variety of items to be processed
 - iii Extent of sorting
 - iv Formats of final printed results
- (3) Designs detailed programs, flow charts and diagrams which indicate the mathematical computations and sequence of machine operations necessary to copy, process data and print results.
- (4) Verifies the accuracy and completeness of programs by preparing sample data reports and systems acceptance runs by operating personnel.
- (5) Corrects program errors by revising instructions or altering sequence of operations.
- (6) Maintains system and program documentation and operating run procedures.
- (7) Evaluates and modifies the types of reports desired.
- (8) Provides on the job training to ADP personnel.

b. Qualifications:

- (1) College degree in computer programming and at least 2 years experience as a programmer.
- (2) Minimum of FSI-3 (or equivalent) in Spanish
- (3) Professional experience in computer programming and systems design as well as familiarity with integrated medical management systems.

c. Administrative

- (1) The Contractor will prepare a detailed implementation plan within 5 days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for approval.
- (2) Submit reports and recommendations to the team leader.
- (3) Prepare work plans to coordinate activities with EMG and the technical assistance team.
- (4) Prepare and submit an end of consultancy report.

K. SYSTEMS ANALYST (8 P/M)

1) General Objective:

2) Specific Tasks:

a. Technical:

In collaboration with counterparts,

- (1) Prepares layouts for computer and advanced office systems requirements.
- (2) Develops procedures to process information.
- (3) Develops (flow charts, computer instructions) detailed specifications
- (4) Supervises programmer(s) in the development of computer programs.

- (5) Carries out "trouble shooting" activities until the programs are fully operational.
- (6) As required, develops and implements special applications utilizing mathematical and statistical formulae.
- (7) Provides on-the-job training to MIS Personnel and all other MOH personnel who will be inputting data.

b. Administrative

- (1) The Contractor will prepare a detailed implementation plan within 5 days of arrival. The plan is to be submitted to the Team Leader for presentation to AID for AID approval.
- (2) Submit reports and recommendations to the team leader.
- (3) Prepare work plans to coordinate activities with EMG and the technical assistance team.
- (4) Prepare and submit an end of consultancy report.

c. Desired Qualifications

- (1) Professional experience in systems analysis, design and implementation as well as computer programming with integrated medical management systems.
- (2) Minimum of four years of experience as an analyst or senior programmer, with a college degree in computer science.
- (3) Familiarity with a wide variety of software packages. In particular, the incumbent should have worked with packages which are suitable for applications in:
 - i Finance/accounting
 - ii Health statistics
 - iii Supply management and inventory control
 - iv Personnel records

- (4) Desirable that incumbent be capable of using concepts associated with third generation equipment.
- (5) Minimum of FSI-3 level (or equivalent) in Spanish.

L. PROCUREMENT SERVICES TO BE DELIVERED UNDER CONTRACT

1) General Objective

The agent will be responsible for all procurement actions under this contract specifically in the areas of pharmaceuticals, vehicles, medical supplies and instruments, insecticides, biomedical equipment, and other items to be identified during the execution of the project.

2) Specific Tasks:

- a. The agent will procure all of the items listed in each PIO/C and arrange for their expeditious and safe delivery to destination following the instructions in the PIO/C, its attachments and any subsequent amendments. In doing so, the rules and procedures in AID Handbook 11, Country Contracting, Chapter 3, Procurement of Equipment and Materials and will pursue economies in procurement and delivery as appropriate. The Agent will conduct itself at all times as to protect and further the interests of the Buyer.
- b. The Agent will assure that all commodities purchased are covered by marine insurance in the name of the Buyer and for the Buyer's account on a warehouse to warehouse basis at 110 per cent of the CIF value and will handle any insurance claims that arise.
- c. The Agent will communicate expeditiously with the Buyer on any problems that arise and will submit monthly reports indicating the status of all items.
- d. The agent will perform the following:
 - (1) Assist El Salvador in refining requirements for commodities and commodity-related services.
 - (2) Write and edit commodity specifications.
 - (3) Issue and advertise commodity solicitations.

- (4) Prepare Invitations for Bids and Requests for Quotations.
 - (5) Evaluate bids and recommend/make awards.
 - (6) Issue contracts or purchase orders.
 - (7) Expedite suppliers'/vendors' performance.
 - (8) Inspect and consolidate commodities.
 - (9) Handle and forward documents.
 - (10) Arrange freight forwarding and ocean/air transportation.
 - (11) Arrange insurance and process insurance claims.
 - (12) Provide complete and accurate reports to buyers and USAID, indicating status of each procurement action.
 - (13) Handle management and communication responsibilities required in implementing the procurements.
 - (14) Arrange the procurement of and payment for commodities under AID financing.
 - (15) Understand and adhere to AID policies and regulations.
- e. The Agent will act exclusively for, and receive our fees solely from USAID, and will not accept fees, commissions, discounts or any other form of payment from suppliers.

III. Reports

The monthly, quarterly and final reports as described herebelow will be required to be submitted by the Contractor, as well as any periodic reports described earlier:

A. Monthly

The contractor will be required to submit two copies to the Ministry of Health and AID, respectively of the Summary Status Reports in Spanish and English on all activities. The format will include:

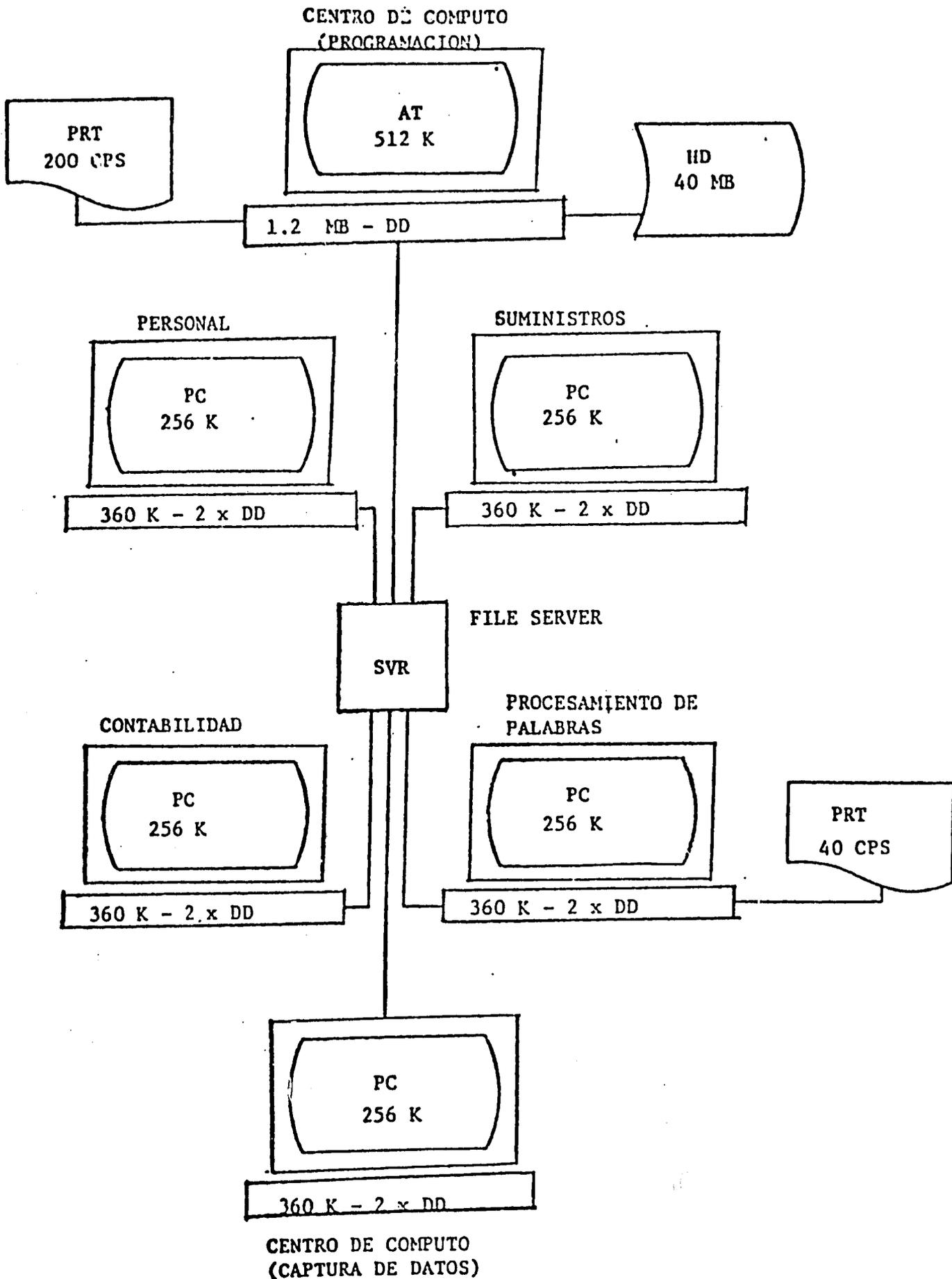
TECHNICAL ASSISTANCE OF OPS FOR THE IMPLEMENTATION OF COMPUTER
SYSTEMS OF THE MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE
OF EL SALVADOR.

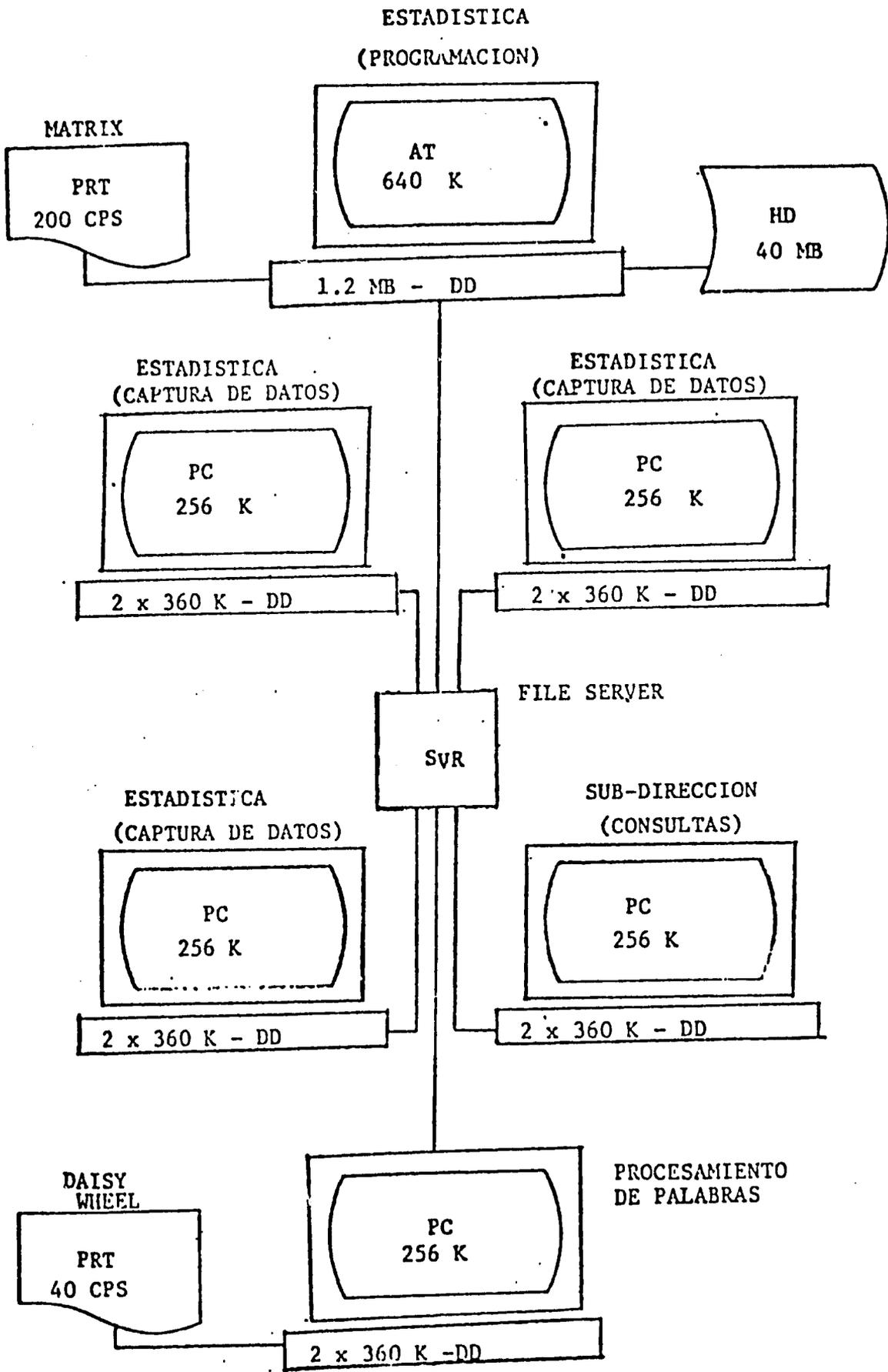
1. Training courses for Management Information Unit personnel and
other utilizing departments.

<u>Name of Course</u>	<u>Attendants</u>	<u>No. of Attendants</u>	<u>Duration of Course</u>
Introduction to Computer Systems	Personnel of the Departments	40 persons	1 Week 9-13 September
Analysis and Design of the Systems	1) Design and Analysis Personnel	5 persons	8 weeks 1 Oct.-29 Nov.
	2) Support Personnel Utilizing Depts.	10 persons	
Diagram and Documentation	MIS Pers.	12 persons	2 Weeks 16-20 Sept.

2. Systems Consultancies

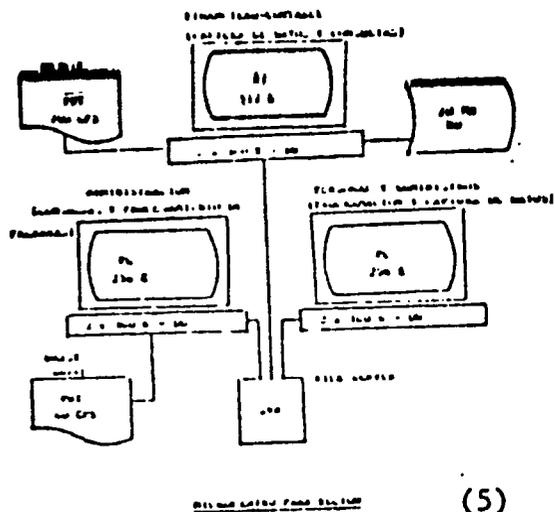
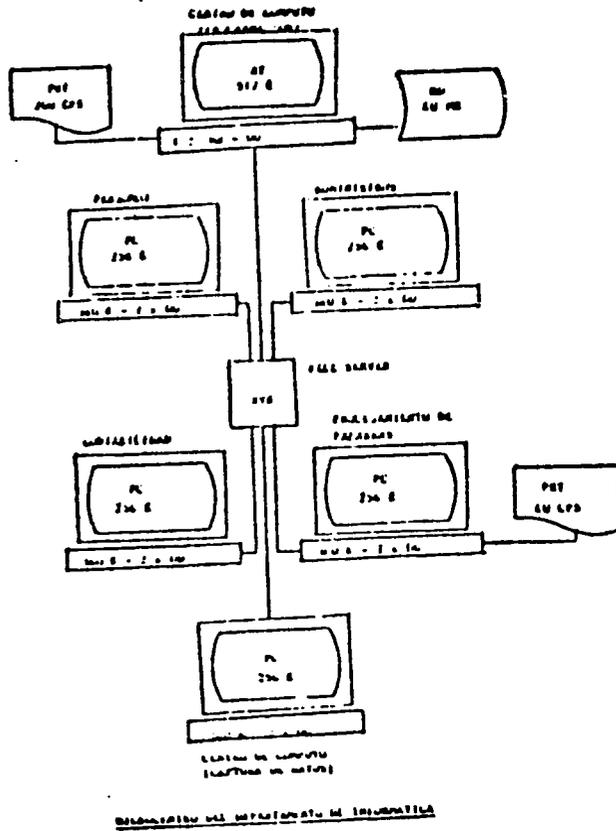
<u>Area</u>	<u>Unit</u>	<u>Duration</u>
Introduction Data Base Applications	MIS "	5 weeks (1 Oct.-1 Nov.)
Monitoring	"	Continuo
Evaluation	"	"
Nets	"	"



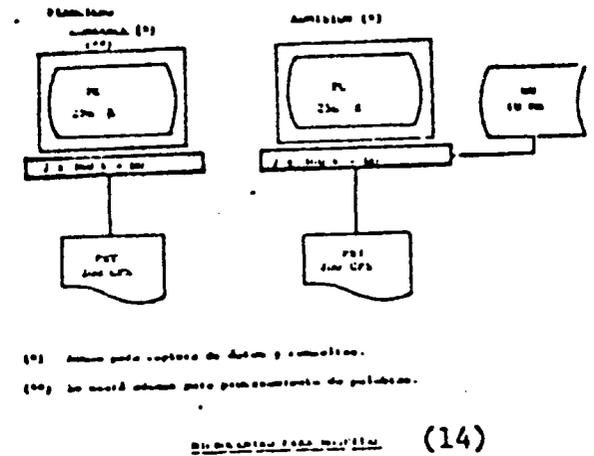
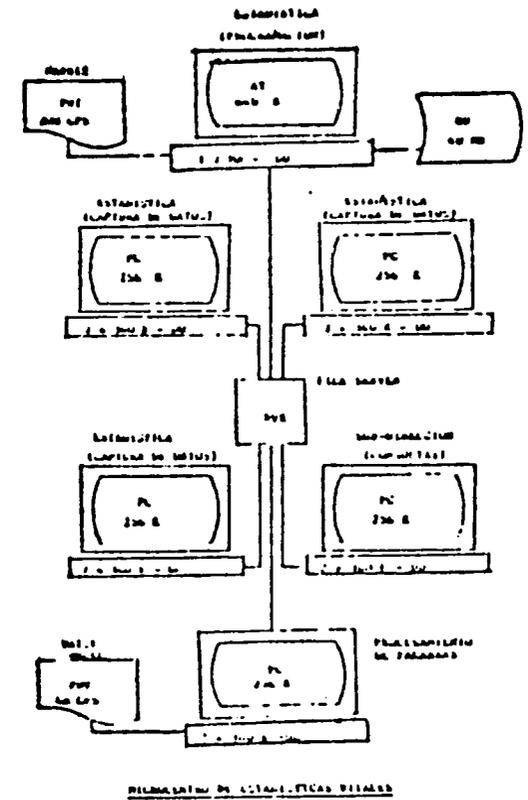
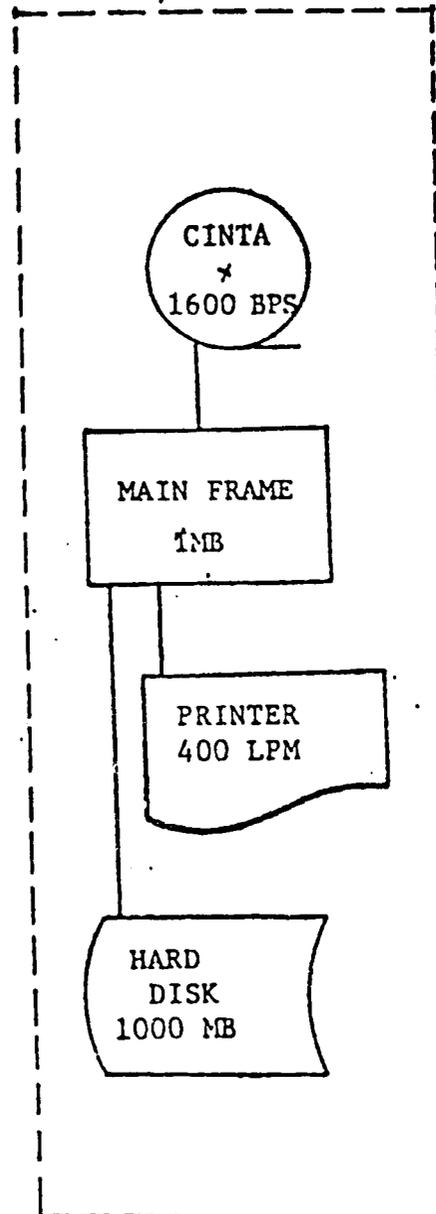


MICROCENTRO DE ESTADISTICAS VITALES

VITAL STATISTICS MICROCENTER



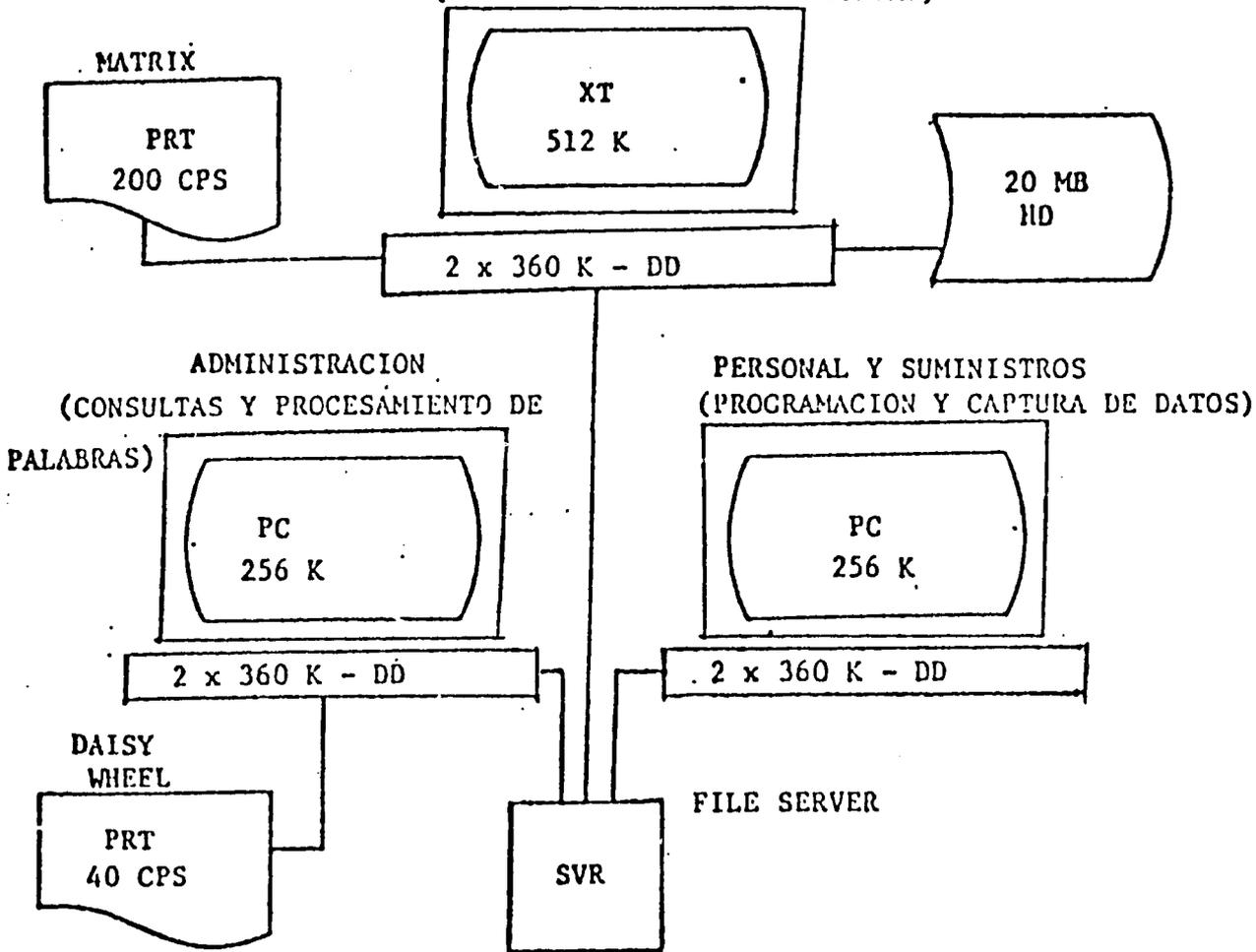
FUTURO MAIN FRAME



CONFIGURACION GENERAL DE SISTEMA COMPUTARIZADO DEL MSPyAS.

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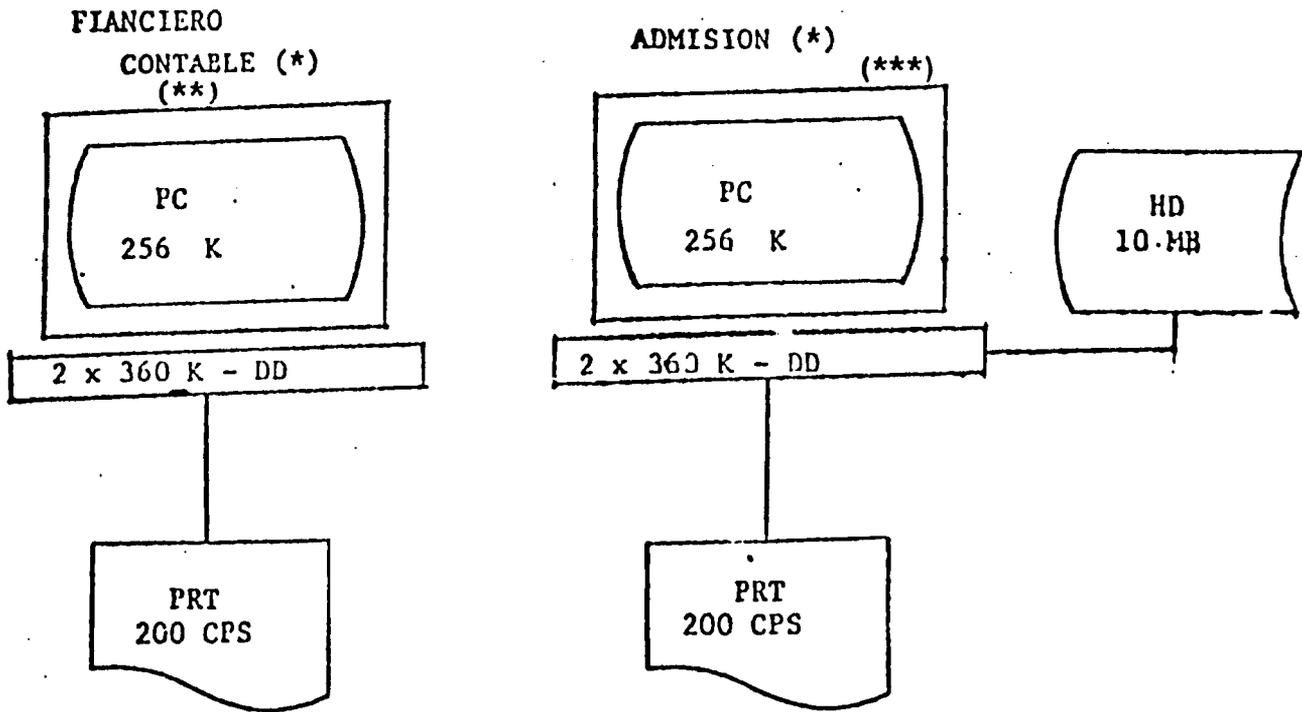
FINANCIERO-CONTABLE
(CAPTURA DE DATOS Y CONSULTAS)



MICROCENTRO

MICROCENTER TO BE USED IN THE FIVE HEALTH REGIONS:

- Central
- Para-Central
- Eastern
- Western
- Metropolitan



(*) Ambas para captura de datos y consultas.

(**) Se usará además para procesamiento de palabras.

(***) Control de inventario

MICROCENTRO PARA HOSPITAL

MICROCENTERS TO BE USED EACH OF THE 14 HOSPITALS

DRAFT
SUMMARY OF
VISISA EVALUATION

U.S.A.I.D. MISSION EL SALVADOR
SAN SALVADOR

UNIVERSITY RESEARCH CORPORATION
AND
HEALTH CENTRAL INTERNATIONAL

JULY 1985

ACKNOWLEDGEMENTS

The assessment team would like to express its appreciation for the administrative and logistical support provided by the Ministry of Health and the staff of the Agency for International Development Mission to El Salvador. We especially want to thank Dr. John Massey, Health Officer and Dr. Donald Enos, Director of the Office of Human Resources and Humanitarian Assistance of AID. We are grateful to our Salvadoran colleagues for their openness and cooperation. Special thanks to the Westinghouse Team and George Kraus who were so helpful in supplying information and making introductions.

TEAM COMPOSITION

A four man team was selected for the mid-term evaluation of the VISISA project. The Team Leader and Health Administrator was Laurence McGriff, M.A., M.I.M. Mr. McGriff is involved in private sector international health projects. The Pharmaceutical Section was prepared by Aida LeRoy, Pharm.D. Dr. LeRoy has served frequently as a consultant for PAHO, AID and other organizations. The Health Manpower Section was written by Hector Correa, Ph.D. who is a professor of Economics at the University of Pittsburg. Dr. Correa served as a member of the team that conducted a health resources assessment in El Salvador in 1984. Andrew W. Nichols, M.D., M.P.H., is a professor of Community Medicine at the University of Arizona. Dr. Nichols also conducted an assessment of health sector policy and programs in August, 1984. He updated the previous report and reported on the health status of the Salvadoran population.

ACRONYMS

AID	=	United States Agency for International Development
BEMS	=	Bio-Medical Management Systems
EMG	=	Executive Management Group
GOES	=	Government of El Salvador
ISSS	=	Salvadoran Social Security Institute
MASCI	=	Management and Administrative System with Control Indicators
MCH	=	Maternal and Child Health
MOE	=	Ministry of Education
MOH	=	Ministry of Health
ORI	=	Oral Rehydration Treatment
PAHO	=	Pan American Health Organization
PHC	=	Primary Health Care
PMSP	=	Preventive Maintenance Schedule Program
T.A.	=	Technical Assistance
TBA	=	Traditional Birth Attendant
UNFPA	=	United Nations Fund for Population Activities
WHO	=	World Health Organization

I. INTRODUCTION

This report represents the mid-term evaluation of the AID Health Systems Vitalization Project (VISISA) in El Salvador. The general objective of the evaluation is to "provide the U.S. Government and the Government of El Salvador with a current assessment of the status of health of the Salvadoran population, of human resources for health, of health services delivery in El Salvador, of pharmaceutical logistics, and of biomedical and vehicle maintenance as they relate to Project progress." The Project came about because of a request by the Government of El Salvador several years ago. It was experiencing shortages of medicines and equipment and deteriorating logistical systems. A small portion of the Project was for needed emergency supplies, but the bulk of it was for medium and long range needs. The Project is due to be completed on December 31, 1986.

This document summarizes the five documents that make up the report, each examining a slightly different aspect of the Project or health care system:

1. A health administrator evaluated changes in service delivery levels and health facility usage and the specific progress of the VISISA project.
2. A physician evaluated changes in mortality and morbidity and progress in implementing recommendations made in a previous study (August, 1984).
3. A pharmacologist evaluated the pharmaceuticals and logistics system in general and as they relate to the VISISA Project in particular.
4. The mid-term evaluation of the VISISA Project by Kraus International is an important benchmark giving the detail of progress in technical assistance.
5. An educator evaluated progress in the health manpower area and analyzes changes that have occurred since a baseline study that was done a year ago.

The reports document progress and incremental improvements that are being made in the health care system. It is premature to relate changes in health status, health manpower or facility utilization to the VISISA Project. The VISISA Project was limited to bringing in certain critical commodities and a small amount of technical assistance. It was and is significant in meeting an emergency need and in supplying medicines and equipment. Progress in building institutional capability is slow but steady.

II. SUMMARY OF PROJECT ACCOMPLISHMENTS

The primary purpose of the Project is to increase the availability to the general populace of primary health care and emergency medical services through fulfilling MOH short-term requirements for essential goods and services. A secondary, corollary purpose, is to strengthen MOH capabilities for health supply and information management and for the maintenance of vital medical and vehicular equipment. The evaluation found that while there had been delays -- now overcome -- in the procurement of the drugs and other commodities required in the medium term, emergency drug procurements had been carried out expeditiously and that within two years of the Project's commencement the Project management has been able to advance activities leading to the upgrading of service delivery capability. Work remains to be accomplished in the areas of management information systems, where significant delays have occurred, and emergency medical training.

With the timely assistance of Project management and technical assistance (T.A.), improvements had also been achieved in the Ministry of Health (MOH) service delivery systems, and particularly in its transport system and the "cold chain" for delivery of vaccines throughout the country and other commodities requiring refrigeration. In this regard, the evaluation notes the significant Health Project contribution to the highly successful 1985 nationwide vaccination campaign. While these and other improvements in MOH operations have been effected largely through the Project, this evaluation suggests long-term requirements for strengthening the Ministry, and highlights continuing problems in personal management and human resources development. High employee turnover, low salaries, the rigidity of the civil service system, and deficiencies in budgeting and procurement are significant hindrances to the achievement of efficiencies in MOH operations. It should also be noted that the MOH budget has remained constant since 1981, inclusive of external assistance, and because this shortage of funding is likely to continue for the foreseeable future, MOH priorities are likely to shift from the curative to the preventive, and from high-cost institutional care to community-based primary care.

With respect to the general health of the population and the causal effects of MOH services on it, the evaluation found that incidence rates of major diseases have not changed sufficiently over the past two years to determine significant trends. It can be said, however, that the MOH is providing more (and to some extent more effective) services, given a constant budget which is eroded by inflation. Total outpatient visits, prescriptions written, injections given, and radiology and minor surgery performed in hospitals and health centers increased significantly between 1983 and 1984. Budget constraints notwithstanding, MOH efforts to provide health services to 85% of the population have been quite effective. As to the performance of The Health Systems Vitalization Project (VISISA), the evaluation finds that "although we cannot claim that VISISA solved all the problems or made tremendous improvements in the health care system, the deterioration has been halted, and measurable improvements have been made in some areas."

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A summary of the Project outputs is provided below, by Project component:

A. Health Supplies Management System

Supply Management

Procurement of drugs and medical supplies has increased dramatically during 1985, and more than 85% of the drugs to be ordered under the Project were in-country as of mid-August 1985. Distribution of most drugs to health units appears to be moving smoothly. A system of health monitors has been instituted to get a precise fix on the flow of drugs and other indicators of supply and service provision. An excellent country-wide cold chain has been developed. The warehouse construction and renovation is one month behind schedule due to (1) the temporary unavailability of several critical materials and (2) additional time needed to complete work on the foundation structure. The construction company and project management do not foresee any additional problems that would further delay the completion of the warehouse. Training in warehouse management, though begun, is still behind schedule. Other areas of MOH supply management, including inventory control, still need major improvement. Due to a rather weak initial performance of the contract supply manager the supply management TA fell behind the schedule developed in the work plan. This trend was reversed by Project Management through restructuring the supply management TA with the contractor. Also, the MOH initiated management improvements are required if its logistics systems are ever to function at peak efficiency.

Malaria Control Supplies

\$1.3 million in insecticide and spray equipment has been procured and training provided. Malaria control T.A. is being provided to the MOH. Conclusions on the component's effectiveness cannot yet be drawn.

Drug Quality Control

Selection of a site and an existing structure for a drug quality control lab was significantly delayed. A site has now been agreed upon, site inspection completed, and specifications written for equipment.

B. Public Health Infrastructure Maintenance

Vehicle Maintenance

A preventive maintenance program has been designed and implemented. Significant improvement has been made in reducing

vehicle downtime. The percent of vehicles deadline has decreased from 40 to 25 percent. T.A. provided by Westinghouse, Inc. for this component has been extremely effective and should be continued at least on a short-term basis. The maintenance area construction and numerous training programs have been largely completed.

Biomedical and Electro-Mechanical Equipment

A management system has been developed to track all phases of biomedical maintenance and a biomedical equipment inventory has been completed, as has an equipment needs analysis. Staff productivity was judged to have risen by 16 percent over the past year. There have been delays in procuring equipment, but all that has been received has been installed. The bio-medical T.A. provided by Westinghouse has been very effective and should continue.

C. Management Information System (MIS)

This component suffered serious delays because of the inability of the MOH to decide on a MIS hardware configuration, due in part to conflicting advice from PAHO and an AID Consultant. An MOH decision was recently obtained and implementation of this component should now be accelerated as other Project components depend on it, particularly supply management.

D. Emergency Medical Services

All equipment and supplies to be procured under this component have been ordered and the bulk of these commodities received. Training for ambulance drivers, general medical officers and nurses has been delayed and scaled back, but will commence shortly, utilizing the trauma training modules that were completed in early August 1985. The GOES decided that three new mobile surgical teams planned for development under this project component were not required.

In addition to the elements of the Project which were authorized by AID-Washington, a series of additional activity requirements were placed upon the Project by the House Appropriations Committee, as conditions for follow-on funding. The requirements included a review of human resources in the health system, an examination of the overall health status of the Salvadoran people and recommendations for improvements in these areas.

Human Resources and Health Manpower

Health Manpower

Health manpower production and distribution is yet another indirect guide to health services delivery. Treated more extensively in the individual reports, some selected remarks are appropriate in this context.

The issue of physician production is of some relevance. Until 1981-82, all medical school enrollees in El Salvador were in the National University. In that year, 621 students matriculated in private medical schools. The number matriculating in these schools continued to grow in 1982-83 and 1983-84. With a substantial increase in matriculation by the University of El Salvador in 1984-85, there was a corresponding decline in matriculation at the private schools. These data include periods when there was no matriculation in either the National University or private medical schools.

With an eight year curriculum, for example, the failure to enroll new students in 1976-77 by the National Medical School should have resulted in a relatively low number of students available for social service year commitments in the current year. (Since the relationship between matriculation and graduation times is not precise, due to closure of the medical school and varying times required to graduate, such statements are only approximate.) This problem should soon be addressed by the completion of educational requirements for students matriculating in 1978-79 and 1979-80. Assuming most students graduate on schedule, a real shortage will occur again in 1988-89 and 1989-90 when classes which should have graduated from the National University will be absent due to the closure of the school in June of 1980. This problem will be partially alleviated by graduates of private medical schools in 1989-90, following which El Salvador may see an excess of medical graduates for a number of years if present trends continue. When physicians actually in practice are considered for the years 1983 and 1984 (1984 data being unofficial and in prepublication form at this time), it is apparent that the major change in physician staffing is with reference to this social service year of physicians working within the MOH. In 1983 the number of such physicians was 175; in 1984 it dropped to 151. As a consequence of this reduction, several specialist positions were added to the Ministry's budget for medical personnel. The real impact, however, was a reduction of 14 percent in the number of social service students in the field.

Based on information presented above, it may be predicted that this reduction will continue for the next couple of years. When distribution of health positions generally in the Ministry is reviewed between 1983 and 1984, it may be seen that there is little, if any, effective change. The actual number of personnel employed by the Ministry increased by five, with virtually no change in distribution by region. Placement by urban and rural location is not provided in Ministry statistics. The number of nurses that the MOH should be hiring is specified in the Health Plan 1985-1989. It should be observed, however, that this number is less than that considered advisable in the alternatives presented in the "Health Resources Assessment and Projections for the future of El Salvador" Report.

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Student physicians rotate through outpatient facilities in Metropolitan San Salvador during their sixth and seventh years. All of the Medical Schools provide courses in Public Health Epidemiology, Biostatistics and Medical Anthropology, although the sequence in the curricula of these courses differs from school to school. Orientations are provided to social year physicians (Eighth year medical students) by the Ministry of Health on nutrition, oral rehydration, sanitation and other programs carried out in the Health Regions. Special training modules, assisted by MEDEX and funded by the Project, were developed for this training.

The geographic redistribution of the nurses in order to reduce their concentration in urban areas has not been implemented. However, some changes in the distribution of personnel are included in the MOH "Health Plan 1985-1989.

A comparison of the implementation status of the recommendations on nurses with those on nurse auxiliaries clearly shows that the simultaneous implementation of the two sets of recommendations might be beyond the capability of the departments of the MOH that are responsible for implementation. For this reason, first priority has been given to the recommendations on nurses. Once they reach a stage in which they require less attention, the recommendations on nurse auxiliaries will be addressed. All medical and nursing curricula are undergoing gradual revision with relatively greater emphasis being given to Primary Health Care.

Regarding the issue of whether health facilities are actually open and functioning, a review of MOH data as well as surveys by Klassen, Kraus, USAID and site visits indicates that five additional facilities have been closed when comparing 1983 and 1984 data. However, during the same period five more facilities were opened (See Table I). All Health Regions, but one (Western) are ahead of their annual goals for outpatient visits at all levels of health facilities. Facilities which are closed or show lower activity are mostly rural health posts in contested military areas in the East and Central Regions.

There continues to be a degree of poor distribution of health manpower, particularly among physicians, who tend to concentrate in the metropolitan area of San Salvador. The distribution of nurses and auxiliaries is less skewed than that for the physicians. The 1985-1989 Health Plan, recently published, addresses the problem of poor distribution, but it will be a slow process to correct the system. It should be noted, however, that poor distribution of health manpower is not a problem which affects only El Salvador. Indeed, poor distribution seems to be the norm in Latin America (Health Conditions in the Americas, PAHO).

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TABLE I

HEALTH ESTABLISHMENTS ACCORDING TO TYPE, REGION,
CLOSED AS OF DECEMBER 1984

	OCCIDENTAL		CENTRAL		METROPOLITAN		PARACENTRAL		ORIENTAL		TOTAL	
	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984
HOSPITAL												
Closed	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	3	2	2	5	5	2	2	2	2	14	14
HEALTH CENTERS												
Closed	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	2	1	1	1	1	3	3	5	5	12	12
HEALTH UNITS												
Closed	-	-	-	-	-	-	-	-	-	-	-	-
Total	21	21	14	14	23	23	12	14	28	28	98	100
HEALTH POSTS												
Closed	-	-	12	15	1	1	2	4	13	17	28	37
Total	29	29	39	39	4	4	39	37	53	62	164	171
COMMUNITY POSTS												
Closed	-	-	1	-	-	-	-	-	3	2	4	2
Total	9	10	7	7	8	8	2	2	8	8	34	35
HEALTH DISPENSARY												
Closed	-	-	-	-	-	-	-	-	3	2	3	2
Total	-	-	-	-	3	3	-	-	6	6	9	9
Closed	-	-	13	15	1	1	2	4	25	26	41	46
Total	64	64	63	63	44	44	58	58	102	111	331	341

Sources:

- 1/ List of Health Facilities (up dated)
- 2/ Monthly Reports of the Health Facilities

Health Statistics Department

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While there may be insufficiencies of health personnel in the system, the root problem is the GOES funding to employ new personnel. Recent GOES austerity measures have frozen existing positions and prohibited the creation of new positions.

In addition, the ability of health personnel to function in the field is a function of the availability of pharmaceuticals, medical supplies and equipment which is in operating order. The Health Project is addressing these issues.

An activity that was not included among the recommendations of the Health Resources Assessment ... Report, but that deserves some attention in the analysis of the activities that have taken place in the last year in relation to the development of Human Resources for Health is the assistance that USAID provided to the construction of the new building for the School of Capacitation. For this, financing of more than C/ 1,000,000. was made available using P.L. 480 funds.

In terms of medical technologists, the information presented has a pattern similar to that observed before with respect to physicians and nurses. This means that activities have been initiated in the School of Medicine of the National University to modify the curriculum used in the preparation of the Medical Technologists. When the modifications are completed, they will be put in practice. Once more it should be mentioned that this seems to be the most acceptable procedure.

Health Status

Among the most useful health status indicators are the infant mortality rate and death rates, generally. These give some indication of unnecessary deaths, as defined in the more developed countries. Given the relationship between mortality from acute diseases in less developed countries and mortality from chronic diseases in more developed countries, mortality rates serve as an indirect index for the degree of development of a particular society.

Morbidity indices, on the other hand, are more a reflection of the environment and health care delivery system prevalent at that particular time. Since they are more open to interpretation and less definite than mortality statistics, they are generally considered less valuable in measuring the health of a population. Nonetheless, they do have value and can demonstrate changes in health care and environment over a shorter period of time than can mortality indices. Once again, large populations are required for meaningful interpretation.

Infant Mortality Rate

Data concerning mortality in children less than five years of age for 1983 is not available at this time. The infant mortality rate for 1983 (provisional) is, however, unofficially available. When compared with data for 1982 (see Table II below) it becomes apparent that there has been little, if any, significant change. The small increase in the rate is consistent with minor fluctuations in other years, but does not reverse a longer term downward trend in this rate. It is equally, if not more significant, however, that there has been effectively no change in the infant mortality rate for the four year period from 1980 through 1983. The historic reduction in mortality underway in El Salvador for many years has been "on hold" since 1980.

T A B L E II

DEATHS IN CHILDREN LESS THAN FIVE YEARS OF AGE
EL SALVADOR
1976 - 1983

<u>Proportional Mortality in Children Less than five years of Age as a Percent of all</u>					
<u>Infant Mortality</u>			<u>Deaths</u>		
<u>Year</u>	<u>Number</u>	<u>Rate*</u>	<u>Total All Ages</u>	<u>Less than Five Years</u>	<u>Percent</u>
1976	9,154	55.2	---	12,676	41.1
1977	10,529	59.3	---	13,958	42.3
1978	8,790	50.8	---	11,263	36.7
1979	9,232	53.0	32,936	12,094	36.7
1980	7,138	42.0	38,967	9,211	23.6
1981	7,183	44.0	37,468	10,269	27.4
1982	6,621	42.2	33,309	8,931	26.8
1983(P)	6,168	42.8	37,715	---	---

Source: General Office of Statistics and Census

* Rate per 1,000 live births

P = Provisional Data

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Morbidity

As stated above, morbidity data can be presented in a more contemporary manner than can mortality data. Once again, the reason is that morbidity data are maintained by the MOH, whereas mortality data are not. Comparisons for 1983 and 1984 are available and are of some interest. Table III shows data for the ten most common reportable illnesses. It should be noted that unofficial, but available, data from the Annual Epidemiologic Report for 1984 are slightly different than those reported in Table III. The 1984 data used for this table are taken from the Weekly Epidemiology Report for December 1984.

T A B L E I I I
TEN PRIMARY CAUSES OF NOTIFICATION OF TRANSMISSIBLE ILLNESSES
EL SALVADOR
1983 - 1984

C A U S E S	Number of Cases		Rate per 100,000 Population	
	1983	1984	1983	1984
1. Diarrheal Illnesses	120,483	137,731	2,304.1	2,881.7
2. Intestinal parasites	120,483	123,010	2,304.1	2,573.7
3. Influenza and gripe	83,214	100,908	1,591.4	2,111.3
4. Malaria	65,407	66,844	1,250.8	1,398.5
5. Amoebic dysentery	13,739	8,692	262.7	181.9
6. Gonorrhoeal infection of the genitourinary tract	5,957	8,580	113.9	179.5
7. Varicella	4,289	5,721	82.0	119.7
8. Syphilis	4,025	5,674	77.0	118.7
9. Dengue	3,814	5,452	72.9	114.1
10. Hemorrhagic conjunctivitis	2,953	4,760	56.5	99.6
T O T A L	424,364	467,372		

Source: Annual Epidemiology Report, 1983
Weekly Epidemiology Reports, 1984 (Preliminary).

Perhaps the most significant difference in the two years is that all categories but one (amoebic dysentery) are higher both in rate and number in 1984 than in 1983. In other words, of the 10 primary causes of illnesses in El Salvador, the conditions have worsened in nearly every instance.

This statement should be interpreted with caution, in that the degree

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of change in some cases is very slight and there may be subsequent revisions in these figures, including the rate calculations. For the moment, however, it may be tentatively concluded that there has been some deterioration in rates for most, if not all, of the ten primary causes of illnesses in El Salvador between 1983 and 1984.

While the data on preventable infectious diseases are mixed, the potential impact on the just-concluded vaccination campaign is substantial. Although evaluation of the campaign is not yet available, it appears that approximately one quarter of a million Salvadoran children received the three required vaccinations over a three month period. These data, taken from information available at the Epidemiology Section of the Ministry, are as follows:

TABLE IV
RESULTS OF THE VACCINATION CAMPAIGN

	<u>First Round</u>	<u>Second Round</u>	<u>Third Round</u>
Vaccination Posts	2,285	2,132	2,132
No. of Children Vaccinated	217,230	262,443	241,223
Goal	312,000	312,000	302,000
Rate	69%	84%	79%

In addition, some 15,000 mothers were vaccinated against tetanus in this campaign in an effort to prevent tetanus neonatorum.

Assuming the goal to have been realistic, the campaign seems to have been reasonably successful, apparently having reached approximately 70% of those targeted on all three rounds.

As noted, experience with previous immunization campaigns indicates that there may be a lowering of case rates for preventable infectious illnesses for children five and under in the coming year. Should this be the case, there is also the possibility that the rate will rise again unless the momentum of the immunization campaign is continued.

While 1984 may not have been a particularly good year vis a vis 1983 with respect to morbidity for children under five, it is significant that most of the preventable infectious diseases have shown a general pattern

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of decline in El Salvador over the past nine years. Several of these diseases experienced rises in their rate of occurrence during the period from 1981 to 1983, which may relate in some way to the social upheaval created by the military conflict in the country. The overall tendency, however, is for improved rates, while short term changes in this pattern may occur. This is particularly true of measles, which demonstrates a wide variability in case rates from year to year.

As may be seen from Table V, the number of medical consultations provided between 1980 and 1984 has been remarkably constant, with some increase in 1984 over 1983. Perhaps the most significant figures are the number of consultations per hundred eligible residents, based on the target population for which the MOH has responsibility. This figure has varied from a low of 49 in 1983 to a high of 60 in 1984--the same figure

T A B L E V
RURAL HEALTH ACTIVITIES
EL SALVADOR 1979-1984

DESCRIPTION	YEARS					
	1979	1980	1981	1982	1983	1984
Total Persons Served	479,669	354,598	226,819	284,318	302,364	284,199
Morbidity Attendance*	271,142	196,870	116,829	138,470	134,335	133,123
Preventive Services (a+b+c+d+e)	35,028	23,873	14,930	17,512	17,378	15,714
a)Pregnancies	8,712	5,908	3,613	4,351	4,245	3,914
b)After Childbirth	3,694	2,298	1,528	2,012	2,176	1,996
c)Children less 1 year	12,335	8,910	5,998	6,886	7,035	6,548
d)Malnourished Children	4,793	3,004	1,785	1,874	1,519	1,329
e)Birth Control	5,494	3,753	2,006	2,389	2,403	1,927
IV-Contraceptive Provided	13,128	10,293	6,388	8,557	8,114	5,932
V-Educational Activities	368,376	234,974	156,035	211,932	227,754	217,882
VI-Missed Appointments	9,331	6,684	3,539	3,834	4,440	4,271
VII-Dwelling Unit Visits	313,058	203,017	134,445	175,530	192,278	177,261

Source: Monthly reports submitted by Rural Health Aides.

This refers to consultations given for diarrheal infections, conjunctivities, headaches and other problems requiring primary health services.

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which was seen in 1981. Regular consultations by physicians have varied little, emergency consultations by physicians have risen over 40% in the period from 1980-84. It is interesting to speculate to what extent this represents a change in patterns of potential behavior and to what extent it represents a change in the case mix of problems presented for attention.

III. BACKGROUND

In the spring of 1983 The Health Systems Vitalization Project (VISISA) was developed. It was originally conceived to be a \$9 million Project with three components: health supplies management, public health infrastructure maintenance and management information systems. Subsequently, the project was expanded to \$25 million and a fourth component was added because of the need to increase the procurement levels of medicines, equipment, supplies and to improve emergency medical services.

The purpose of the project is to:

- "Increase existing levels of primary health care and emergency medical services by meeting the initial short-term needs of the Ministry for essential goods and services.
- Vitalize the institutional capacity of the Ministry to more effectively execute their existing systems in health supplies management, maintenance and information management."

In order to handle this large influx of commodities, AID was to provide technical assistance, training, supplies and construction/refurbishing of warehouses to restore the MOH logistical supply system. The objective of the Technical Assistance was "to provide technical assistance to key areas addressed by the Project, which is designed to rapidly restore and revitalize the health system in El Salvador." The four components of the VISISA Project are:

Component I

The first component is Health Supplies Management. This Component is made up of three subcomponents: 1) to facilitate the early acquisition of critically needed commodities for infusion into the health supplies delivery system and to restore the management and administrative capability and effectiveness of the supply management functions of the MOH including procurement, inventory control, storage and distribution and to institutionalize this capability; 2) to support and increase the capability of the national and operational areas services to control malaria effectively; 3) to establish a drug quality control program and establish guidelines for shipping, transportation, warehouses, storage, and dispensing conditions to assure the distribution of efficacious safe drugs of high quality.

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Component II

The second component deals with upgrading the public health infrastructure maintenance and repair of transportation and biomedical equipment. AID is to support the Transport Department to rapidly improve the vehicle fleet and develop a systematic maintenance and repair program for MOH vehicles. The Project will also help MOH develop the capacity to perform maintenance and repair of biomedical, electrical, and electromechanical equipment and to establish a preventive maintenance program.

Component III

The third component is to provide the MOH with the necessary resources to develop a comprehensive data base to support MOH activities in procurement, supplies and maintenance management, and to implement a distributed data processing system which responds to the Ministry's decentralized administrative system.

Component IV

The fourth component is to improve MOH emergency medical services as a result of the high rates of civilian trauma. The Project is to establish mobile surgical teams; provide training in intermediate trauma management, wound stabilization, primary level trauma management, first aid and patient handling techniques. In addition, the project is to procure emergency equipment and supplies and perform a special trauma study.

IV. PURPOSE OF THE EVALUATION

The general objective of this evaluation is to provide the United States Government and the Government of El Salvador (GOES) with a current assessment of the status of the health of the Salvadoran population, human resources for health, health services delivery in El Salvador, pharmaceutical logistics and biomedical and vehicle maintenance as they relate to the Project in progress.

V. EVALUATION ISSUES AND QUESTIONS

It was deemed important to study objectively the following items that were given as a charge to an independent evaluation committee: a) examine the overall health needs of the people of El Salvador; b) review and evaluate existing and proposed AID health programs; c) make recommendations pertaining to the provision of health services in El Salvador and the AID health program; and d) assess the need to train new paramedics and upgrade the skills of nurses and other health personnel.

Concerns have been raised concerning the MOI and the VISISA project such as:

- Deterioration in the health status of the population at large such as an increase in vaccine-preventable and other diseases, increases in infant mortality, malnutrition and malaria.
- That medicines and supplies brought in by the VISISA project have not arrived or have not been distributed.
- That health establishments believed to be open are closed.
- That social service physicians have not received training in outpatient medicine, public health, sanitation, and nutrition.
- That the number and distribution of health care workers is insufficient and their ability to function in the field is impaired.

This evaluation has attempted to respond to these questions. It should be emphasized that these concerns go far beyond the scope of the VISISA Project to the effectiveness of the entire health care system in El Salvador. The Project is concerned with changes in morbidity and mortality, changes in delivery levels and health manpower, as well as those items under the scope of the project such as pharmaceuticals and supplies, and logistical and maintenance systems. Shortcomings in the health care system or deterioration in health status does not indicate a flaw in the Project design. There are many other factors involved. The problems are very complex and there are no easy answers or "quick-fix" solutions.

This evaluation addresses those legitimate global and specific questions that have been raised concerning the health care system in general and the VISISA Project, in particular. The "emergency" nature of the VISISA Project presents a special problem since there were immediate needs as well as the need for long-term institutional development. The "emergency supplies," identified by the Project Paper began flowing into the country within six weeks of the GOES's compliance with conditions precedent. Deliveries were completed within four months. Regular procurements and technical assistance were outside of the "emergency" status. There were delays, however, in these procurements, for reasons to be described later. This evaluation will sort out the many factors which make up this mosaic, evaluate the performance of the VISISA project and make recommendations for future directions for AID health initiatives in El Salvador.

Accomplishments

The two general purposes of the VISISA project were to get needed drugs and commodities into the country and to revitalize the health system. Although there have been delays, significant Project activities have been accomplished. All of the funds have been committed and most of the goods have arrived in country and have been distributed. The VISISA Project reinforced the health budget and bolstered a weak and inefficient system.

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Although it is not possible at this point to measure Project impact by reductions in morbidity, taking into account the five most frequent morbidities (diarrheas, urinary infection, colds, bronchitis, and parasites) Project management has found through surveys that appropriate drugs are prescribed at various health facilities. The list of drugs prescribed also indicates that hospitals and health centers are using discretionary funds (Patronatos) for additional purchases of similar drugs to complement deliveries within the MOH Supply System.

Impact to date

The evaluation has determined that the Project has achieved the majority of its short-term objectives. Medicines and supplies are flowing in the system and improvements have been made. But, it is more difficult to say whether the VISISA Project has made a significant impact on morbidity, mortality, manpower, and health facilities. Perhaps there will be measurable improvements in a year or so, but measurement is not possible now. Even then, because of the limited scope of the Project in relation to the whole health care system, the overall social, economic, and military situation, it may not be possible to draw direct causal relationships.

The training of counterparts, transfer of technology, and the development of systems that fit the local situation and are appropriate to the local technology, and human and financial resources is a long-range program at best. The frustration of AID and the Project advisors relates to the crisis nature of working in El Salvador and intense pressure from Washington. The biggest single problem was the failure to distinguish between the initial emergency need for commodities, the subsequent medium term need for commodities, and the long-term institutional building needs.

Implications

This evaluation highlights some of the problems that have been encountered, the accomplishments made, and sheds some light on future directions. It was interesting to see how many divergent people and organizations were moving in similar directions - more of an emphasis on community oriented primary care, integrated rural development, human resources development and systems development. The problem is still one of policy and priorities, including budget allocations. There are sparse local resources to implement new programs.

COMPONENT I: HEALTH SUPPLIES MANAGEMENT

A. The Health Supplies Management Component was developed to attain the following primary objectives:

1. Increased availability of drugs/medical supplies in MOI facilities. An increase of 20 percent in pharmaceuticals and medical supplies located in hospitals, health centers, health units, and health posts.
 2. Additional warehouse space available. The construction of an additional 1,500 sq. mt. at the Matazano Central Warehouse and upgrading of 1,000 sq. mt. at the five regional warehouses.
 3. Completion of the nation-wide cold chain. The construction of two cold rooms, one at Matazano and the other at San Miguel. One refrigerator truck in-country and operating, 20 refrigerator units and seven freezers installed and functioning.
 4. Efficient and effective procurement, maintenance, and supply management systems, developed and established for the Ministry.
- B. In coordination with the MOI Executive Management Group (EMG), the Project has produced the following results:

Drug Availability and Health Facilities

Drug availability surveys conducted during 1985 show increases when compared against availabilities surveyed in 1984. (See Table VI)

TABLE VI
SURVEY OF DRUG AVAILABILITY IN THE HEALTH SYSTEM

ITEM	1984	1985 (FEB)	1985 (APR)
Oral Rehydration Salts	66.1%	67.9%	85.5%
Penicillin	77.4	58.1	90.0
Chloroquine	41.9	51.6	59.5
Tetanus Toxoid	43.6	32.4*	52.0
IV Infusions	45.2	60.0	59.5

* The drop in this item is attributable to the increased usage as a result of the 1985 National Vaccination Campaign, which began in February 1985.

Table VII below presents the availability of an expanded list of drugs at various levels of the health system, from a survey conducted in April, 1985.

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TABLE VII
 SURVEY OF DRUG AVAILABILITY PER
 HEALTH FACILITY

<u>Item</u>	<u>Health Post</u>	<u>Health Unit</u>	<u>Hospital/ Center</u>
Penicillin	90.5%	95.0%	95.0%
Chloramphenicol	43.0	52.6	85.0
Oral rehydration Salts	90.5	92.1	90.0
Xylocaine	76.2	86.8	75.0
Antimalarics	76.2	86.8	65.0
Tetanus Toxoid	61.9	76.0	65.0
Syringes	85.7	97.4	100.0
Sutures	57.1	81.6	95.0
Surgery Supplies	85.7	92.1	100.0

There have been significant improvements in availabilities of most drugs and supplies, particularly at the lower end of the system (health posts and health units). Centers and hospitals also show improvements.

Central and Regional Warehouse Construction and Modification

Construction of additional warehouse space is now scheduled for completion on September 15, 1985 at Matasano. Although originally scheduled for June, 1985 completion, the initial time estimates did not take into account delays due to contract negotiations and unanticipated problems with the excavation. The construction budget was projected at 1,098,000 colones, of which 350,000 colones have been disbursed.

Plans and budgets for regional warehouse modifications have been developed and approved. It is estimated that actual work time needed will be three months, with completion by January 1986. Work will include installation of exhaust fans, installation of ceiling materials, and, in several cases enlargement of existing plant space.

Cold Chain

Two cold chain storage units were received and installed at the central (Matasano) level, providing sufficient capacity to maintain products for national level vaccination/innoculation

programs at optimal stocking levels. The installation of these units required the modification of part of the Matasano warehouse, sectioning off the cold room area, creation of an air conditioned temperature controlled area, and the mounting of an auxiliary generator. This facility was in place before February, 1985, and was utilized during the MOH's inoculation campaign, which required coordination of physical distribution by the EMG and regional administrators. During the vaccination campaign approximately 240,000 children received the complete series of DPT, polio, and measles vaccines. Development of the cold chain required coordination by the EMG of a number of inputs, including 4,600,000 doses of vaccines, 2,800,000 disposable syringes, and 200 vehicles.

An additional USAID input of 186 refrigerator units were in place and operational at regional facilities by July 15, 1985, to maintain stocks of biologicals within the system. Two supplementary cold rooms are scheduled for placement in Santa Ana and San Miguel and this will complete the cold chain. These cold rooms are scheduled for arrival in August and should be installed before December, 1985.

Supply Management System

The VISISA Project has provided the necessary technical assistance to initiate inventory tracking and the EMG has developed a set of draft inventory management documents. These systems will be tested during June and July, 1985.

Drug Arrivals

- The VISISA Project provided technical assistance in management of drug and medical supplies ((disposables); AID funded drugs and supplies are moving through the MOH supply system. The VISISA Project drug and supply procurement/distribution actions are summarized below:
- The two emergency shipments of anesthetics and disposables, ordered in November 1983, began arriving in January 1984. These materials were distributed during February, March and April of 1984 to health facilities.
- The third AID/VISISA shipment (PIO/T 30113), arrived in June-July, 1984. Distribution of drugs was accomplished in the August/September 1984 period. There are still small stocks on hand at the Central IVU warehouse.

- The fourth AID/VISISA shipment (PIO/T 30131), partial shipments of which began arriving in December, 1984, January and February, 1985, a large procurement of 95 drug items, is now flowing through the MOH supply system.

- Shipments from PIO/T 30151 of 24 items, valued at \$1.04 million, began arriving in April/May, 1985. The MOH has prepared a distribution plan, and the physical distribution has begun, drawing against stocks of the 10 items that have arrived.

- The above AID procured drugs and supplies were augmented on the local level by Project purchases of 1) Rabies vaccines, \$21,000; 2) anti-malaria drugs, \$240,000; and Ethane, \$85,000. These items have been distributed to MOH facilities.

Taking into account the combined responsibilities of distributing all drug and medical supply inputs, installation of equipment, and construction, the MOH has been able to manage AID inputs effectively, through close coordination with the USAID staff, T.A., and the EMG. Timeframes for in-country distribution of AID procured products to hospitals, health centers, and regional warehouses, are acceptable. There has been some delay in receiving (inspection of cargo), due to arrivals of other large shipments of supplies. However, records indicate that during the peak period AID/VISISA products were available as active inventory at the central level (IVU) warehouse within thirty days after receipt.

The problem of the arrival of the products can be resolved through better coordination by the procurement section, the MOH purchasing committee, and the EMG. The EMG should track procurement and schedule arrivals and deliveries to minimize congestion during the receiving phase (inspection) at the central warehouse. Congestion due to build-ups of arrivals will also be reduced when the central warehousing operation is transferred to Matasano, which provides sufficient floor space for receiving, inspection, and staging.

Drug Utilization at Health Facility Level:

During the May 12, 1985 to June 12, 1985 period of the management evaluation second phase, a field survey of eight priority drugs was completed, using 30 MOH facilities, six in each of the five health regions. The survey was designed to

secure information regarding patient load, prevalent morbidities, drugs prescribed, and drug availability over a 2 1/2 year period. In terms of drug availability the survey format provides an efficient way to obtain baseline information to compare availabilities and usage rates. This same format, with little modification, can also be utilized in the MOH drug information system as a basis to check availability and monitor usage rates.

Table VII presented below provides an overall comparison of results of the surveys conducted in February and April 1985, regarding commodity availabilities throughout the system. Clearly, with the exception of chloramphenicol, there has been a significant improvement in availabilities of basic medicines and supplies. This change in availability can be attributed to increased rates of distribution from central to regional and local facilities, as well as to the influx of commodities into the country, financed both by VISISA and other sources.

TABLE VII

COMPARISON OF SURVEY RESULTS ON COMMODITY
AVAILABILITY IN THE HEALTH SYSTEM

	<u>Feb./85</u> <u>Results</u>	<u>April/85</u> <u>Results</u>	<u>Percent</u> <u>Increase</u>
Penicillin	47.47%	93.50%	97%
Chloramphenicol	60.00%	60.20%	0.33%
Oral Rehydration Salts	67.90%	90.87%	34%
Xylocaine	54.43%	79.33%	46%
Antimalaria Drugs	47.90%	76.00%	59%
Tetanus Toxoid	52.23%	67.63%	29%
Syringes	84.23%	94.37%	12%
Sutures	70.10%	77.90%	11%
Surgical Supplies	67.77%	92.60%	37%

Before the VISISA Project there were severe shortages of basic supplies and medicines. The institutional capabilities were deteriorating and there were no modern management systems. VISISA represents a small but significant proportion (about 20 percent) of all of the drugs brought into the country. AID research indicates that a significant amount of money is spent by people in the private sector because of the lack of availability of drugs in the public

sector institutions. Drugs and equipment also come from private sources, but may be of limited use, e.g., drugs that are not that useful with upcoming expiration dates. Donated equipment may be old, obsolete, and difficult if not impossible to repair. VISISA has brought in biomedical equipment and supplies that are installed and in use.

It is unrealistic to expect a project such as VISISA to have an immediate, measurable impact on morbidity and mortality, health manpower and facilities when there are so many other factors involved and the Project represents such a small part of the total health system. Nor can health care be evaluated in a vacuum without considering other national priorities, and the overall political, military and economic situation. If one considers the fact that the MOH is doing the same job today, and in some cases more than it did five years ago with the same budget (which is 50% less in real buying power), they are doing an amazing job. Although we cannot claim that VISISA solved all of their problems or made tremendous improvements in the health care system, the deterioration has been halted, and measurable improvements have been made in some areas.

The Commodity System:

Nearly all of the commodities purchased under the VISISA Project have arrived. Some components of the Project are running behind, but there are a number of reasons for these delays:

There have been changes at the Minister and Vice Minister level within the last year in the MOH. Every time a change occurs, new appointments are made at the department level.

There were serious problems in the warehousing and supply systems before and there still are. Progress is being made but this is a long range problem with no easy solution. Infrastructure building, "strengthening institutional capabilities," is, by definition, long-range. It would be unrealistic to expect quantum gains in just one year.

Due to the constraints on the availability of grant funds the technical assistance component was reduced considerably from that proposed in the original Project Paper. The original Project called for 11 long term advisors, but ended up with only six (two at AID in procurement and the four Westinghouse advisors).

In summary, the EYG project management has managed to make significant progress during the 12 month T.A. period and has developed a firm basis for subsequent initiatives in supply management.

The availability of pharmaceuticals throughout the system was variable in terms of types of products and quantity. However, in each of the health facilities visited in the San Salvador area (two hospitals, one health center, two health units) adequate quantities of AID/VISISA drugs were evident. The central warehouse had received nearly 80% of the AID financed products. Of 50 products selected for inspection, 44 (88%) had had movement out of the central warehouse to hospitals and regions. Stocks of four products were totally depleted at the central warehouse, although large stocks of these products were available at several hospitals.

In terms of time to procure the AID financed products, the majority of products (52%) arrived within 120 days of the PIO/C date. An additional 22% arrived within 210 days, and 26% had not arrived as of May 15th. This remaining 26%, however, had a PIO/C date of February 12, 1985, thus May 15th, was still within 90 days of the PIO/C.

SUBCOMPONENT I-B MALARIA

The Project proposed to reduce the incidence of malaria by five percent in regions where 85 percent of the Malaria cases have been reported.

The Project has delivered \$1.3 million in insecticides and equipment. On May 20, 1985, the Malaria Division of the MOH initiated the spraying of propoxur in the known areas of susceptibility. Original plans called for three spraying cycles (each cycle of 90 calendar days) extending from March 18 to December 13 approximately.

Despite an insufficient amount of propoxur to complete the cycles, the Division decided to start spraying with its own stocks of the insecticide, reducing the number of cycles to two, in hopes of receiving the first shipment of the insecticide (originally scheduled for March 30, 1985) through VISISA. The insecticide stocks as of May 20, consisted of 11,082 kilos, which are sufficient to last 32 calendar days (approximately half a cycle) of spraying operations.

It is anticipated that completion of the two spraying cycles will only be achieved if a second shipment of insecticide (originally scheduled for May 30, 1985) is received by the end of August.

The MOH Malaria Division received on January 30, 1985 through the VISISA Project, the equivalent of 1,000 Kgs. (2,200 pounds) of ABATE 1% granular (destined for treatment of potable water) and 235 gallons of ABATE 44% (destined for treatment of stagnant or contaminated waters). Both types of ABATE are used mostly during the

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dry season which was the reason for a rush procurement in January 1985. As of May 20, 1985 all of the ABATE had already been used except for four gallons (ABATE, 44%) remaining at the central warehouse. In spite of the rush order, the product arrived in January, 1985, late, since application should have started early in December for best results. ABATE was ordered in October, 1984 by PIO/C No. 519-0291-5-30140, on request from the MOH, after having experienced a series of difficulties related to their International Public tenders.

Anti-Malarial Drugs

Chloroquine Phosphate (150 mg. base)

The MOH received two million tablets in December 1984, from Richlyn Laboratories Inc., Philadelphia. This is the total amount to be received by the MOH under the VISISA Project.

Among the drugs to be purchased under the VISISA Project, chloroquine phosphate was the only one to come from the U.S. Others have been procured from local pharmaceutical companies, as these products are not produced in the U.S.

Equipment

Vehicles

On April 20, 1985 the Malaria Division received through the Project five Jeep model J-20 pick-ups. These pick-ups, according to Project design, are equipped with one ULV spraying machine each.

During the National Vaccination Campaign 95% of the field malaria personnel provided assistance at the regional level. Malaria personnel devoted an estimated total of 22,113 man days distributed over the three rounds of the Campaign. An additional factor that impacted negatively upon the Malaria Division during 1984 was the lack of resources especially in the areas of larvicides. This type of insecticide has its greatest effect during the dry season, which is the reason why spray operations need to be initiated during the November-December period. Insecticide for such purpose did not arrive until the end of January, with a consequent delay on larvae control.

132.

SUBCOMPONENT I-C: DRUG QUALITY CONTROL

The Project proposed to establish a Drug Quality Control laboratory in the MOH to improve the drug quality regulating capacity of the Ministry.

Project Management has negotiated with the Ministry of Agriculture (MAG) and the MOH for the utilization of the MAG laboratory space to mount a unified DQC program. A T.A. consultant has made an assessment of the laboratory space and equipment available. The recommendations of the T.A. will be utilized in subsequent activities designed to upgrade the DQC program during 1985/86.

The T.A. site inspection was completed, specifications have been written for equipment, and a final report is due July 22, 1985.

COMPONENT II. PUBLIC HEALTH INFRASTRUCTURE MAINTENANCE

The Project component was designed to provide an improved MOH maintenance/repair capability for vehicles, the physical plant, and medical equipment. Four additional positions in the MOH Division of Transportation were to be created. The average cost of repair and maintenance per car was to be reduced. A reduction to 15 percent in the number of deadlined vehicles in the first Project year, and a reduction to 10 percent at the end of the Project was targeted.

In addition, improvements in the maintenance/capability for medical electro-mechanical, sanitation equipment and physical plants were contemplated. An increase of 40 percent in maintenance visits by the MOH Department of Maintenance personnel to health centers, units and posts was also part of the design.

A. Vehicle Maintenance

All of the vehicles have arrived or have been ordered. There have been delays in getting spare parts which has made it difficult to reduce downtimes. However, significant improvements have been made. Since January 1985, the number of vehicles operating has increased from 59.6 percent to 75 percent, and the percent of vehicles deadlined has gone from 40 percent to 25 percent. These rates would be better if spare parts were more available. A preventive maintenance program has been designed and implemented. Significant construction for vehicle maintenance areas in Matazano has taken place and numerous training programs have been conducted for the mechanics, drivers, and supervisors.

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Transport

Since October, 1984, the transport T.A. Advisor, working with the EMG, the Transport Section, and the Computer Manager, has developed and completed a series of activities that have, at this writing, produced significant results.

A management and administrative system with control indicators (MASCI) has been developed, tested, and is now operational. This system tracks vehicle utilization, costs of operation, maintenance and repair. The transport manager can utilize the system as a management tool and an evaluation system. Three components of this system (vehicle inventory, cost control, and spare parts inventory) have been computerized. Since January 1985, the system has been successfully used to track the efficiency of repair and maintenance operations. Utilizing the indicator of vehicle turn-around repair performance, the following improvement in vehicle availability can be seen:

TABLE VII

VEHICLE AVAILABILITY

	<u>Vehicle % Operating</u>	<u>Vehicle % Deadline</u>
January	59.6	40.4
February	61.7	38.3
March	63.3	36.7
April	64.8	35.2
May	69.8	30.2
June*	75	25

(*) Projected

As the above Table indicates, there has been a significant decrease in vehicle downtime during the above six month period. The significant increase of operating vehicles and decrease in down time, beginning in April, is due to the opening of an imprest fund at the transport office level, which facilitates acquisition of spare parts. Downtime has decreased dramatically now with the arrival of spare parts, in June, 85. Credit is due to the Transport T.A. Advisor, whose managerial skills have been instrumental in assisting the transport officer to reorganize the Transport Division.

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A preventive maintenance schedule program (PMS) has been designed, tested, and is now operational. Each vehicle in the fleet has received a PMS folder, which is a basic guide to preventive maintenance.

At the central MOH Transport Headquarters, Matazano, the following plant infrastructure has been put in place:

- Tool shop
- Bathrooms
- Tire shop
- Radio shop
- Vehicle reception office

Construction is over 70% complete in the battery and muffler shops. The gasoline station construction was initiated in July 1985. Additional warehouse construction is scheduled for the Eastern, Central, Para Central, and Western Regions.

Training programs have been developed and presented to support implementation of the PMS and MASCI. Training on diesel fuel and cooling systems as well as a one-day seminar for drivers has been completed. Additional training on preventive maintenance, engine rebuilding, brakes and tune-ups were held in June, July, and programmed for August of 1985.

With the implementation of PMS and MASCI the MOH Transport Section clearly has the necessary management information structure to operate its fleet effectively and efficiently. USAID inputs of materials, vehicles, spare parts, tools, radios, technical assistance have been well targeted. However, the management system alone will be unable to sustain the level of current development with a current fleet of 473 vehicles, 200 of which are models ten years or older. The most efficient preventive maintenance and management systems will not be able to keep downtime to a minimum and reduce operating and maintenance costs with half the vehicle fleet sinking into obsolescence. And while still in the MOH vehicle inventory, comprising a significant part of the fleet, these vehicles will become less and less cost effective, a drain on maintenance budgets. The T.A. transport advisor has completed phase I of a vehicle fleet evaluation, which has been instrumental in determining which vehicles are no longer economically operable. This vehicle evaluation also includes a component that requires submission by each division or program of the MOH of a detailed justification for each vehicle. This will assist the MOH in the capital and annual budgetary process, in which informed decisions are necessary to manage efficiently a fleet that currently contains 473 vehicles. The transport TA is on target in terms of both short term and long term objectives.

12/85

Biomedical and Electro Mechanical Equipment

There have been some delays in procuring equipment, but these delays are related to changes in personnel in the Ministry and the time taken to decide on what equipment they want, writing the specifications, getting approvals and going about the lengthy and time-consuming bidding process. All equipment that has been ordered has arrived and has been installed. A management system has been developed to track all phases of the biomedical maintenance. Since September 1984, productivity has risen from 66 percent to 82 percent. A human resources assessment has been completed and training programs were planned for the period from June 25 to July 21 for biomedical technicians. An inventory of all biomedical equipment was just completed and an analysis of equipment and spare parts currently needed has been developed. Besides all of the planned activity, the bio-medical advisor provided considerable assistance to the MOH in procurement, structuring specifications, etc.

Bio-medical and Vehicle Maintenance

These two activities are nearly completed as pointed out previously. The counterpart to the biomedical advisor left just before the Project started. Both the vehicle and biomedical advisors have had difficulty finding and working with counterparts that have the background and ability to do the job, especially in the bio-medical area. Both areas are plagued by low salaries, and the inability to get and keep qualified people. The Ministry likes people who will roll up their shirt sleeves and work along with them. Both of these advisors gained considerable respect by the Ministry and its staff. The biomedical advisor spent two months helping the Ministry rewrite specifications for biomedical equipment which differed sharply from decisions made by the prior Administration.

Bio-medical Equipment

The installation of VISISA Bio-med Equipment currently in country has been completed. This includes sterilizers, film processors, and smaller operational and test equipment.

The X-Ray equipment and anesthesia equipment are now on order. The Bio-med T.A. was able to include both installation and training as part of the procurement package, two valuable service elements that were not contemplated in the original specifications. A delivery plan for this equipment has been prepared by the Bio-med T.A. and the EMG.

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It should be noted here that the Bio-med T.A. has provided a significant amount of additional assistance in the procurement of major equipment (reviewing requirements and rewriting specifications) to ensure that VISISA capital equipment inputs were technologically appropriate.

Bio-Medical Equipment Management Systems (BEMS)

This management system has been designed, tested, and put in operation ahead of schedule. It provides an effective way of tracking all phases of the Bio-med maintenance activity, including the monitoring of work orders, equipment installation, training, and time control. Using the BEMS as a management tool and tracking system, the Bio-med T.A. has prepared an evaluation of productivity over an eight month period (from Sept 1984 to April 1985). The productivity measurement for this phase of Project implementation is a comparison of work requests against completion.

As Table VIII below indicates the productivity, or work completed, has risen from an average of 66% for the four month 1984 period, to 82% during the March-April 1985 period. During the same period it should be noted that the number of requests increased, a total of 339 work requests during the four month 1985 period, against a total of 159 requests during the last four months of 1984, a 114% increase in work requested.

TABLE VIII

AVERAGE MAINTENANCE PRODUCTIVITY

MONTH	YEAR	WORK REQUESTS	COMPLETED WORK REQUEST
Sept.	1984	53	27
Oct.	1984	29	23
Nov.	1984	40	34
Dec.	1984	37	22
Jan.	1985	101	77
Feb.	1985	53	45
March	1985	99	78
April	1985	87	75

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Beginning in January, 1985, two maintenance shops in San Salvador were unified under one immediate supervisor, which provided more control over the work schedule. Also, the P.A. Advisor in coordination with the maintenance chief, was able to develop an imprest fund for purchasing of spare parts and materials, which is another significant factor that influenced the productivity increase.

Training

The Bio-med T.A. has made significant progress in training. A human resources assessment was completed before June, 1985. An evaluation of existing manuals and other maintenance and repair information was completed before November, 1984. The T.A. is now in the process of compiling information and manuals to support maintenance activities. This process is scheduled for completion in August 1985. It should also be noted that T.A. is developing preventive maintenance programs with counterpart for key Bio-med equipment. On the Job Training has been provided on laboratory equipment and sterilizers. A major training course was scheduled for 48 hours (six Saturdays) during the period 15 June to 20 July, in the facilities provided by the Central American Technological Institute. The training covered laboratory equipment, therapy equipment, diagnostic equipment, and shop equipment.

Inventory and classification of Bio-med equipment

The Bio-med T.A. and Chief of Party have prepared a plan for a three week inventory of Bio-med Equipment at the hospital, health center and health unit levels. This inventory will be structured to identify replacement requirements for subsequent procurements, and should be completed before July 21, 1985. The Bio-med T.A. has also initiated a classification of equipment scheduled for replacement by AID/VISISA capital equipment inputs to develop a plan for disposing via salvage, Repair/sale or Repair/transfer within the MOH.

Spare parts programs

The Bio-med T.A. is currently developing a spare parts program. Spare parts lists have already been prepared for suction pressure apparatus, incubator, defibrillator/monitor, electrocardiograph, centrifuge, and film processor equipment. A draft spare part policy was made available to the MOH decision makers on July 31, 1985.

The Bio-med T.A. has done the initial assessment which should serve as the basis for subsequent MOH capital equipment procurement planning. It is recommended that the T.A. submit a plan for the formation of a capital equipment procurement committee, which, like the MOH procurement committee and the recommended drug selection

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therapeutic committee would be structured to assess capital equipment requirements and prioritize procurement. This committee would play an important role in direct purchasing and structuring specifications of equipment that is made available through grants and donations.

This second phase of the management evaluation finds the Bio-med T.A. component on track. T.A. services have been effectively delivered. The BMIS management total/evaluation system, now in place, will be utilized to monitor and evaluate all significant aspects of the Bio-med maintenance component during the third phase of the management evaluation. Quite important, of course, is that the MOH now has a practical management system that can provide managers with timely information. This manual system can also be computerized with very little difficulty.

COMPONENT III. MANAGEMENT INFORMATION SYSTEMS (MIS)

This is the component that has been delayed because the Ministry received conflicting recommendations on a computer system: one, a \$1.5 million system using a main frame and the other, a less expensive system, based on micro computers. A compromise has been reached and will soon go out to bid. This has caused delays in the MIS part of the other components. It is vital to the success of the overall Project, since little data is available and what is, is hand tabulated.

The MIS component supports development of the MOH data base for procurement, logistics, maintenance and health planning.

COMPONENT IV. EMERGENCY MEDICAL SERVICES

The Project was designed to improve the Ministry's capacity to provide emergency medical services, specifically for (but not limited to) war-related trauma for El Salvador's civilian population. Three mobile surgical teams trained and equipped with surgical kits, drugs and other supplies, will be established and operating. Approximately 1,150 medical personnel, including surgeons, general medical officers, nurses, auxiliary nurses and ambulance drivers/attendants, will be trained in wound stabilization, first-aid skills, and patient handling techniques. Ground casualty transport system will be strengthened by the addition of 27 ambulances, some of which will be radio equipped. Power and water supply systems improved in hospitals, centers, units.

SUBCOMPONENT A - DEVELOPMENT OF HUMAN RESOURCES FOR EMERGENCY SERVICES

Consensus could not be reached by the new administration on the need for the three mobile surgical teams and their equipment. The number of people to be trained was also

.. considered by the administration to be overly ambitious and will not be undertaken on the scale proposed. However, training is planned to be initiated in August 1985 for ambulance drivers, general medical officers and nurses.

SUBCOMPONENT B - EQUIPMENT AND MATERIAL FOR EMERGENCY SERVICES

Supplies and equipment itemized in the Project Agreement have been purchased: the 52 medical stabilization kits, 26 emergency surgical lamps, 249 emergency surgical kits and 97 first aid kits. Emergency generators have been procured and are expected incountry by September 1985. Twelve X-Ray machines have been ordered. Twenty-six suction machines have arrived and are installed. Twenty-seven ambulances have arrived and have been distributed. The radio communication equipment is incountry and is expected to be installed over the next few months. One hundred water pumps have been ordered and will be installed as soon as they arrive.

SUBCOMPONENT C - SPECIAL STUDIES

A national trauma study was added to the Westinghouse Health Planner's Scope of Work and will be completed by the end of September. This is a major study and will provide valuable data for future planning for trauma management and primary care programs in El Salvador

The Planning Advisor has also provided assistance to short term consultants who have, or are carrying out studies in rehabilitation needs, cost sharing options, recurrent costs of the MOH and teaching/learning materials needed for health worker training and trauma training modules.

GENERAL SUMMARY AND RECOMMENDATIONS

I. Summary:

Project Effects and Impacts

Before the VISISA Project, there were severe shortages of basic supplies and medicines. The institutional capabilities were deteriorating and there were no modern management systems. VISISA represents a small but significant proportion (about 20 percent) of all of the drugs brought into the country. AID research indicates that a significant amount is spent by people in the private sector because of the lack of availability of drugs in the public sector institutions. Drugs and equipment also come from private sources, but may be of limited use, e.g. drugs that are not that useful with upcoming expiration dates. Donated equipment may be old, obsolete, and difficult if not impossible to repair. VISISA has brought in biomedical equipment and supplies that are installed and in use.

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To expect a Project such as VISISA to have an immediate; measurable impact on morbidity and mortality, health manpower and facilities when there are so many other factors involved and the Project represents such a small part of the total health system would be unrealistic. Nor can health care be evaluated in a vacuum without considering other national priorities, and the overall political, military and economic situation. If one considers the fact that the MOH is doing the same job today, and in some cases more than it did five years ago, with the same budget (which is 50% less in real buying power), they are doing an amazing job. Although we cannot claim that VISISA solved all of their problems or made tremendous improvements in the health care system, the deterioration has been halted, and measurable improvements have been made in some areas.

II. Major Recommendations

1. Technical Assistance is needed to continue the revitalization of the Salvadoran health infrastructure.
2. Primary care, and prevention should become a major focus of future programs.
3. Develop a national program in trauma management based on the recommendations from the national trauma study.
4. Commodities are still needed, but emphasis should be on those drugs, supplies, and equipment that are absolutely essential.
5. Technical assistance should be provided to ensure that the management information systems are developed and implemented.
6. The MOH should prioritize pharmaceutical products to reflect first, second, third, and fourth priority.
7. The MOH should implement an automated system to determine the quantities of drugs to be procured based on morbidity make-up of the population served, average quantity per treatment per case, and the number of patients to be treated.
8. The MOH should place adequately trained individuals in charge of warehouses, storage depots and pharmacies.
9. The MOH should develop policies regarding ordering of pharmaceuticals from the warehouses and depots.
10. Physician education should continue to place more emphasis on primary health care, prevention outpatient care, nutrition, community education and trauma management.

11. El Salvador should develop a Rural Health Promoter Program (Promotores de Salud Rural), to be composed of volunteer health workers selected by their communities, trained and supported by the MOH and other cooperating agencies, and certified by the MOH.

12. An aggressive program of eliminating mosquito breeding areas should be continued and enlarged in an expanded effort to reduce the incidence of malaria in El Salvador.

Dr. Massey

(2) ACTION AIDS INFO AMB DCY ECON

VZCZCSW032Z
RR RUEHSN
DE RUEHSJ #7411 2391634
ZNR UUUUU ZZK
R 271633Z AUG 85
FM AMEMBASSY SAN JOSE
TO RUEHSN/AMEMBASSY SAN SALVADOR 3493
RUEHC/SECSTATE WASHDC 3165
RUEEGT/AMEMBASSY GUATEMALA 1672
BT
UNCIAS SAN JOSE 37411

ACTION TAKEN
DATE
INITIALS

AUG 29 1985

27-AUG-85
TOR: 16:31
CN: 64354
CERG: AID
DIST: AID

USAID / SAN SALVADOR
C & R
008595

AIDAC

AID SAN SALVADOR FOR J. MASSEY
INFO AID/W FOR H. HESTER. LAC/DR
INFO GUATEMALA FOR ROCAP FOR E. BRINEMAN

E.O. 12356: N/A
SUBJECT: ENVIRONMENTAL ASSESSMENT FOR AMENDMENT
- OF HEALTH SYSTEMS VITALIZATION PROJECT
- (NO.519-2291).

1. ROCAP ENVIRONMENTAL AND PEST MANAGEMENT SPECIALISTS, F. ZADROGA AND A. CHIRI, RESPECTIVELY, CARRIED OUT A TDY TO EL SALVADOR ON AUGUST 21-22, 1985 TO ATTEND TO USAID/ES REQUEST FOR AN ASSESSMENT OF THE ENVIRONMENTAL IMPLICATIONS OF PROPOSED MALARIA CONTROL ACTIVITIES VIA AN AMENDED HEALTH SYSTEMS VITALIZATION PROJECT AND A FUTURE GOES PL 482 VECTOR CONTROL/SOURCE REDUCTION PROJECT. THIS CABLE GIVES REMS/RPMS ASSESSMENT OF PERMETERIN USE. RECOMMENDATIONS FOR MITIGATION OF POTENTIAL ENVIRONMENTAL IMPACTS OF SOURCE REDUCTION ACTIVITIES WILL BE PROVIDED IN JOINT REMS/RPMS TRIP REPORT TO BE FORWARDED TO USAID/ES AND LAC/DR ON/ABOUT AUGUST 30, 1985.

2. AN IEE WAS PREPARED FOR PROJECT 519-2291 ON 7/13/83 BY LAWRENCE T. COOPER, S& /HEALTH AND, WE UNDERSTAND, SUBSEQUENTLY APPROVED BY LAC/DR (E.OTTO). THE PRO/AG OF THIS PROJECT CONTAINS A COVENANT THAT IF NEW CHEMICAL, BIOLOGICAL OR PHYSICAL MALARIA CONTROL METHODOLOGIES ARE INTRODUCED INTO THE PROGRAM (AFTER PROJECT APPROVAL) THE ENVIRONMENTAL IMPACT WILL BE REVIEWED, AND, IF NECESSARY, ENVIRONMENTAL STUDIES OR ASSESSMENTS WILL BE CARRIED OUT.

3. THE PROPOSED PROJECT AMENDMENT WILL REQUEST APPROVAL FOR THE USE OF PYRETEROID COMPOUND CALLED PERMETHRIN (COMMON BRAND NAME: POUNCE). THIS COMPOUND IS THE INSECTICIDE OF CHOICE BECAUSE OF ITS LOW TOXICITY LEVEL TO AQUATIC ORGANISMS AND HUMANS. IT HAS BEEN USED SUCCESSFULLY IN EL SALVADOR UNDER FIELD

ACTION TO: <i>HR/HA</i>		
ACTION DUE: <i>9/5</i>		
Info:	AD:	DP/SA
DIR	RDC	PER
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MCO	COM	GSO
DEPCO	OBI	PRE
PRRJ	GDC	ECON
Subject:		
ACTION TAKEN		

ACTION COPY

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23 AUG 1985
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CONDITIONS FOR APPROXIMATELY-12 YEARS WITH NO NEGATIVE ENVIRONMENTAL NOR HUMAN HEALTH IMPACTS. ALSO NO SIGN OF CROSS-RESISTANCE FROM OTHER RESIDUAL PESTICIDES SUCH AS DDT HAS BEEN DETECTED.

4. PERMETHRIN IS PROPOSED TO BE UTILIZED BY MEANS OF THE SAME APPLICATIONS AND FIELD TECHNIQUES AS PREVIOUSLY OUTLINED IN THE HEALTH SYSTEMS VITALIZATION PP AND APPROVED BY COOPER'S IEE.

5. THESE PROGRAMS ARE BEING CLOSELY SUPERVISED BY BOTH A USAID/ES MALARIA ADVISOR, DR. MAURICIO SAUERBERY, AS WELL AS PAHO AND GOES-MOH SPECIALISTS. FIELD TECHNIQUES HAVE BEEN DESIGNED TO BE CONSISTENT WITH WHO GUIDELINES, AND THE MALARIA CONTROL EFFORTS PROPOSED ARE AMONG THE MOST PROGRESSIVE OF THE MALARIA AFFECTED COUNTRIES OF CA/P REGION.

6. FOR THE ABOVE REASONS WE RECOMMEND APPROVAL BY THE IAC/DR ENVIRONMENTAL OFFICER OF THE PROJECT AMENDMENT. TAMES
ET
#7411

NNNN

Health Supplies Inputs to the MOH
(1983-1985)

FUNDS FOR PHARMACEUTICAL AND HEALTH RELATED SUPPLIES AND EQUIPMENT PROCUREMENT,
BY SOURCE AND MONTH OF ARRIVAL
(\$000)

	83* NOV	83 DEC	84 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GOES \$4,391.5 (MOH Estimates)	-	500.0	91.5	400.0	500.0	500.0	500.0	-	500.0	400.0	500.0	500.0	-	-
PL-480/83	-	-	-	-	-	-	-	200.0	-	-	-	-	100.0	100.0
PROEXP(COL.) \$3,540.0	-	-	-	-	-	-	-	-	-	-	1,179.1	1,179.1	1,179.1	-
Private Donations	386.3	324.8	187.4	-	123.4	589.6	-	25.1	96.0	881.6	1,594.3	126.6	1.0	-
<u>VISISA - 0291</u>														
PIO/C 30131 (Drugs)	-	-	-	-	-	-	-	-	-	-	-	-	-	9.3
PIO/C 30080 (Med Supplies)	-	-	-	75.1	199.8	130.4	-	-	-	-	-	-	-	30.5
PIO/C 30081 (Pharmaceuticals)	-	-	43.3	8.4	65.4	7.1	42.7	-	-	-	80.5	-	-	100.0
PIO/C 30086 (Med Equip)	-	-	-	-	10.5	4.1	191.0	19.9	130.9	506.8	-	-	390.9	-
PIO/C 30088 (Cold room)	-	-	-	-	-	-	-	-	10.0	-	10.1	-	-	-
P.O. 4155 (Insulin)	-	-	-	-	-	6.5	-	-	-	-	-	-	-	-
PIO/C 30113 (Drugs)	-	-	-	-	-	-	-	8.2	-	-	32.0	20.1	24.5	112.6
P.O. 5043 (Insecticides)	-	-	-	-	-	-	-	-	-	-	-	-	-	24.9
P.O. 5038 (Rabies Vacc.)	-	-	-	-	-	-	-	-	-	-	-	-	-	20.9
COL.TOTAL	386.3	824.8	322.2	483.5	899.1	1,237.7	733.7	253.2	736.9	1,788.4	3,396.0	1,825.2	1,695.5	398.2

TOTAL 83/84 \$14,980.7

* Health Project CP's met.

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FUNDS FOR PHARMACEUTICAL AND HEALTH RELATED SUPPLIES AND EQUIPMENT PROCUREMENT,
BY SOURCE AND MONTH OF ARRIVAL
(\$000)

	85 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
GOES (MOH ESTIMATES)	Original FY85 budget for pharmaceuticals of 8,000,000 colones was cut to 6,000,000. MOH cannot award 1985 pharmaceuticals bid until item quantities are adjusted to available funds.											
PL-480/84	-	-	150.0	-	200.0	-	150.0	-	-	-	-	-
Private Donations	982.9	917.0	967.0	992.0	1,186.0	1,056.2	1,160.0	1,260.0	1,100.0	1,000.0	1,200.0	1,050.0
UNICEF	-	165.0	165.0	165.0	-	-	-	-	-	-	-	-
PIO/C 30131 (Drugs)	109.9	1,440.2	200.5	275.4	284.6	350.2	-	-	-	-	-	-
PIO/C 30080 (Med. Supp.)	6.2	56.9	114.5	-	-	-	-	-	-	-	-	-
PIO/C 30086 (Med. Supp.)	355.7	2.6	-	-	-	-	-	-	-	-	-	-
PIO/C 30142 (Cold Chain)	83.8	128.3	-	-	-	-	-	-	-	-	-	-
PIO/C30113 (Drugs)	-	-	-	25.6	-	-	-	-	32.0	-	-	-
PIO/C 30140 (Insecticides)	-	-	-	-	-	1,034.1	-	-	-	-	-	-
PIO/C 30146 (Mal. Equip.)	-	-	-	-	38.8	47.2	-	-	-	60.0	-	-
PIO/C 30151 (Drugs)	-	-	-	2.7	280.0	223.9	42.0	221.4	120.5	112.0	97.7	-
TOTALS	1,538.5	2,710.0	1,597.0	1,460.7	1,989.4	2,711.6	1,352.0	1,481.4	1,252.5	1,172.0	1,297.7	1,050.0

Note: Private donors (Knights of Malta, HOPE, Rotarians, Lions, etc.) cannot project levels or estimated values of future donations. They expect, however, to maintain similar levels.
Month for VISISA commodities represents month of payment; for private donations, it is month of arrival.

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FUNDS FOR PHARMACEUTICAL AND HEALTH RELATED SUPPLIES AND EQUIPMENT PROCUREMENT,
BY SOURCE AND MONTH OF ARRIVAL
(\$000)

VISISA CONT.	85 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
PIO/C 30152 (Med. Supp.)	-	-	-	-	41.3	6.8	27.7	81.4	200.5	258.9	204.5	102.6
PIO/C 30160 (Malaria)	-	-	-	-	-	-	-	-	-	-	-	58.5
PIO/C 30166 (Drugs)	-	-	-	-	-	-	-	-	-	-	406.0	406.0
PIO/C 30153 (Walk-in coolers)	-	-	-	-	-	-	16.9	-	-	-	-	-
PIO/C 40120 (Ethane)	-	-	-	85.0	-	-	-	-	-	-	-	-
PIO/C 40123 (Boilers, Pumps)	-	-	-	-	-	-	-	165.0	308.0	315.8	309.0	295.4
PIO/C 40124 (X-ray Equip)	-	-	-	-	-	-	-	-	-	-	2,409.2	2,409.5
PIO/C 40126 (Anesthesia Units)	-	-	-	-	-	-	-	427.8	119.5	119.5	-	-
PIO/C 30087 Radios	-	-	-	50.1	-	-	-	-	-	-	-	-
Vehicles	258.9	110.7	38.7	432.0	-	-	-	-	-	-	-	281.9
Tools & Shop Eq.	-	-	-	-	51.7	-	-	-	-	-	-	-
Electronic Test.	-	-	-	-	65.8	-	-	-	-	-	-	-
Graphic & Print.	-	-	-	17.5	-	-	-	-	-	-	-	-
Warehouse Eq.	-	-	-	57.4	-	-	-	-	-	-	-	-
Malaria Drugs	-	-	49.4	-	-	17.2	1.4	14.6	-	-	-	-
Off-Set Press	-	-	-	-	-	23.6	23.6	-	-	-	-	-
Paper Cutter	-	-	-	-	-	48.4	-	-	-	-	-	-
TOTALS	258.9	110.7	88.1	642.0	158.8	96.0	69.6	688.8	628.0	694.2	3,328.7	3,553.3
TOTAL 1985	<u>\$29,930.5</u>											

1/2/85

1. I. Summary of current status of Project based upon outputs and management benchmarks.
- II. Problems and Delays.
2. III. Major activities expected in the next month.

B. Trimonthly

The contractor will be required to submit two copies of the Ministry of Health and AID, respectively, of in-depth progress reports in Spanish and English on all activities. The format will include:

- 1) I. Summary of current status of Project based upon outputs and management benchmarks.
- II. Problems and Delays.
- 2) III. Major activities expected in the next quarter.

C. Final

The contractor will be required to submit two copies to the Ministry of Health and five copies to AID/El Salvador of an in-depth final report in Spanish and English at least one month before the Chief of party departs from El Salvador. One copy will provided to the Contracting Officer in El Salvador. The format will include:

- I. Summary of Accomplishments of the Project based upon project outputs and management benchmarks.
- II. Methods of Work used.
- III. Problems and delays encountered during project implementation.
- IV. Recommended follow-on activities for future involvement and technical assistance to the MOH.

IV. Key Personnel

- A. The key personnel which the contractor will furnish for the performance of this contract are as follows:

Supply Management and Logistical Advisor ---
Bio-medical Maintenance Advisor --
Management Information Systems Advisor ---
Health Planning Advisor --

- B. The personnel specified above are considered to be essential to the work being performed hereunder. Prior to diverting any of the specified individuals to other programs, the contractor shall notify the Contracting Officer reasonably in advance and shall submit justification (including proposed substitutions) in

sufficient detail to permit evaluation of the impact on the program. No diversion shall be made by the Contractor without the written consent of the Contracting Officer, provided, that the Contracting Officer may ratify in writing such diversion and such ratification shall constitute the consent of the Contracting Officer required by this clause.

The listing of key personnel may, with the consent of the contracting parties, be amended from time to time during the course of the contract to either add or delete personnel, as appropriate.