UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

EL SALVADOR

PROJECT PAPER

HEALTH SYSTEMS VITALIZATION

AID/LAC/P-160

Loan Number: 522-U-033
PROJECT NUMBER: 522-0291

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

Amendment Number

DOCUMENT CODE: 3

COUNTRY/ENTITY: El Salvador

3. PROJECT NUMBER: 519-0291

4. BUREAU/OFFICE: LAC 05

5. PROJECT TITLE (maximum 40 characters): Health Systems Vitalization

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 01 DD 31 YY 86

7. ESTIMATED DATE OF OBLIGATION (Under "B" below, enter 1, 2, 3, or 4)

A. Initial FY 83 B. Quarter 4 C. Final FY 84

8. COSTS ($000 OR EQUIVALENT $1 = 2.50)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. Total	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. Total
AID Appropriated Total	16,283	917	17,200	23,547	1,453	25,000
(Grant)	(1,358)	(-)	(1,358)	(1,657)	(-)	(1,657)
(Loan)	(14,925)	(917)	(15,842)	(21,890)	(1,453)	(23,343)
Other U.S. 1.						
Other U.S. 2.						
Host Country		1,313	1,313		15,755	15,755
Other Donor(s)						
TOTALS	16,283	2,230	18,513	23,457	17,208	40,755

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. PRIMARY TECH. CODE 2. Loan	D. OBLIGATIONS TO DATE 1. Grant	D. OBLIGATIONS TO DATE 2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	E. AMOUNT APPROVED THIS ACTION 2. Loan	F. LIFE OF PROJECT 1. Grant	F. LIFE OF PROJECT 2. Loan
(1)	580	500	500	-0-	-0-	1,657	23,343	1,657	23,343
(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) increase 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 07 YY 84 | MM YY | Final MM 07 YY 85

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [X] 941 [X] Local [ ] Other (Specify)

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

17. APPROVED BY

Signature

Title: DIRECTOR USAID/EL SALVADOR

Date Signed MM DD YY

18. DATE DOCUMENTATION RECEIVED IN AID/W, OR FOR AMENDMENTS, DATE OF IMPLEMENTATION: MM DD YY

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

PROJECT AUTHORIZATION

Name of Country:	El Salvador
Name of Project:	Health Systems Vitalization
Number of Project:	519-0291
Number of Loan:	519-U-033

1. Pursuant to Section 104 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Health Systems Vitalization project for El Salvador involving planned obligations of not to exceed Twenty-Three Million Four Hundred Thousand United States Dollars ($23,400,000) in loan funds ("Loan") and One Million Six Hundred Thousand United States Dollars ($1,600,000) in grant funds ("Grant") over a two-year period from the date of authorization, subject to the availability of funds in accordance with the AID OYB/allotment process, to help in financing foreign exchange and local currency costs for the project.

2. The project ("Project") consists of procurement of urgently needed pharmaceuticals, supplies and equipment, strengthening of supply management and equipment maintenance systems, the establishment of a management information system which will support the medical supply and maintenance systems, and the development of the capacity of the Ministry of Health ("MSPAS") to provide emergency medical services.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

a. Interest Rate and Terms of Repayment

The Government of El Salvador ("GOES") shall repay the Loan to A.I.D. in U.S. Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The GOES shall pay to A.I.D. in U.S. Dollars interest from the date of first disbursement of the Loan at the rate of (i) two percent (2%) per annum during the first ten (10) years, and (ii) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

b. Source and Origin of Commodities, Nationality of Services (Loan)

Commodities financed by AID under the Loan shall have their source and origin in countries which are members of the Central American Common Market or in countries included in AID Geographic Code 941, except as AID may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have countries which are members of the Central American Common Market or countries included in AID Geographic Code 941 as their place of nationality, except as AID may otherwise agree in writing. Ocean shipping financed by AID under the Loan shall be financed only on flag vessels of countries which are members of the Central American Common Market or countries included in AID Geographic Code 941, except as AID may otherwise agree in writing.

c. Source and Origin of Commodities, Nationality of Services (Grant)

Commodities financed by AID under the Grant shall have their source and origin in countries which are members of the Central American Common Market or in the United States, except as AID may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have countries which are members of the Central American Common Market or the United States as their place of nationality, except as AID may otherwise agree in writing. Ocean shipping financed by AID under the Grant shall be financed only on flag vessels of the United States, except as AID may otherwise agree in writing.

d. Condition Precedent for Construction and Facility Refurbishing Activities (Loan)

Prior to any disbursement or the issuance of any commitment document under the Project Agreement for the Loan (i) for each construction activity involving the construction of a new MSPAS facility or the substantial reconstruction of an existing MSPAS facility and (ii) for each activity involving the repair and refurbishing of existing MSPAS facilities, the GOES shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D.:

A. an executed contract for each construction activity with a firm acceptable to AID, based on previously approved plans, specifications, bid documents, and time schedules;

B. an executed contract for construction supervision of such activity;

C. a detailed plan and budget for each repair and refurbishing activity;

D. an executed contract(s) for such repair and refurbishing services with a firm acceptable to AID or a description of arrangements satisfactory to AID for carrying out such work; and

E. a description of the arrangements made for supervision and the repair aspects of such refurbishing activity.

e. Condition Precedent for the Establishment of the Executive Management Group (EMG)

Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, for the establishment of the EMG, the GOES shall, except as A.I.D. may otherwise agree in writing, cause the MSPAS to submit to A.I.D., in form and substance satisfactory to A.I.D., evidence that the EMG is legally constituted, and members identified and appointed. In addition, the MSPAS will present a detailed description of role, functions and responsibilities of EMG members.

f. Covenants

The GOES shall covenant, except as A.I.D. may otherwise agree in writing, that it will:

(i) Assign the required management and technical staff required to adequately carry out the Project at all levels and that existing personnel will be reallocated to meet Project requirements.

(ii) Reduce vehicle inventories, hospital equipment inventories, and medical supply inventories for those items that are beyond repair (unserviceable) and will eliminate drug stocks of expired drugs.

(iii) Develop a preventive maintenance program for all biomedical/electromechanical equipment, vehicles and facilities, particularly for the new equipment, vehicles and facility improvement provided through the Project.

(iv) Prepare, through the Division of Malaria, by December 5, 1983, and again by December 5, 1984, and provide copies thereof to AID, an annual plan detailing safety measures and procedures to be followed in the application of all insecticides used in the program.

(v) Take appropriate safety measures for the use of insecticides furnished through the Project, including the provision of safety equipment to insecticide handlers and training of spray personnel engaged in actual application of field supervision; and will also maintain rigid control over the quality of the insecticides procured for the program to ensure that they meet WHO and AID technical specifications.

(vi) Consider legal, regulatory and administrative reform as necessary to establish an integrated drug quality control program.

g. Waivers

(i) Competition in the procurement of goods is hereby waived and a single-source negotiated contract with AMC International Headquarters is hereby authorized in order to permit the procurement of 12 AMC CJ-7 jeeps, with a value of approximately $120,000.

(ii) Based upon the finding that "the public exigency will not admit of the delay incident to advertising", required under Section 1-3.202 of the Federal Procurement Regulations and more fully described in the Action Memorandum for this Project Authorization, the GSA is hereby authorized to procure pharmaceuticals and medical supplies for the Project.

M. Peter McPherson
Administrator

Sept 2, 83
Date

Clearances:
GC:JMullen_____date_____
GC/LAC:RMeighan_____date_____
LAC/CEN:JClary(draft)date_____
LAC/DR:DJohnson_____date_____
AA/LAC:MDBrown_____date_____
AA/PPC:RDerham_____date_____

GC/LAC:GWinter:afg:088S:7/26/83:ext.29248

Date

Clearances:
GC:JMullen date 9/17/83
GC/LAC:RMeighan date 9-6-83
LAC/CEN:JClary(draft) date
LAC/DR:DJohnson date
AA/LAC:MDBrown date
AA/PPC:RDerham date

GC/LAC:GWinter:afg:088S:7/26/83:ext.29248

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I. SUMMARY AND RECOMMENDATIONS

A. Recommendations

USAID/El Salvador recommends approval and authorization of a $25 million Development Loan/Grant (Loan $23,400M, Grant $1,600M) for a Health Systems Vitalization Project (519-0291). USAID/El Salvador further recommends that due to the current economic crisis resulting from the prolonged civil strife in El Salvador, the loan be authorized on the most concessional lending terms, i.e. that the Government of El Salvador should repay the loan to A.I.D. in United States Dollars within 40 years from the date of first loan disbursement, including a grace period of not to exceed ten years, and that the rate of interest be 2% during the grace period and 3% thereafter.

B. Borrower/Grantee

The Government of El Salvador will be the borrower/grantee. The major implementing organization will be Ministry of Public Health and Social Assistance (MSPAS). Within the Ministry, an Executive Management Group (EMG), chaired by the Subsecretary of Health, will be the project's implementing and management unit. The EMG shall have responsibility and overall authority for all aspects of project implementation, including planning, supervision, coordination with all units within the MSPAS, and liaison with A.I.D. The project will impact on all major divisions within the Ministry, but will primarily involve the Department of General Administration Services, particularly the Procurement Department, the Department of Data Processing, the Department of Maintenance, the Department of Transport, the Division of Malaria, and the Department of Operative Services, which has management responsibility for the regional centers, health centers, health units, and health posts, and the Department of Human Resources, which will be responsible for assisting in the development/implementation and coordination of training for the emergency medical component.

C. Project Summary

The Project is designed to improve the health status of the Salvadoran population. The purpose is to increase existing levels of primary health care and emergency medical services to the Salvadoran population by meeting the critical need for essential goods and services and by assisting to develop the institutional capacity of the MSPAS. The project will consist of four major components: (1) health supplies management, (2) public health infrastructure maintenance, (3) management information systems, and (4) emergency medical services. Health facilities throughout the country are generally well staffed with competent, dedicated health professionals. What is lacking in the system are pharmaceuticals, medical supplies and equipment to deliver health services. Under the first component, A.I.D. will provide the Ministry with an adequate supply of critically needed commodities to sustain existing levels of primary health care.

In order to enable the Ministry to effectively handle this large and rapid influx of commodities, A.I.D. will provide technical assistance, training, supplies, and construction/refurbishing of warehouses to restore the MSPAS logistical supply system. The project will also assist the Ministry to improve their planning, management,and administration of the health supplies system of the MSPAS. This component also includes some commodities, and technical assistance for the establishment of a drug regulatory capacity on the part of the Ministry, with the establishment of a small drug quality control lab projected at the end of second project year. Because of the rapidly increasing levels of malaria, A.I.D. will also supply insecticides, anti-malaria drugs, and spraying supplies and equipment for the MSPAS's malaria program, as well as technical assistance to provide and assure proper handling and use of these commodities. To support the logistical system, the development of a new management information system, and upgrading of the MSPAS's printing, graphic reproduction, and photocopy capability to be implemented at the end of the second project year, is planned.

The second project component is intended to upgrade MSPAS' existing capability to plan, manage, and implement their maintenance system for medical equipment, vehicles, and health infrastructure, spare parts, tools, and training supplies for immediate repairs and establishment of a preventive maintenance system. Additional MSPAS personnel will be recruited and trained under this component specifically for biomedical equipment and vehicle repair and maintenance.

Under the third project component, MSPAS capability to collect, process, and store data to produce meaningful management information will be augmented. An assessment will be done of the MSPAS's information needs, a data processing unit including computer hardware/software will be established, and simple computer programs will be developed to provide support to the maintenance procurement and supply management systems of the Ministry. Ministry personnel will be fully trained and capable of operating all new hardware/software. Short-term TA will be provided to assist the MSPAS in using the management information system for planning purposes. A study of the feasibility of user fees will also be financed.

The final component addresses the MSPAS's capacity to provide emergency medical services, specifically for war-related trauma. Under this activity, A.I.D. will provide support funding for MSPAS mobile surgical teams. The teams will serve a dual function: (1) to provide direct surgical services to civilian trauma victims; and (2) to provide on-the-job training to surgical and nursing staff as they deal with civilian trauma cases. In addition, simplified training in emergency first aid will take place at all levels of the health system, and training in patient handling will be given to ambulance drivers. Equipment, supplies and administrative costs for this training will be funded under this project. Medical equipment and supplies, ambulances, emergency (back-up) generators, x-ray machines, back-up water supply equipment, surgical kits, first aid kits and training materials will be funded under this component. In addition, studies will be financed to assess the nature and magnitude of trauma and trauma victim rehabilitation needs.

III. PROJECT BACKGROUND AND STRATEGY

A. Project Background

In 1978, a major El Salvador Health Sector Assessment was completed with AID assistance. This Assessment revealed that the health status of the majority of the Salvadoran population, despite a relatively extensive health care system, was precarious. Infant mortality for the country as a whole was 58 per 1000 live births. Approximately 40% of mortality occurred in infants and children under 5, in most cases from preventable diseases. Malnutrition was prevalent among Salvadoran children, 70% of whom were considered malnourished according to Gomez classification standards, and 20% of this group also suffered from third degree protein-calorie malnutrition. The leading causes of morbidity were primarily diarrheas, respiratory diseases, and malaria. Life expectancy, estimated at 59.9 years, had changed little in the past decade. Finally, El Salvador's serious health situation was and remains complicated by a rapidly growing population (annual rate of natural increase of 3.3% per year). This burgeoning population growth is recognized as a primary hindrance to the country's economic growth and has a major impact on the health of women and children.

In response to these and other indicators, the GOES adopted in 1978 as its first priority in the social sector of The Five Year Plan the improvement of the "health of the whole population". In 1981 specific goals were established for the public health sector which were to (1) decrease maternal and child morbidity and mortality, (2) decrease general mortality rates, and (3) promote health and welfare for the entire population. Since 1978, however, the country's health status as a whole has markedly deteriorated. Violence, a declining economic situation, a decrease in GOES budgetary resources, and a growing displaced persons population are the primary contributing factors to this decline. In 1983 for the first time, the Ministry of Public Health and Social Assistance's (MSPAS) budget was reduced from the prior year level and MSPAS was forced to eliminate all funds for medical equipment. The Ministry, which provides health care for approximately 85% of the population, is also experiencing severe shortages of drugs and medical supplies. Maintenance of equipment and vehicles has been hampered by budgetary constraints and lack of trained personnel.

Distribution of drugs and medical supplies has become a more difficult problem, particularly in the eastern region where the conflict is most serious, rural health clinics and other health facilities have been forced to shut down. A recent report by the Ministry indicated that 45 health facilities have been closed as a direct result of the civilian conflict. This represents 14% of all Ministry fixed health care facilities. Also, increased trauma due to the civilian conflict has placed increased demand for emergency medical services on an already overburdened, under financed Ministry of Health.

faced with this increasingly serious situation and unable to continue to meet its mandate to maintain the health of the population, the MSPAS has requested A.I.D. assistance in meeting the most critical short term health needs of the country. The $25 Million loan/grant project will [illegible] address these priority areas by providing essential medicines and supplies, equipment, and related services, and by strengthening the MSPAS's ability to carry out its planning/management/budget, quality control, logistics, maintenance and training functions, in order to utilize existing MSPAS resources more effectively. The project will also increase the MSPAS' emergency medical services "quick response" capacity.

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B. COMPLEMENTARY AID AND OTHER DONOR ACTIVITIES

Other A.I.D. assistance provided to the health sector has been channeled through various on-going projects. They are described below:

Health and Jobs for Displaced Families (519-0281)

This project provides, inter alia, $1.3 million in grant funds for technical assistance, training, pharmaceuticals, including vaccines, and operating costs for the provision of preventive and curative health services. The project's health activities are targeted in the eight departments with the largest concentration of displaced persons. The departments include: Chalatenango, Cuscatlan, Cabanas, San Vicente, Usulutan, San Miguel, Morazan and San Salvador. The total number of displaced persons is estimated at 400,000, although the National Commission for Assistance to Displaced Persons (CONADES) an arm of the Ministry of the Interior, shows an official government count of 245,000. The implementation agencies for the health inputs are CONADES, Salvadoran Red Cross, Green Cross, CESAD (Evangelical Committee) and other PVOS. The project provides for approximately $750,000 in pharmaceuticals, supplies, vaccines and cold chain equipment. The project's effort to immunize children (under five year of age) is projected to cover 25,000-30,000 children per month by October, 1983 through the combined efforts of the CONADES, MSPAS and the Salvadoran Red Cross immunization programs.

Health & Nutrition (519-0253)

This grant to the MSPAS for $1,275,000 which is scheduled to terminate December 31, 1983, assists the MSPAS delivery of health services in urban areas through the provision of mobile health teams. To date eighty-three (83) urban slum areas, in which an estimated 107,000 people reside, have received service through the Project. The project also provides logistic support for food delivery and distribution as well as the provision of supplementary feeding through rural nutrition centers established under the project.

Rural Water Supply and Sanitation (519-0209)

The purpose of the $ 390,000 grant project is to expand water and sanitation facilities for Salvadorans living in rural areas. The PACD is December 31, 1983. The project is implemented by the rural water and sanitation arm of the

Ministry of Health, PLANSABAR. The project's activities include an operation and maintenance survey in approximately 464 communities. Five to ten rural water systems were to be designed using appropriate tchnology. Rural water promoters were to receive training to upgrade their skills and curriculums were to be developed for water supply personnel. The project is closely coordinated with the Interamerican Development Bank's Rural Aqueducts Program Phase II Project ($4.7 million).

Local Currency Generations (ESF):

Approximately $3 million in local currency generations from ESF under Private Sector Support II (519-K-030) were committed to the MSPAS. In an agreement signed September, 1981 these funds were to be used for restoration of health services, augmentation of primary health care services in marginal urban area, and continued decentralization of the MSPAS. Remaining monies under this agreement totalled $330,000 as of December, 1982.

Local Currency Generations (PL-480 Title I)

The Title I agreement, signed December 15, 1982 allocated $580,000 in local currency generations to the MSPAS for the Department of Maternal and Infant Health, rural health aides, and primary health care services restoration.

Integrated Rural Development (519-0215)

USAID/San Salvador financed an integrated rural development OPG which includes certain health activities such as water supply, latrines, and personal hygiene education. The Project's LOP funding is $650,000. It was initiated in 1979 and was expected to terminate in December, 1983. Its target population is approximately 20,000 persons in La Union, in the eastern part of the country. An extension of the project is being planned.

Family Planning and Population (519-0149)

This project assists both the MSPAS and the private Salvadoran Demographic Association. The MSPAS' participation in the project terminated in March, 1983. The project activities with the MSPAS (totalling dollars 713,000) supported the establishment of a family planning coordination office within the MSPAS.

The Project activities (LOP $4,071,000 funding) in the private sector are scheduled to continue with an PACD of December 31, 1983. The activities include community based distribution of contraceptives, commercial retail sales, a surgical clinic program and a family planning mass media program.

2. Related Donor Assistance

Inter-American Development Bank

Phase I of the Health Services Improvement project began in 1974 and provided a total IDB funding level of $34.6 Million during Phase I. Phase I provided for the construction and equipping of 75 Health Posts, 24 Health Units and 7 Health Centers. A hospital was constructed in San Miguel, which, however, is not yet operational due to lack of MSPAS resources. Some equipment has been at the site for two years without being installed. Delays in construction of the hospital allowed inflation to increase costs especially for labor and work supervision, by 34% over the original funding estimates.

Phase II of the Inter-American Development Bank's Health Services Improvement Program has been underway since 1979. Phase II provides a $27 Million loan in addition to a $520,000 grant for technical assistance and training. The PACD is May 6, 1985. Phase II initially called for the construction and equipping of 93 Health posts, 15 Health Units and 8 Health Centers (each with 72 beds). The project is behind schedule which has been attributed to at least two factors: a) civil disturbance delayed construction plans in some areas and b) in 1981 the MSPAS spent considerable time analyzing the feasibility of changing the design of health units to include 20 beds each and subsequently making a negative determination. As of June 15, 1983 the revised project outputs include: 56 health posts, 5 health units, and 6 health centers. Also a reprogramming exercise is currently underway which may provide for the construction of a hospital in Sonsonate and construction/improvement of the hospitals in San Vicente and Santa Ana.

The technical assistance and training is provided through an agreement with the Pan American Health Organization. The technical assistance for training of MSPAS maintenance personnel, totalling 50 PM, includes the following:

18 PM Maintenance Systems Analyst;

2 PM Maintenance of Medical Equipment Advisor;

12 PM Maintenance of General Services (e.g. air conditioning, oxygen, laundry, kitchen, etc.);

6 PM Facilities Maintenance Advisor;

12 PM Human Resources Advisor in the area of Maintenance.

In 1982 and early 1983 seven Salvadorans received country training in maintenance for a total of 16 PM of training. In addition the project will provide an additional 25 PM of third country training in maintenance. In-country training is to provide for 14 courses in such areas as sterilizatin equipment, intensive care equipment, X-ray equipment, etc. The project provides nearly $20,000 for equipment and materials for the in-country training programs.

Phase II also provides 36 PM for third country training in information systems. It was envisioned that approximately 24 PM of this training would take place at the Nutrition Institute of Central America and Panama (INCAP), a PAHO center in Guatemala. INCAP has computer equipment which is compatible with that which is currently utilized in the MSPAS. Also approximately 12 persons would be trained in various aspects of information systems including analysis and design of mechanized administrative systems.

A.I.D.'s Health Systems Vitalization Project will be closely coordinated with the IDB and PAHO efforts in the areas of both maintenance and information systems.

IDB is also implementing a $4.7 million rural water project (Rural Aqueducts Program Phase II) with PLANSABAR, the rural water and sanitation program of the MSPAS.

The PACD is February 28, 1984. The project is intended to benefit an estimated rural population of 185,000. A total of fourty-four water systems are expected to be completed under the project.

Pan American Health Organization (P.A.H.O.)

PAHO's program is focused on three major areas; (1) the development of health services, (2) procurement of essential

commodities for immunization, and (3) human resources training. PAHO has a three person resident team in El Salvador which provides technical assistance in engineering for PLANSABAR, in epidemiology, in malaria control, and solid waste disposal. Training is a second major element of the P.A.H.O. program and encompasses: (1) in-service training in health systems and statistics, and (2) funding of offshore training for health personnnel. PAHO also assists the MSPAS in purchasing on a bulk basis vaccines (Polio, Diphteria/Pertussis/Tetanus (DPT), Measles, BCG and Diphteria/Tetanus (DT) under its Expanded Program for Immunization (EPI), although the Ministry actually finances the purchases of vaccines.

UNICEF

Since 1979, UNICEF has concentrated its assistance in the Northeast region of the country, covering 45 municipalities of the departments of San Miguel, La Union and Morazan. UNICEF sponsored activities include food production, primary health care, environmental sanitation, pre-school education, training of community members, field and technical staff. UNICEF committed U.S. $1,404,000 during the period 1979-1982. UNICEF's planned commitment for 1982 was $372,000 and $294,000 in 1983. UNICEF's current program includes provision of cold chain equipment and oral rehydratation salts, estimated to be valued at $94,000. The Health Systems Vitalization Project's commodities will be closely coordinated with UNICEF.

3. Other Donors

Limited assistance from several other bilateral and international donors has been provided to El Salvador. For bilateral donors, this has been primarily the provision of hospital equipment (Japan) and specialized medical training (Italy and Great Britain). In addition, CIDA has contributed $1.4 million to PLANSABAR, the MSPAS rural water and sanitation program. Contributions from several other donors, UNDP, UNFPA, OXFAM, and IPPF are focused on family planning and population activities.

C. PROGRESS AND COMMITMENT OF THE GOVERNMENT

There is no question of MSPAS commitment to trying to solve the problems this project is designed to address. Few weeks go by without statements by MSPAS leadership in the press regarding the acute shortages of drugs, supplies and functional equipment as well as their efforts to find solutions.

The recognition of these supply and maintenance problems is seen at all levels of the MSPAS structure. In February 1983, the USAID financed a 2-day intensive review of the Health Sector using the DELPHI technique. Participants included central, regional and local health care providers and administrative staff of the MSPAS. The results of this intensive review eloquently described the extreme frustration of competent, dedicated health professionals who, on a daily basis, have to face patients with an empty pharmacy and without the needed piece of equipment in operating order. Anecdotal material from the DELPHI workshop in February, which may never appear in the official reports of the event, give a profile of extreme professional and very human arquish of MSPAS staff who are "trying to do their job", but who lack the werewithall to do so.

At another level, the GOES has recognized the importance of having drugs and medical supplies in the health system. Foreign exchange granted by the Central Bank for importation of raw materials and finished drug products, ranks second in priority, after petroleum products. The fiscal crisis, however, simply does not permit the MSPAS to take advantage of this privileged position. In absolute terms the budget resources are simply not available to meet even minimal drug needs. From an original budgetary request for 28M colones for 1983, MSPAS received only 9M.

The MSPAS leadership has moved quickly on the establishment of an Executive Management Group (EMG), a recommendation of the PP Design Team. They have identified the members of the Group and have begun the process of defining roles, functions and responsibilities. For a more detailed description of the EMG, see Component I, Health Supplies Management, Subcomponent A.

In sum, we believe that the MSPAS clearly recognizes the need for, and will be committed to effective and efficient implementation of this Project.

D. CONSTRAINTS TO FURTHER PROGRESS

Civil strife is a constraint to the implementation of all aspects of the delivery of health care services by the Ministry of Health (MSPAS). The rural area is intermittently inaccessible due to the guerrilla activity. Under these conditions it is nearly impossible for the MSPAS to follow a normal work plan and schedule in certain areas.

There has been an increase in the rate of civilian trauma particularly in the departments of Chalatenango, Morazan, San Miguel, San Vicente, La Union and Usulutan where guerrilla activity is most prevalent. These departments represent approximately one third of the population and are the most difficult for the MSPAS to resupply. An increased burden for costly curative services, particularly trauma related services, has been placed on a Ministry of Health already hard pressed to provide basic health services, e.g. immunization, family planning, and malaria programs.

The Ministry of Health attempts to deliver health care services to 85% of the population in a Salvadoran economy which registered its fourth consecutive year of decline in 1982. Between 1978 and 1982 real GDP declined by 25 percent. The per capita income in 1977 was estimated at $570 while in 1983 it is estimated at $470. In 1983 inflation is estimated at 15 percent. The increasing costs to procure important medical equipment, supplies, and pharmaceuticals (either finished products or raw materials) has prohibited the Ministry from making sufficient amounts of needed pharmaceuticals, equipment and supplies available to the health care providers, thereby inhibiting their ability to provide basic services to the at risk population. In 1983 the Ministry of Health's operating budget was cut by 5% which is attributable to general austerity measures taken by the central government.

The public health system has been traditionally dependent in large part on the medical and surgical services provided by the young physicians, both those who serve the Ministry during their one year of obligatory social service at the culmination of their medical school education and residents. The National University of El Salvador, including the School of Medicine, was closed in 1979 which cut off the regular annual output of medical doctors. The School had been graduating approximately 400 physicians per year. The School's physical plant suffered destruction and there is no indication when the University will reopen. As an interin measure the medical school's faculty has set up approximately six "store front" facilities in various locations in San Salvador in an attempt to continue the education of physicians. New students were accepted as first year students in early 1983.

As of June 30, 1982 there were also five private medical schools with a total of 1,211 students enrolled. Two schools, "Universidad Alberto Masferrer" (329 students) and "Universidad Evangelica de El Salvador"

(395 students) are located in San Salvador. The other medical schools are "Universidad Nueva San Salvador" in Santa Tecla (378 students), "Universidad Autonoma de Santa Ana" in Santa Ana (25 students) and the "Universidad de Oriente" in San Miguel (84 students).

The physician to 10,000 population ratio was estimated at 3.3 physicians per 10,000 (1979), 3.4 (1980) and 3.2 (1981) according to official statistics. Most physicians, as in many other countries, practice in urban areas and a vacuum is created in the rural areas, a problem which is significant since about 60% of the Salvadoran population live in rural areas. For example in 1976 (latest available calculations per department) revealed that for every doctor in Chalatenango there were 34,164 people; in Morazan 30,227; in San Miguel 7,045; in San Vicente 12,042; in La Union 26,451 and in Usulutan 10,082. The doctor population ratio in San Salvador, however, was 1:1,106. While the ratio of physicians to population is low, the problem seems to be more a matter of maldistribution of physician manpower resources. The ratios given above merely confirm a picture seen in many developing countries--an urban-rural disparity in the distribution of physician resources. This disparity, however, has been aggravated in El Salvador by the civil conflict. The MSPAS has had difficulty in maintaining permanent physician coverage in conflictive zones. For instance, in the case of the hospital in Chalatenango, three physicians, two surgeons and one internist commute daily to the site from San Salvador. The problem of maldistribution has been brought to the Minister's attention and on these occasions he has expressed a willingness to "order" physicians into these areas, even if only on a weekly rotational basis.

Physicians are working under extremely difficult conditions due to civil strife in certain areas of the country. The MSPAS does not provide them with increased security nor hardship pay. The workload related to trauma is taxing to its limits a system which is short on both health personnel trained in trauma management and on equipment in working order, supplies, and pharmaceuticals.

Much of the increased work load is the responsibility of medical and surgical residents in training. The May, 1983 report of an AID sponsored Emergency Medical Assessment Team indicates that of the total number of 357 physicians who staff the six MSPAS hospitals (including the 695 bed Rosales Hospital in San Salvador) and two health centers in San Francisco Gotera and Cojutepeque which respond to the trauma injuries more than a third (128) are residents. Excluding Rosales Hospital, the residents bear a more significant burden of providing hospital based medical/surgical services. Forty-nine percent of the hospital based physicians in the conflict zones are residents.

Counterbalancing the physician problem described above is that the brunt of health care delivery, as in many countries, falls squarely upon Nursing. Graduate and auxiliary nurse production continues uninterrupted in the eight schools throughout the country. Further, the problem of maldistribution of this resource is significantly less than that seen for physicians. Indeed, health posts (except where closed), units, centers and hospitals throughout the country are generally up to complement where nursing staff are concerned. In some cases, facilities in areas of conflict are over complement, having absorbed nurses from closed facilities.

Quite apart from the manpower distribution problem is the fact that the MSPAS, as do all GOES ministries, operates with staff ceilings established by the Ministry of Treasury. Recent reports indicate that of the positions authorized by Treasury for CY 83, some 98% are filled. This clearly limits the MSPAS' ability to augment the numbers of health care providers.

The Ministry is operating under another constraint. National policy directive #544 of 1980 sets price controls on pharmaceuticals in the local market. The local pharmaceutical manufacturers (processors) must sell to the public and private sectors at a fixed price those pharmaceutical formulations which appear on the government list. Because foreign exchange enabling the import of raw materials is scarce the industry has worked around the directive by formulating new similar or substitute products which do not appear on the list and which are sold at a price which the market will bear. Because the Ministry has no drug quality control capacity at present it is at considerable risk in procuring locally these new drugs which may not provide the necessary and efficacious product which is sought.

El Salvador's other social development indicators show that a significant portion of El Salvador's population is at risk for health problems. For example, it is estimated that only 40% of the rural population is served by a potable water system and 30% have excreta disposal facilities. Provisional data for 1981 indicate that intestinal infections was the No. 2 cause of morbidity. This morbidity is related to malnutrition. The most recent nutrition survey (1976) among children 6-59 months of age showed that 74.4% of the population in that age group was undernourished.

E. PROJECT STRATEGY

In spite of being one of the relatively more developed countries in Central America and having an extensive network of health care, El Salvador has had a population whose health status has been traditionally poor. There has been a marked deterioration of this health status in recent years. In 1983 the Pan American Health Organization reported that in 1981 El Salvador's morbidity rates per 100,000 population were among the highest in the Western Hemisphere for such immunizable diseases as whooping cough, tetanus, measles, and poliomyelitis. El Salvador ranked second in terms of measles and whooping cough, and fifth in poliomyelitis and tetanus. An analysis of recent MSPAS annual reports reveals that there was an increase of 55% in reported cases of measles from 1980-81, whooping cough increased by 324%, and typhoid 273%. Reported cases of diarrhea, the leading cause of communicable disease morbidity, numbered over 150,000 per annum, in 1980-82.

In terms of services delivered at all health facilities, the number of individuals receiving treatment has stayed roughly the same in 1981 and 1982. There has been a decrease in the number served in the rural health posts and units reflecting primarily the shortage of medicines and supplies, particularly in the Eastern and Paracentral Regions of the country, as well as, the Central Region's Department of Chalatenango. In light of these increasingly serious problems, the MSPAS's ability to cope effectively has been diminished.

The chronic lack of management systems within the MSPAS has substantially inhibited the efficiency and effectiveness of the implementation of the Ministry's health care program. This is not a new phenomenon, but, the problem has been exacerbated by both the eroding financial base, particularly with respect to foreign exchange, and the continuing violence. The lack of functioning support systems in such critical areas as pharmaceutical and medical supplies, including drug quality control, maintenance (buildings, vehicles, biomedical equipment) and information is increasingly debilitating. Lack of these support systems has had the greatest and most adverse impact on the primary health care system.

The impact of these internal MSPAS problems has been compounded by disturbances due to the violence. Basic health services have been seriously distrupted in at least six of the nation's fourteen departments.

Technical competence and enthusiasm notwithstanding, MSPAS personnel cannot remain a credible and reliable source of health care for the client population without the wherewithall to deliver the services. The specific description of the systems which this project is designed to vitalize is provided below. It is in these four areas where we believe the greatest immediate impact can be made on the effectiveness of health care in El Salvador.

In summary, the project strategy is to rapidly infuse the health system with critically needed pharmaceuticals, supplies, equipment, vehicles (including ambulances) and training in the delivery of emergency medical services while simultaneously assisting the Ministry to strengthen the necessary support systems such as supply management, procurement, malaria and drug quality control, maintenance and management information which are integral parts of preventive and curative health service delivery systems.

During the short life of the project USAID will work closely with the Ministry and will continue a policy dialogue which will include examination of basic MSPAS assumptions which may no longer be valid such as the long held practice of the MSPAS to provide services at no cost to patients. Outside of the scope of the project, for example, the Mission will respond to a request from the Ministry to conduct a cost analysis study of the start up and recurrent costs for a major new MSPAS hospital at San Miguel in the eastern region and in the midst of the civil conflict, which the Ministry built under an IDB project but for which funds to open and operate the referral hospital are not currently available. This is but one example of the Ministry seeking assistance in grappling with serious cost-containment issues which if not addressed will seriously decrease the probability of ever achieving an effective health care delivery system.

IV. PROJECT DESCRIPTION

A. PROJECT GOAL AND PURPOSE

The project goal is to improve the health status of the Salvadoran population. The project purpose is to assist the Ministry of Health to (1) increase 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.

B. DETAILED PROJECT DESCRIPTION

COMPONENT I HEALTH SUPPLIES MANAGEMENT (A.I.D. $15,866,000, GOES $13,656,000)

SUBCOMPONENT A HEALTH SUPPLIES SYSTEM

The MSPAS conducted studies in the mid-70's of its procurement, supply management, warehousing, and management information sytem. In 1978 a warehousing manual was published, followed in 1981 by a procurement manual. In 1981, the MSPAS also published a manual describing the function of a supply management system based on the administrative structure described in warehousing and procurement manuals. These three manuals provide a description of a management system that has been only partially implemented. Unfortunately, the system has not been operationalized completely, nor have those elements in use been evaluated in a consistent manner.The supply-distribution system has also been complicated by inefficient human resources management, including ambiguous policies, absence of training strategies, little supervision, and few, if any, formal incentives.

MSPAS services are provided on a variety of levels, from hospital to mobile units. The supporting logistics system is designed to respond to demands as determined on the facility level (See Annex H-I-A for facilities by region).

MSPAS Facilities

There are currently 319 service facilities in El Salvador of which 45 have been closed or are inaccessible due to civil conflict. Twenty four closed facilities are located in the Eastern Region (See Annex H-I-A). These facilities, with the exception of hospitals, are dependent administratively and logistically on MSPAS Regional Offices (Annex H-I-B provides an organizational chart of a MSPAS Regional Office). Each regional headquarters provides logistical support and supervision for health centers, health units, health posts and mobile units (See Annexes H-I-C, H-I-D, H-I-E, H-I-F, for organizational charts). Regional hospitals of which there are four outside of San Salvador, currently receive

logistical support and supervision directly from the central level, through the Office of the Director General and the Directorate of Operative Services (see Annex H-I-G for organization chart of MSPAS). Due to population displacements produced essentially by the civil conflict, some facilities have been in essence upgraded (e.g., Health post to health unit and health unit to health center) to provide additional services in response to an increased patient load. There are also 54 mobile health units to support 158 health posts. However, only 40 mobile-health unit vehicles were reported as operational during the first quarter of calendar year 1983. The MSPAS provides health services coverage to approximately 85% of the Salvadoran population which represents in 1983 approximately 4.42 M potential beneficiaries out of a total population of 5.2 million. The health personnel are distributed throughout the five geographical regions.

	Estimated % of Total Population by Region	Percentage of MSPAS Health Personnel Assigned by Region	Percentage of Territory (Land)
Western	20.2	15	21.3
Central	12.5	12	17.8
Metropolitan	23.4	25	4.2
Para-Central	16.6	15	20.2
Eastern	27.3	33	36.5
	100	100	100

The health care delivery system operates six types of facilities. They are briefly described below in descending order of sophistication of the health services provided. In theory, there is a system of upward referral from the least complex to the next tier in the system.

1) The Hospital, of which there are 14, provides the highest level of health care.

2) The Health Center, of which there are 12, offers out-patient services and a limited range of in-patient services . The centers have a broad range of activity in the field of preventive medicine. The number of beds varies among the centers however, the centers build under the Inter-American Development Bank Health Services Improvement Program each have 72 beds..

3) The Health Unit, of which there are 97 is served by physicians and nurses, but does not have 24 hour staffing. The unit has no beds. These units generally close at 4 pm. Most professional personnel commute to health units, and are thus not available to provide emergency services. As of June 15, 1983 approximately 6 health units are closed due to civilian conflict.

4) The Health Post, of which there are 158, has the same functions as the Health Unit, but has no permanent physician on its staff. However, a physician is supposed to visit one or two times per week, as part of a mobile unit consisting of a physician, a nurse, and occasionally a public health inspector and a secretary. The Health Post is staffed by a full time nurse auxiliary. Rural health aides work with the Health Post or the Health Unit. As of June 15, approximately 33 health posts are closed.

5) The Community Post, of which there are 32, is to be visited one or two times per week by a health team consisting of a physician, a nurse auxiliary and a public health inspector. As of June 15, approximately 4 posts are closed.

6) The Health Dispensary, of which there are 6, is attended by a permanent nurse auxiliary who is concerned with immunization, supplementary feeding, basic first aid and health education. As of June 15, 1983 approximately 2 dispensaries are closed.

The establishments Nos. 3 through 6 above assist in the provision of preventive health services, especially to women, nursing mothers, and children. They offer nutrition education and serve as a vehicle for supplementary feeding. They work with family planning and immunization programs, as well as with the environmental program.

It is the intent of this project to benefit the users of these establishments, through pharmaceuticals and medical supplies. Limited equipment will be provided to hospitals and health centers.

Warehousing

1. Central Level - San Salvador

MSPAS has two major warehouse facilities, Institute of Urban Housing (IVU) and Matasano, and additional warehouse space in San Salvador at Candelaria, used essentially for the family planning program, and San Esteban, used for storage of maintenance equipment.

a) IVU Warehouse. This plant contains 3,303 (m2) of warehousing space, divided by brick walls into 12 sub-warehouses, ten of which each have 210 (m2) of space, and number 11 (paper/stationery and office supplies) with 394 (m2), and number 12 (inspection returns, misc) with 809 (m2). The plant is on loan from the Institute of Urban Housing. It is inadequately maintained, poorly ventilated, and divided in a manner that hinders efficient warehouse operations. Since the IVU Warehouse must be returned to IVU, it makes little sense at this point for the MSPAS to upgrade this warehouse or construct additional facilities within the same

compound. There is a warehouse chief or manager who is responsible for the entire plant operation, an assistant, a quality control person, office staff, and assistant warehousemen. It has a staff of 35. Six of these day workers are assistant warehousemen, each responsible for the reception, storage, and dispatch of medicines to the 10 sub-warehouses. There is little effective communication between the warehouse personnel, procurement personnel, and the Directorate of Operative Services.

b) Matasano is a MSPAS warehouse complex that includes space for PLANSABAR (the MSPAS Rural Water and Sanitation Program), food for feeding programs, and hospital supplies. There are 4,018 (m2) available of which 1100 (m2) could easily be converted into warehousing of medicines, etc. The plant is new, clean, and would need improved ventilation and temperature control in areas where sensitive products would be stored. There is space available which would be suitable for construction of a refrigeration unit. Additional space exists within the grounds for the construction of a 1500 (m2) warehouse building that would have covered access to the warehousing space now available. Currently, MSPAS has three warehousemen managing the food section and hospital supplies. The facility is underutilized. The food section (390 m2) is empty, and the equipment space (696 m2) contains small clusters of equipment that could be moved easily to another storage area.

2. Regional Level:

Each of the five MSPAS regional warehouses has an average of 200 (m2) storage space, most of it modern construction, although adequate ventilation is lacking in many cases. In addition most hospitals have between 120 (m2) to 200 (m2) of storage space, however, it is generally old, poorly ventilated, and inadequately maintained.

3. Health centers, units, and posts also have storage facilities sufficiently adequate for two month supplies of essential items although ventilation is a common problem.

Transport and Security

Transport has also been a constraint to the distribution of medicines and supplies. An effective vehicle maintenance system is not in place. Transportation is further constrained by civil strife, either through destruction of infrastructure (e.g., bridges and railway stock) or through road blocks which slow the distribution process. Security measures such as movement in columns have been installed.The MSPAS has no security service of its own but occasionally the Salvadoran military provides security at health facilities, for example in 1981 the military provided guards at all hospitals. Due to the civil conflict pharmaceuticals and

supplies are transported to the Eastern Region in MSPAS trucks with military escorts. Upon arrival at the MSPAS' Regional headquarters at San Miguel the health supplies are distributed to the health facilities under military escort. Thus resupply is done as rapidly as possible is dependent on the availability of military personnel. If a geographical area is determined by the military authorities to be "occupied" no military support is made available and the MSPAS in turn does not resupply the health facility.

The six departments listed below are rank ordered by the MSPAS, descending order of severity of conflict as of June 15, 1983 and are therefore the most difficult to resupply.

	Estimated 1983 population
Morazan	205,508
Usulutan	422,881
San Vicente	212,840
San Miguel	461,146
La Union	339,276
Chalatenango	230,647
Total	1,872,398
	(35.8% of total population)

Usulutan is a very important department economically because it is an agricultural center for coffee, cotton and sugar, El Salvador's chief foreign exchange earning export crops.

The project will provide for the initiation of auditing procedures to encourage close surveillance of potential areas of leakage in the MSPAS health supplies management system including;

-Sale of MSPAS (AID) procured drugs to local pharmacies

-Sale or theft of spare parts, particularly in regard to vehicles (tires, sparkplugs, etc.)

-Improper use of vehicles, radios,and other equipment

-Sale and installation of equipment in private health facilities

Distribution Management System

1. Central Level

Distribution of medicines and medical supplies is coordinated at the central level by departments of three MSPAS directorates: 1) Administrative Services, 2) Operative Services, and 3) Technical Services, (See Annex No. H-I-G). Operative Services, however, has the key role in the management system ;here distribution decisions are made and information regarding central warehouse inventories,

receipts, and dispatches is retained. Control over distribution is maintained by checking requests from hospitals and regions against amounts of medicines and medical supplies programmed (programming based on annual requests from each region and each hospital, a total of 19 intermediate distribution points), balances on hand (from inventory reports), utilization rates, and availability at the central level (stocks in central warehouse). Orders are transmitted to the central warehouse (IVU) from Operative Services or processed directly by the central warehouse, which retains a copy of the annual program plan.

Transport is made available from the transport section upon request by Operative Services or the chief warehouse person. Drivers receive a manifest of products assigned to intermediate distribution points and return with a signed copy as proof of delivery.

2. Regional Level

Medicines and equipment are dispatched by truck and mobile units to health centers, health units, and health posts. Receipts are returned to regional warehouses. A cardex register for each product is kept on file and utilized for inventory control. This same simple cardex system is used in MSPAS facilities, including hospitals. Drugs, medicines, and medical supplies are distributed by medical personnel directly (mobile units), or through small pharmacies in health centers, units and hospitals.

3. Cold Chain:

The cold chain currently in place is designed to support an immunization program and transfer other pharmaceutical items that need special temperature controlled storage. The products are secured on the national or international level through a series of administrative and logistical links that are inefficient and undependable. At the central level MSPAS uses a small cold storage unit located in its IVU warehouse and, also, a cold storage unit at the National Brewing Company. Transfer of international shipments is done at the International Airport, which has a cold room unit, to regular MSPAS transport without refrigeration. Each shipment is then sent either to IVU or the Brewing Company cold storage facility. Products are then transferred to hospitals and regions with minimal planning, supervision and coordination, utilizing ice chests when available. Regional warehouses and hospitals each have a minimum cold storage capacity augmented by refrigerators of varying numbers, sizes, and states of condition. On the regional level the transfer of products is accomplished from warehouse to facilities by ice chests when available. Health centers and health units each have appoximately 20 cubic foot refrigeration units. Health posts usually have a 10 cubic foot refrigerator. Mobile health units carry products in ice chests or thermos bottles.

Cold storage facilities at the Central Level are antiquated, insufficient in capacity, and undependable. The regional level facilities, on the whole, are a reflection of the national level and need additional capacity and, in some cases, replacement of existing equipment.

4. The Annual Logistics Cycle

The complete logistics cycle, 1) selection, 2) procurement, 3) distribution, 4) utilization is a twelve month process that includes the following activities·

1. Regional facilities determine quantities of medicine and supplies needed July - August.

2. Regions and hospitals transmit lists to central level Directorate of Operative Services - Aug. - Sept.

3. Central Level (procurement and Operative Services) compiles and selects in accordance with budget - Nov-Dec.

4. Tendering is done and orders are placed - Jan-Feb-March.

5. Products usually arrive at central level - May-June.

6. Products distributed to hospital and regional warehouses - June-July.

7. Products at regional health facilities - July-Aug.

c) Budget

1. In comparison to the Salvadoran social security health system, salaries of key logistics personnel (warehouse, procurement, transport, maintenance) are relatively low, approximately 30-40 per cent less than positions of similar responsibility.

2. In 1983, two million colones were budgeted for gasoline, oil and lubricants or 6,689 colones per vehicle (299 vehicles in operation), an amount that would provide a minimum of a 1000 gallons per vehicle plus oil and lubricants. An analysis of the first quarter fuel consumption for vehicles in the mobile unit program indicates a mileage rate of 8 miles per gallon. The total 1983 budget for tires and tubes is 145,000 colones.

3. Maintenance of vehicles for calendar year 1983 is budgeted at 243,000 colones. No funds have been set aside for warehouse repair or maintenance.

Analysis of Distribution Management System

MSPAS has not developed a coherent distribution strategy. Products move through the system with little supervision. Operative Services has no administrative support staff. Central warehouse operation is antiquated, cumbersome, and inefficient. (An estimated one million colones were lost last year due to inefficiencies in this system e.g.the expirations of drugs due to the lack of an effective inventory control program). Information regarding inventories, product movement, warehouse personnel is not organized or easily accessible. The warehouse manual is not adhered to. Training of personnel is not done. Supervision is negligible. Management is passive, without goals or objectives.

The regional level is best described as a reflection of the central level. Among observations listed in the four regional management audits completed during 81/82, the following provide an indication of some problems identified in the logistic cycle: 1) inventory records not up to date, 2) ignorance of inventory controls, 3) shelves insufficient or inadequate, 4) ignorance of physical balances in warehouses, 5) inconsistent storage grouping of medicines, 6) ignorance of safety stocks levels, 7) excessive investment in certain types of medicines due to uncontrolled ordering, 8) duplication of stocks, 9) no control (file) over requests for resupply, etc.

In brief, current procurement practices, warehousing and distribution management, are the most serious constraints to the vitalization of the MSPAS logistics system.

Major Constraints and Problems

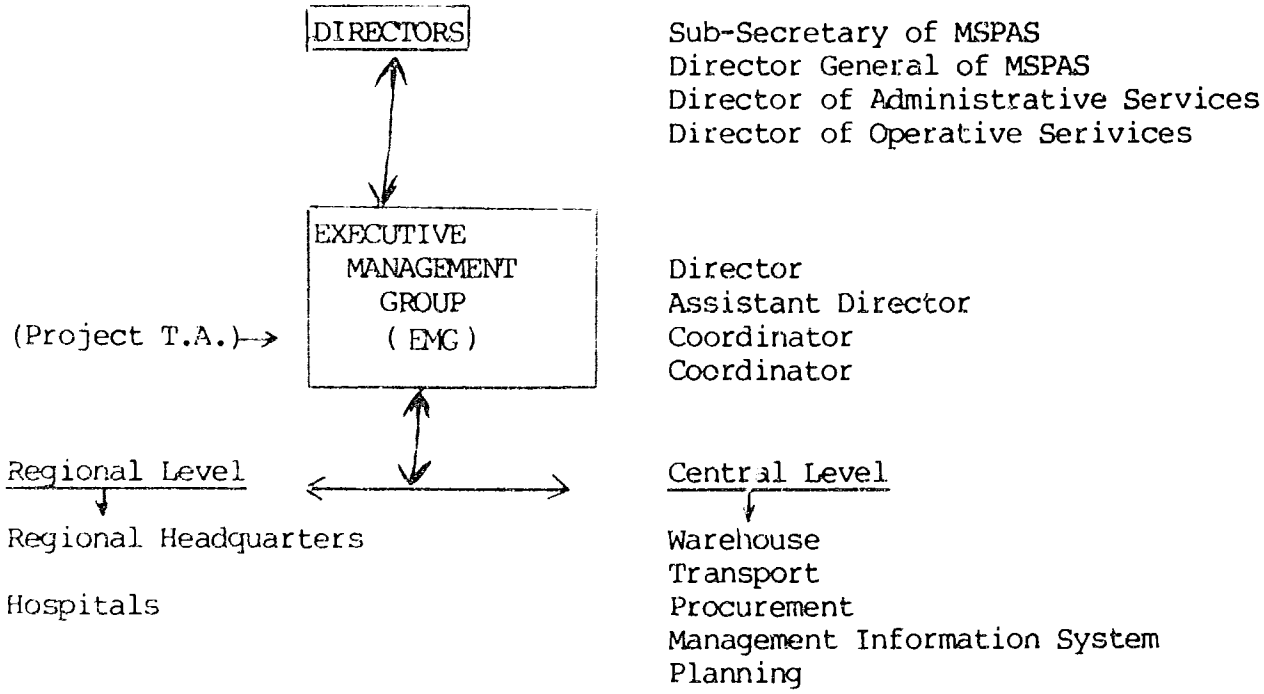
MSPAS does not establish inventory, warehouse, transportation strategies, set implementation targets, or conduct evaluation of progress and results. Management of the logistics system is diffuse, operating units are loosely related, and there is no continuous and reliable information flow to support management of products.

With an improved management system MSPAS will be able to deliver services with more efficiency. However, the 1983 MSPAS budget contains 9.0 million colones for the purchase of medicines, or 68% less than the total amount (28 million colones) requested by the health facilities. Also, there is little budget for maintenance of vehicles, hospitals, equipment, and warehouses. Unfortunately, in terms of maintenance, warehousing has perhaps the lowest priority. Inspection of IVU and some regional warehouses (exception of Matasano) indicates that a maintenance and repair program is essential for effective operation. Also, an additional 1500 (m2) warehouse space at Matasano is necessary to replace the inadequate warehouse space at IVU.

Current procurement practices of commodities, supplies, and materials is another limiting factor that retards a system already constrained by low budgets, ineffective management and security issues.

MSPAS Response to Constraints and Problems

In terms of human resources, MSPAS does have sufficient personnel to manage an augmented distribution program in both the short and long term. It is necessary to restructure management and thereby increase productivity. MSPAS has already recognized this problem, but has not gone beyond the analytical stage.
The project provides for an Executive Management Group to support delivery of services to all facilities. The following diagram demonstrates its structure·



1) Directors· The Sub-Secretary (Vice Minister) of Health is the Chairman of the Group of Directors, which will meet at least once each month to review the work report submitted by EMG , and discuss the work plan developed for the next month. Once the work plan is approved by the directors, the EMG will assume responsibility and authority for implementation.

2) EMG: This project funded group is composed of a Director, Assistant Director, two coordinators, and has direct access to secretarial and other support staff. Its primary purpose is to manage and supervise all logistics and supply-management function of MSPAS. To accomplish this purpose, EMG has the following tasks·

Planning
Implementation
Supervision
Evaluation
Reporting
Training

Technical Assistance Advisors to be funded by the project will be assigned to assist the EMG in accomplishing its aforementioned tasks.

The EMG will prepare all Financial and project status reports required by USAID.

The EMG work plan includes a series of activities in preparation for the initial phase of the project. These tasks include the reduction of vehicle inventories, hospital equipment inventories, and medicines and medical supply inventories, that are either obsolete, unserviceable, or redundant. The EMG will also 1) initiate management audits of procurement and warehousing facilities at Central and Regional Levels, 2) develop plans for construction of additional warehouse space at Matasano, 3) and prepare to manage the distribution of supplies and commodities financed through the project.

Procurement System

Relevant History.

In 1976 Bustamante y Asociados S. A., a consulting firm, conducted an indepth study of management and administration in the procurement and supply management areas of MSPAS and developed a manual outlining a proposed organizational structure, functions, responsibilities, authorities and procedures to install a procurement unit within the MSPAS. Included were recommendations for the enactment of a law to govern the acquisition of goods and services for the Ministry and to create a MSPAS Procurement Unit. The legislation apparently fell through the cracks and was not passed.

Between February 1981 and April 1982 the MSPAS implemented most of the Bustamante recommendations, issuing manuals with step-by-step procedures, functional descriptions and organizational structures for the three major management components of procurement, i.e., programming, purchasing and expediting.

In April 1982 Decree Number 1083 was issued which established the Law and the Procurement Unit which the Bustamante study had recommended.

In general the written procurement procedures closely parallel those used in the United States by government agencies and the Law is broadly in line with American contract law as it pertains to procurement.

Analysis of Procurement System

a) When the limited management information system was installad in MSPAS in 1976 procurement was not included in the system. There is no automatic system in MSPAS which will pinpoint problem areas and bottlenecks in the procurement cycle.

The management of procurement, e.g., techniques and systems for alerting key managers in a timely manner of delays, bottlenecks, slippage, errors, etc. in the procurement cycle, needs considerable improvement. The information system must be made more responsive to the needs of problem solving and must be automated to provide timely management data on a regular basis. Document flow in the procurement cycle may be interrupted by an office failing to act promptly on a procurement paper, but little action is taken (if any) in the management arena to force the paper out of the holding office. For example, a procurement award document was held up in the Legal Office from the November 5, 1982 until the May 13, 1983 because th Procurement Department had inadvertently neglected to advertise the solicitation in the newspapers, a legal and procedural requirement. Had the Legal Office acted in an expeditious manner in rendering its decision, a new procurement action could have been initiated and the needed commodities obtained with minimum delay.

It could not be determined if any action had been taken during the six months by responsible Procurement Department personnel to pry the document out of the Legal Office and/or failing that, what action, if any, might have been taken to obtain intervention by a higher authority. A functional Management Information System would have revealed the situation to higher level managers before it got out of hand.

b) Procedures, as written, are adequate for effecting procurement as long as no unusual actions are required. Exceptions require management or administrative initiative and timely information for action. Policy and procedures provide for expedited procurement when justified. Commodities have thus been procured in as little as four days locally and in less than thirty days from offshore.

c) Determination of kinds and quantity of items to be procured is hampered by poor record keeping and inadequate information flow. The inventory control system needs to be integrated into an automated management information system and the information flow tied into the decision making process.

d) The Ministry of Health's system for purchasing and distributing pharmaceuticals and other supplies historically has been plagued by problems linked to poor management. The May, 1978 Health Sector Assesment referred to the fact that MSPAS hospitals have the option to purchase pharmaceuticals independently under the rationale that such independent procurement is considerably faster than the normal MSPAS procurement procedure. Such procurement by hospitals was seen by the assessment team as a significant financial drain given the high prices paid for low volume procurement. On the other hand, health posts, units and centers must obtain their pharmaceuticals and supplies through the MSPAS central procurement process. Although there may be a financial incentive for larger volume procurement, an average of nine months was required to fill a request for pharmaceuticals or supplies made by a health facility. Hospitals could not wait for the systems to respond to their needs.

The practice of independent hospital procurement of pharmaceuticals continues. For example, for 1982 the MSPAS estimates such independent purchasing represented about 30% of the total amount expended (central procurement plus independent procurement by hospitals by the MSPAS for drugs. In 1982 central MSPAS procurement of pharmaceuticals and vaccines totalled 11,421.336 colones. If this amount represents about 70 percent of the total then approximately 15.7 million colones were spent by MSPAS for pharmaceuticals.

The parallel MSPAS procurement systems are both experiencing severe shortages of financial resources, thereby inhibiting the procurement of the total quantity of drugs required. It is anticipated that the improved health supplies management system to be developed under this project will decrease the need for the hospitals to do substantial independent off the shelf procurement if the central system is sufficiently improved to be able to deliver on a reliable, "quick response" basis.

During an inspection of warehouses, a large quantity of eye drops, amounting in value to over $167,000 U.S. which had been purchased in 1977 were found by a PP team member. The eye drops were never distributed because the bottle size differed from what had been requisitioned. Competent management would have taken immediately action at the time of original receipt to alert the Procurement Department of the discrepancy. Likewise, the discrepancy should have been identified when Procurement reconciled receiving reports with purchasing documents. In either case action would have been prompted to resolve the problem.

Instances of short shelf life drugs passing their date of expiration, which are still warehoused, are numerous. Again, the basic problem is weak, inefficient management practices. Such items must be handled differently and information maintained and used at each level of the supply delivery system to alert managers well before expiration dates are reached. The Procurement Department has a responsibility in this respect to properly identify such items flagging them for special attention.

Lack of continuity in management has been a further contributing factor adversely affecting the efficiency and effectiveness of the Procurement Department, e.g., the Chief Procurement Officer has been replaced four times in the past year.

First priority is management of the emergency procurement of critical drugs and medical supplies followed by and/or intermingled with, as necessary, management of the procurement of other commodities required for the "quick fix". These commodities are listed in the annexes attached.

The second priority is the examination of the management/administration of the Procurement Department of the MSPAS and rendering advice and assistance to the Chief for improvement in these areas with follow-on actions to achieve institutionalization of such improvements by not later than the 10th month of the first year of the project.

Among other improvements to be pursued is the development and institutionalization of a program to obtain close coordination between the Chief of Procurement and the Office of the Director of Operations Services. The latter Office is responsible for the development of commodity requirements and the selection of drugs. it is essential that the MSPAS assure the maintenance of constant levels of drugs stocks and medical supplies on hand for regular and emergency distribution. When emergency requirements cause these levels to dip below certain (to be established) points, immediate action for acquisition of replacements must be taken. To attain the management and coordination necessary to accomplish this requires that various supply management personnel be involved. The official determining procurement requirement must have timely input data from inventory control centers, e.g., stock levels, usage rates, re-order, etc. From the Chief of Procurement the PMA must have information inputs regarding lead times, availability, source, price, etc. The Operations Services Directorate must take decisions on drug selection, national formulary, etc. With the establishment of improved

information management the data on which to base requirements decisions should be readily available. Project funded technical advisors will assist and advise those involved in instituting the necessary coordination and cooperation.

The institution of an automated management information systems in the MSPAS will facilitate the collection, recording, retrieving and timely distribution of management data which, in the Procurement Department, has not previously been automated. Manually collected and recorded has not been used by the Procurement Department. Information generated in the procurement cycle, when automated, can be most useful in providing data on sources, prices, quantities, unit, specifications required and actual delivery dates, vendor performance, commodity receipt/condition, short falls, excesses, shelf-life/expiration dates, etc. Any exceptional occurrences, e.g., delays or bottlenecks in the procurement cycle or documentation slow-downs or administrative delays beyond pre-specified time elements, can be reflected in the information systemms, thus drawing attention to these problems for prompt remedial action by responsible managers. The Procurement Management Advisors (PMA) will coordinate with the Management Information System and will assist and advise the Procurement Department in modifying or redesigning existing forms or in developing new forms for compatibility with MIS procedures and equipment. Procurement operating personnel must be trained in the use of new forms, equipment and operations of the systems. Management personnel must receive training in utilizing the information generated to make management decisions. The PMA will work closely with the MIS specialist in effecting such training.

The PMA will examine existing commodity lists with the view of developing additional equipment standarization, where feasible and justifiable, and follow-up with AID as appropriate.

Supplies Management/Procurement Training

Training is an essential element of the project. In-country training will be conducted to ensure that management, administrative, and warehouse personnel are familiar with various aspects of the supply management system. Also, the EMG, assisted by T.A. and such host country institutions as the Institute of Social Security (ISSS), will implement training programs to upgrade skills in warehousing, warehousing administration, inventory management, office administration, record keeping, warehouse maintenance and sanitation, and reporting. The publication unit of MSPAS will prepare the training material.

Present Policies

In the development of requirements for pharmaceuticals the MSPAS is trying to implement a policy which will reduce the number and variety of drugs and establish a national formulary. This is a sorely needed policy and some success is being achieved.

Budgetary restrictions on the MSPAS adversely affect the caliber of personnel available in the Ministry to manage and administer programs and procedures. The procurement of commodities also is limited by budgetary restrictions.

Significant in its effect on the availability of locally manufactured drugs is the severe foreign exchange shortage coupled with the imposition of price controls by the GOES which operate as disincentives to the manufacturers and potential procedures of drug products.

Current Resources and Activities

Health improvement of the population of El Salvador was designated in 1978 as the first priority in the social sector of the nation's Five Year Plan and specific goals were established for improvements in the public health sector in 1981. The problems that have arisen over the past five years as a result of violence and economic disruption have prevented the achievement of these goals and the status of halth delivery systems has deteriorated. The MSPAS must now obtain foreign assistance to support the immediate need to obtain and distribute essential drugs, medical instruments and supplies, and equipment and spare parts.

Manpower

There is no apparent shortage of manpower availability in El Salvador, but, until budgetary limitations are eased or some other means found to provide incentives to attract and keep better qualified and more highly motivated middle and lower level managers and operational level personnel, the effectiveness of management and administration will continue to be limited. Training of personnel will help to alleviate some of these problems.

Budget

Inadequate resources at all levels. Allocations of funds for the procurement of spare parts and replacement equipment have been meager at best and, in 1983, there are no funds available for procurement of medical equipment.

Supplies and Materials

Drugs, medical supplies, vehicles, equipment and spare parts are needed at all levels of the health delivery system. Budgetary restrictions and foreign exchange shortages have precluded the acquisition of any medical equipment or spare parts. Over the years, the procurement of medical equipment from many countries have resulted in instruction and maintenance manuals in various languages with only a few in Spanish.

Objective of AID Assistance

The objectives of Component I, Subcomponent A are:

a) To facilitate the early acquisition of critically needed commodities for infusion into the health supplies delivery system of the MSPAS;

b) To restore the management and administrative capability and effectiveness of the supplies management functions of the MSPAS including procurement, inventory control, storage and distribution, and to institutionalize this capability.

Sub-Component Elements of Project and Anticipated End of Project Status

At the end of the project the following elements of the MSPAS supplies management system will be functioning more efficiently and effectively.

1. During the two year project the MSPAS will maintain inventories of medicines, medical supplies and equipment at optimal levels that will enable MSPAS to provide effective services to population targeted for preventive and curative health care. In support of services provided by health facilities, the MSPAS will also have an upgraded procurement, storage, and delivery capacity, including a physical system of warehouse, vehicles, and a management system essential to the institutionalization of effective and efficient supply management. Forty eight PM of technical assistance will have been made available during the life of project to assist the EMG to improve its supplies management (including procurement) system. The scopes of work for the five advisors for this subcomponent are attached as Annex H-I-H).

The project is designed to immediately infuse the MSPAS health supplies delivery system with large quantities of critically needed commodities during the early part of the first year. Direct technical assistance in supplies management (including procurement), administration and training will also begin at the inception of the project and will continue through the end of the first year. During the second year, the Supply Management Advisor (SMA) will assume functional responsibility to oversee and to advise the Procurement Unit in its continuing efforts to institutionalize effective management and administrative techniques and training for the Procurement Unit.

The SMA will advise the USAID on timing and frequency of external, spot check audits to ensure effective and efficient management of AID-financed commodities.

The list of pharmaceuticals and medical supplies to be procured under the project was developed by the MSPAS in consultation with Mission health personnel with the assistance of the PP team, see Annexes H-I-J and H-I-K. The list of pharmaceuticals requested totals 154, all items from the MSPAS national drug formulary. The current value on the local market is included for each pharmaceutical listed. Of those 154 pharmaceutical items requested, 54.9% are produced in El Salvador. The MSPAS currently purchases all pharmaceuticals on the local market, whether the pharmaceutical is locally manufactured or imported. The exception is vaccines which are obtained through PAHO's EPI Program or through AID's Health and Jobs for Displaced Families Project.

The pharmaceuticals to be funded by AID under this project address the needs for hospitals as well as the centers, posts and units. AID's response is reflected in the following table.

AID's Response to the Needs for the MSPAS for Pharmaceuticals

(000's)

	CY 1983 (1)	CY 1984
Pharmaceutical Needs of the MSPAS	$11,200.00	$11,200.00
MSPAS Budget for Pharmaceuticals	3,600.00	6,000.00 (2)
Deficit	7,600.00	5,200.00
AID Input for Pharmaceuticals	5,500.00	2,868.00
Percentage of Deficit Met by AID Input	72.3%	55
Remaining Deficit	2,100.00	2,332.00

1) The GOES fiscal year is the same as the calendar year.
2) GOES counterpart for the second year of the project.

Approximately one third of the total local market value of the pharmaceuticals requested by the MSPAS is represented by antibiotics and anti-infectives. Other common items requested include electrolyte and acid-base disturbance solutions, 18%; anesthetics, 6.3%; vitamins, 5.4%; analgesics, 2.5%; anti-parasitics, 2.1%. The Ministry's request included 27 categories of pharmaceuticals. The request includes 500,000 packets of oral rehydration salts. (See Annex H-I-J). SER/COM and the office of Health S&T Bureau as well as a consultant pharmacist, will assist the Mission to further refine the list. The current local market value of the medical supplies requested is $2,715,798. Among the medical supplies to be provided by the project are radiological materials, hypodermic needles and syringes, surgical needles, and surgical gloves. (See Annex H-I-K) Both the lists of pharmaceuticals and medical supplies represent a pooled request from the hospitals and the regional headquarters.

Commodities are also needed in 1984 for the MSPAS family planning nationwide as an integral part of primary health care. Family Planning Services at the MSPAS central level are provided through the Maternal and Child Health Division. AID has been supporting the MSPAS' family planning program through the Family Planning and Population Project (519-0149). Although Project 519-0149 continues to provide assistance to the Salvadoran Demographic Association (SDA) in the private sector, the support the MSPAS for the provision of contraceptive commodities under the project terminated March 31, 1983. There is a sufficient MSPAS supply of contraceptive commodities in country, provided by 519-0149, to last only until November, 1983. It is expected that additional funds may be made available from AID central funds in FY83 to meet the MSPAS family planning commodity until the fall of 1984.

AID support for the MSPAS Family Planning Program's operating costs (these costs do not include contraceptive commodities) continues through the PL 480 Title I local currency generations. In CY 1983 the equivalent of 1,000,000 in colones was provided to the MSPAS for their family planning program. The MSPAS health posts offer oral contraceptives, condoms, and vaginal foam tablets; the health units offer oral contraceptives, condoms, foaming tablets, and IUD insertion. The centers and hospitals offer sterilization in addition to the services offered at the Health Unit.

It is estimated that the MSPAS provides 85% of the family planning services provided in El Salvador. This project will provide loan funds to the MSPAS to meet their contraceptive supply needs which are estimated to be valued at approximately $340,000 for the period November, 1984 - October, 1985. This project will provide for contraceptives to arrive in El Salvador no later than November, 1984 so that there will be a constant supply of commodities to sustain the MSPAS program. The project will provide loan funds in Year 2 to provide for at least a twelve (12) months supply valued at $340,000. The commodities will be obtained through an unfunded PIO/C with the assistance of S&T/Population.

Very basic medical equipment which has been determined to be in critically short supply by the medical equipment specialist on the PP team will be procured as soon as possible. The equipment list includes centrifuges, sterilizers, stretchers, otoscope and ophthalmascope sets, and sphygnomanometers. The project will provide $600,661 for urgently needed medical equipment See Annex H-I-L.

2. During the two year project the EMG will have developed and executed a warehousing program with the following objectives:

a) Repair and modify existing facilities on regional, hospital or central levels.

b) Systematize handling and storage procedures.

c) Systematize information system.

d) Prepare a set of universal guidelines that standardize receiving, storage, issuing, and shipping procedures.

e) Establish inventory system as management tool that provides the best information possible within an acceptable time frame.

f) In-country on the job training for regional and national warehouse personnel.

g) Coordination with procurement personnel and Corte de Cuentas (independent auditor) which supervises the utilization of all GOES property and equipment concerning control and disposition of inventories.

h) Direct supervision of all warehousing and continuous evaluation of warehouse performance.

i) Construction 1500 m^2new warehousing on central level.

j) Rehabilitation of 2000 m^2warehousing on central and regional levels.

k) Production of supply management, procurement, inventory management, and warehousing manuals.

l) Develop internal audit procedures to ensure efficient management of both GOES and AID financed commodities.

At the end of project MSPAS will have a comprehensive warehousing system which will include regional warehouses, and central warehouses, hospitals, and health units. Matazano will be expanded and upgraded, and with regional upgraded facilities, MSPAS will have sufficient capacity at all levels. The IVU warehouse will gradually be phased out of the MSPAS system. Warehouse construction includes 1500 m^2at Matazano. Warehouse refurbishing includes 1000 m^2at Matazano and 1000 m^2divided among the 5 MSPAS regional warehouses. A total of $434,578 has been reserved for such activities.

Commercial transport (truck, rail, air) and storage will have been made available for allowing the project to ensure movement of all supplies during the initial six month period should there be delays in procurement of vehicles or to augment transport at critical periods (this line item was subject to revision during the life of the project and transferred when feasible to support warehouse construction or maintenance/repair of vehicles). Funds reserved for necessary commercial transport and storage totals $65,000.

3. The project will have provided for the construction of two cold rooms, one at San Miguel to support vaccination programs in the eastern region, and one in San Salvador, which will support the central and western regions. Each cold room will have an area of 80 m^2. The total estimated cost, including design, and generator, is $83,000 per unit ($48,000 for construction and $35,000 for equipment). The project will also provide under Component I, Subcomponent A a refrigerated truck, refrigerator and freezer units, vaccine carriers, etc. An upgraded cold chain will assist MSPAS increase coverage of its vaccination program, now reaching only 50% of its annual target. The project provides a total of $249,000 for cold chain improvement.

4. By the end of the second year of this project, management systems (including information systems) will be functional, procurement flow will be efficient and management will be effective in avoiding, or promptly resolving, delays and bottlenecks in the procurement cycle. Controls will be in place to help prevent losses due to expiration of short shelf life items. Requirements development for all commodities, including drug selection, will be accomplished on a more standardized, routine basis, utilizing managment information system inputs.

5. In-country training will have been conducted to ensure that management, administrative, and warehouse personnel are familiar with various aspects of the supply management system. Also, the EMG assisted by T.A. and such host country institutions as the Salvadoran Institute of Social Security (ISSS), will implement training programs to upgrade skills in warehousing administration, inventory management, office administration, record keeping warehouse maintenance and sanitation, and reporting. The publication/printing unit of MSPAS will prepare the training material. Instructors will be utilized from MSPAS and contracted from the ISSS or other Salvadoran training institutions. Programs will include: 1) seminars in San Salvador, 2) seminars in regions, 3) visits by MSPAS personnel to other operating agencies and institutions, both public and private. At the end of the project it is anticipated that 80 line-managers and 22 top level managers will have been trained in supplies management (including procurement procedures). Procurement personnel must be trained in the use of new forms, equipment and operations of the systems. Management personnel must receive training in utilizing the information generated to make management decisions. The Procurement Management Advisor will work closely with the technical assistance to be provided in Component III in effecting such training. Sixty (60) warehouse personnel will be trained in inventory control. Project funds totalling $40,000 are reserved for local training in this Subcomponent.

6. During the project MSPAS will publish formats, schedules, guides, manuals, training materials, posters, reports, etc. to suport all four

components of the project as a result of upgraded reproduction/printing capacity provided as a project input. The printing equipment the MSPAS has on hand is inadequate and undependable. Limited printing and graphics equipment will be procured installed and put in operation during the project.

As well, a preventive maintenance and service contract for reproduction/photocopier machines currently suffering considerable periods of "down-time" will permit increased communication among the MSPAS personnel involved in the project, e.g. the Executive Management Group.

See Annex H-I-M for Detail Budget for Component I, Subcomponent A.

COMPONENT I, SUBCOMPONENT B
MALARIA CONTROL SYSTEM

1. Background and present situation

a) For several decades the program strategy to control malaria in El Salvador was carried out using the eradication criteria, based upon the establishment of a passive and active case detection system, total coverage of houses with insecticides and mass distribution of drugs throughout the malarious areas of the country. However, with the appearance over the years of physiological resistance to most insecticides by the local vector (Anopheles albimanus), due to pressure from an indiscriminate usage of several types of pesticides (*) in the highly agricultural coastal zone and associated with increased reluctance by the population to take the necessary drug, such a strategy became impractical and expensive. Consequently, a gradual increasing malaria morbidity has occurred during the last two decades in spite of a significant reduction in malaria mortality. In 1981, malaria was reported (93,187 cases) as the fourth leading cause of infectious and parasitic disease, behind diarrhea, intestinal helminths, and influenza/colds.

Due to the circumstances previously mentioned, the MSPAS's Malaria Division decided in 1979 to carry out a detailed analysis of all its epidemiologic, operational and administrative activities with the objective of redesigning the program into a new control strategy which could allow for more dynamic actions and better distribution of resources. The criteria was to focus the attack on each problem area individually at the precise time and place by using a combination of attack measures, depending upon specific local characteristics responsible for disease transmission.

b) Present Policies

As a direct result of this analysis, the previous malaria eradication strategy was replaced after 1979 by a more realistic malaria control plan, which has as its main purpose to bring down malaria levels in the country to a point where malaria no longer represents a public health problem.

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* According to data released by Ministry of Agriculture, insecticide usage in El Salvador has been estimated to be in the order of 18 million tons of Chlorinated hydrocarbons, 14 tons of Organophosphate and 20 tons of Carbamate insecticides during the last decade.

A strategy change of this kind would normally require at the beginning a higher number of personnel and resources but, in order not to increase demand for scarce resources from MSPAS, it was decided to emphasize control measures in the areas of first priority which are responsible for 85% of all reported cases. The first priority areas were selected through stratification of malarious areas (Table I) throughout the country which is based upon the average number of cases reported by locality in a given period of time (1970-1977).

TABLE I
Malaria Stratification by Area
El Salvador
(January 1983)

AREA CHARACTERISTICS	MALARIA CASES %	SIZE Km^2	NUMBER OF PERSONS	AREA%
First priority Hyperendemic More than 60 cases Annually per voluntary collaborator post (0 to 300 mts. altitude).	85	4,819.00	1,407,620	22.9
Second priority Moderate endemic 30 to 60 cases annually per voluntary collaborator post. (301 to 600 mts)	10	3,215.79	928,780	15.3
Third priority* Hypoendemic 0 to 29 cases per voluntary collaborator post (more than 601 mts.)	5	13,006.00	2,962,686	61.8
TOTAL COUNTRY	100	21,040.79	5,299,086	100

* Includes non-malarious area estimated 1,118 Km^2.

The malaria program is expected to meet its short term goals of decreasing malaria morbidity by reducing and controlling vector breeding places in areas of first and second priority. The program will do this through the systematic application of combined attack measures with more emphasis initially on chemical measures. After this has been accomplished, it will carryout long term activities of elimination, reduction and control of 80% of all breeding places

within both areas with an expected emphasis at that time on more non-chemical measures. The design of this strategy represents an innovative approach and, with the exception of lacking more specific objectives within a given time frame, it is considered generally well planned and unique among other Central American and Caribbean programs. Therefore, it could be seen as an experiment that may result in new approaches for malaria control in the area.

c) Current Resources and Activities

I. Programs

Malaria control activities currently undertaken by the Malaria Division, MSPAS are as follows:

- Case detection through passive and active case systems as well as general health services.

- Treatment of cases: Presumptive treatment at voluntary collaborator posts, mass distribution of drugs in selected areas for presumptive and radical cure. Drugs used are Chloroquine and Primaquine, single and combined.

- Simple source reduction activities consisting of drainage, opening of estuaries, filling and cleaning of ditches.

- Promotion and education of communities with emphasis in those under the agrarian reform process.

- Intradomiciliary spraying of residual insecticide (Propoxur-adulticide) in areas of susceptibility.

- Special Ultra Low Volume (ULV) spraying of insecticide (Pyrethroid-adulticide) in areas of vector high density.

- Application of larvicide (ABATE) in water accumulations mainly during dry season.

The passive case detection system (PCD) is considered an important aspect of the program. It consists at present of a total of 2563 voluntary collaborator (VC) posts of which 1150 (45%) are localized within the hyperendemic zone and the rest among the other malarious areas. The present average number of inhabitants covered by each VC post is estimated to be 697. It is planned to lower this ratio to one VC post per 250. The VC is responsible for delivering presumptive treatment to febriles and provides practically all basic epidemiologic information for the program by detecting 80% of total reported cases in the country. The other 20% of cases are detected through active case detection by malaria personnel and general health services.

II. Manpower

Malaria Division (MSPAS) has a total of 614 positions and, according to their last programming exercise for the period May-October 1983, of the total positions, 511 are field operations staff, or approximately 85% of all program personnel. Field operations personnel are divided in the following categories: 78 chiefs of zones, departments, operational polos and sections; 319 operational personnel (supervisors, evaluators, microscopists, spraymen, operators, drivers, etc.); 114 support personnel (includes personnel hired under contract to carry out manual labor).

At the executive level, the Malaria Division consists of a Program Director (a Medical Doctor), a Chief for Field Operations, a Chief for Entomology and an Administrative Officer. This level receives additional technical support from PAHO through the provision of a full time technical advisor and a part time Malaria Epidemiologist. The remaining personnel provide administrative support to the program (40 persons such as secretaries, mechanics, etc.)

According to the Program Director such personnel are only capable of covering control activities in 27% of the first priority area. It is estimated that to cover 80% of the first priority area they would need three times the present number of operational personnel.

III. Budget

The budget for the Malaria Division for 1983 is on the order of 4,400,000 colones which corresponds to 2.6% of total MSPAS budget. However, the Division has this year an additional amount of 2,900,000 colones reserved from general funds to buy insecticides (2,500,000 colones) and drugs (400,000 colones). The Malaria budget (colones) for 1983 by categories is as follows:

	Colones
Malaria personal services (permanent employees)	242,940
Other personal services (contract personnel)	3,788,750
Non-personal services (utilities, etc.)	41,540
Materials and supplies (Office equipment, etc.)	358,450
Equipment	--(1)
Insecticides	2,500,000
Drugs	400,000
GRAND TOTAL	7,331,680

(1) Following instructions of the Central Government, no purchases of new equipment have been financed since 1980.

IV. Operational Management Policies and Procedures

The operational epidemiological unit of the program is the "caserio" (smallest grouping of houses). Control activities are planned and executed by operational "Polos" which are actually individual operational zones.

Theoretically, there are two major regular program activities: one for the dry season (November-April) and one for the rainy season (May-October). Such seasonal based operational programming is the product of an epidemiologic analysis by "caserio" based upon data obtained during the previous three years. The parameters used for the analysis are the following:

- Number of cases detected during the period.
- Months of higher intensity.
- Slide positive rate (SPR).
- Frequency of P.falciparum infections.
- Annual parasitic incidence (API).
- History of applied measures in the area.
- Population characteristics of the area.

In addition to the seasonal programming, there is an on-going analysis of the epidemiologic and parasitologic information by house groupings carried out on a weekly basis in each of the operational zones. This is done to determine any necessary operational changes to allocate resources on the basis of local vector and disease situation, in order to attack the problem at the precise time and place.

In general terms, vector control aspects during rainy season give emphasis to controlling the adult phase. Therefore, ULV and intradomiciliary residual spraying in conjunction with drug distribution constitutes the major seasonal activities. During the dry season control efforts are mainly larvicide application and source reduction.

Training of malaria personnel constitutes an on-going activity under this type of strategy and it usually takes place on-the-job. In addition, there are regular specific training sessions of approximately 15 days duration under program supervision, on such topics as entomology, epidemiology, evaluation, vector control, insecticides spraying safeguards, administration, etc. During 1983, the Malaria Division provided short term three-day training sessions for operations staff on various aspects of the program. During the

period January-May 1983, the Malaria Division has given five such courses. Additionally, there are sporadic courses programmed at national level. Some personnel have participated in courses at the international level.

V. Supplies and Materials

This area is considered critical due to:

- Limited financial resources.
- Lack of administrative efficiency at central level to obtain and distribute materials and supplies on time and in appropriate quantities.
- Spray and transport equipment non-functional

2. Major Constraints or Problems

a) Budget

The budget allocated to the Malaria Division for 1983 represents 2.6% of the total Ministry of Health Budget. In reviewing this budget relationship for the last five years, it shows that a decrease of 0.6% has taken place gradually since 1980 in the malaria budget. This level of budget support is considered insufficient by the Program Director and constitutes the major constraint to the Program as it allows only for covering activities in 27% of all "caserios" in the area of first priority.

The Division of Malaria has stated that it is unable to even cover its first priority areas in the present program with necessary insecticide interventions. The program, at present, is operated on a year-by-year, ad-hoc arrangement which is not conducive to either maintaining gains achieved or to reducing malaria as a public health problem in the long term.

b) Technical and Administrative

Technical and administrative problems found in El Salvador are hindering the progress and development of the malaria control program. Major among these are as follows:

- Most critical among the technical problems is the physiological resistance of the local vector (A.albimanus) to almost all available insecticides in a large part of the country's coastal zone.

- Lack of personnel resources which has been aggravated by a hiring freeze policy effective since July 1980. At present, program vacancies are estimated at a 30% level among field operational positions.

- Due to diminished resources the Malaria Division's program is presently able to cover only 27% of the area considered of highest priority. As a direct consequence, the program is forced to leave unattended the rest of the malarious areas.

- Lack of more efficient administration at central level which leaves the program without essential supplies for significant periods of time, thereby diminishing response capacity at crucial times.

- Inaccessibility by program personnel to certain areas (Chalatenango) due to persisting circumstances in the country.

- A significantly increased population movement which contributes to a spreading of the disease.

- Utilization of Malaria Division resources (manpower, equipment, insecticides, etc.) to attend to other demands of MSPAS especially those related to environmental sanitation which are the direct responsibility of another technical division of MSPAS.

c) Commodities, Supplies and Materials

A lack of commodities, supplies and materials is severely damaging program development and morale. There are two main factors for this lack:

- According to instructions from the MSPAS since July 1980, all purchase of new equipment has been cancelled.

- Difficulties encountered by private enterprise to meet their delivery schedules for products contracted by MSPAS because of the country's foreign exchange problems.

3. MSPAS Response to Problems and Constraints

a) Resources, Policies and Programs

Response from the MSPAS to the problems presently encountered by the Malaria Control Program, if viewed from a program standpoint, is considered minimal. However, due to the present general economic deterioration of the country, such a level of response is probably typical of all MSPAS programs.

b) Donor Assistance

At present, only PAHO is providing assistance in technical and training aspects. Sporadic assistance has been received from UNICEF, Germany and Japan.

5. Malaria Control System Project Assistance

The Malaria subcomponent will contribute to increased levels of primary health care service by meeting short term needs of the MSPAS for essential goods and support services through support of a responsive, efficient and effective nationwide malaria control program. Secondly the project will assist the MSPAS of El Salvador to contain or further reduce the incidence of malaria. Measures of purpose achievement by the end of the project include the following:

a) An annual parasite incidence which does not exceed that of the 1980-1982 period.

b) P. falciparum represents less than 10% of all cases of malaria and is being further reduced on a progressive basis.

c) The number of blood smear slides collected through passive case detection by the Voluntary Collaborators continues to increase during 1984-1985.

d) House spraying coverage exceeds 90% of the planned number of houses to be sprayed each cycle.

The Malaria Division is a direct line office within Ministry of Public Health and Social Assistance (MSPAS) and is the implementing agency for all the malaria activities of this project.

The Malaria Division will be responsible for:

1) Furnishing to A.I.D. requests for procurement of commodities and technical assistance;

2) Ensuring that counterparts are in place for all technical assistance provided under this project.

3) Participating in scheduled program evaluations;

4) Preparing annual Plans of Action for 1984 and 1985 including a plan for safe application and training in the use of US-supplied insecticides.

C. Sub-Component Description - Malaria Control System

1. Outputs

The project will assist the MSPAS by supporting and increasing the capability of the national and operational areas services to effectively control malaria.

a) Annual house-spraying programs are targeted specifically to moderately prevalent and highly endemic areas based on refined epidemiological analysis and careful stratification.

b) Senior and mid-level health personnel at health institutions undertake surveillance as a regular part of their duties, including taking blood smears and administering appropriate drug treatment.

c) Criteria for selection of appropriate insecticides (Propoxur, fenitrothion or other insecticides) are developed and are applied in the program.

d) Appropriate and effective biological control methods have been identified from field trials and are implemented where it is appropriate.

e) Division of Malaria's training program for operation and maintenance of equipment purchased under the project meet the priority needs of the GOES's malaria control program.

f) A detailed Plan of Action for 1984 and 1985 for malaria control covering the period of the AID project is prepared and adopted by the GOES and PAHO.

Output Indicators

Specific output indicators for each calendar year are presented below:

a. Spray Operation	1984	1985
Spray Operations should cover at least 90% of the planned number of houses to be sprayed each year.	90%	90%
b. Surveillance		
i. Passive Case Detection blood slide collection from health institutions should reach 10% of the total number of slides collected by 1985.	5%	10%

ii. Surveillance Case Detection		
(a) Blood slide collection should exceed 10% of the number in the population under protection.	10%	10%
(b) The average time lag from slide collection to radical treatment of a positive case should be 7 days or less.	days 7	days 7
iii. Laboratory Service		
The error rate in laboratory examination should not exceed 0.1%	0.1%	0.1%
c. Transport		
The percentage of the total vehicular fleet (including condemned, non-repairable vehicles) which is off-the road at any time should not exceed 10% by the end of the project if support services and condemnation actions by the MSPAS Maintenance Department are properly carried out.	15%	10%
d. Planning		
i. Annual plan of action prepared /submitted.	1	1
ii. Annual plan for insecticide safety measures to be taken is prepared.	1	1
e. Evaluation		
Evaluations conducted with GOES/AID/PAHO participation.	1	1

The Malaria Control System sub-component of the Project consists of three elements: (1) Technical Assistance; (2) Training and; (3) Commodity Support.

1. Technical Assistance

In order to effectively control malaria, the GOES Malaria Control effort will require intensive surveillance and possible modifications in program strategy and activities over the life of the project to respond to a changing vector-human-insecticide environment.

The program plans to provide the following technical assistance:

a) Malaria Control Officer - 7 months (local hire contract)

This officer will be primarily responsible for monitoring the U.S. commodity input in the field to insure that the GOES is carrying out proper health safeguards in its spraying operation to protect the environment, mmalaria personnel and the public. (See Annex H-I-N.)

b) Mosquito Control Specialist - 2 weeks (US source)

The specialist will be responsible for training malaria personnel in the operation, calibration and maintenance of the US supplied ULV dusting equipment. (See Annex H-I-N).

2. Training

There will be limited training in this project component and all training provided will be in-country. The two week training in operation and maintenance of ULV, fogging and dusting equipment will be done through a short term consultant. It is expected approximately 25 people will under-go training on this equipment. Limited training services will also be provided to the Division of Malaria to plan a present training on health safeguards in the application of insecticides. Approximately 200 spray personnel will benefit by this training.

3. Commodity Support

Annex H-I-O provides a listing of the Commodities to be procured under this sub-component.

a) Insecticides

The anti-malaria activities in El Salvador, as in many other countries, are largely dependent on residual insecticide house-spraying to interrupt malaria transmission. In some rural areas in particular, no other suitable mechanism currently exists which can provide comprehensive protective coverage of the population. Widespread vector resistance has developed to DDT, the internationally recognized insecticide of first choice, as well as malathion.

The amount and type of insecticides required has been determined by the MSPAS on the basis of an analysis of extensive field data collected by means of geographical reconnissance (GR) of operation areas which is then related to epidemiological findings. This information includes the area of sprayable interior surfaces as well as the number of houses and occupants as well as malaria case rates. Under the present selective spraying approach, only areas in the first priority areas are targeted for spraying. Once the areas are identified and the most effective insecticide to be used in each operational spraying area is chosen, the amounts of insecticide required are computed in accordance with standard dosages and the extent of sprayable surface. Unfortunately, due to a lack of funding for external source commodities, the Malaria Program has had to limit its program to cover only up to 27% of the first priority area in 1982/1983. The Malaria Division estimates that in any given year, depending on ecological conditions and vector resistance, between 30 and 60 metric tons of residual insecticides will be needed for selective spraying.

In addition, there is a requirement for larviciding materials and the compound, Abate, is the one of choice. It is formulated in both 1% granules and Emulsifiable Concentrate (EC). The project plans to procure approximately 15,000 kgs. of granules and 1,500 gallons of Abate in the First year of the project.

b) Anti-Malaria Drugs

There is, at present, a severe shortage of anti-malaria drugs in the country and the project plans to procure approximately 5.0 million tablets to provide immediate relief over the next six months. At present, there is no indication of chloroquine resistant parasites in the country.

c) Equipment

To provide focal relief from malaria the project will be procuring 5-truck mounted, ULV machines and the pick-ups to carry them to remote areas. In addition, 5 small fogging units as well as 100 Hudson three gallon spray pumps along with auxiliary equipment and limited sprayer spare parts will be provided under the project.

To improve the surveillance and to shorten the time lags between taking a slide and treatment, 10 additional microscopes are being scheduled for purchase under loan during each year.

There is no construction, remodeling or up-grading of existing malaria offices facilities planned.

Long-Term Sustainability and Impact

If successfully executed, this project subcomponent will have assisted the GOES to move forward in its trasnsition from a program emphasizing total coverage house-spraying to a integrated program utilizing a selective mix of vector control measures and a better balance between active and passive case detection and treatment methods. Progressive reduction of malaria transmission by vector control and radical drug treatment for humans will reduce the geographical area to be actively controlled, thereby reducing the administrative and financial costs of the program. Successful execution will depend on a number of key variables, including vector resistance to the insecticides used, epidemiologically accurate direction of spray operations, cooperation and participation of the general public and general health service staff continued reduction in the incidence of P. falciparum malaria, and expanded use of feasible alternative control measures.

E. Project Inputs

a) Commodities

Upon signing of the Loan Agreement, emergency procurement will be initiated for 15 metric tons of Propoxur, 50%, wdp; and one-half of the 1st year's request for chloroquine diphosphate 150 mg. (500 bottles of 1,000 tabs). The remainder of the 1st year's request for commodities should be shipped as soon as possible thereafter for use in the 1984 operational season (15 metric tons of Propoxur, anti-malaria drugs, Abate larvicides, vehicles, spraying equipment and microscopes)

The GOES will submit to A.I.D. by October 1, 1983, a plan detailing the safety measures to be used in the application of the insecticides. The insecticides must arrive in El Salvador no later than December 1, 1983 to allow sufficient time for off-loading and inland transportation of the supplies and equipment to the Operational Areas (Polos). The timetable for the procurement is scheduled for two phases for the operational calendar years of 1984 and 1985.

Year I - July 1, 1983 - June 30, 1984

By August 1, 1983 commodities orders will be placed for the procurement of insecticides and supplies required for the 1984 spray season. This procurement will be organized and implemented through existing General Service Administration (GSA) contracts for anti-malaria drugs, insecticides and equipment as well as through the IFB process of SER/COM in AID/W. Negotiated procurement of several specific items such as insecticide is envisaged. All awards under the bidding process should be complete by September 15 and contracts finalized.

Insect cides and other supplies/equipment are to arrive by December 1, 1983 for the first year's plan except for those two items handled earlier on an emergency basis (propoxur and chloroquine disphosphate).

Year II - July 1, 1984 - June 30, 1985

The second year's procurement will be initiated in (June/July, 1984 and be limited to additional insecticides, anti-malaria drugs, microscopes, entomological field supplies and additional parts for sprayers. All items procured are to arrive in-country by November 1, 1984 for use in the 1985 operational year.

b) Technical Assistance

1) The recruitment of a short term Malaria Control Officer for monitoring and procurement functions will begin in the September/October period of 1983. This contract, local-hire consultant will be scheduled to report for duty with A.I.D. on December 15, 1983. This contractor will be available for A.I.D. monitoring until July 15, 1984 or for approximately 7 months service. See Annex H-I-N.

2) A short term consultant on the operation, maintenance, calibration and control procedures of the ULV, dusting and fogging equipment supplied by A.I.D. under the project is proposed for a period of two weeks in early 1984. (See scope of work attached Annex H-I-O).

3) It is planned to have a two week TDY each year in 1984 and 1985 for technical consultation on the monitoring of the project, supervision of the work activity of the contract AID monitor and consultants, procurement matters and future planning. This consultation assistance will be available through the Office of Health, Science and Technology and/or Office of Health, LAC Bureau. The funding and timing of this assistance will be the responsibility of USAID/El Salvador. This assistance is distinct from the technical assistance planned for the mid-term and final evaluation of the project.

4) The technical assistance to be provided under the project will be closely coordinated with PAHO. It is anticipated that additional technical assistance may be made available from PAHO and/or AID centrally funded resources during the life of the project to assist the MSPAS to plan a source reduction program especially in the coastal areas where malaria is endemic. During the life of the project PAHO will be providing one malaria advisor on a full time basis and a part-time epidemiologist to the MSPAS's Malaria Division.

SUMMARY BUDGET TABLE
MALARIA CONTROL SYSTEM, SUBCOMPONENT B

1. Technical Assistance	33,500		33,500
2. Commodities			
(A) Insecticides	486,500	486,500	973,000
(B) Anti-Malaria Drugs	127,000	127,000	254,000
(C) Vehicles	77,500	15,000	92,500
(D) Spray Equipment	57,100	16,600	73,700
(E) Scientific Equipment and Entomological Supplies	15,400	23,4000	38,800
Sub-Total	$763,500	$668,500	1,432,000
Freight & Insurance (15%)	114,525	100,275	214,800
Procurement Fee (7%)	53,445	46,795	100,240
Sub-Total	$931,470	$815,570	1,747,040
GRAND TOTAL	$964,970	$815,570	$1,780,540

NOTE:

1. On the order for the Abate, Propoxur, 50%, wdp and anti-malaria drugs the PIO/C should state "funds controlling" in order to protect the authorized amount on the order.

2. All malaria vehicles (5) are to be standardized with total project order for vehicles.

3. Approximately one-half of the anti-malaria drug order for chloroquine diphosphate (150 mg.) should be shipped by air.

4. Specifications (as available) are included in Annex H-I-O.

B. COMPONENT I, SUBCOMPONENT C: DRUG QUALITY CONTROL

1. Background and Present Situation

The drug supply system of El Salvador is regulated by an autonomous entity, the Public Health Superior Council (CSSP) whose President and Secretary are nominated by the Minister of Health.

The functions and responsibilities of the CSSP are, among others,

a- Licensing of the pharmacies, distributors and manufacturers of drugs.
b- Registering pharmaceutical products locally produced or imported.
c- Regulating the importation and legal comsumption of drugs of abuse.
d- Controlling the promotion of pharmaceutical products.
e- Enforcing the regulations.

The Control Boards of the Medical, Dental and Pharmacy Professions,Juntas de Vigilancia de las Profesiones (J.P.V.), primarily enforce the regulations concerning the purchasing of drugs and specifically through the Control Board of the Pharmacy Profession, the surveillance of pharmaceutical manufacturers.

Registration of any new drug in El Salvador by the CSSP is based on assessment of the quality, efficacy and safety of the product by the Control Boards.

The MSPAS is engaged in drug procurement and distribution activities. The MSPAS drug formulary, reformulated in 1978, included at that time some 650 pharmaceutical products. Since then it has been annually reviewed but a new list recently has been approved. The drug formulary of 1983 includes some 227 items. Some of these conform to specifications of products included in the WHO revised (1979) Model List of Essential Drugs.

Current Resources and Activities

The CSSP has available, at the present, one pharmacist and two administrative assistants for the registration of drugs, licensing of manufacturers and for controlling the legal flow of drugs subject to abuse. The administrative procedures for the licensing of manufacturers and the registration of drugs are conducted without due assessment of the quality, therapeutic efficacy and safety of the products and of the compliance of manufacturers' production to good manufacturing practices.

The participation of the Control Boards of the Medical and Dental Professions is limited to a simple bureaucratic examination of the registration documents.

The Control Board of the Pharmacy Profession has three Pharmacist Inspectors who inspect about 1350 pharmacies, 260 clinical laboratories, 30 pharmaceutical manufacturers and 160 establishments dedicated to different drug distribution activities. In relation to the inspection of manufacturer establishments they are following a very simple formulary describing the different sections of a factory. However, there are no regulations or guidelines related to good manufacturing procedures such as those recommended by the World Health Organization.

According to regulations, prior to registration of a drug, manufacturers submit samples of products for examination to the drug quality laboratory of the Control Board of the Pharmacy Profession. The laboratory has two pharmacists working part-time and it is not in condition to perform any valuable analytical work. As a result, analytical tests from Laboratories Especializados (LEA) of the University of Panama and other private organizations are generally used for certification of a product.

It should be stressed that according to the purpose of the constitutional scheme (Constitucion Politica de El Salvador, Titulo XI, Capitulo IV, article No. 208), the activities of the CSSP and the Control Boards are to regulate the professional activities of the medical, odontological and the pharmaceutical professions. Regulation of the pharmaceutical industry and other drug activities should be the responsibility of the MSPAS.

The CSSP and the Control Boards are autonomous bodies composed of elected representatives of the three professions. The representation of the Ministry of Health (MSPAS) is limited to the designation of the President and Secretary of the CSSP which are persons nominated from outside the involved professions.

The MSPAS has a laboratory for clinical analysis and preparation of some vaccines (rabies), with one section devoted to food analysis. This laboratory is not in appropriate condition at the present time to perform food and drug quality analysis. This laboratory requires extensive remodeling. Also there is almost a complete absence of quality control procedures for the preparation of pharmacopoeal preparations in the hospital pharmacies.

The pharmaceutical industry of El Salvador is operating a limited program of quality control concerning production activities. A recent review of the drug industry by the PP team's drug quality advisor showed that out of 20 manufacturers studied only 10 have some quality control program.

According to the industry's own estimation, six firms with quality control activities could be considered effective and only one is up to the level of international standards. There is not yet an effective quality assurance program or evidence of good manufacturing procedures within the local pharmaceutical industry.

A country of the size of El Salvador with about 5 million people and a estimated consumption of drugs at the wholesale level in 1980 of 201,098,000 colones equivalent to US$10 per capita, and with an estimated prescription output just for the ISSS' target population of about 400,000 persons for a total of 3,553,272 colones in 1981, should have a independent governmental facility to carry out analysis of drugs at the local level. It is only by having an analytical unit at the national level that an integrated program of drug regulation and supply could be organized for the health protection of the population. The national pharmaceutical industry could be up-graded to a level of quality that would enable it to increase its output to cover the health needs of the country and increase the export of drugs (36,640,000 colones in 1980).

MAJOR CONSTRAINTS OR PROBLEMS

a. Budget

There is, at present, no program for drug quality surveillance at the MSPAS, and there are no established positions for drug selection, evaluation, inspection or analysis.

The budgetary allocations of the CSSP for licensing, manufacturers, licencing, drug registration and surveillance of legal drugs susceptible to drug abuse are limited to the salaries paid to a pharmacist and two administrative assistants.

The Control Board of the Pharmacy Profession has three positions of inspectors and two at the laboratory. However, budgetary allocations for the remodeling of the premises and supply of equipment and reagents are virtually non-existent.

b. Technical and Administrative

The program of drug supply and control is dispersed within different government agencies with insufficient human and financial resources.

The legal and regulatory system is outdated, requiring an urgent up-dating in response to the needs and in accordance with modern philosophy for drug supply management. The Ministers of Health of the Americas have expressed on several occasions the need to up-grade the legal and regulatory system and PAHO has proposed a model for a national law for drug surveillance which can be adapted to the needs of El Salvador.

The administrative procedures for drug registration, manufacturers licensing, factory inspection and sample analysis for registration purposes are conducted at present under the auspices of the Control Boards of the Pharmacy and Medical Professions and the CSSP. Due to the nature of these bodies, comprised of elected members of the professions (including some who own or manage pharmaceutical firms and pharmacies), they are subject to conflict of interest. This practice should not continue, and the regulatory branch of the government should be incorporated as an activity of the MSPAS, and it should be granted the appropriate authority, flexibility and resources.

ASSISTANCE STRATEGY FOR DRUG QUALITY CONTROL

1. Purpose of assistance

The purpose of the drug quality sub-component is limited to the provision of resources to the MSPAS for the establishment of a small drug quality control laboratory which will permit the MSPAS to ensure that their local drug procurements bring high quality therapeutic products, of dependable efficacy into the health care system. It should be emphasized that the establishment of this small drug quality control laboratory is viewed as a first step towards a comprehensive, systematic drug quality assurance program for the country. As GOES resources and socio-political conditions permit, the MSPAS may, in the future, further develop the drug quality control program begun under this project. An ideal national drug quality program is briefly described below.

An effective program of drug quality control should be based on:

- Selection of adequate drugs and the specification of drug requirements.
- Procurement of efficacious and safe drugs.
- Distribution and inventory control and design of storage facilities to assure the quality of products.
- Rational use by means of good prescribing and dispensary practices as well as promoting compliance to drug regimens.

The supply of drugs of high quality should be achieved by:

- Procurement from reliable sources.
- Requirement of the vendor for analytical certificates or production protocols.
- Requirement of the manufacturer for compliance with good manufacturing practices.
- Laboratory analysis. This analytical testing could be performed by the laboratory of the national drug regulatory agency, or by an independent laboratory in another country or a local private laboratory.
- A sampling scheme should be set up to establish pre-purchase sampling, pre-acceptance sampling by purchaser, testing by exception at the request of any responsible officer (pharmacist, physician, etc.) in the distribution network, post-acceptance sampling according to a determined schedule, and testing for stability in the face of local climatic conditions.

The components of a comprehensive drug quality regulation program are the following:

- Legislation and regulations. It is essential that regulations be based on internationally recognized standards and be flexible to allow for continuous up-dating. The administrative and technical elements to assure compliance to regulations and enforcement should determine clear responsibilities of every organic unit, appropriate levels of authority and coordination within the organization, and the availability of sufficient financial and administrative resources. It is highly recommended that the regulatory program should be an integrated program within a single agency such as the Ministry of Health.

- Evaluation of new drugs. This requires the availability of human resources of high caliber and may be conducted with the participation and collaboration of ad-hoc external consultants.

- Registration of new drugs and the licensing of manufacturers to assure that the national regulatory program has data regarding the drug supply system. This must also include the surveillance of drug promotion.

- Inspection system based on appropriate manufacturing regulations.

- Sampling and analysis of drugs on the market. The size and capabilities of the laboratory should be based on adequate priorities to assure compliance with regulations.

- Enforcement activities in accordance with drug regulations, and the general legal system of El Salvador.

End of Project Status

1. During the last semester of the project, a small drug quality control laboratory will have been established, with trained personnel performing basic tests for identification, drug stability determinations, and bacterial sensitivity testing of antibiotics, and other simple tests.

2. An updated legal basis for a comprehensive national drug regulatory program will have been drafted.

3. A plan developed to expand the laboratory's capability for equipping and training personnel to perform tests for purity, content and performance chararacteristics of drug products.

4. Linkages established with external reference laboratories (LEA, ICAITI) or specialized testing of drugs and to evaluate the performance of the MSPAS Drug Quality Laboratory.

The project will assist the MSPAS in taking the first step in establishing a drug regulatory system in El Salvador. The drug quality laboratory would be just an element of a national system, but would also serve as an analytical unit for government drug procurement activities.

The build-up of a drug regulatory system implies legal and regulatory changes. Such changes would be threefold: 1) registration activities should be moved from the CSSP to the MSPAS; 2) inspection branch and the drug quality laboratory unit of the Control Board of Pharmacy Profession transferred to the MSPAS; 3) clinical evaluation function of the Control Board of the Medical Profession also transferred to the MSPAS.

The proposed drug quality program will be closely coordinated with the procurement unit of the MSPAS and will have the following elements:

- Requirement of the vendor to provide appropriate analytical certificates and/or production protocols.

- Physical inspection of each shipment; this will serve both to assure some degree of quality control as well as sample analysis.

- The small quality control laboratory will gradually establish the following types of analyses: 1) pre-purchasing sampling requiring every supplier to submit samples with their offers; 2) pre-acceptance sampling requiring the presentation of samples prior to the acceptance of the shipment by the central government warehouse; 3) testing by exception when a responsible officer raises a question about drug quality; 4) post acceptance sampling doing testing on a systematic basis with a pre-determined sampling schedule, and recalling faulty batches from the distribution chain; 5) stability testing to ascertain the quality of the drugs in local warehouses or storerooms which may be exposed to extreme climatic conditions (humidity and temperature).

Where local procurements of drugs are involved, the costs for site inspections and laboratory analysis could be billed to the potential supplier, be it a local company or offshore.

A significant part of the government procurement are imported drugs. In 1982, approximately 40% of MSPAS resources expended for central procurement of drugs had offshore origin. Purchasing of imported vaccines and other drugs could be based on assurance of compliance with good manufacturing practices, and the products certified by requiring the vendors to submit production protocols and the WHO Certificate of Pharmaceutical Products, and/or WHO Batch Certificates.

A second objective of a drug quality program which is closely tied to the official government procurement system is to establish guidelines for shipping, transportation, warehouses, storage, and dispensing conditions to assure the distribution of efficacious and safe drugs of high quality. A drug quality laboratory could be an important element for the achievement of this objective.

Project Inputs

a. Technical Assistance

i. Drug Quality Program Management (12 PM)

Medical doctor, pharmacist, chemist or similar university education with relevant experience (up to 10 years) in the area of drug program management or inspectional and drug evaluation services, drug laboratory management, etc. Fluent in Spanish or English, and with sufficient communication capabilities in the other language. The consultant will have to identify precisely all the legal, regulatory and administrative constraints of the present drug regulatory and supply system, and to propose corrective measures, new regulations and administrative procedures in close cooperation with the Government's Program Director. He/she will also outline in detail the training program for the subcomponent and participate in the selection of the training sites. He/she will make detailed recommendations for follow-up of the Program at the end of the project with a view to institutionalize the activities within the government functions. He/she will take up the position as soon as possible at the beginning of the first year of the Project for a 12 month period and will participate in the final evaluation of the project.

ii. Laboratory Management (6 PM)

Pharmacist or chemist with post-graduate education in drug analysis or instrumental or microbiological testing with relevant experience (up to 5 years) in managing the activities of a drug control laboratory or similar laboratory (food, environmental analysis, chemical or microbiological analysis of commodities in general, etc.) Fluent in Spanish or English. He will participate in the planning and design of the premises selected for the establishment of the laboratory during the second month of the first year of the Project (1 PM), in the selection of the necessary equipment, glassware and reagents necessary for the activities of the laboratory for at least two years of operation, and in the laboratory organization (5 PM, beginning in the 8th month of the first year).

iii. Other Technical Assistance

Other technical assistance may be required such as a pharmacist with experience in a drug laboratory regulatory agency to assist in the organization of the drug control activities of the laboratory, on the job training of personnel in analytical methodology, and in the establishment of a program for the follow-up activities of the laboratory at the end of the Project. Such technical assistance, as needed, may be available from centrally-funded AID resources, the U.S.Food and Drug Administration (FDA) and/or PAHO.

c. Remodeling and Upgrading

The subcomponent budget provides $175,000 for the remodeling and upgrading of the existing central laboratory so as to accommodate the small drug quality control laboratory contemplated by the project. The design of the laboratory should allow for further expansion, through the addition of more sophisticated drug quality testing activities after this project has been completed. It is expected that the laboratory physical facilities will be ready during the second year of the Project.

d. Equipment, Supplies and Materials

The drug quality control laboratory will be equipped by the end of the project with apparatus, chemicals, reagents, and laboratory elements sufficient to carry out basic tests for the analysis of drugs (See Equipment Annex H-I-B. Funds totalling $27,000 have been reserved for chemicals, and reagents. The basic equipment is estimated to cost $153,000.

e. Deployed Personnel

The professional staff now working at the inspection service of the Control Board of the Pharmacy Profession, the CSSP, and any MSPAS personnel engaged in drug quality control functions, should be transferred to the new government drug quality control unit as soon as the legal, and administrative modifications regarding the drug control program take effect.

f. Recurrent Costs

The number of registered drugs in the market is about 7,000. New drugs should be analyzed within the first year of marketing, and at a later stage not later than two years. Old drugs should be analyzed at least every five years. That gives an analytical load of 2,500 - 3,000 samples a year with an average of 4 determinations per sample.

There has been no assessment made in El Salvador on the cost of food and drug analysis. Available calculations of the cost of analysis are based on data presented by the Estudio de Prefactibilidad made in 1982 by the consulting firm "Investigaciones de Poblacion y Mercadeo" for the MSPAS which proposed the establishment of a food and drug quality laboratory. The average cost was

estimated to be colones 120 per sample. Given this bench mark, the cost of food and drug analysis combined would be on the order of 360,000 colones annually.

Operating expenses include salaries, renewal of equipment, reagents and chemicals, maintenance, power supply, insurance, depreciation, etc.

It is envisioned that initially, staff of the central MSPAS laboratory will be trained to perform, on a interim basis, the drug quality testing activities. Should the MSPAS decide in the future to implement a full Drug Quality Control Program, the following positions and functions should be considered:

a. Program Director. To manage the elements of the integrated drug supply and regulatory program including reviewing and up-dating regulations, establishing guidelines for evaluation and selection of drugs, inspection plan of manufacturers and sampling schedules. The Director will overview the activities of the analytical laboratory and set up programs for the analytical certification of pharmaceutical products in external independent laboratories. Qualifications: Medical doctor, pharmacologist, pharmacist or chemist with regulatory experience or university teaching and administrative experience.

b. Registration and Evaluation Branch Chief . To establish and organize an effective program of drug evaluation establishing guidelines for the reviewing of pre-clinical and clinical studies. The Chief will also be engaged in the future in the organization of a program for drug surveillance and for the promotion of rational utilization of drugs, including drug promotion. Qualifications: Medical doctor, pharmacologist or clinical pharmacist with administrative experience in government, industry or teaching .

c. Evaluation Officers (2). To review scientific documentation requested of pharmaceutical manufacturers for the registration of new products; to evaluate the drugs already in the market for relevance to needs of the public health program; to review drug promotion; to study data on adverse effects, propose programs of information to doctors and to the public in general, and to participate in the selection of drugs for the official procurement systems such as those of MSPAS and ISSS. Qualifications: medical doctor, pharmacologist or clinical pharmacist with administrative experience in government, industry or teaching .

d. Laboratory Director. To develop a program for the gradual establishment of the drug quality control laboratory including remodeling and design of physical facilities, equipment selection, technical personnel selection, analytical procedures selection, safety program, sampling schedules, etc. To establish and organize an effective inspection plan and to propose the adoption of good manufacturing regulations and guidelines for inspection and industry quality assurance programs. Qualifications: Pharmacist or chemist with substantial experience in analytical chemistry or microbiology either in government, industry or university.

e. Inspectors (3). To be engaged exclusively in the inspection of drug producers, wholesalers and central and regional government drug houses, and in the sampling of pharmaceutical products for analysis purposes. Qualifications: Pharmacists with experience in pharmaceutical production positions or regulatory inspection work for government agencies.

f. Analysts. The number of pharmacists, chemists, microbiologists, biologists and technical assistants necessary to perform the laboratory analytical tasks will be determined by plans developed in the 1st year of the Project. It is suggested that for the establishment of a government drug control agency and the selection of personnel for the new positions, the MSPAS follow the guidelines recommended by PAHO in document "Pautas para el Establecimiento de un Programa Nacional de Control de Medicamentos" and other relevant documents. Qualifications: Pharmacists or chemists with experience in analytical chemistry or microbiology.

COMPONENT II

PUBLIC HEALTH INFRASTRUCTURE MAINTENANCE AND REPAIR
(A.I.D. $2,479,000 GOES $1,163,000)

Current Situation

In order to be able to support and maintain the large influx of medical equipment and vehicles expected under this project, A.I.D. has closely examined the MSPAS's maintenance and repair capability and has determined that their capability needs to be significantly upgraded. For many years, due to budgetary shortages, this area has received little funding. Further, because of the high priority the MSPAS must place on sustaining health care services in the face of increasing civil strife and economic decline, planning and management of maintenance and repair have received little attention from MSPAS decision makers. Although this component will focus primarily on the maintenance/repair capability related to the project (i.e. biomedical, electromechanical, and vehicles) it will also attempt to establish an improved management capability in the two Departments of Maintenance for all infrastructure and equipment.

A. Vehicle Maintenance

The MSPAS's vehicle fleet provides transport services for all of its various programs such as environmental sanitation, infant nutrition, health education, epidemiology, and support for the Administrative Directorate, Engineering, Planning and other offices. The fleet is responsible for the movement of drugs, medical supplies, and medical personnel. This fleet is managed by the Transport Department (Departamento de Mantenimiento Automotriz), a separate division under the Directorate of General Administrative Services. The Transport Department's fleet consists of 12 different vehicle types and approximately 172 vehicles. In addition, there are over 16 different models of vehicles in the hospital fleet. Prior to February 1981, the TD was a section of the General Maintenance Department. At that time, the Department was upgraded and separated from the General Maintenance Department. At present, the Department is divided into five divisions:

- Administration: (5 employees), overall supervision and responsible for compiling all the data related to vehicle operating cost, vehicle inventory, and control of personnel.

- Security: (14 employees) responsible for the security of vehicles, equipment, and property in the central Matazano compound in San Salvador.
- General Warehouse: (16 employees) responsible for maintaining up-to-date cardex inventories of all vehicle spare parts and supplies of the TD.

- Purchasing: (1 employee) responsible for procurement of spare parts and equipment for the vehicles. These are purchased from a petty cash fund managed by the TD, is limited to 2,000 colones. Replenishment of the petty cash fund usually takes 30 to 60 days.

- Repair Shop : (47 employees) responsible for preventive maintenance, body repair, painting , electrical , battery , receiving and testing , motorcycle repair , and other service sections.

An organization chart of the Department is included in Annex H-II-A.

This Department has had serious problems recently resulting in an inadequate transportation service for the Ministry. There is currently a wage differential between the TD and the General Maintenance Department, causing many of the key employees to transfer out of the TD to another higher paying unit. See Annex H-II-B (Departamento de Mantenimiento and Departamento de Mantenimiento Automotriz). Although there is ample staff to provide the maintenance and repair of the vehicles assigned to the TD, the staff lack adequate training. The TD also lacks professional personnel needed to supervise its mechanics.

Purchases apart from petty cash must be made by submitting a request to the Director of Administrative Services for approval. Purchases are approved according to status or need for the vehicle and again, the availability of funds. At the present time, a normal request for purchase takes 3 months or more for approval.

Funding provided by the Ministry is inadequate to maintain the vehicles properly. The funds made available during 1982 for repairs, spare parts, gas, and tires was $71,676, or roughly $416.40 per vehicle (car, ambulance, and truck) per year. As a result of the lack of funds, of the 149 vehicles assigned to the Metropolitan Region Central Motor Pool 38 have been deadlined for an estimated average of 6 months per year. The same problem exists in the regions, the hospitals, and the malaria and sanitation programs.

The TD has adequate warehouse space but has limited bin space, because the warehouse is full of unneeded items which do not match the vehicles currently in operation. Aggravating the space problem is the fact that the MSPAS is not getting rid of obsolete equipment and excess vehicles, many of which have been identified for years to be discarded.

Because of the wide variety of makes and models in the MSPAS vehicular fleet, it has been impractical and uneconomical to attempt to provide spare parts for all the different types of vehicles. Therefore maintenance is extremely difficult. A program of gradual standardization of vehicles, to perhaps two or three makes would greatly ease this problem. Although the MSPAS has legal authority to standardize their fleet, they have not yet taken any action to do so.

End of Project Status

The purpose of AID's proposed support to the Transport Department is two-fold: 1) to rapidly improve the vehicular fleet to a level sufficient to support the activities of the MSPAS; and 2) with Technical Assistance, develop a systematic maintenance and repair program for MSPAS vehicles. A.I.D loan funds will finance 12 jeeps, 14 pick-up trucks, 10 large trucks, one 9 passenger van, and one 45-passenger bus. The vehicles will be distributed as indicated to the areas listed in Annex H-II-C. Preliminary specifications are also included in Annex H-II-C. Vehicle procurements under this component will contribute to fleet standardization.

Vehicles assigned to the Metropolitan Area Motor Pool will be equipped with radios which will be in contact with the central Motor Pool Operator, who will control the dispatching of the vehicles. Procurement of radios is budgeted for $40,000 and will be further specified by the pre-project advance TA team. This system is expected improve the transport support of the MSPAS and should provide savings in gasoline, tires, repairs, and assure the better utilization of vehicles and drivers. A.I.D. will provide a total of $763,000 for spare parts, for new and old vehicles ($445,000), tools and equipment for maintenance of vehicles ($152,000) and tires ($166,000). See Annex H-II-D for a summary of tools, tires, spare parts, and radios to be purchased by A.I.D. under this project. Further development of specifications will be done by the vehicles maintenance advisor on the advance team.

The budget provides for $59,000 in local currency for priority improvements in transport maintenance workshops. Such improvements are expected to include construction of a garage compound at San

Miguel, improvement of garage facilities at Santa Ana and Santa Tecla, limited construction of shade areas at Matasano and the installation of 2 tanks (6000 gallons each) plus 2 pumps to dispense diesel and gasoline. All proposed construction/ refurbishing will be further analyzed by the vehicle maintenance advisor on the advance team.

Technical assistance totalling 15 PM will be provided for the development of a mileage-based preventive maintenance program, and permanent records with follow-up forms in Spanish based on tested maintenance methods. The Transport Equipment Maintenance Advisor will provide guidance and on-the job training in the operation of motor pools, parts inventories and vehicle maintenance. He/she will arrive in-country at the same time as vehicle and spare parts arrival. (See Annex H-II-E for Scope of Work)

A listing of areas for policy discussion in the area of vehicular maintenance and repair is contained in Annex H-II-F which will be considered for inclusion in the Scope of Work for the Maintenance Advisor.

B. Biomedical/Electromechanical Equipment Maintenance

As with vehicle maintenance, the area of general equipment maintenance has been sadly neglected in recent years. Preventive maintenance is non-existant, due to funding shortages, few spare parts are kept in inventory, and the only maintenance that is performed is by exception, i.e. repair of equipment and ordering of replacement parts only when they malfunction. Of the 102 employees assigned to the Maintenance Department (DM), only 12 are classified as medical maintenance technicians. See organizational chart of this department Annex H-II-B. Six of these individuals are qualified as medical maintenance instructors, but they have been unable to implement any training of other DM staff, this is due to workload demands, requiring that these skilled individuals devote full time to repair activities,rather than to upgrading the skills of other DM staff. Complicating the situation, operation and maintenance manuals for the equipment that the Ministry has purchased are generally not available in the MSPAS; and if these documents are available, they are in languages other than Spanish.

In assessments of hospitals, health centers, and regional centers, the medical equipment maintenance consultant found that much bio-medical and electomechanical equipment (lights, boilers, pumps) was out of service because of a lack of spare parts due largely to lack of funds. To illustrate this point, a General Electric X-ray machine located at the San Miguel hospital has been deadlined for 4 years, and 3 centrifuges at the same hospital have

not been functioning for 3 years because they lack the needed replacement parts. Other vital basic medical equipment such as sterilizers and microscopes have been unusable for as long as 8 months due to lack of such simple items as spare bulbs for the microscope and sealing materials for the sterilizer doors. Medical equipment comes from many different countries. Standardization of spare parts would reduce the need to retain large spare parts inventories and reduce down time significantly.

As with vehicle warehouses, the DM has adequate space at the regional centers and hospitals to house the required equipment and spare parts. However, much space is now taken up by unrepairable and unserviceable tools and equipment. It is expected that with the assistance of the long term and short term consultants projected under this project, that steps will be taken to remedy this situation.

End of Project Status

The project will attempt to rapidly improve the Maintenance Department's capacity to perform maintenance and repair of biomedical, electrical, and electromechanical equipment, and to establish a preventive maintenance program. To achieve this objective, AID will assist in financing the following activities: (1) a basic spare parts inventory to be installed in hospitals and health centers ($440,000) and (2) basic maintenance and repair equipment to be installed in health facility maintenance units ($120,000).

AID will finance the importation of spare parts, tools, biomedical repair and diagnostic equipment. The precise specifications for spare parts, tools, and repair equipment will be determined by the pre-project advisor who is expected to arrive in-country in July. Illustrative lists are included in Annex H-II-F. A list of basic medical equipment for health facilities to be provided under this project is shown in Annex H-I-B.

AID will also provide a biomedical equipment maintenance advisor for a period of 12 months. This individual will analyze the MSPAS' maintenance program and assist in the establishment of small medical maintenance units in hospitals and health centers. The advisor will also assess the need for spare parts, and develop lists of spare parts inventories needed for hospitals, health centers and regional centers. A major part of the task will also be to provide on-the-job training for DM staff, both administrative and technical staff, in the management of a Maintenance Department. Short term financed technical assistance is also projected to assist the MSPAS in taking a physical inventory of the priority equipment requirements at each hospital and health center and develop precise specifications for purchase of this equipment.

The TA will identify unrepairable equipment and that which can be salvaged. Finally, the consultants will identify suitable locations for each piece of equipment, assuring adequate space and ancillary equipment in operating order (ie. lights, water, etc.) before the equipment arrives in country. See Annex H-II-D for Scopes of Work.

Training in repair and maintenance of biomedical equipment will be provided by PAHO, under their technical assistance contract with the IDB. This training is expected to begin in early January 1984 and the project's long term technical advisor will coordinate closely with PAHO to assure that the planned training is practically oriented and encompasses equipment on-hand as well as that procured under the project.

BUDGET
COMPONENT II
PUBLIC HEALTH INFRASTRUCTURE MAINTENANCE
($000)

	AID (LOAN) FX	AID (LOAN) LC	AID (GRANT) FX	AID TOTAL
1. Commodities*				
a) Vehicles				
- 12 jeeps (CJ-7, Diesel) at $10,000	120			120
- 12 Pick ups (J-20 4x4 3/4 ton) at $ 13,000	156			156
- 2 pick-ups (J-10, 2x4) at $11,000	22			22
- 2 8 ton trucks (4x4) at $30,000	60			60
- 2 4x4 dump trucks at $30,000	60			60
- 2 8 ton trucks at $26,000	52			52
- 4 4 ton trucks at $25,000	100			100
- 1 9 passenger van at $16,000	16			16
- 1 45 passenger bus at $25,000	25			25
SUBTOTAL	611			611
b) Vehicle Maintenance				
1) Spare parts for new vehicles	171			171
2) Spare parts for old vehicles	274			274
3) Tires	166			166
4) Tools	152			152

* All FX commodity costs include 15% shipping and insurance, plus 7% procurement fee.

c) Radios	39			39
d) Biomedical Maintenance and Repair Equipment	120			120
e) Biomedical Equipment Spare Parts	440			440
f) Refurbishing Biomedical Equipment/Electro-mechanical Maintenance Shops	152			152
SUBTOTAL	1514			1514
2. Refurbishing Transport Workshops		59		
3. Technical Assistance				
a) Transport Maintenance (15 mos. Total, 12 mos. at $10,000 and 3 mos. at $11,000)			153	153
b) Biomedical Maintenance (12 mos. at $10,000)			120	120
c) Biomedical Maintenance (2 mos. at $11,000)			22	22
COMPONENT TOTAL	2125	59	295	2,479

COMPONENT III

MANAGEMENT INFORMATION SYSTEM (A.I.D. $1,395,000 GOES $402,000)

Background:

To meet the information and data processing needs of the MSPAS, a Department of Management Information Systems and Data Processing (DMIS) was created in 1976 within the Directorate for Administration and General Services of the MSPAS. Its creation came in response to the growing scope and complexity of the MSPAS activities and rapidly increasing health services coverage of the population of El Salvador. The functions and responsibilities of the DMIS were defined as follows:

a - Planning the development of a comprehensive integrated management information systems (MIS) for the MSPAS.

b - Developing the subsystems for the MSPAS - MIS.

c - Coordinating data flow and data quality control for each system's user.

d - Producing feasibility studies related to the MSPAS information needs.

By 1979, the DMIS had achieved some success in developing subsystems for payroll, control of medical supplies in the central warehouse, outpatient-inpatient statistics, and financial control of the MSPAS's investment programs.

These subsystems utilized hardware/software which was obtained through an interagency agreement with the Salvadoran Institute of Social Security (ISSS). The system obtained by the ISSS consisted of an IBM 370-125 with DOS/VS operating system, with all applications programmed in COBOL.

In 1979, the Pan American Health Organization (PAHO) tested the utility of data processing by the MSPAS in the Benjamin Bloom Hospital. As a result of this test, they donated an Ohio Scientific C3-A microcomputer to the Hospital and provided technical assistance for the development of several subsystems. The success of the test resulted in the donation of two similar microcomputers to the MSPAS in April 1979. This equipment was reinforced by a larger Ohio Scientific C3-B acquired by the MSPAS in August of 1979. At that point the MSPAS attempted to standardize and the equipment previously operating, purchased from the ISSS, was converted to the Ohio Scientific equipment using the computer language EXTENDED-BASIC.

As a result of these additions, the data processing equipment available to the MSPAS at the present time is as follows:

a. Unit No. 1
Ohio Scientific Model C3-B13 CPU with 6502,6800, and Z-80 processors. The CPU has a memory of 148 kbytes and operating systems OS-65U and OS-65D. It has a random access memory (RAM) of 600 kbytes in diskettes and 74 megabytes in disk. Basic is the only compiler available. The CPU is accessed through three Televideo TVI-912B CRTs. An Okidata AC-5A 160 LPM printer is used for output

b. Unit No. 2
Ohio Scientific Model C3-A-S1 with 6502A, 6880 and Z-80 processors. Each CPU has a memory of 48 kbytes and operating system OS-65U. They have 600 kbytes RAM in diskette. Basic is the only compiler. Each CPU is accesed through a Hazeltine 1500 CRT. Okidatas 22, 125 LPM printers are used for output.

One of these units is in the Benjamin Bloom Hospital and is being used for personnel, payroll, meal control, inpatient statistics, and inventory control. The other units are located in the central MSPAS offices in San Salvador, and do not have the ability to input/output data from the regions. The computers have fully operational subsystems for handling payroll, financial control for the MSPAS's investment program, some personnel data, outpatient-inpatient statistics, and nutritional statistics for children under 5 years of age.

While the current system represents a significant improvement since the establishment of the DMIS, it falls far short of meeting the Ministry's information gathering/data processing needs. Existing Ohio Scientific equipment is currently operating at maximum capacity, with no margin for expansion with the units the MSPAS now has. Additional equipment cannot be added to the system, since Ohio Scientific is not compatible with equipment provided by local vendors. The subsystems that the Ministry now has were designed as independent units, making the cross referencing of data extremely difficult. Although the MSPAS recognizes that the maintenance, management, procurement, and supply management operations require analysis and development of computer subsystems to be able to put on the computer, there are no trained information systems analysts able to assess the information requirements of the administrative division and other operational units. In addition, the Ministry does not have a computer systems analyst to design the needed computer programs. Finally, all current MSPAS computers are programmed in EXTENDED-BASIC which offers very little flexibility for producing true management reports, because it is difficult to access separate units or divisions of data.

One of the principal failings of this system is that fact that all data processing is done by the centralized Ministry and does not respond to the needs of the decentralized health system, including the regional centers, health centers, units, and posts. In order to expand this capability, additional DMIS personnel will be needed. The DMIS personnel now consists of a head of department, a secretary, three programmers, six data entry operators, and three data entry quality control assistants.

Apart from the collection and processing of information useful for day-to-day decision making, there is a need to link the MSPAS planning process to medium and long-term resource (human, material and financial) needs, projected availabilities of these resources and allocation of available resources in a rational manner. At the present time, the MSPAS has little or no capability in the Planning Division to effect the linkages described above. An opportunity to develop a data-based capacity for medium and long-term planning for resource allocation will be possible under this Component. Finally, and very much related to the resource allocation problem described above, is the issue of user fees. The GOES fiscal crisis in general, and that of the MSPAS in particular, makes it essential that the possibility be explored that clients of the health system may be able to share the costs of the services they receive.

End of Project Status:

1) Computer hardware procured and installed in the MSPAS headquarters and in the five regional offices.

2) Simple, user friendly computer subsystems designed, installed and operational for daily management of Procurement, Logistics and Maintenance operations.

3) DMIS personnel, both central and at regional levels, trained to use the subsystems.

4) Groundwork laid to expand the MIS to include personnel, accounting, finance, project management, health statistics, facilities management and pay-roll.

5) Technical assistance provided to make efficient use of data generated by the MIS for medium and long-term planning.

6) A study completed which evaluates and describes the advantages and disadvantages of the cost-sharing options open to the MSPAS.

The purpose of this component is, therefore, to provide the MSPAS with the necessary resources to develop a comprehensive data base to support MSPAS activities in procurement, supplies and maintenance management, and to implement a distributed data processing system which responds to the Ministry's decentralized administrative system. This component will assist the MSPAS-MIS

to provide meaningful information, in the proper format, at the required level within the organization, to support the decision making process and daily management of supply and maintenance operations. In the long run, the MIS should be capable of assisting MSPAS management in the following areas: personnel, accounting, finance, project management, health statistics, facilities management, payroll, and data-based planning.

While this is the ultimate goal of the MIS system, this project will focus on the short term objective of the development of simple computer programs to support the three other major components of the project. These subsystems will include:

a) Maintenance management: A simple subsystem to support these activities will include the following elements:(1) equipment identification- make, model, serial number, manufacturer, and year; (2)the geographical location of all vehicles and equipment and the responsible maintenance unit; (3) a description of the preventative maintenance cycle-what, when, required parts, required specialized tools, availability, required service manuals; (4) a listing of qualified personnel-location, experience, training requirements; and (5) a spare parts inventory, stock number, description, location, quantity, minimum stock, recorder point, supplier, unit cost, etc.

b) Procurement management: A simple subsystem to support this activity will include: (1) identification of each item of medical equipment, supplies, and drugs purchased by the Ministry: code, manufacturer's model number, stock number; ordering information, and (2) supplier, address, unit, cost, shipping costs, minimum quantities, etc.

c) Supply management: A simple subsystem to support this activity will include: (1) identification of items in stock: code, stock number; (2) balance by location, total balances, usage rates, minimum stock, reorder points; and (3) demand by location, assignment by location, routing, distribution schedules, etc.

To support the execution of this comprehensive new system, this Project will provide resources for the acquisition of new computer hardware/software including computer terminals in each of the five regional centers, training and technical assistance.

The hardware and software is expected to be configured in a distributed data processing mode (DDP), which would minimize disruption due to failures in the communications system of the country. The following hardware is expected to be purchased under the project: (See Annex H-III-A, for details)

(a) Central Unit: A medium size general application CPU with approximately 512 kbytes of memory and 30 megabytes of RAM. The unit would be locally accessed by approximately 16 CRTS, some in the data processing unit, and others inend user locations. The unit will have at least one speed printer. It will be fully compatible with the regional office units and equipped for teleprocessing. This unit would be located in the MSPAS headquarters

(b) Regional Units: Five small size general application CPUs (one per region) with approximately 128 kbytes of memory and 75-90 megabytes of RAM. The units would be locally accessed by approximately four CRTs. Each unit will have at least one line printer. These units will be fully compatible with the central unit, both in operating system and teleprocessing. They will have means of physical communications, i.e. by means of magnetic media-cassette or diskette.

Under the DDP mode the data would be collected, processed, and stored where most convenient. The processed data would be transmitted to the central unit as determined or be made available upon demand. The regional units would have access to the central software on a teleprocessing mode. Computer hardware purchased under this project would be capable of expansion to accomodate the future management subsystems required by the MSPAS. Since the Ohio Scientific equipment is not compatible with the other hardware, it should be dedicated to other purposes. These units might be assigned to major hospitals to be used for hospital management as Benjamin Bloom has done, or they might be devoted exclusively to word-processing functions. The MSPAS will perform a cost benefit analysis to determine their most beneficial potential use.

Long-term technical assistance will be provided for a period of 18 months for an assessment of information needs, general system design, hardware/software selection, installation, and system implementation. Short-term assistance for design of specific subsystems will be required for approximately 5 months, divided into periods of one computer systems analyst for roughly one month each. In addition, technical assistance of approximately 6 months will be provided to improve MSPAS skills in the use of the MIS for planning purposes. This TA will also assist in the design of the cost-sharing (user fee) study described earlier. (See Annex H-III-B for Scopes of Work)

Extensive training in the use of the new technology is necessary for the success of the project. The training program for the MIS component will include formal courses in systems analysis, data base management systems (DBMS), data base design, telecommunications, hardware operation, programming and applications software development, etc. Some of the training would be provided by the hardware vendor as part of the initial procurement package. This training is generally minimal, making it necessary to provide additional training.

Although the precise training needs and schedule will be determined by the long-term advisor, the training program is expected to follow the following outline:

Table I-Outline of MIS Training

Type	Number of Participants	Duration	By Whom	Purpose
Systems Analysis	2	3 months	Local or foreign trainer vendor	Produce systems capability in MSPAS
DBMS	2	6 weeks	Local or foreign trainer	Produce DBMS capability in MSPAS
Data Base Design	2	1 month	Vendor	Develop data base design capability
Telecommunications	1	1 month	Vendor	Augment standard vendor training
Hardware Operation	2	2 weeks	Vendor	Augment standard vendor training
Programming software	2	1 month	Vendor	Accelerate software development
Data based-planning	3	In-service	Planning Advisor	Use of MIS for planning

The implementation of an MIS in the MSPAS is expected to have a significant impact in the management of the organization. A management information system will assist in the establishment of well defined, standardized procedures, and its development will force the MSPAS to go through an internal analysis which is expected to have substantial impact on the internal efficiency of the organization, and on the health care delivery system. It is expected that a properly designed MIS will indicate discrepancies, flag potential problems, and signal significant factors in the MSPAS operation, and ultimately result in a much more streamlined MSPAS administration.

BUDGET

Management Information System (MIS)

($000)

	AID FX	AID LC	GOES	TOTAL
A. Commodities				
1. Hardware/software	500			638
2. Teleprocessing devices	100			100
3. Support equipment-voltage regulators, batteries, air conditioners.	15			15
4. Freight, Insurance and Procurement Fee 22 %	135			135
5. Local Maintenance contract		60		60
B. Technical Assistance				
1. Assessment of information needs, general system design hardware/software selection, installation, system implementation (18 mos.)	180			444
2. Short-term health information systems planner. (6 mos.)	66			66
3. Short-term for specific subsystems development-finance, personnel, inventory, etc.	55			55
C. GOES Personnel (existing and new)			402	
D. Cost Sharing Study	90			90
E. Training				
1. Local				
a. Administrative personnel/ health personnel		100		100
2. US/Third country				
a. Information systems 15 person/months at $3,400 ea.	51			51
F. Supplies				
1. Paper, ribbons, other		10		10
2. Publications, forms		15		15
G. Site preparation for computer hardware installation		18		18
TOTAL	1,192	203	402	1,797

COMPONENT IV

EMERGENCY MEDICAL SERVICES:
(A.I.D. $3,023,200, GOES $534,000)

A. Background

This component is designed to be responsive to the high rates of civilian trauma in El Salvador. Trauma is consuming a significant proportion of already scarce MSPAS resources and often results in death or significant disability.

Trauma has always been a significant category of morbidity in El Salvador. Traffic, occupational and domestic accidents occur with great frecuency. Over the past four years, however, trauma related to the civil conflict has become superimposed upon an already existing and serious problem.

The severity of the problem is difficult to quantify, except in very general terms. For instance, during the period 1975-80, trauma discharges (all causes) increased by about 55%, with 6369 discharges in 1975 and 9803 in 1980. The fatality rate (deaths to case ratio) doubled during the same period from 3% in 1975 to 6% in 1980. "Homicide and intentionally inflicted lesions by other persons", as a cause of death, occupied the number one position in 1980. (Data from Faich/Coppedge Emergency Medical Assessment report, Annex H-IV-A). It should be noted that the above data is based upon officially registered cases and deaths, by cause, for the period 1975-1980. Cases of trauma and deaths which never reach the health system cannot be estimated. Although trauma data for the period 1981-1982 have been collected by the Statistics Department, this information has not been tabulated or analyzed. Finally, the nature and magnitude of the problem of disability due to conflict-related trauma has not been documented. Anecdotal reports suggest that the problem is significant.

The population at greatest risk are those residing in the areas of conflict, which presently include:

Department	Population (1983 est.)
Chalatenango	230,647
Morazan	205,508
San Miguel	461,246
San Vicente	212,840
Usulutan	422,881
La Union	339,276
TOTAL	1,872,338

Of an estimated population of 5.2 million inhabitants of El Salvador, the at risk population represents 36% of the total.

B. Sub-Component A: Human Resource Development

Among the principal findings of a team which assessed the MSPAS' capacity to deal with war-related trauma was a serious lack of health professionals trained in the special skills required for on-site first aid, intermediate wound stabilization and definitive surgical interventions. Specifically, the Medical Assessment Team recommended:

1. Recruitment, selection and training of two mobile surgical teams which could be deployed rapidly to outlying hospitals and centers requiring additional surgical services due to casualties.

2. Training of surgeons, general medical officers, and nurses in techniques of intermediate wound stabilization, prior to evacuation of casualties for definitive surgical interventins.

3. Provide simplified first aid training at all levels in the health system, but particularly at peripheral facilities such as Health Units and Health Posts staffed by auxiliary nurses.

4. Provide training to ambulance drivers in elementary first aid and patient handling techniques.

This sub-component addresses the four levels of trauma management training briefly described above. Technical Assistance will be provided to develop, implement and evaluate the training. Funds will also be provided to finance educational materials, audio-visual equipment, participant perdiem, and visiting faculty honoraria.

End of Project Status

1. Three mobile surgical teams will have been trained, equipped and ready for rapid deployment to MSPAS facilities experiencing mass casualties.

2. A total of 120 surgeons, general medical officers and residents, 500 graduate and 200 auxiliary nurses and 120 anesthetists (technicians) trained in intermediate level wound stabilization techniques. These personnel staff the MSPAS' health centers and health units.

3. A total of 159 auxiliary nurses trained in primary level trauma management. These personnel staff the MSPAS' health post.

4. A total of 50 ambulance drivers trained in elementary first aid and patient handling techniques. This number includes retraining existing drivers and training those who will be recruited to provide service in the ambulance to be provided in this project.

Activity No. 1: Mobile Surgical Team Training

With Technical Assistance (see Annex H-IV-B for Scope of Work), the MSPAS' Department of Human Resources, and specifically, curriculum designers in the Training School (Escuela de Capacitacion Sanitaria, E.C.S) will develop training modules, training plans, identify and arrange for practical training of the mobile surgical teams. These teams will be equipped with surgical kits containing basic surgical instruments, drugs and other supplies.

Each team which consist of a general surgeon, an orthopedist and a surgical nurse, and will be rapidly deployed to hospitals and centers which are experiencing sharp increases in trauma workload and will serve to augment local staff while the emergency exists. Funds are provided under the project to contract commercial helicopter services to transport the teams, when necessary; otherwise, ground transport using project financed ambulances will be used.The project will provide for three teams. Further consultation with the MSPAS in response to the report of the Emergency Medical Assessment Team indicated that an appropriate, feasible "on call" schedule makes it necessary to provide for the training of three teams. While team 1 remains on an "on call" status, team 2 would be on standby or back-up in case of significant demand and team 3 would be off-duty. Duty status of the teams would rotate. The teams will serve a dual function: 1) to provide direct surgical services to trauma victims; and 2) to provide on-the-job training surgical and nursing staff as they deal with trauma cases.

The length of training of the mobile team personnel is difficult to estimate at this time because the teaching methodology is essentially tutorial, i.e. training while operating on trauma patients. This will require an adequate range and number of trauma cases in order to ensure sufficient practice of surgical trauma management skills by team members. Tentatively, the project provides for fifteen to thirty days of training, which may not necessarily be consecutive, depending upon the availability of clinical cases.

It is anticipated that there will be difficulties in attracting team members with the desired competencies. There are personal risks involved, living conditions during the emergency are likely to be, at best, rustic, and the need to be on"standby" status is bothersome. Discussions with MSPAS leadership indicated that GOES counterpart funds could cover salary "topping off" as a means of providing incentive/hazardous duty pay.

The training modules are expected to become an integral part of medical school clinical practice and residency training for general surgeons.and orthopedist in the various hospitals throughout the country.

This activity will produce three mobile surgical teams competent to deal with most types of trauma cases and training modules which will be integrated into medical school curriculum and surgical residency training programs.

Activity No. 2: Intermediate Trauma Management: Wound Stabilization

An important finding of the Emergency Medical Assessment Team was that at the time of their visit there were "relatively few head, chest and abdominal patients were seen in hospitals. This is probably because victims with such injuries die before hospital admission."

The MSPAS' referral chain, Health Post-Health Unit Health Center-Hospital, is staffed with competent health professionals who, with training in short, 5-day wound stabilization courses, could significantly improve survival rates of trauma victims while they are being evacuated for definitive care at Centers and Hospitals.

The purpose of this activity is to rapidly improve the wound stabilization skills of surgeons, general medical officers, graduate nurses auxiliary nurses and anesthetists so that trauma victims can be transported to definitive care facilities with a relatively greater chance of surviving the evacuation process. With Technical Assistance, (See Annex H-IV-C), for Scope of Work), curriculum designers in the MSPAS Training School (ECS) will develop training modules, training plans, identify sites and arrange for practical training of the above mentioned categories of health professionals.

The training modules are expected to be short (5 days) and based strictly upon the competencies considered appropriate to the category of health worker. Implementation of training will be phased first into geographic areas with significant levels of conflict; subsequently, staff in other parts of the country will receive this training.

The training modules for medical officers, graduate nurses, auxiliary nurses, and anesthetists are expected to be integrated subsequently into the basic curricula for these categories of workers.

This activity will provide Intermediate Wound Stabilization training for 120 surgeons and general medical officers, 500 graduate and 200 auxiliary nurses and 120 anesthetists working in Health Centers and Health Units.

Activity No. 3: Primary Level Trauma Management: Fist Aid

The MSPAS has an extensive network of Health Posts throughout the country (159). These facilities are staffed by full-time Auxiliary Nurses, with periodic assistance by mobile teams consisting of a physician, a graduate nurse and a health inspector.

The Health Post is the "front line" for the MSPAS. The Auxiliary Nurse receives first-aid training in her basic 1-year course. She receives, however, training only in dealing with such trauma morbidity as snake bites, minor cuts and burns, foreign objects in the eye, hangnails, and the like.

The purpose of this activity is to rapidly upgrade the first-aid skills of Auxiliary Nurses related to trauma management. There will be phased implementation of training activities, giving first priority to areas with greater frequency of conflict. The project will be providing the health posts with simple trauma kits and the training will be built around the use of these supplies and equipment. Curriculum designers in the E.C.S., assisted by the TA, will develop training modules, training plans, identify sites and arrange for practical training of Auxiliary Nurses in Primary Trauma Management.

Training modules developed under this Sub-component will be integrated into the E.C.S. curriculum for basic training of Auxiliary Nurses.

This Activity will provide Primary Trauma Management training to approximately 159 Auxiliary Nurses working in Health Posts throughout the country; the training modules developed will be integrated into Auxiliary Nurse basic training curricula.

Activity No. 4: Primary Level Trauma Management: Patient Handling Techniques

The Emergency Medical Assessment Team found that the evacuation system from the site of injury, or from a less sophisticated facility upward to more definitive treatment, was deficient or non-existent. The Assessment Team recommended increasing the ambulance fleet, equipping the ambulance with radios, and the training of personnel who operate these units. The project also addresses the acquisition and equipping of ambulances.

The purpose of this activity is to rapidly provide basic, elementary first aid and patient handling techniques to ambulance operators who will be evacuating patients from one location to another. The training contemplated here is short (1-2 days) and will be limited to such things as how to lift a patient on to a stretcher, positioning patients so as to maintain open airways, and the like.

Again, curriculum designers in the E.C.S, with technical assistance, will develop training modules, develop training plans, identify sites and arrange for practical training of ambulance drivers/attendants in Primary Trauma Management/Patient Handling Techniques.

This Activity will provide training for 50 ambulance drivers/attendants in Patient Handling Techniques.

C. Sub-Component B: Emergency Equipment and Supplies

In general, the Medical Assessment Team found that the physical capacity (surgical beds) of the MSPAS to deal with trauma in the conflictive areas was adequate, or at least, not overtaxed. Of the 13 hospitals and health centers in conflictive areas for which bed occupancy rates were available (1981 data), only three exceeded 80% occupancy. The remaining 10 facilities showed occupancy rates ranging from 11% to 77%.

A number of the team's findings, however, were cause for great concern. They found significant numbers of amputees on the wards. Possible explanations given are delays in arriving at the facility, extreme contamination of wounds and/or faulty surgical techniques. The numbers of head/neck, chest and abdominal trauma patients were lower than expected. The team felt that the very nature of these types of wounds and faulty or non-existent transport make it very likely that these victims die before admission.

The team also found acute shortages of basic, essential drugs and supplies for even minimal care of trauma casualties. (These commodities are provided for in Component I, Health Supplies Management). In addition, the team found that trauma management equipment to be antiquated, inoperative or non-existent. Surgical instruments and associated expendable supplies, surgical lamps, X-ray machines and film suction machines all fall and into this category.

The availability of dependable electric power was a serious problem in many of the facilities visited. While many of the facilities have OFDA generators, the need for smaller, backup generators was considered vital.

Finally, the team found that the system for evacuating casualties to be woefully inadequate or non-existent. A casualty has to rely on friend or family to get to a travelled highway and then hope that civilian transport can move him to a hospital or health center. Ambulances located at hospitals and centers were more often than not, deadlined, or being used to move supplies and discharged patients. Further, there is no means by which ambulances can be radio dispatched to pick up casualties. See Annex H-IV-D for detailed listing for emergency equipment.

End of Project Status

By the end of the Project, this sub-component will have:

1. Procured and provided 52 medical stabilization kits, 26 emergency surgical lamps, 149 surgical instrument kits and 97 first aid kits for MSPAS facilities.

2. Procured and installed emergency back-up generators at 3 hospitals and 3 health centers.

3. Procured and installed 12 X-Ray machines in hospitals and health centers.

4. Procured and installed 26 suction machines in hospitals and health centers.

5. Procured, equipped and assigned 27 ambulances to 27 hospitals and health centers.

6. Procured and installed radio communication capacity for mobile surgical teams and ambulances.

7. Procured and installed 100 cistern water pump sets for health units and posts to assure water supply at the facilities.

D. Sub-Component C: Special Trauma Studies

The Emergency Medical Assessment Team (Annex H-IV-A) recommended two studies which should prove useful for both immediate and medium term improvements in MSPAS' capacity to deal effectively with trauma. The first study has two parts: 1) Hospital discharge trauma data for 1980-1982, already collected by the Statistics Division of the MSPAS but which needs to be tabulated and analyzed by age, sex, type of trauma, hospital/center and geographic area so as to facilitate targetting of resources, orient the design of training programs in trauma management, and to provide baseline data for evaluation program impact; and 2), a one or two month prospective study of the same variables to be implemented in all hospitals and centers, adding certain variables such as cause of trauma, time to arrive at the receiving facility and type of transport

used to get to the facility. This prospective study would be repeated in approximately one year. Data collection for these studies need not to be financed by the project as the MSPAS has agreed to carry this out. Technical assistance to analyze these data, however, will be needed and is provided for in the budget.

The second study recommended is one which will assess the nature and magnitude of the need to provide assistance in rehabilitation of trauma victims. The Emergency Medical Assessment Team found significant numbers of amputees in the hospitals visited, with no apparent systematic means of dealing with the return of these individuals as productive members of society.

The project provides funds for the latter assessment and it is expected that if assistance is determined to be necessary, a proposal for OPG funding may be generated by the assessment.

E. Implementation

Most of the resources in this component are destined for financing the procurement of emergency equipment and supplies. For implementation purposes, therefore, the mechanisms described in Component I-Health Supplies Management will be used.

The Emergency Medical Services training activities will be carried out by the MSPAS' Department of Human Resources Department. This department is the responsible entity for all pre-service (except physicians) and in-service training of MOH personnel, both direct health care providers and administrative staff. The Department is headed by a Medical Educator, former Dean of the National Medical School. It is composed of three sections: Nurses Training, Continuing Education and the Training School (Escuela de Capacitacion, E.C.S.). These sections implement or coordinate implementation of the following:

A. Nurses Training

There are three graduate and five auxiliary nurse training programs throughout the country. Graduate programs produce 80-100 registered nurses per year; the auxiliary program, approximately 200.

B. Continuing Education

This section presently only handles the processing of externally funded scholarships for in-country training, such as UNFPA funds to train cytology technicians. The Department has a proposal in to the European Economic Community to expand the range of activities of this section.

C. Training School (E.C.S.)

The training school implements a wide variety of in-service and basic training of primary health care workers and administrative personnel. They have conducted extensive training of nursing faculty in curriculum design and evaluation, operational research methods for health workers, and educational technology. They provide basic training for Rural Health Aides, Traditional Midwives, Assistant Statisticians, and Health Inspectors.

As related to this Project Component, the Department's Training School is considered to be fully qualified and staffed to design (with Technical Assistance in Trauma Management) and coordinate the implementation of the planned training activities.

See Annex H-IV-E for detailed budget for component IV.

SUMMARY BUDGET

COMPONENT IV

EMERGENCY MEDICAL SERVICES
($000)

		AID (LOAN) FX /	AID (LOAN) LC	AID (GRANT)	AID TOTAL
A.	Training				
	1. Technical Assistance			55	55
	2. Local Training Costs		91.5		91.5
	3. Training Support Equipment	4.3			4.3
B.	Commodities	2,552.9			2,552.9
C.	Emergency Transportation Costs		290		290
D.	Special Studies			29.5	29.5
		2,557.2	381.5	84.5	3,023.2

V. PROJECT ANALYSES

A. TECHNICAL ANALYSIS

There is an important underlying assumption regarding the technical feasibility of this project. The project's success remains in large part dependent on the ability of the MSPAS to deliver goods and services to its client population during a period of serious civil unrest, particularly in the eastern area of the country. It is the Mission's assessment that the Salvadoran military is making a concerted effort to provide the necessary security, particularly when delivery of medicines and supplies to health facilities is in process. See the discussion of security measures under Component I, Subcomponent A.

1. Technical Feasibility of Medical/Surgical Interventions

The project proposes to enable, through the provision of critically needed pharmaceuticals, medical supplies, and medical equipment, the application of technologies that are now widely accepted norms of prevention or treatment. Among those technologies to be provided through the project are wound stabilization, first aid, antibiotics, oral rehydration salts, contraceptives, vitamins, anesthetics, anti-parasitics, eletrolyte solutions, etc. which present no technical problem in a medical/surgical sense.

The anticipated organizational improvements in such areas as training in first aid and trauma management, and supply management (including procurement, inventory control, vehicle dispatch, etc.) that the project supports will assure increased application of these technologies.

A significant amount of project loan funds be budgeted for the procurement of pharmaceuticals. To this end, 36.6% of total project costs (excluding contingency) are included in the budget. AID's pharmaceutical policy reflects concern that only safe and efficacious pharmaceuticals, manufactured with accepted and quality standards, are procured. The policy provides that non-US procurement of drugs will be considered only when several conditions are met. El Salvador has a very active private sector pharmaceutical industry (approximately 30 companies). Although approximately 60% of the total value of MSPAS central pharmaceutical purchases in 1982 was expended for drugs produced/manufactured in El Salvador, USAID does not have assurance that information is available at present to attest to the safety, efficacy and quality of such products. Therefore, the Mission has determined that to assist the MSPAS to develop a drug quality control capacity is a critical and necessary element of this project.

The MSPAS will be burdened with lack of resources and foreign exchange for the foreseeable future, therefore as soon as the MSPAS has a functioning drug quality control system their purchases on the local market will be with increased confidence in the locally manufactured products.

USAID sought and obtained from AID/W in 1980 a source/origin waiver from Geographic Code 000 to Code 941 for pharmaceutical items under Project 519-0253. SER/COM's concerns over quality control were mitigated because the items to be procured were those which are usually sold over the counter. The Mission may request a similar procurement waiver at some time during the life of the project but it is not anticipated at this time.

The specifications for pharmaceuticals to be procured in the U.S. will include a requirement that the labels and drug inserts, as well as the individual packaging for each item, will be in Spanish so that the contents can be readily used by the health personnel, obviating delays that would naturally be associated with receiving an unknown, noninterpretable product. Delays with either inventory control, distribution and/or medical personnel due to non-Spanish packaging could dampen the "quick response" objective. An exception may be made for selected pharmaceuticals procured through emergency procedures.

2. Technical Feasibility of Construction and Refurbishing

The cost estimates for the construction and refurbishing of various warehouses, workshops, and cold-chain storage to be financed by this Project were prepared by the MSPAS engineers and the PP design team supply management advisor. The costs are based on recent experience in El Salvador. The type of construction proposed is commonly found in El Salvador and is within the capability several qualified firms in San Salvador. The proposed construction and refurbishing is feasible and the estimated costs are within acceptable limits.

3. Technical Feasibility of Malaria Control Activity

The Mission submitted as an Annex to the PID an IEE which recommended a negative determination for activities to include physical plant construction. Annex A contains an expanded IEE which recommends a negative determination for activities related to malaria control.

a) Malaria Spraying Operations

Residual insecticides will continue to be used in all field operations during the 1984 - 1985 period. The demarcation and scheduling of the spray operations are the responsibility of the Operational Areas (Polos) in consultation with the National Division of Malaria. Field operations are staffed, financed and implemented by the Division of Malaria. The 1982 spray program was based on epidemiologic selection of high malaria incidence areas. Selection of areas for spray protection was related to case rates, receptivity and historical patterns of malaria incidence. The use of selected spraying techniques based on epidemiologic criteria will be incorporated in all future anti-malaria efforts. The current lack of insecticides in 1983 is seriously hindering operational progress.

Insecticides are applied in one or more rounds of coverage depending on the malaria situation. Propoxur and possibly fenitrothion will be used during the project period unless the mosquito vector becomes totally resistant to these insecticides as shown by entomological studies. It is estimated that approximately 40% of the total malaria area still requires some level of residual spray protection during the course of the program. Focal spraying will be carried out as required around known foci of detected malaria. The Division of Malaria has identified that 85% of the cases in the country come from 22.9% of the area containing 26% of the population. It is for this population that major efforts will be made to control malaria during the project period.

Resources required to support the spraying operation, including equipment, staff and operating costs are based in accordance with each Operational Zone's annual projections. However, epidemiological analysis must be expanded and improved in order to direct house spraying and other malaria control interventions on a more selective basis than is currently the case in order to conserve insecticides and reduce other operating costs and lessen the danger of developing insecticide resistance of the mosquito vectors. More intensive control coverage will be required in certain areas in the coastal portion of the country. In 1982, actual spray coverage as a percent of planned target houses was approximately 27%. The shortfalls were attributed to lack of insecticides to carry out a proper field program.

It is estimated that during the remaining portion of 1983, depending on ecological conditions and vector resistance, approximately 30,000 kgs. of insecticide will be needed for selective residual spraying of priority areas. These estimates are based on the standard dosages for Propoxur. At present, the Division of Malaria does not have sufficient insecticide in-countryor in the pipeline for the 1983 spraying season. The GOES is proposing to procure insecticides from the AID Loan support to cover the needs. This project is specifically designed to increase spray coverage and to provide necessary insecticides to protect the first priority areas.

b) Malaria Surveillance

Malaria incidence surveillance, upon which efficient residual insecticide spraying, larviciding, spot applications and drug treatment are planned, depends on active case detection (ACD), passive case detection (PCD) and periodic mass blood surveys. In El Salvador, the voluntary collaborator system is well established in a network of some 2,700 people, and 75% -80% of all slides taken are from this source. It is important to increase the role of health institutions in taking blood slides. In order for these voluntary collaborators to function properly, a supply of anti-malarial drugs must be available to them. At the present time, it is estimated that only six weeks supply of such drugs exist in the country and a re-supply is urgently needed. This project provides funding for such drugs on an emergency basis.

c) Malaria Research

There are no operational research components in this project but the Division of Malaria will be actively improving epidemiological techniques for case detection; entomological studies on vector resistance to insecticides; monitoring of malaria parasite resistance to drug treatment (chloroquine resistance), especially P. falciparum; biological control methodologies and; innovative approaches for obtaining public cooperation in the program.

In the event that vectors become operationally resistant to Propoxur, other insecticides will be tested under field conditions at several locations in the country. Research findings will have a direct bearing on future insecticide procurement and in the selection of operational methodology.

d) Training for Malaria Personnel

The project will assist in the training of Malaria Division personnel in the operation of U.L.V. dusting and larviciding equipment.

e) Insecticide Handling Procedures

Strict safety precautions are required for organo-phosphorous and carbamate compound (Propoxur and fenitrothion). Workers must be specially trained and supervised on the proper safety procedures. Continuous follow-up and supervision of spraymen are critical.

During the last five years,the Malaria Division has greatly increased its training and supervision in the safe handling and storing of organophosphorous (OP)and carbamate compounds. Protective equipment such as gloves, head gear, boots, and uniforms are provided to all spraymen. Intensive safety training is provided to spray personnel and national supervisors. Laboratory personnel are trained in the tintometric test for cholinesterase levels in spraymen and field supervisors. Emphasis is placed on the procedures used in safely applying insecticides at the village level to ensure that field personnel and villagers are not subjected to any undue health hazard.

AID has determined that the GOES understands and follows proper and safe pesticide management practices from the initial formulation process to its application in villages and can be expected to continue to do so during the project period. The assignment of an experienced Malaria Control Officer in the first year will assure that US-source insecticides are being used safely.

f) Environmental Analysis

An Initial Environmental Examination (IEE) is provided in Annex A. The insecticides to be used in El Salvador's Malaria Control Program are those commonly used in other malaria programs around the world. Numerous environmental studies and assessments have already been undertaken for these organophorous and carbamate insecticides, and all have concluded that these compounds have a favorable risk-benefit impact on the environment when proper precautions are being observed and adequate training has been given to field personnel. The proposed source reduction effort outlined in this Project Paper is a continuation of long term efforts made by the GOES in the past. Such efforts should improve the environment.

In view of previous environmental studies and the fact that El Salvador has not experienced any major health problems over the last five years in its malaria spray operations due to the safeguards built into the program (eg. protective clothing, frequent testing of cholinesterase levels in personnel, adequate supervision, regular and refresher training, and proper storage and distribution practices). The Mission has concluded that no further environmental analysis is required and recommends a negative determination. If new chemical, biological, or physical malaria control methodologies are introduced into the program after the approval of this project, the environmental impact will be reviewed and , if necessary, environmental studies or assessments will be carried out.

4. Technical Feasibility of Improved Health Services Delivery

The MSPAS has an extensive network of health care facilities, tiered by the degree of sophistication of the services provided. As of June 1983, most (86%) are open, staffed and operating. The Health Sector Assessment (1978) estimated that the system could reach approximately 80% of the population, within 10 kilometers of the residence of the clientele. This is a remarkable achievement and despite the closing of a number of facilities, this coverage is likely to be on the same order of magnitude, as new facilities have been added in the interim.

Facilities are necessary, but not sufficient, for effective health care delivery. Care providers need pharmaceuticals, medical supplies and equipment to deal effectively with the health problems of their clients. This project directly addresses these needs.

Not addressed directly by this project is the issue of the availability of competent care providers, except as related to trauma management skills (Component IV), where training will be provided. The problem of availability of human resources, however, is limited to physicians and this is further limited to specific geographic areas where conflict is present. Actually, the only manpower shortages noted by the Emergency Medical Assessment were among surgeons trained to deal effectively with conflict related trauma. The seriousness of the problem of shortages of physician staff in certain areas is largely offset by good nursing coverage. As in many LDC's, nurses are performing quite a number of non-nursing (medical) functions. In the absence of physicians, nursing staff will deliver the needed care.

B. Economic Analysis

I. INTRODUCTION

Investments in health in El Salvador present some rather special problems due to the prevailing conditions of mass violence, rather continuous civil and social unrest, and political uncertainty. Stress and anxiety levels are very high. The possibility of higher levels of conflict, and a resulting large volume of human casualties remains. Under such circumstances economic patterns and processes are more greatly distorted than in the usual case of a developing country. In view of this, non-economic factors such as considerations for safety, survival, and avoidance of conflict (political or social), dominate resource allocation and pricing decisions which under ordinary circumstances would adhere more closely to strict economic motivations and rationals. Thus under the circumstances prevailing in El Salvador there is substantial unemployment of both capital and labor.

Matters are further complicated in the case of the proposed project in that it impacts virtually on the entire range of the health care delivery system. The objectives of the health delivery system are extremely broad in scope. For example, in 1983 the Government of El Salvador publicly declared the following basic objectives for its health care system:

(1) The lowering of the mortality rate for those groups most affected, particularly in rural areas and in marginal urban areas.

(2) Reduction in the incidence of those types of illness susceptible to control by vaccination, changes in the environment and health education.

(3) Control of population growth so that it coincides with the exigencies of social and economic development.

(4) Reduction in morbidity, especially for the most vulnerable groups, namely infants, pre-school children, children in schools, and those persons who are economically active.

(5) Protect the population's health, with special attention directed to those groups who are most vulnerable.

(6) Make available to the population an adequate diet that will have the utmost nutritional content.

(7) Ameliorate the physical environment, reduce the incidence of infectious-contagious diseases, and eliminate air and water pollution.

(8) Take a holistic view of personal health that covers both mental and physical health.*

In order to achieve these basic objectives, the GOES proposes the following strategies:

(a) Expand health services coverage in already existing facilities, and in those that will soon be built;

(b) Improve the physical environment, with priority given to the provision of potable water, the control of vector-borne disease, and the insurance of the proper disposal of human and animal waste;

(c) Mount campaigns against those illnesses that are susceptible to control by means of immunization, and create permanent programs for such;

(d) Increase the control of malaria;

(e) Give more emphasis to infant-maternal programs;

(f) Set up mechanisms that will allow the national health system to function more effectively;

(g) Facilitate as much as possible the development of human capital;

(h) Increase emphasis upon health-education for the people;

(i) Reform and improve administrative services at the institutional level.

The proposed USAID project directly bears upon most of these objectives and strategies. Indeed, the proposed project will strengthen virtually all aspects of the Salvadorean health care delivery system which now provides coverage for roughly 85 percent of the total population.

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* Ministerio de Hacienda, Ley de Presupuesto General, 1983, p.129.

There are significant project direct benefits which are intended to result eventually in reduction of government expenditures, e.g., the cost savings eventually resulting from an efficient MIS system leading to better inventory control and reduced wastage. The bulk of project benefits will be received by the mass population through the medium of more and better health services leading to reduced mortality, and morbidity. The Project focus, however, is to facilitate immediate improvement of the MSPAS' capacity to deliver health services to its clientele. Ultimately these health benefits will be realized in the form of increased physical and mental productivity on the part of nearly all of the population

II. METHODOLOGY

A. Major Assumptions

1. The health of the population will directly benefit from the proposed Project.

2. Ultimately the health benefits of the Project will increase the productivity of the population.

3. The increase of productivity can be roughly measured as percent increase or reduced rates of decrease in Gross National Product (GNP) over the life of the project.

B. Discussion

Note that the last assumption in section II.A. above recognizes that during the life of the project, actual GNP may decline due to political and broad economic circumstances. The contention is that project benefits, ceteris parabus, will be positive though not measurable.

C. SOCIAL SOUNDNESS ANALYSIS

The decision of a potential client to seek and use health services from the MSPAS is conditioned by a number of factors, including·

1. Perceived need to cure or prevent some illness or condition.

2. The services offered are perceived to be culturally and technically appropriate to solve the problem at hand.

3. The services are reasonably accessible in time and distance.

4 And that there is a reasonable likelihood that the service provider has the right supplies and equipment to solve the problem.

This project primarily addresses the last factor mentioned above, and assumes the others to be equal in salience in the decision making process of the potential client. Factor number four could be restated that the facility and service provider is a CREDIBLE and DEPENDABLE source of health services. The concepts of Credibility and Dependability are intimately linked in the minds of potential clients of the system, especially in traditional, rural elements of the Salvadoran population. A campesino mother of six children is going to walk the 5 or 6 kilometers to the nearest Health Post only once, and possibly twice, if in both cases, the Auxiliary Nurse had no medicines to deal with the problem in this family. This mother is going to view the health facility as a less credible source of services because she cannot depend upon getting the medicine or service sought, irrespective of the competence of the provider.

In other sections of this paper, mention is made of decreases in recent years in service delivery at health post and health unit levels of the system. It is very likely that the phenomenon described above for the campesino mother is operating here. Clients simply do not perceive these facilities to be credible and dependable service points.

This project, therefore, seeks to rapidly change this perceived image, by infusing the system with medicines, suplies and basic equipment and by strengthening the management system in order to assure dependable arrival of these commodities and to keep the equipment in operating order. The test of social appropriateness of this project will therefore be a gradual increase in service delivery at the lower end of the health system, with concommitant reductions of congestion at the Center and Hospital levels.

Viewed from the perspective of the service provider, this project will also serve to bring up the morale levels of these professionals, by reducing the guilt and frustation for having to turn clients away day after day due to lack of medicines and supplies.

The Emergency Medical Services Component will have both immediate and long term social impacts. In the short run, mortality rates due to trauma are expected to drop because of more effective primary, intermediate and definitive trauma management techniques.

In the long term, it is expected that the rates of trauma victims requiring limb amputation will be reduced. The amputee population represents a serious social and economic burden on Salvadoran society. While this project does not directly address the problem of rehabilitation of amputee victims, it will finance an assessment which should provide the basis for activities in the future.

Finally, women and children are traditionally the principal users of health system. For women, there is the entire constellation of services related to family planning, pregnancy, delivery and post-partum. And since the burden for raising and caring for children usually falls upon women as mother, this project is expected to doubly impact on this segment of the population with the increased availability and accesibility of services.

D. Institutional/Administrative Analysis

1. Legal Status

The primary implementing agency for this project will be the Ministry of Public Health and Social Assistance (MSPAS) of El Salvador, an executive branch of the Salvadoran Government. However, since projects funded by international donors are coordinated through the Ministry of Planning whose personnel supervise the implementation of projects and monitor GOES expenditures, the Ministry of Planning will be kept fully informed on project execution.

The MSPAS does not have complete autonomy for commitment of resources. For example, contracts for personal and non-personal services have to be approved by other GOES institutions such the Ministry of Treasury before the contract can be signed.

The recently approved Procurement Law, including both local and international procurement of commodities, however, enables the MSPAS to carry out its own procurement activities, where formerly this had been a function of the central government. The former arrangement posed serious bottlenecks in the past.

2. Financial Status

The MSPAS has authority to commit funds from its own budgetary allocations or from international donors. The Treasury Ministry determines the final budget for the MSPAS, a determination which is likely to be based more upon availability of funds than on real MSPAS needs. After the national budget is approved, the MSPAS has authority to disburse funds, with the exception of contracts, which must be approved by the Treasury Ministry, before disbursement of funds. This latter Ministry also approves personnel levels throughout government.

3. Pattern of Organization

Administratively, the MSPAS is divided into three levels: Local, Regional and Central. A total of 321 health service delivery facilities comprise the system.

a. The Local level is comprised of the following: community posts (34), health posts (159), health units (97), health centers (12), and hospitals (14). The MSPAS also has at the community level trained midwives (UNFPA financed) and Rural Health Aides (AID financed).

1) Health Post (159)

These facilities are attended by mobile medical units twice or three times a week. The post has a permanent auxiliary nurse whose function is to provide immunizations, maternal and child primary care and outpatient services.

b) Health Units (97)

The Unit has at least one full-time physician, a graduate nurse, an auxiliary nurse and a sanitary inspector. The same services are provided in the Unit as described for the Post, but with a larger catchment area.

c) Health Center (12)

Health Centers are essentially small hospitals with an average of 50 in-patient beds and an outpatient department. Also, general surgery is performed. Preventive health care is also provided at this level.

d) Hospital (14)

There are three types of hospital in the MSPAS infrastructure:

i) Regional Hospitals

These are located in the four major cities and provide comprehensive health care services. The cities are: Santa Ana, Santa Tecla, San Vicente and San Miguel.

ii) Deparmental Hospitals

These are located in certain other departments other than where regional hospitals exist. The departments include: Ahuachapan, Sonsonate, Chalatenango, La Paz and Usulutan.

iii) Referral Hospitals

There are five such hospitals, all located in San Salvador and include: Maternity, Pediatric, TB, Psychiatric, Surgery and Internal Medicine.

b. At the Regional Level, the MSPAS infrastructure is comprised of five health regions. Each regional office is directed by a physician with medical and paramedical staffing. Regional staff perform supervision of medical, nursing, nutrition, health education and sanitation programs.

1) Western Health Region

Three departments with 1426 beds distributed in three hospitals and two health centers. Total number of facilities: 60. Staffing: 2130. Regional Headquarters is located in Santa Ana.

2) Central Health Region

Two departments with 351 beds in two hospitals. Total number of facilities: 62. Staffing: 1143. Regional Headquarters located in Santa Tecla.

3) Metropolitan Health Region

One department with 2862 beds in five hsopitals and one health center. Facilities: 43. Staffing: 3310. Headquarters in San Salvador.

4) Para-Central Health Region

A four department region with 667 beds in 2 hospitals and 3 health centers. Total facilities: 54. Staffing: 1450. Headquarters in San Vicente.

5) Eastern Health Region

Comprises four departments with 896 beds in 2 hospitals and 5 centers. Total facilities: 102. Staffing: 2221. Headquarters in San Miguel.

c. Central Level

An organization chart of MSPAS central level is presented in Annex H-I. Five Directorates are responsible to the Minister of Health through the Director General of Health.

1) Normative Directorate

This Directorate has technical responsibility monitoring health programs and produces policies, norms and procedures for the Ministry.

2) Operative Services Directorate

Is responsible for the implementation of Ministry programs, including the activities of the five regional offices and the national health laboratory. It has responsibility for supervision at all levels of the MSPAS.

3) Engineering Directorate

Provides the planning, management and supervision of structural improvement and physical maintenance of MSPAS facilities.

4) Planning Directorate

Develops health plans and formulates overall health policy for the Ministry. Within this Directorate is the International Cooperation Division, which is expected to take a monitoring role in implementation of this project.

5) Administrative Services Directorate

This Directorate will have principal responsibility for implementation of this project. It consists of ten offices under one Director. With only two exception (noted below), implementing entities for the project all fall administratively within this Directorate. Detailed analyses of each of these implementing entities can be found throughout the Project Description and will therefore, not be dealt with here. These analyses present their structure and functional deficiencies at some length.

5. Human Resources for Project Implementation

The project will place demands upon the MSPAS' existing personnel and in some cases, additional staff will be required. A clear distinction whould be made, however, as regards the manner in which this project will affect technical and administrative staff of the MSPAS. The former will be able to function more effectively as health care providers with adequate supplies of pharmaceuticals, medical supplies and equipment in operating order; the latter staff are essentially the implementors of this project which has as its basic thrust the immediate and medium term improvement of MSPAS supply and maintenance systems.

The issues of avalability and geographic distribution will be addressed for the two categories of personnel:

a) Technical Personnel

For medical personnel, availability and geographic distribution become one in the same problem. As reported earlier in the paper, the ratios of physicians to population are somewhat below recommended levels. The typical urban-rural disparity, with greater proportions of physicians in urban areas, clearly exists in El Salvador.

The MSPAS relies heavily upon medical students in their social service year and residents for the delivery of health care outside the capital. Fully licensed physicians tend to locate themselves in the capital and major cities in the western and central areas of the country, where the professional conditions are more conducive to medical practice. However, the flow of new students in their social year and residents should continue into the public health system as graduates of the private medical schools and the ad hoc national medical school undergo their social service year. The MSPAS recently approved a program leading to licensure of these graduates, permitting these students to carry out their clinical practice in public health facilities.

The Emergency Medical Assessment team found a definite shortage of surgeons capable of dealing effectively with conflict-related trauma in the eastern and north-central areas of the country. It was this finding which led to the formulation of the mobile surgical team concept whose role will be both to deliver surgical services and to train residents in the specialized techniques of trauma management. In this manner, the project will assist in addressing this shortage.

The other major source of health care is nursing. Here, the picture is more normal, both in terms of availability and geographic distribution. Nursing personnel, both registered nurses and auxiliaries are found in generally adequate numbers throughout the system. The three graduate nurse schools (San Salvador, Santa Ana and San Miguel) are producing 80-100 graduates per year; the five auxiliary programs (San Salvador, Santa Ana, Sonsonate, San Vicente and San Miguel), 180-200 graduates per year.

b) Administrative Personnel

The PP team found adequate numbers of staff in the supply management and maintenance system operations. What seemed to be lacking however, was adequate training in certain specialized repair/maintenance areas, effective supervision, mid-level management, and close coordination/communication between decision makers and staff carrying out day-to-day supply and maintenance activities. The project directly addresses these problems by providing long term TA and training.

The Malaria program will need to staff up in their field level personnel. The arrival of resources (insecticides, spray equipment) will justify the hiring of daily workers for spray, larvaciding and source reduction activities. This situation will be monitored during implementation to ensure that adequate high level attention is given to provision of manpower to this program.

Finally, in the Drug Quality and Management Information System activities, only a few additional key technicians are considered necessary for project implementation.

5. Summary Assessment

The secondary objective of this project is to vitalize MSPAS' capacity to manage effectively its health supplies and equipment maintenance systems. These two support systems were singled out by the project as the most critical constraints to MSPAS' ability to deliver dependable health care to the majority of the Salvadoran population. Thus, by focusing project resources towards the Supply Management and Maintenance systems, the project is seeking to make the MSPAS' health care system more administratively effective.

A key element in ensuring administrative feasibility is the establishment of a decision-oriented management information system (MIS), which can orient decision makers on a day-to-day basis, as well as in medium and long term planning decisions. The MIS will also be critical for the success of the long term TA in keeping track of AID financed commodities, quantities, location, flow, and ultimate destinations.

The MSPAS leadership were quick to recognize their administrative deficiencies and rapidly embraced the concept of an Executive Management Group (EMG). The EMG, as described in earlier parts of the paper, has a critical role administering/orchestrating the majority of actions required for implementation of this project.

Two other implementing entities within the MSPAS receiving assistance under the project are the Malaria Division and Human Resources Department. Neither entity represents serious administrative problems as both are well organized. Their only lack has been the resources (financial and material) to carry out their respective mandates.

From another perspective, the MSPAS financial management/accounting system, albeit slow, is apparently keeping good records and using acceptable accounting practices. Recently completed USAID financed external program (1) and accounting (2) audits showed only minor problems in their management of AID funds.

In overall terms, the Human Resource situation is not a constraint to implementation of this project, based upon analysis of data and site visits of a large number of health facilities in the system. Further, approximately 98% of authorized positions in the MSPAS are presently staffed. There is a problem, however, in certain geographical areas, but this is limited to trained surgeons, and we believe the project will assist reducing this shortage. Although manpower policy modification falls outside the purposes of this project, the issue will be dialogued during the course of implementation. In addition, the project contains a general covenant requiring the GOES to "assign the management and technical staff required to adequately carry out the project at all levels."

In summary, assuming a dynamic and functional EMG and effective Technical Assistance, the conclusion is that the MSPAS will be administratively capable of implementing this project.

VI. FINANCIAL PLAN AND ANALYSIS

A. Financial Plan

Total project financial requirements are an estimated $40.75 million as shown in the Summary Financial Plan presented below, and further disaggregated in Tables I-IV. A.I.D.'s contribution to the project will be $25 million, of which $1.6 million will be grant funding and $23.4 loan funding. A.I.D.'s funding will cover local currency costs estimated at only $ 1.4 million with the majority of A.I.D.'s financing devoted to funding of foreign exchange costs associated with pharmaceuticals, medical supplies, medical equipment, and logistical/warehousing supplies and equipment. Technical assistance contracts constitute only 6% of anticipated A.I.D. financing. Because this is only a two year project, and the majority of commodities/supplies will be contracted for the first project year, only 8.6% has been allocated for contingency funding.

GOES's contribution to the project is estimated at $15.75 million, representing 38 % of project costs. The GOES budget costs cover salary costs of employees who will be assigned to project activities, storage of pharmaceuticals, purchase of some pharmaceuticals, medical supplies, and equipment, operating costs for new vehicles, and salary costs for individuals in training.

The Mission requests $17.2 M in FY 83 in order to provide support for priority MSPAS needs. The remaining $7.8 M for a total of $25 M will be requested in FY 84. Project activities are expected to commence in FY 83 with very minor exceptions. The Mission expects to obligate $1.358 M in grant funds in FY 83 and the remainder of the grant funds in FY 84.

Certain project activities will require funding during the second year of the project. An illustrative list of those inputs would include the EMG, pharmaceuticals, medical supplies, contraceptive supplies, insecticides, malaria drugs, ambulance operating costs,and in-country maintenance contracts for certain equipment. In FY 84 the Mission expects to request the remaining $7.8 M in the 3rd quarter.

The tables included below present the following information:

Table I: Summary of LOP financial inputs, by generic line items and percent of total project, excluding the contingencies line item.

Table II: Summary of LOP cost estimates, by component, foreign exchange and local costs for AID inputs and GOES counterpart contribution.

Table III: AID grant funded expenditures by Fiscal Year.

Table IV: AID loan funded expenditures by Fiscal Year.

Table V: GOES counterpart expenditures/contribution, by Fiscal Year.

TABLE I

SUMMARY FINANCIAL PLAN

INPUT	$ 000	% of Total Project Cost Excluding Contingencies
Technical Assistance	1,503.0	6.60
Commodities	19,913.3	37.48
Training	307.2	1.35
Construction/Upgrading MSPAS Facilities	626.6	2.75
Commercial Transport/ Warehousing	65.0	0.29
Emergency Transportation Costs (In-Country)	290.0	1.27
Other Costs - MSPAS Executive Supply Management Group	58.1	0.25
	22,763.2	99.99
Evaluation	83.0	
Contingency	2,153.8	
	25,000.0	

TABLE II

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

($ 000)

PROJECT COMPONENTS	AID (LOAN) FX	AID (LOAN) LC	AID (GRANT) FX	TOTAL AID	TOTAL GOES	TOTAL
COMPONENT I HEALTH SUPPLIES MANAGEMENT						
SUBCOMPONENT A HEALTH SUPPLIES SYSTEM						
- Technical Assistance			513.0	513.0		513.0
- MSPAS Executive Management Group		58.1		58.1		58.1
- In-Country Training		40.0		40.0		58.1
- Commodities						
- Pharmaceuticals	8,368.0			8,368.0	9,600.0	17,968.0
- Contraceptive Supplies	340.0			340.0		340.0
- Medical Supplies	2,715.8			2,715.8	85.0	2,800.8
- Medical Equipment	600.7			600.7	1,091.0	1,691.7
- Warehouse Equipment	42.6			42.6	956.0	998.6
- Cold Chain Equipment	150.1			150.1		150.1
- Printing/Graphics Equipment & Maintenance Contract	159.2	20.0		179.2		179.2
- Construction/Upgrading						
- Warehousing		442.0		442.0		442.0
- Cold Chain Facilities		9.6		9.6		9.6
- Commercial Transport/Warehousing						
- In-Country Air Transport		40.0		40.0		40.0
- Truck Transport		20.0		20.0		20.0
- Interim Warehousing		5.0		5.0		5.0
SUB-TOTAL	12,376.4	634.7	513.0	13,524.1	11,732.0	25,256.1

	AID (LOAN) FX	AID (LOAN) LC	AID (GRANT) FX	TOTAL AID	TOTAL GOES	TOTAL
SUBCOMPONENT B MALARIA CONTROL SYSTEM						
- Technical Assistance			33.5	33.5		33.5
- Commodities						
- Insecticides	973.0			973.0	1,857.0	2,830.0
- Anti-Malaria Drugs	254.0			254.0		254.0
- Vehicles	92.5			92.5		92.5
- Equipment//Supplies	112.5			112.5		112.5
Freight, insurance, procurement fee - 22%	315.0			315.0		315.0
SUB-TOTAL	1,747.0		33.5	1,780.5	1,857.0	3,637.5
SUBCOMPONENT C DRUG QUALITY CONTROL SYSTEM						
- Technical Assistance			186.0	186.0	67.0	253.0
- US/Third country training			20.4	20.4		20.4
- Construction/Upgrading of Drug Quality Control Laboratory		175.0		175.0		175.0
- Equipment/Supplies for Drug Quality	180.0			180.0		180.0
- Control						
SUB-TOTAL	180.0	175.0	206.4	561.4	67.0	628.4
COMPONENT I TOTAL	14,303.4	809.7	752.9	15,866.0	13,656.0	29,522.0

COMPONENT IV						
EMERGENCY MEDICAL SERVICES						
- Technical Assistance						
a)For Training			55.0	55.0		55.0
b)Special Studies (Trauma-related)			29.5	29.5		29.5
- Training	4.3	91.5		95.8	281.0	376.8
- Commodities	2,552.9			2,552.9	144.0	2,696.9
- Emergency Transportation Costs		290.0		290.0	109.0	399.0
COMPONENT TOTAL	2,557.2	381.5	84.5	3,023.2	534.0	3,557.2
PROJECT EVALUATION			83.0	83.0		83.0
TOTAL	19,735.6	1,453.2	1,657.4	22,846.2	15,755.0	38,601.2
CONTINGENCY 8.6%						2,153.8
				25,000.00	15,755.0	40,755.0

TABLE II Cont....

	AID (LOAN) FX	AID (LOAN) LC	AID (GRANT) FX	TOTAL AID	TOTAL GOES	TOTAL
COMPONENT II						
PUBLIC HEALTH INFRASTRUCTURE MAINTENANCE						
- Commodities	2,125.0	59.0	295.0	2,184.0	987.0	3,171.0
- Technical Assistance				295.0	176.0	471.0
COMPONENT TOTAL	2,125.0	59.0	295.0	2,479.0	1,163.0	3,642.0
COMPONENT III						
MANAGEMENT INFORMATION SYSTEM						
- Commodities, local maintenance contract	750.0	60.0		810.0	138.0	948.0
- Technical Assistance, including cost sharing study			391.0	391.0	264.0	655.0
- Training		100.0	51.0	151.0		151.0
- Supplies, Site Preparation		43.0		43.0		43.0
COMPONENT TOTAL	750.0	203.0	442.0	1,395.0	402.0	1,797.0

TABLE III USAID EXPENDITURES BY FISCAL YEAR - GRANT FUNDED

($000)

Technical Assistance	FY 83	FY 84	FY 85	Total
Component I				
Sub-Component A	80.5	385.5	47.0	513.0
Sub-Component B	-	33.5	-	33.5
Sub-Component C	15.0	171.0	-	186.0
Component II	30.0	243.0	22.0	295.0
Component III	15.0	261.0	115.0	391.0
Component IV	51.0	33.5	-	84.5
Sub-Total	191.5	1,127.5	184.0	1,503.0
Training				
Component I				
Sub-Component C	-	20.4	-	20.4
Component III	-	51.0	-	51.0
Sub-Total	-	71.4	-	71.4
Other Costs				
Evaluation	11.0	36.0	36.0	83.0
Sub-Total	11.0	36.0	36.0	83.0
Expenditures	202.5	1,234.9	220.0	1,657.4

TABLE IV USAID EXPENDITURES BY FISCAL YEAR - LOAN FUNDS

($000)

Component I	FY 83	FY 84	FY 85	TOTAL
Sub-Component A				
-Executive Management Group	4.80	29.1	24.2	58.11
-In-Country Training	-	20.0	20.0	40.0
-Pharmaceuticals	500.0	5,561.3	2,306.7	8,368.0
-Contraceptives	-	-	340.0	340.0
-Medical Supplies	163.0	1,792.4	760.4	2,715.8
-Medical Equipment	-	600.7	-	600.7
-Warehouse Equipment	-	42.6	-	42.6
-Cold Chain Equipment	-	150.1	-	150.1
-Printing and Graphic Equipment and Maintenance Contract	-	169.2	10.0	179.2
-Construction/Operating	-	451.6	-	451.6
-Commercial Transport/Warehousing	10.0	35.0	20.0	65.0
	677.8	8,852.0	3,481.3	13,011.10
Sub-Component B				
-Insecticides	219.6	483.8	483.7	1,187.1
-Anti-Malaria Drugs	14.6	147.7	147.6	309.9
-Vehicles	-	112.9	-	112.9
-Equipment/Supplies	-	68.6	68.5	137.1
	234.2	813.0	699.8	1,747.0
Sub-Component C				
-Construction/Upgrading	-	175.0	-	175.0
-Equipment/Supplies Drug Quality	-	130.0	50.0	180.0
Sub-Total	-	305.0	50.0	355.0
Component II				
-Commodities	-	2,184.0	-	2,184.0
	-	2,184.0	-	2,184.0
Component III				
-Commodities	-	770.0	40.0	810.0
-Training	-	75.0	25.0	100.0
-Supplies/Site Preparation	-	43.0	-	43.0
Sub-Total	-	888.0	65.0	953.0
Component IV				
-Training	24.0	71.8	-	95.8
-Commodities	-	2,552.9	-	2,552.9
-Transportation Cost	20.0	160.0	110.0	290.0
Sub-Total	44.0	2,784.7	110.0	2,938.7
Total Expenditures	956.0	15,826.7	4,406.1	21,188.8

TABLE V GOES EXPENDITURES BY FISCAL YEAR

($000)

COMMODITIES	FY 83	FY 84	FY 85	TOTAL
Pharmaceuticals	600.0	4,800.0	4,200.0	9,600.0
Medical Supplies	5.3	63.7	16.0	85.0
Insecticides	116.1	1,392.6	348.3	1,857.0
Sub-Total	721.4	6,256.3	4,564.3	11,542.0
EQUIPMENT				
Medical Equipment	68.2	545.4	477.4	1,091.0
Warehouse Equipment	59.7	478.0	418.3	956.0
Vehicles & Other Equipment	79.3	951.6	238.1	1,269.0
Transportation Costs	6.8	54.5	47.7	109.0
Sub-Total	214.0	2,029.5	1,181.5	3,425.0
TECHNICAL/PROFESSIONAL SUPPORT/TRAINING				
Personnel National Level	49.0	394.0	345.0	788.0
Sub-Total	49.0	394.0	345.0	788.0
Total Expenditures	984.4	8,679.8	6,090.8	15,755.0

B. Financial Analysis

The project has been designed to provide those unique elements of support identified as critical to the MSPAS. Analysis of least cost alternatives, therefore is not appropriate.

Effects of A.I.D.'s Project on Recurrent Costs

The contribution of the GOES would be in local currency and would consist largely of in kind contribution such as salaries of existing personnel the payment of operating expenses and the procurement of drugs, insecticides and other commodities. The A.I.D. portion consists of a $1,453,000 contribution in local currency and $23,342,600 in foreign exchange. $1,657,400 will be in the form of a grant and $23,342,600 in the form of a loan. The total budget for the project will be as follows:

	(US $000)	Project	Foreign Exchange	Local Currency
A.I.D		25,000.00		
	Loan $23,342.60		21,889.40	1,453.20
	Grant $ 1,657.40		1,657.40	
GOES		15,755.00		15,755.20
	TOTAL	$40,755.00	$23,546.80	$17,208.20

It is essential to separate out those items that will be a recurrent drain on the Ministry's resources and those items that will not. Recurrent costs to the GOES are estimated to increase by approximately $1.7 million per year as a result of this project. This increase is broken down as follows:

Component	Amount of Recurrent Cost (US $000)
Health Supplies Management*	$1.1
Public Health Infrastructure Maintenance	$0.5
Management Information System	$0.1
	$1.7
Items	
Personnel	$0.2
Equipment Replacement	$0.3
Equipment Maintenance	$1.0
Materials and Other	$0.2
	$1.7

This amount represents an increase of only 2.3% over actual MSPAS's expenditures in 1983 (see Table I).

* Includes $0.3 Million of recurring costs from the Quality Control Drug Lab.

TABLE I
Analysis of Project Recurrent Costs

(US $000)

Calendar Year	Additional Budget	Current MSPAS	% of Budget
1984	$1.7	$71.5	$2.3
1985	$1.7	$71.5	$2.3

Interest payments and repayments of principal are not recurring expenses of the Ministry of Health per se. All interest payments and repayments of principal on all of the loans of all the Ministries become the responsibility of the Ministry of Finance.

The Technical Assistance components of the project consist of $1,503,000 in foreign exchange grant. This grant will not represent any cost for the GOES. Likewise, training costs for the amount of $307,200 represent a one-time expenditure and will be paid in part by the grant and loan. See table II below.

TABLE II
Budget for Technical Assistance by Component

(US $000)

	HSM		PHIM		MIS		EMS		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	
Loan	-	-	-	-	-	-	-	-	
Grant	732.5	-	295.0	-	391.0	-	84.5		1,503.0
Total	732.5		295.0		391.0		84.5		1,503.0

TABLE III
Budget for Training by Component

(US $000)

	HSM		PHIM		MIS		EMS		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	
Loan	-	40.0	-	-	-	100.0	4.3	91.5	$253.8
Grant	20	-			51.0	-	-		$ 71.4
	20.4	40.0	-	-	51.0	100.0	4.3	91.5	$307.2

By far, commodities represent the largest component of the Health Systems Vitalization Project (See Table III previous page). Because some of these commodities are consumable or non-durable e.g. pharmaceuticals, or gasoline and oil and therefore require no maintenance, conceptually they may be treated in the same manner as training costs. It is assumed that the Ministry will require no further personnel for dispositions of these non-durables. Indeed the primary reason for the loan of funds for the purchase of these non-durable commodities is that the Ministry has the personnel, but does not presently have the funds to purchase the commodities for use by the Personnel.

The $83,000 for the evaluation of the Project is conceptually similar to training costs. These funds represent a one time cost. Funds for contingency purposes represent no real cost, if no contingencies arise. If a contingency did arise, treatment of the contingency expenditures would be treated conceptually in the same manner as one of the four categories described in previous pages. This project will be subject to regular GOES procedures and internal controls are considered adequate to safeguard funds provided by the Project and to insure their proper use. The Administrative Analysis concludes that all implementing entities involved in the project will be capable of managing their individual portions of the Project.

TABLE III

Account Input Analysis

(US $000)

	A.I.D.	GOES	TOTAL
A. Technical/Professional Support	$ 1,473.50	$ 507.00	$ 1,980.50
B. Support Personnel and Assistance	58.10	--	58.10
C. Special Studies	29.50	--	29.50
D. Training	307.20	281.00	588.20
E. Transportation Costs	670.00	109.00	799.00
F. Commodities	19,598.30	14,858.00	34,456.30
G. Construction	626.60	--	626.60
Total Constant Dollars			
Evaluation	83.00	--	83.00
Contingency	2,153.80	--	2,153.80
Total Project Estimated Costs	$ 25,000.00	$15,755.50	$ 40,755.00

Conclusion

Based upon the above analysis, the GOES should be able to provide their share of Project expenses as proposed in the implementation plan. It is also reasonable to expect that GOES will have the commitment and the ability to continue financing increased recurring costs, which are not excessive, and that MSPAS does have the financial management competence necessary to implement the project.

VII. Implementation Arrangements

A. Administrative Arrangements

The Minister of Health of the Government of El Salvador will assume overall administrative responsibility for this project. The Minister will delegate responsibility for the execution of the project to the Director of the Executive Management Group (EMG). The EMG is fully described in Component I, Subcomponent A. The EMG will work in conjunction with appropriate directorates and divisions within the Ministry.

The EMG will coordinate field implementation of the project in close collaboration with the five MSPAS regional headquarters (re: health centers, units and posts) in addition to the directors of the hospitals. The Director of the EMG will be responsible for overall management of the proposed improvements in the supplies management (including procurement and inventory control), maintenance and management information systems of the Ministry. The EMG will work closely with the Directors of the Malaria Control Program and the Drug Quality Control Program. The EMG will be responsible for coordinating the procurement of equipment and supplies in Component IV, Emergency Medical Services. The training in first aid and trauma management will be coordinated through the Human Resources Department of the MSPAS. The mobile surgical teams will be the direct responsibility of the Minister of Health.

A direct-hire foreign service member of the USAID/El Salvador Office of Human Resources and Humanitarian Affairs will be the project manager. The contractor's Chief of Party (18 PM Supplies Management Advisor) will be the counterpart of the EMG Director. Additional technical assistance (short and long term) will include one supplies management advisor, one inventory control (warehouse) advisor, two procurement advisors, two malaria advisors, two drug quality control advisors, one transportation/vehicle maintenance advisor, one biomedical equipment maintenance advisor plus limited short term technical assistance in biomedical equipment maintenance/installation, one information management advisor plus five short term information management advisors, a health planning advisor one surgical specialist, one first aid specialist, two rehabilitation specialists, and one trauma management (epidemiology of trauma) advisor.

These advisors are very important to the successful implementation of this project. Therefore, the U.S. institution(s) which will provide the project with qualified long and short term technicians will be carefully selected. Demonstrated skills in the management and implementation of international health programs in developing countries will be an essential criterion in this selection.

To ensure close inter-donor coordination, a Project Advisory Group (PAG) will be established. The PAG will be composed of the long term advisors to this project, IDB, PAHO and other relevant UNDP technical advisors. It is expected that the PAG will meet at least twice a month and will be chaired jointly by the PAHO representative and the USAID Project Officer.

The project provides for a baseline study and two evaluations during the two year life of project to assist the MSPAS and AID to monitor the project and measure achievements made toward the anticipated objectives.

B. Implementation Plan

Schedule of Major Events

Because the project is intended to be a short response to a rapidly decaying health situation, most of the project activities take place in the first project year. This project paper will be submitted to A.I.D./Washington for review in July 1983 in an effort to complete the authorization and obligate project funds by August 1, 1983. There will be no conditions precedent to disbursement of funds (other than the standard conditions) with the exception of a condition which pertains only to the construction and rehabilitation of physical structures and another requiring the establishment of the Executive Management Group. As the establishment of the latter is, as of the end of June, 1983, nearly complete, the Mission hopes that the procurement and delivery of essential drugs and medical supplies will begin as soon as possible after the agreement has been signed.

An advance project technical assistance team will be in-country in August 1983 to refine specifications for the commodities, determine probable sources, delivery schedules, etc. The advance team will concentrate immediately upon arrival on determining which items (particularly pharmaceuticals and medical supplies) should be procured through AID's emergency procurement mechanism. A pharmaceutical analysist will be a member of the team to determine the final list of essential pharmaceuticals to be procured. This team as well as the long-term technical assistance will work to more fully develop a detailed implementation and procurement plan.

The project will be implemented over a two year period, with an increased focus on longer-term, institutional development aspects after the response to the emergency medical needs is well underway.

The attached Table illustrates the sequence of major events, including procurement actions, construction/rehabilitation and timing and duration of technical assitance and training.

IMPLEMENTATION PLAN: HEALTH SYSTEMS VITALIZATION PROJECT

No. 519-0291

	PROJECT YEAR I							PROJECT YEAR II						
	CY 1983					CY 1984						CY 1985		
KEY INPUTS	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Component I																								
Subcomponent																								
Health Supplies Management																								
Commodities																								
1. Medical Supplies and Equipment, including Pharmaceuticals Ordering	x						x																	
2. Arrival of goods in country			x			x						x					x							
3. Emergency procurement:																								
a) ordered	x																							
b) recieved			x																					
Technical Assist.																								
1. Procurement Management Advisor (LT) in country				x																				
2. Procurement Advisor (ST) in country				x																				
MSPAS EXECUTIVE SUPPLY MANAGEMENT GROUP Formed																								

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dev.	Jan.	Feb.	Mar.	Apr.	May	June	July
Construction/Upgrading/Commodities																								
1. Warehouse Equipment Ordering and subsequent arrival in country			x	—	—	x																		
2. Construction/ Matazano Warehouse (1500)					x	—	—	—	—	—	—	—	—	—	—									
3. Rehabilitation of Matazano (1000 m2)		x	—	—	—	—	—	x																
4. Design for rehabilitation of regional warehouses (1000 m2)							x	—	—	x														
5. Rehabilitation of regional warehouses									x	—	—	—	—	—	—	x								
6. Design of cold Rooms, Matasano & San Miguel		x	—	—	—	x																		

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dev.	Jan.	Feb.	Mar.	Apr.	May	June	July
7. Construction of cold Rooms	x	—	—	—	—	—	—	x																
8. Cold room/refrig. equipment order	x	—	—	x		x	—	—	x															
Arrival/Installation																								
9. Supplies & Graphics Mat.																								
- Order																								
- Arrival in country																								
10. Commercial Warehouse Transportation	x	—	—	—	—	—	—	—	—	—	—	—	—	—	x									
Technical Assistance																								
1. Supply Management Advisor (LT)			x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	x
2. Warehouse Specialist			x	—	—	—	—	—	—	—	x													
3. Supply Management Advisor (ST)			x	—	—	—	—	—	—	—	x													
Training																								
1. Training of warehouse, supplies management/ personnel			x	—	x		x	—	—	x		x	—	—	x		x	—	—	x		x	—	x

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dev.	Jan.	Feb.	Mar.	Apr.	May	June	July
Subcomponent B																								
Malaria Control																								
Commodities																								
1. Insecticides																								
Orders placed	x																							
3. US/Third Country Training (6PM) Schedule to be determined																								
Component 2																								
Public Health																								
Infrastructure																								
Maintenance																								
Commodities																								
1. Spare parts/ Supplies for vehicles																								
Bids out		x																						
Orders placed					x																			
Arrival in country						x																		
2. Vehicles/Ambulances Orders placed	x																							
Arrival in country					x																			
Other vehicles																								
Out for bid	x																							
Contract signed						x																		
Arrival in country							x																	
3. Maintenance parts for Medical Equipment																								
Out for bid	x																							
Contract signed						x																		

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Contracts signed			x																					
Arrival of Goods					x																			
2. Antimalaria Drugs																								
Order Placed	x																							
Contracts Signed		x																						
-Arrival of Goods				x																				
3. Equipment/Supplies/vehicles																								
Out for bid	x																							
Contracts signed			x																					
Arrival of Goods					x																			
4. Technical Assistance																								
Malaria Advisor (LH)						X																		X
Equipment Advisor (2 PW)							X																	
5. Emergency Procurement of Propoxur and Chloroquin Diphosphate																								
Order Placed	X																							
Receipt			X																					
Subcomponent C Drug Quality Control Lab																								
1. Commodities/ Construction					x																			
Site selection					x				x															
Construction Upgrading								x																x
2. Equipment Orders Placed								x																x
Technical Assistance																								
1. Drug Quality Control Manag. Specialist																								
2. Laboratory Management Specialist																								

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
[illegible] Maintenance																								
- [illegible] Maintenance Depot (15 months)	x	—	—	—	—	—	—	—	—	—	—	—	x			x				x			x	
- Biomedical Equipment (12 months)	x	—	—	—	—	—	—	—	—	—	—	—	x											
- Biomedical Specialist (2 months)																								
Component 3 Management																								
Information System																								
Commodities																								
- Hardware/software																								
Bid out						x																		
Order Placed								x																
Arrival in country										x														
- Support Equipment for computer system																								
Bid out						x																		
Order Placed								x																
Arrival in country										x														
Technical Assistance																								
- Management Information Specialist	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	x

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dev.	Jan.	Feb.	Mar.	Apr.	May	June	July
- Short Term T.A. for Subsystem design						x					x													
Component 4 Emergency Medical Services Components																								
- Short-term T.A. for trauma management/wound-stabilization	x				x																			
- Short-term T.A. for studies		x		x								x												
Commodities (Ambulances, generators, surgical equipment, etc.	x											x												
Training Implementation		x				x																		
Project Evaluation																								
1) baseline study		x																						
2) mid-term evaluation												x												
3) Final Evaluation																								

C. Procurement Plan

1. Responsible Agency

a) Emergency Drug and Medical Supplies Procurement: As explained in the Project Description section of the PP, MSPAS drug and medical supplies inventory will be critically low by the end of September 1983. For this reason the GOES has requested AID to undertake an emergency procurement of a "short list" of selected items. USAID/El Salvador has supplied a copy of the list to SER/COM for their review. In the meantime USAID will contract a team of advisors to develop refined specifications for the entire list of commodities, including the emergency items. As soon as the Project CP's have been met USAID will notify SER/COM to act as the GOES agent for the emergency purchase through GSA and other government agencies.

b) Non Emergency Procurement: As explained in the Project Description of the PP, the MSPAS has had poor record of undertaking large complicated, procurements. For this reason USAID/El Salvador is exploring alternative means of effecting the non-emergency procurement. Although the arrival date is not as crucial as that of the emergency requirements, the procurement actions must begin shortly after the Project CP's have been met. For this reason USAID is investigating the costs and benefits of the following alternatives contracting entities:

i. The B/G through the services of the technical assistance advisors in supply management and logistics on a country contracting basis, or,

ii. The B/G acquiring the services of a contractor who can ideally combine the provision of technical assistance personnel with the management of the procurement process.

2. Equipment and Commodity List:

According to current projections, the general equipment and commodity list attached as Annexes to this plan will be purchased with project funds. Refinement of the list may result in minor shifts from one commodity to another, or minor substitutions, but the overall emphasis will not be changed. Exact specifications for both local and U.S. procurements will be developed by a team of advisors to be contracted in July and August 1983.

3. Source and origin:

The authorized source and origin for all drugs and pesticides will be 000, in accordance with Handbook 1B, Chapter 4. The remaining commodities will be procured in accordance with Handbook 11 from Code 941, and local (for construction materials). Construction services will be contracted with local firms as no U.S. companies are currently operating in El Salvador.

4. Method of Procurement:

The majority of procurement will be accomplished through the use of formal procurement procedures and Invitations for BID (IFB), including construction services. In all cases good commercial practice will be used to obtain a reasonable number of potential suppliers.

5. Delivery:

The emergency procurement will be transported by air into San Salvador under USG contract. All other commodities will be shipped by ocean transportaton to the most appropriate port on the basis of CIF port or San Salvador. Suppliers will provide all risk marine insurance.

6. Receipt and Utilization:

The MSPAS will be responsible for the proper reception and clearance of incoming project commodities. Inspection of incoming shipments must be made and receiving documents shall be annotated with comments on evident or possible damages/losses. The MSPAS will initiate all insurance claims when applicable.

VIII. EVALUATION PLAN

The Project calls for three project evaluation activities: a) Baseline, b) Mid-term Evaluation, and c) Final Evaluation.

The scope of work for the three evaluation activities will include as the underlying themes, four continuing areas of study: a) examination of overall health needs of the Salvadoran people; b) review and evaluation of existing and proposed A.I.D. health projects; c) recommendations on providing health services in El Salvador; and d) assessment of the need to train new paramedics and upgrade the skills of nurses and other health personnel.

The three activities will involve US and Salvadorean technical assistance, GOES, and USAID/San Salvador personnel. All available information gathered by the project's trauma study, to be conducted independently of the project evaluation (see Component IV), will be made available to the project evaluators.

Due to the short duration of this two-year project which is designed to be responsive to the immediate needs of the MSPAS (e.g. provision of critical needs of pharmaceuticals, supplies and equipment, development of "quick response" emergency medical services, etc.) the Mission recommends a project evaluation methodology which will permit subsequent measure of change in the four MSPAS systems to which this project is specifically addressed:

- Health Supplies Management (including malaria and drug quality control);

- Public Health Infrastructure Maintenance;

- Management Information System;

- Emergency Medical Services.

BASELINE STUDY

In September/October, 1983 a baseline study will be conducted over a period of one month at which time indicators will be selected and data collected and analysed. The subsequent evaluations will measure change effected in this list of basic indicators during the project.

The baseline study will develop and leave in place simple, routine forms which the MSPAS health personnel will complete for subsequent collection and analysis.

Since the project will encourage management improvement of various MSPAS systems the indicators may include, but will not be limited to, such varied indicators as follows:

- availability of selected essential pharmaceuticals at various levels of health care delivery system (e.g. warehouse, hospital, post);

- length of time from the moment a request is placed by a health facility for a pharmaceutical, medical supply item, or spare part to receipt of that item;

- number of vehicles in operating condition;
- "down time" on vehicles and medical equipment;
- amount of non-functioning (non-usable) equipment taking up space in MSPAS warehouses, repair shop, etc.;
- number of pieces of medical equipment repaired per month;
- volume of vaccines handled through the MSPAS cold chain per month;
- percentage of planned number of houses actually sprayed (malaria program);
- number of trauma cases transported by ambulance;
- volume of pharmaceuticals quality tested by the MSPAS.
- etc.

MID-TERM EVALUATION

In July 1984, the mid-term evaluation will be conducted over a period of one month which will measure progress made since the baseline study. The evaluation will be conducted on the basis of field trips, interviews with personnel at various levels, administrative and technical reports, including PAHO and IDB reports.

The technical assistance required is expected to include two persons for one month each and a malaria advisor for two weeks. The team will be assisted by Salvadoran consultants, as necessary, and will have limited funds available for data collection, analysis, translation, etc.

A program evaluator is included in the team in order to assess and provide recommendations particularly concerning the:

a) Utilization of insecticides and anti-malaria drugs including logistic and supply procedures;

b) Spray and larviciding operations, including coverage and efficiency; and

c) Insecticide handling and safety measures.

The team will make recommendations regarding any additional technical assistance in management which may be indicated, particularly if broader management problems of the MSPAS inhibit successful and timely implementation of the project.

The evaluation will identify problem areas or constraints which may inhibit the attainment of project objectives.

FINAL EVALUATION

The final project evaluation will be conducted in approximately July 1985 for a period of one month which will measure progress since the mid-term evaluation toward attainment of the objectives of the project. This team will also measure to what degree the GOES complied with the covenants of the project. The team will make recommendations for any follow-on AID project in health with the MSPAS which may among other objectives, focus on management issues and human resource development.

BUDGET FOR PROJECT EVALUATION

	YEAR I	YEAR II
A. Baseline Study		
1. Baseline Survey Consultant (1 PM ea. at $11,000)	$ 11,000	
B. Mid-Project Evaluation		
1. Two U.S. Evaluators (1 PM at $11,000/mo.)	$ 22,000	
2. Malaria Program Evaluator (2 PW at $11,000/mo.)	$ 5,500	
C. Final Project Evaluation		
1. Two U.S. Evaluators (1 PM ea. at $11,000/mo.)		$ 22,000
2. Malaria Program Evaluator (2 PW at $11,000/mo.)		$ 5,500
D. Other Costs		
Locally contracted technical assistance, in-country travel, data collection and analysis, miscellaneous costs.)	$ 10,000	$ 7,000
Sub-Total	$ 48,500	$ 34,500
TOTAL		$ 83,000

IX. CONDITIONS, COVENANTS AND NEGOTIATING STATUS

The project has been discussed in detail with the Minister, Sub-secretary (Vice-Minister) and many other Ministry of Health (MSPAS) officials during the formulation of the four components described herein. Also the project has been reviewed in depth with the Ministry of Planning and this PP reflects the outcome of the discussions held. The substance of the project, including the following conditions precedent and covenants, has been negotiated and no difficulties are foreseen in concluding negotiations of the project's grant and loan agreements.

In addition to the Standard Conditions Precedent (legal opinion, specimen signatures, designation of authorized representatives) the following clauses will be required in the loan and grant agreements.

A. Conditions Precedent

1. For Construction and Facility Refurbishing Activities
Prior to disbursement under the loan a) for each construction activity involving the construction of a new MSPAS facility or the substantial reconstruction of an existing MSPAS facility and b) for each activity involving the repair and refurbishing of existing facilities. GOES shall furnish to AID, in form and substance satisfactory to AID, the following:

a) plans, specifications, bid documents and time schedules for each construction activity; and

b) an executed contract fgor construction supervision of such activity; and

c) an executed contract for construction services for such activity with a firm acceptable to AID; and

d) a detailed plan and budget for each repair and refurbishing activity; and

e) a description of the arrangements made for supervision and the repair aspects of such refurbishing activity; and

f) an executed contract(s) for such repair and refurbishing services with a firm acceptable to AID or a description of arrangements satisfactory to AID for carrying out such work.

2. Establishment of the Executive Management Group (EMG)

Prior to disbursal of loan or grant funds, the MSPAS will submit to USAID/El Salvador satisfactory evidence that the EMG is legally constituted, and members identified and appointed. In addition, the MSPAS will present a detailed description of roles, functions and responsibilities, and curriculum vitae of EMG members, USAID/El Salvador approval.

B. Covenants

1) GOES agrees to assign the required GOES management and technical staff required to adequately carry out the project at all levels. Existing personnel will be reallocated to meet project requirements. This is particularly relevant for the Executive Management Group, and the mobile surgical teams.

The GOES agrees to provide funds necessary to hire or contract or otherwise fill the positions vacated by those MSPAS personnel who have been seconded to the EMG for the life of the project. Regarding the emergency mobile surgical teams, the MSPAS covenants to provide incentive pay/hazardous duty pay to the three teams (3 persons per team) involved.

2) GOES agrees to reduce vehicle inventories, hospital equipment inventories, and medical supply inventories for those items that are beyond repair (unservicable) and to eliminate stocks of expired drugs.

3) GOES agrees that a preventive maintenance program for all biomedical/electromechanical equipment, vehicles and facilities will be developed, particularly for the new equipment, vehicles and facility improvement provided through this project

4) GOES covenants that should new chemical, biological or physical malaria control methodologies be introduced into the program after the approval of this project, the environmental impact will be reviewed, and, if necessary, environmental studies or assessments will be carried out.

5) GOES, through the Division of Malaria, shall prepare by October 1, 1983 and again by December 5, 1984 and provide copies to AID an annual plan detailing safety measures and procedures to be followed in the application of all insecticides used in the program.

6) The GOES shall take appropriate safety measures for the use of insecticides furnished through this project, including the provision of safety equipment to insecticide handlers and training of spray personnel engaged in actual application of field supervision. The GOES shall also maintain rigid control over the quality of the insecticides procured for the program to ensure that they meet WHO and AID technical specifications.

7) GOES covenants a willingness to consider legal, regulatory and administrative reform as necessary measure to establish an integrated drug quality control program.

ANNEX A

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

PROJECT LOCATION:	El Salvador
PROJECT TITLE:	Health Systems Vitalization
LIFE OF PROJECT	FY 1983 - 1985
FUNDING (000)	A.I.D. = $ 25,000,000 GOES = $ 15,755,000 TOTAL = $ 40,755,000
IEE PREPARED BY	Lawrence T. Cowper Health Science Administrator, S and T/Health, AID/W.
ENVIRONMENTAL ACTION RECOMMENDED	Negative Determination. No further environmental analysis is required. If new chemical, biological or physical malaria control methodologies are introduced into the program after the approval of this project the environmental impact will be reviewed, and, if necessary, environmental studies or assessment will be carried out.
MISSION DIRECTOR'S :	Signature Martin Mayalta
CONCURRENCE	Date 7/13/83
DECISION OF ASSISTANT ADMINISTRATOR	Approved _____ Disapproved _____ Date _____

INITIAL ENVIRONMENTAL EXAMINATION

1. Project Description

This project will provide technical assistance, limited training and commodities to assist the Government of El Salvador to implement its nationwide malaria control program. The project will provide funding to be used in an effective malaria control program focusing on the rural population of El Salvador, thus enhancing economic and social development iln the fields of health and agriculture. The program will carry out environmental improvements, larviciding, water management, and ULV adulticide activities as well as limited residual spraying. The project will enhance the quality of the environment in those rural and urban areas where source reduction and water management practices are made a part of the program. Insecticides will beused in the program. These chemicals which have been used in El Salvador with adverse effects over the last ten years will be applied in a manner which is not detrimental to the environment. Health safeguards fand protective clothing are in place in the field program and careful attention is paid to training and supervising the handling and application of insecticides.

II. Evaluation of Environmental Impact

The general A.I.D. Environmental Impact Statement (EIS) included an in-depth review of the impact of malaria programs on the environment. The conclusions of the EIS were that the major insecticides used in malaria control programs have a favorable risk-benefit impact on the environment due to their method of application in public health programs. In 1977, a comprehensive Environmental Assessment undertaken in Sri Lanka concluded that residual insecticides used in malaria control efforts are not detrimental to the environment and have a very favorable risk benefit. In May, 1980, an Environmental Assessment carries out on the use of similar residual insecticides and larvicides in India's malaria control activities reached similar conclusions.

One of the purposes of the comprehensive EIS submitted by A.I.D. and accepted by the Environmental Protection Agency (EPA) was to avoid duplicating environmental review effortgs for projects of a similar nature in countries with comparable conditions. Environmental studies have been made on malaria control programs in the last four years in India, Thailand, Nepal, Haiti and Sri Lanka with a similar favorable risk-benefit conclusion. The points of similarity between this project and previous environmental studies, both of residual insecticide use and other methods of malaria control should obviate the need for another major analysis. All the above reports are available in AID/Washington.

Chemical Control Aspects

In addition to DDT, BHC, fenitrothion and Malathion, the El Salvador Malaria Program has been applying a number of organophosphorus and carbonate insecticides in its spray operation program since 1973 in limited areas of the country. Under this project, the GOES does not plan to use the insecticides malathion, DDT and BHC, but is expected to apply

propoxur and/or fenitrothion on a limited and selected scale. Both of these insecticides are bio-degradable. The GOES malaria program will also be applying a larvicide, Abate, in its field program. Abate has been used in malaria and mosquito control programs for approximately twenty years and is a safe product which is registered without restriction as mosquito larvicide in the U.S. by the Environmental Protection Agency (EPA).

Fenitrothion has gone through the seven stage trials of screening by the World Health Organization (WHO) and is one of the compounds recommended by WHO for residual spraying in malaria control programs. Fenitrothion like Malathion does inhibit cholinesterase activity, but to date El Salvador has not experienced any major health problems in its spray operations with this insecticide due to the safeguards built into the program of protective clothing, frequent testing of cholinesterase levels in personnel, adequate supervision, regular and refresher training, and proper storage and distribution practices. Fenitrothion has been used recently in Haiti, Thailand and India in their operational malaria programs. All three of these malaria control programs are being assisted by A.I.D. Fenitrothion is registered in the U.S.A. with the Environmental Protection Agency (EPA) for a variety of uses. There have been numerous significant studies on the environmental impact of fenitrothion since it was reported as a chemical in 1956. These studies include tests on man, cows, dogs, rats, rabbits, fish, birds, steers, and sheep. In a WHO program using fenitrothion as a residual insecticide in Kisumu, Kenya, only one mild case of intoxication was reported in 2000 man-days of spraying. Fenitrothion was applied widely as a residual spray in the Punjab Province of Pakistan in 1981, and no serious intoxication of sprayman or villagers was reported. Fenitrothion has been used in El Salvador for approximately 10 years in the malaria control program. There have been incidences of fenitrothion intoxication with spray personnel, but all cases have successfully recovered usually within a short period of time. There have been no deaths reported from any insecticide intoxication in the malaria program.

As fenitrothion is a wide-spectrum insecticide, it is apt to kill a number of non-target organisms in the areas where it is used unless accurate operational techniques are adopted. This insecticide is highly toxic to bees, but as its primary use in malaria control is as an indoor residual spray, this should not cause environmental problems. Additional information on fenitrothion is available in various EA's prepared for other malaria control programs.

The larvicide, Abate, an organophosphate, is to be used as a supplemntary control measure during the life of the project in some locations mainly during the drier portions of the year. This compound has been shown to have low toxicity even if taken orally and applied dermally. Normal applications of Abate as a larvicide in water is about 0.5 ppm. Even if an adult were to drink the water treated directly and if 2 liters were consumed, the maximum amount of Abate inbided daily would be 1 mg. This compares with a dosage of 256 mg./man/day fed to

human volunteers for 5 days and 64 mg./man/days for four weeks without clinical symptoms or side effects. Through the dermal route, Abate was found to be even less toxic. Abate has a short half life, is not stored in the body, and produces no known chronic or residual effect. Abate offers little potential for harm to human health. (Page 244, AID, EIS).

The insecticide, Propoxur, is a carbamate which has both contact and fumigant action. This insecticide is applied as a residual spray at 2 grms/square meter and is effective up to three months. Propoxur is registered by the EPA in the United States for residual control of adult mosquitoes. The Malaria Division has used this compound successfully over the last ten years in El Salvador without incidence to either spray personnel or village populations. Precautions are taken by the Malaria Division in applying Propoxur by intensive training in the handling and application by spray personnel, provision of protective clothing, rigid supervision and educational effort in the villages. Spraymen are required to wash after a days' work and before smoking or eating. No cholinesterase monitoring is indicated when carbamate insecticides are applied since the inhibited enzyone reactivated too quickly for this to be a useful preventive measure.

The Malaria Division plans to use very limited quantities of synthetic pyrethroids in the program in U.L.V. applications. Due to its expense, the application of this material will be made only on a selective focal basis at a time of unusually high vector mosquito densities. The program has used synthetic pyrethroids over the last 8-10 years without incidence. This insecticide is a knock-down chemical and has no residual or very limited residual effect. The oral LD50 of Permethrin, a synthetic pyrethroid, is 4000 mg./kg. which indicates a very safe product. It is applied at 5-10 grams of actual material to a hectare of land and at this dosage rate there are no adverse environmental implications. It biodegrades rapidly. The toxicological information available indicates no serious health environmental problems should arive from use of this material, but care inhandling and application are to be carried out by the Malaria Division through proper training of concerned personnel adequate supervision and provision of protective clothing. The USAID assistance project will not be procuring this insecticide as a part of its commodity arrangements and it is mentioned in this IEE only for its environmental effect. Permehrin is registered by the EPA for adult mosquito control in the U.S. using ULV or Cold Fogger techniques. Attached to this IEE, please find EPA certifictions of the insecticide described in this IEE.

Environmental Management

The project does not plan to use limited environmental management techniques in its program by use of (1) environmental modifications such as draining or filling; (2) Environmental manipulations by saline regulations or flushing; and (3) by reducing non-vector contact through the design and siting the villages, promotion of the use of bed nets. It is expected that any of the environmental management actions taken will lead to an improvement of the environment and will not create environmental hazards or problems. A U.S. consultant for source reduction planning and training has been included in the Project Paper Technical Assistance inputs.

Biological Control

The Malaria Division some years ago tried larvivorous fish in its program but this effort did not prove satisfactory. If these trials are again started,there will be no fish species introduced into the country for larva control purposes during the life of the project. The project also does not plan to introduce any operational procedures involving the use of parasites (nematodes), pathoges (Bacillus thuringrensis), chemosterilants, genetic manipulations. It is possible that some research efforts will be made using B. Thuringiensus (BT1-13) as this method is showing some promise as a natural larvicide in other areas if such research could be supported with additional personnel and funding.

Health Safeguard

Special attention is given to the handling of the insecticide concentrates (both water dispersible powders and emulsion concentrates) by the Malaria Division. In the case of Propoxur, the project is designed to provide this insecticide by separate packets which will fill one pump. These packets carry a warning notice and ID label which eliminates personnel exposure due to packaging and weighing a bulk product. In preparing suspension or emulsion of the insecticides, use is made of long handled mixers to protect the operator from splashing and allow stirring from a standing position.

Insecticide concentrates left over from the operation (unused packets or liquid concentrate) and the empty containers are returned from the field and either stored or disposed of safety in a manner not to contaminate water sources or create any other environmental hazard. The washing of spray equipment is done in a manner which will not allow the washings to enter well, streams, lagoons, swimming pools or any other water source which could be used by persons or animals for drinking or washing.

It should be noted that each spraymen received up to 15 days training each year in spray techniques and operational matters prior to the initiation of the major spray cycle. Approximately 15% of their training time is spent on health safeguards for both personal and village protection. At the start of the spraying cycle each sprayman is issued 3 sets of protective uniform which includes a long sleeve shirt, a metal helmet, rubber gloves which extend about half way to the elbow, rubber boots, a gauze face mask (if required) and some belladona drops in case of a sudden emergency. Spraymen are supervised to change uniform on a regular every other day basis.

Each spraymen is also issued a personal instruction booklet describing the proper techniques and precautions to take when employed a malaria program spray operator. There a series of instructions issued by the malaria program for spraymen, team leaders, Chief of Zones and villages which are to be followed in the application of insecticides. Copies of these instructions are attached in this IEE.

Re "Manual Operaciones de Rociado" issued by the GOES Division of Malaria and used as a guide by the program contains instructions on health safeguards which are to be followed by field personnel in applying insecticides and in training. There are specific instructions for fenitrothion and propoxur in this manual. A copy is available at USAID/El Salvador.

In the course of preparing the IEE visits were made to the warehouse facilities at the Central Level and at several outlying storage points by members of the Project Paper Team. The Central Warehouse was visited on May 20, 1983 and was found to be secure, constructed in a manner to protect the insecticide from rain and direct sunlight exposure, with a solid floor and in good housekeeping condition. The outlying storazge units at San Miguel were also reported as being satisfactory.

Attached to this IEE are copies of official documentation on the application and storage of insecticides issued by the Division of Malaria. These instructions are considered suitable and adequate for this program.

Project Monitoring

The project foresees the employment of a local-hire contract malaria officer to insure that training in health safeguards is carried out and to observe actual field operations at the time of spraying. A report on each site visit will be made. A copy of the proposed form to be used in these visits is attached.

Other Factors

El Salvador uses a large amount of insecticides in its agriculture activities of which many of the compounds are very toxic and have far more human health hazards than the insecticides used in the malaria program. There is very little control on the use and storage of these agriculture chemicals. The insecticide used in the Malaria Program represents less than 1% of the insecticide estimated for use in El Salvador for the year 1983. The Malaria Program will continue to make every effort to protect the environmental, its workers and the population from mis-use of any of its working insecticides, but its over-all environmental effect is limited when compared to insecticide used in other activities. Attached to this IEE is a breakdown of insecticides used in Agriculture in El Salvador by name and amount used and projected.

III. Recommendation

In view of the above examination of the environmental issues of this project, it is recommended that a negative determination be made for this project.

AID-1330-24
(10-79)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project:
From FY 1983 to FY 1985
Total U.S. Funding 25.0 M
Date Prepared:

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

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: To improve the health status of the poor Salvadoran population.	Measures of Goal Achievement: Morbidity and mortality rates reduced, particularly among lower-income Salvadorans.	MOH reports	Assumptions for achieving goal targets: That increase and improvement in the primary health care services will not be offset by other factors (civil violence, epidemics, declining economic conditions).
Project Purpose: 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.	(1) Increased by 40% the quantity of pharmaceuticals, medical supplies, and essential equipment for the primary health care system. (2) Reduction of procedures/time needed for MOH to procure and distribute medical commodities. (3) Decrease of 20% in loss of drugs, supplies in the health care system and 30% drop in numbers of days medical equipment and vehicles are not operational. (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 a 10% increase in patient load and/or prescription/drugs administered.	MOH Department of General Administrative Services Procurement and inventory records, MOH hospital, health center, unit, post patient records. MOH Dept. of Statistics reports, Site and Division of Malaria Statistics Site visits and supervision reports.	MOH continues its commitment to improvement of primary health care services. Civil violence does not create further disruptions in these systems. T.A. will be accepted by the Ministry. Foreign exchange continues to be available to the MOH to maintain their projected purchases for FY 1983 and 1984.

AID 1020-19 (10-70) SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY 1983 to FY 1985
Total U.S. Funding 25.0 M
Date Prepared:

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

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:		Assumptions for achieving outputs:
1. Increased availability of drugs/medical supplies in MOH facilities.	1. Increase of 20% in 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 improvement of those systems specified and 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 available on a timely basis be trained.
3. Additional warehouse space available.	3. Construction of an additional 1,500 mt.^{2} at Matazano Central Warehouse, and upgrading of 1,000 mt.^{2} among the 5 regional warehouses.	Site visits, construction reports.	
4. Completion of the nation-wide cold chain.	4. Construction of 2 cold rooms, one at Matazano, and the other at San Miguel. One refrigerator truck in-country and operating, 20 refrigerator units and 7 freezers installed and functioning.	MOH/project reports.	
5. MOH printing/reproduction equipment capability improved.	5. Installation/functioning of printing machine, press, reproduction camera, in MOH print shop.		

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1983 to FY 1985
Total U.S. Funding 25,0[illegible]
Date Prepared:

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

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:		Assumptions for achieving outputs:
6. Incidence of Malaria in most prevalent are reduced.	6. Decrease of 5% in incidence of Malaria in places which contain 85% of the Malaria cases. Full spraying takes place in 1984.	Division of Malaria reports.	
7. Improvement in MOH drug quality regulatory capacity.	7. Movement of responsibility for drug quality control to the MOH. Establishment of a small drug quality control lab in the MOH and 5 lab personnel trained in-country by Drug Quality Control Specialist and Laboratory Management Analyst.	Site inspection	
8. Maintenance/repair capability for the MOH improved for vehicles, physical plant, medical and equipment.	8. Four additional positions in the MOH Division of Transportation. Average cost of repair and maintenance per car reduced. Reduction to 15% of the number of deadlined vehicles in the first project year. Reduction to 10% at the end of the project.	Division of transport statistics inspection of vehicle fleets.	
9. Improvement in maintenance/capability for medical electro-mechanical, sanitation equipment and physical plant.	9. Increase of 40% in maintenance visits by MOH Department of Maintenance personnel to health centers, units and posts.	Department of Maintenance Records	
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 and supply management	Department of General Services Administration records.	

AID 1020-24 (7-71)
SUPPLEMENT I

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1983 to FY 1986
Total U.S. Funding 25.0 M
Date Prepared:

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

PAGE

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	**Magnitude of Outputs:**		**Assumptions for achieving outputs:**
11. Improve Ministry's capacity to provide emergency medical services, specifically for 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.	MOH/projects reports.	
	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.	MOH/consultant reports.	
	Ground casualty transport system strengthened by addition of 27 ambulances, some of which are radio equipped.		
	Power and water supply systems improved in hospitals, centers, units.		

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1983 to FY 1985
Total U.S. Funding 25.0
Date Prepared:

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

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Inputs:	Implementation Target (Type and Quantity)		Assumptions for providing inputs:
1. A.I.D.			
a) Health Supplies Management	($ 000)	Controller's Records	Timely availability of funds.
Commodities	14,363.4		
Technical Assistance	732.5		
Training	60.4		
Executive Supply Mgt. Group	58.1		
Construction/upgrading	626.6		
Commercial Transport/Warehousing	25.0		
	15,866.0		
b) Public Health Infrastructure Maintenance			
Commodities	2,184.0		
Technical Assistance	295.0		
	2,479.0		
c) Management Information Systems			
Commodities, local maintenance contract	853.0		
Technical Assistance	391.0		
Training	151.0		
	1,395.0		
d) Emergency Medical Services			
Commodities	2,552.9		
Technical Assistance	55.0		
Training	95.8		
Special Studies	29.5		
Emergency Transportation Costs	290.0		
	3,023.2		
e) Evaluation	83		
f) Contingency	2,153.8		
GRAND TOTAL	25,000		

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SUBJECT: HEALTH SYSTEMS VITALIZATION PID (519-0291)

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USAID EL SALVADOR

1. THE SUBJECT PID WAS REVIEWED AND APPROVED BY THE IAC BUREAU ON APRIL 13, 1983. BECAUSE OF SEVERAL UNRESOLVED ISSUES, PRIMARILY THE INSTITUTIONAL CAPACITY OF THE MSPAS AND THE INTERRELATIONSHIP OF THIS PROGRAM TO A POTENTIAL EMERGENCY EFFORT DIRECTED AT THE CIVILIAN CASUALTY SITUATION IN EL SALVADOR, IT WAS DETERMINED THAT THE PROJECT PAPER SHOULD BE REVIEWED IN AID/W. AS INDICATED BY THE MISSION, BUREAU EXPECTS THAT PP WILL BE SUBMITTED TO AID/W IN LATE JUNE OR EARLY JULY FOR OBLIGATION BY JULY 31. THE FOLLOWING COMMENTS AND GUIDANCE ARE PROVIDED BY THE IAC TO ASSIST THE MISSION IN PP PREPARATION AND DEVELOPMENT.

A. SCOPE OF PROJECT: THE PROJECT ENCOMPASSES A MIX OF ACTIVITIES DESIGNED TO ADDRESS BOTH THE SHORT-TERM OBJECTIVE OF RESTORING THE PUBLIC HEALTH SYSTEM'S ABILITY TO PROVIDE PRIMARY HEALTH CARE SERVICES, AND LONGER TERM INSTITUTIONAL DEVELOPMENT GOALS. BECAUSE OF THE ONGOING CONFLICT, THE UNCERTAINTY SURROUNDING THE POLITICAL AND ECONOMIC SITUATION, AND THE DEBILITATED CONDITION OF THE HEALTH SERVICE SYSTEM, THE PROJECT SHOULD BE DESIGNED BASICALLY TO SUPPORT THE SHORT-TERM OBJECTIVE. THE MISSION SHOULD REVIEW ALL PROJECT PROCUREMENT, INCLUDING PHARMACEUTICALS, MEDICAL SUPPLIES, INSECTICIDES, LARVICIDES, SPARE PARTS, AND EQUIPMENT FOR THE RURAL WATER AND SANITATION PROGRAM, BASED ON THIS CRITERIA. MISSION SHOULD ALSO ASSESS EACH PROJECT ELEMENT AND REQUIRED TECHNICAL ASSISTANCE, INCLUDING THE DRUG QUALITY CONTROL LABORATORY, CONSTRUCTION OF STORAGE WAREHOUSES, AND THE INFORMATION SYSTEM, AND JUSTIFY THEIR INCLUSION IN THE PROJECT IN THIS RESPECT.

B. POLICY DIALOGUE: ALTHOUGH THE PID IDENTIFIES SEVERAL OPPORTUNITIES FOR POLICY DIALOGUE, THE ISSUES AND THE POSSIBLE LEVERAGE THAT COULD BE BROUGHT TO BEAR ON THESE PROBLEMS NEED TO BE ADDRESSED MORE SPECIFICALLY. ALTHOUGH THE SHORT-TERM, QUOTE QUICK-FIX UNQUOTE NATURE OF THE PROGRAM MAY PRECLUDE MAJOR SECTOR-WIDE POLICY CHANGES, THE BUREAU WOULD EXPECT THAT DISCUSSIONS OF ISSUES DIRECTLY RELATED TO PROJECT OBJECTIVES WOULD BE INITIATED IN THE EARLY PERIOD OF PHASE II IMPLEMENTATION. THESE SHOULD INCLUDE USER FEES FOR

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DATE: 5-9-83
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HEALTH SERVICES, PRICING POLICIES FOR PHARMACEUTICALS, AND LACK OF FOREIGN EXCHANGE TO IMPORT RAW MATERIALS NECESSARY FOR PROCESSING OF PHARMACEUTICALS.

C. MSPAS PHARMACEUTICAL PROCUREMENT: THE PID CONTAINS A DOLS 500,000 EARMARKING FOR PROCUREMENT OF PHARMACEUTICALS. A.I.D. PROCUREMENT REGULATIONS FOR DRUGS REQUIRE U.S. SOURCE AND ORIGIN AND STRINGENT CONDITIONS HAVE BEEN PLACED ON WAIVING OF THIS REGULATION. A WAIVER REQUIRES THAT THE PHARMACEUTICAL MUST BE ESSENTIAL TO THE PROJECT, COST AT LEAST 50 PERCENT MORE THAN FROM THE U.S., AND MUST BE ABLE TO MEET THE QUALITY, EFFICACY, AND SAFETY STANDARDS OF THE U.S. FDA (SEE HB 15, APPENDIX B). THE MISSION SHOULD LOOK CAREFULLY AT LOCAL PROCUREMENT OF PHARMACEUTICALS (I.E. THAT PHARMACEUTICALS ARE PURCHASED LOCALLY BY THE MSPAS, COST OF THOSE PHARMACEUTICALS, VOLUME PURCHASED PER ANNUM, METHODS TO IMPROVE THE EXISTING QUALITY CONTROL STANDARDS, CAPACITY OF LOCAL INDUSTRY TO EXPAND PRODUCTION, ETC.) THE PP SHOULD INDICATE WHAT PHARMACEUTICALS ARE TO BE PROCURED UNDER THE PROJECT FROM BOTH LOCAL AND U.S. SOURCES, ANY CHANGES ANTICIPATED FROM THE EXISTING PATTERNS OF PURCHASING, THE WAIVER(S) THAT WILL BE REQUIRED, AND THE JUSTIFICATION FOR ANY WAIVER(S).

D. INSTITUTIONAL DEVELOPMENT: THE PP TEAM SHOULD ANALYZE THE POTENTIAL FOR SUCCESS OF THE INSTITUTIONAL DEVELOPMENT ASPECTS OF THE PROJECT (RECOGNIZING AGAIN, THAT WE ARE HERE TALKING ONLY OF SUCH LIMITED INSTITUTIONAL DEVELOPMENT AS WOULD BE REQUIRED TO CARRY OUT THE SHORT TERM OBJECTIVES OF THE PROJECT). IF IT IS DETERMINED THAT THE MSPAS IS INCAPABLE OF CARRYING OUT ANY OR ALL OF THE SHORT-TERM ASPECTS OF THE PROGRAM, THEN PRIVATE SECTOR ALTERNATIVES SHOULD BE EXPLORED TO MAKE THE HEALTH SUPPLIES MANAGEMENT/MAINTENANCE SYSTEM FUNCTIONAL.

E. FINANCIAL PLAN: A BREAK OUT OF THE TOTAL LEVEL OF FINANCING NEEDED FOR CONSTRUCTION, TECHNICAL ASSISTANCE, TRAINING, AND COMMODITIES FOR ALL TERMS OF THE PROJECT COMPONENTS, AND SUBTOTALS FOR EACH OF THESE INPUTS FOR PROJECT COMPONENTS, SHOULD BE INCLUDED IN THE PP FINANCIAL PLAN. DAM

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ANNEX D

Oficio No. 1219
Extracto No.
No. del Exp

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

San Salvador 30 de junio de 1983

Sección CORRESPONDENCIA

Asunto: Solicítase préstamo a la Agencia Internacional para el Desarrollo.

Señor Martín V. Dagata
Director de la Agencia Internacional
para el Desarrollo (A.I.D.)
C I U D A D.

Como es de su conocimiento, una de las altas prioridades del Gobierno de El Salvador la constituye el mejoramiento del estado de salud de la población salvadoreña.

Es obvio así mismo, que la grave situación por la que atraviesa el país, ha provocado un deterioro en la prestación de servicios de salud a la población en general motivado esto por una seria crisis presupuestaria que ha dado como resultado la carencia de medicamentos, en algunas ocasiones básicos, así como de suministros médicos.

Por esta razón, el Ministerio de Salud Pública y Asistencia Social ha llegado a la conclusión que es necesario fortalecer urgentemente los esfuerzos gubernamentales para mejorar la administración de los Programas de Salud y de los sistemas de logística y mantenimiento a fin de asegurar operaciones más eficientes y la efectividad de los programas de cuidados básicos de salud. Como parte esencial de esto último, se ha analizado la necesidad imperiosa de Servicios Médicos de Emergencia en aquellas áreas del país que por una u otra razón no tienen una accesibilidad inmediata a los servicios especializados de cirugia.

Se ha calculado que el costo total de estos esfuerzos es de aproximadamente cuarenta millones setecientos cincuenta y cinco mil dólares americanos ($40.755.000) del cual el Gobierno de El Salvador (GOES), podrá proporcionar el 38.66% equivalente a quince millones setecientos cincuenta y cinco mil dólares americanos, para un período de dos años ($15.755.000).

Por las razones anteriormente expuestas, y debido a las necesidades críticas en el sector salud, el Gobierno de la República de El Sal-

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AL CONTESTAR ESTE OFICIO, CITENSE LOS DATOS CONTENIDOS EN EL CUADRO DEL ANGULO SUPERIOR DERECHO.

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

vador, a través del Ministerio de Salud Pública y Asistencia Social, por este medio solicita a la Agencia Internacional para el Desarrollo del Gobierno de los Estados Unidos de América, un préstamo por valor de veintitrés millones cuatrocientos mil dólares americanos ($23.400.000) y asistencia financiera en forma de donación por la suma de un millón seiscientos mil dólares americanos ($1.600.000) a ser usados para financiar el programa objeto de esta solicitud.

El Ministerio de Salud Pública respetuosamente solicita que los componentes de asistencia técnica estudios especiales y adiestramientos fuera del país del programa requeridos para alcanzar los objetivos propuestos, sean financiados con fondos de donación.

Es menester señalar que la ejecución de varios proyectos que actualmente se estan llevando a cabo y de aquellos para el futuro, implicarán desembolsos sustanciales contra el Presupuesto General de la República como contraparte nacional y por esta razón el Ministerio de Salud Pública y Asistencia Social solicita que el financiamiento a ser usado en el programa anteriormente descrito sea proporcionado bajo los términos más favorables que la Agencia Internacional para el Desarrollo pueda ofrecer.

Sin otro particular, aprovecho la oportunidad para reiterar a usted las muestras de mi más alta consideración y estima.

Dr. Napoleón Eugenio Cárdenas
M I N I S T R O

TS/eab.

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

   (a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that amount)?

   A notification was sent to the Congress on

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,00, will there be

(a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	(a) (b)	Yes Yes
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	N/A	
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)	N/A	
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	The Mission Director's certification is attached to the Project Paper as Annex F.	

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	No.
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	The Project will increase the flow of international trade, foster private initiative, and improve the technical efficiency of the health sector.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	The Project will directly benefit U.S. private trade through the procurement of medical equipment and pharmaceuticals manufactured in the U.S.

9.	FAA Sec. 612(b), 636(h); FY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	The GOES is providing counterpart contributions to the project in local currency which total 38.6% of the total project costs.
10.	FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No.
11.	FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes.
12.	FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	No.
13.	FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does	Yes.

the project or program take into consideration the problem of the destruction of tropical forests?

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)? N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and

The Project is designed to improve the health of urban as well as rural poor through the development and dissemination of appropriate medical technology.

otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used? — Yes.

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)? — Yes.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activitiy with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)? — Yes.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than $100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character.	No.
f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?	Yes.
g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage	The Project responds directly to the needs of the population for health services and its beneficiaries and the institutions which serve them.

institutional development; and supports civil education and training in skills required for effective participation in governmental processes esential to self-government.	
2. Development Assistance Project Criteria (Loans Only)	
a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.	El Salvador has the financial capacity to repay the loan. The AID loan terms are reasonable and legal under the laws of the U.S. and host country.
b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?	N/A
c. ISDCA of 1981, Sec. 724 (c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?	N/A
3. Economic Support Fund Project Criteria	
a. FAA Sec. 531(a). Will this assistance promote economic or political	N/A

stability? To the extent possible, does it reflect the policy directions of FAA Section 102?	
b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?	N/A
c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?	N/A
d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?	N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1.	FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?	Yes
2.	FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?	Yes
3.	FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?	Yes
4.	FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be	N/A

	financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)	
5.	FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one or these areas?	No.
6.	FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?	No.
7.	FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other	Yes.

Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?	
8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?	Yes
9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?	Yes
B. Construction	
1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used?	No
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?	Yes

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed $100 million (except for productive enterprises in Egypt that were described in the CP)?	N/A
C. Other Restrictions	
1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?	Yes
2. FAA SEc. 301(d). If fund is established solely by U.S. contributions and administed by an internatioal organization, does Comptroller General have audit rights?	N/A
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?	Yes
4. Will arrangements preclude use of financing:	
a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family	Yes

planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

b. FAA Sec. 620(o). To compensate owners for expropriated nationalized property?	Yes.
c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?	Yes.
d. FAA Sec. 662. For CIA activities?	Yes.
e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?	Yes.
f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or	Yes.

adjusted service compensation for military personnel?	
g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues?	Yes.
h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)?	Yes.
i. FY 1982 Appropriation Act, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields?	Yes.
j. FY 1982 Appropriation Act, Sec. 511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?	No.
k. FY 1982 Appropriation Act, Sec. 515. To be used for publicity or propaganda purposes within U.S. not authorized by Congress?	Yes.

ANNEX F

CERTIFICATION PURSUANT TO SECTION 611(e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Martin V. Dagata, as Director of the Agency for International Development Mission to El Salvador, having taken into account, among other things, the maintenance and utilization of projects previously financed by U.S.A.I.D./El Salvador, do hereby certify that in my judgement the Government of El Salvador and the implementing agency have the financial capacity to effectively utilize and maintain the proposed Health Systems Vitalization Project Loan and Grant.

Martin V. Dagata 9/15/83

Martin V. Dagata
Director
USAID/El Salvador

Date

AID/LAC/_____

PROJECT AUTHORIZATION

Name of Country:	El Salvador
Name of Project:	Health System Vitalization
Number of Project:	519-0281
Number of loan:	519-_____

1. Pursuant to Section 104 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Health Systems Vitalization Project for El Salvador (the "Cooperating Country") involving planned obligations of not to exceed twenty one million one hundred eighty hundred United States dollars ($21,188,800) in loan funds ("Loan") and one million six hundred fifty seven thousand four hundred United States dollars ($1,657,400) in grant funds ("Grant") over a two-year period from the date of authorization, subject to the availability of funds ion accordance with the AID OYB allotment process, to help in financing foreign exchange and local currency costs for the project.

2. The project ("Project") consists of procurement of urgently needed pharmaceuticals, supplies and equipment, strengthening of supply management and equipment maintenance systems, the establishment of a management information system which will support the medical supply and maintenance systems, and the development of the Ministry of Health's capacity to provide emergency medical services (EMS).

3. The Project Agreement, which may be negotiated and executed by the Officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

   a) Interest Rate and Terms of Repayment (Loan)

   The Cooperating Country shall repay the Loan to A.I.D. in U.S. Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay to A.I.D. in U.S. Dollars interest from the date of first disbursement of the Loan at the rate of (i) two percent (2%) per annum during the first ten (10 years), and (ii) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

b) Source and Origin of Goods and Services (Loan)

Goods with the exception of pharmaceuticals and services, except for ocean shipping, financed by A.I.D. under the Loan shall have their source and origin in countries that are members of the Central American Common Market or in countries included in A.I.D. Geograhic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Loan shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United Sttes or of countries that are members of the Central American Common Market.

Origin of pharmaceuticals shall be the United States for emergency procurement and for the regular procurement.

c) Source and origin of services (Grant)

Services, financed by A.I.D. under the Grant are expected to be provided under a contract with an U.S. based firm.

d) Condition Precedent for Construction and facility Refurbishing Activities

Prior to disbursement under the loan (a) for each construction activity involving the construction of a new MSPAS facility or the substantial reconstruction of an existing MSPAS facility and (b) for each activity involving the repair and furbishing of existing MSPAS facilities; or to the issuance by AID of commitment documents with respect thereto: GOES shall furnish to A.I.D., in form and substance satisfactory, the following:

a) plans, specifications, bid documents and time schedules for each construction activity; and

b) an executed contract for construction supervision of such activity; and

c) and executed contract for construction services for such activity with a firm acceptable to AID; and

d) a detailed plan and budget for each repair and refurbishing activity; and

e) a description if the arrangements made for supervision and the repair aspects of such refurbishing activity; and

f) an executed contract(s) for such repair and refurbishing services with a firm acceptable to AID or a description of arrangements satisfactory to AID for carrying out such work.

e) Condition Precedent for the establishment of the Executive Management Group (EMG)

Prior to disbursal of loan or Grant funds, the Cooperating Country through the MSPAS will submit to USAID/El Salvador satisfactory evidence that the EMG is legally constituted, and members identified and appointed. In addition, the MSPAS will present a detailed description of role, functions and responsibilities of EMG members.

f) Covenants

1) The Cooperating Country agrees to assign the required GOES management and technical staff required to adequately carry out the project at all levels. Existing personnel will be reallocated to meet project requirements. This is particularly relevant for the Executive Management Group and the mobile surgical teams.

2) Agrees to reduce vehicle inventories, hospital equipment inventories, and medical supply inventories for those items that are beyond repair (unserviceable) and to eliminate drug stocks of expired drugs.

3) Agrees that a preventive maintenance program for all biomedical/electromechanical equipment, vehicles and facilities will be developed, particularly for the new equipment, vehicles and facility improvement provided through this project.

4) Through the Division of Malaria, shall prepare by October 1, 1983 and again by December 5, 1984 and provide copies to AID of an annual plan detailing safety measures and procedures to be followed in the application of all insecticides used in the program.

5) Shall take appropriate safety measures for the use of insecticides furnished through this project, including the provision of safety equipment to insecticide handlers and training of spray personnel engaged in actual application of field supervision. The GOES shall also maintain rigid control over the quality of the insecticides procured for the program to ensure that they meet WHO and AID technical specifications.

6) GOES covenants that should new chemical, biological or physical malaria control methodologies be introduced into the program after the approval of this project, the environmental impact will be reviewed, and, if necessary, environmental studies or assessments will be carried out.

7) Covenants a willingness to consider legal, regulatory and administrative reform as necessary measure to establish and integrated drug quality control program.

g) Waivers (Loan)

(1) Proprietary Procurement waiver for standarization of vehicle fleet

Vehicles financed byA.I.D. under the Project and having value of approximately up to one million seven hundred thousand United States Dollars ($1,700,000) will have their source and origin in the U.S. in accordance with the Cooperating Country's specifications request for fleet standarization purposes.

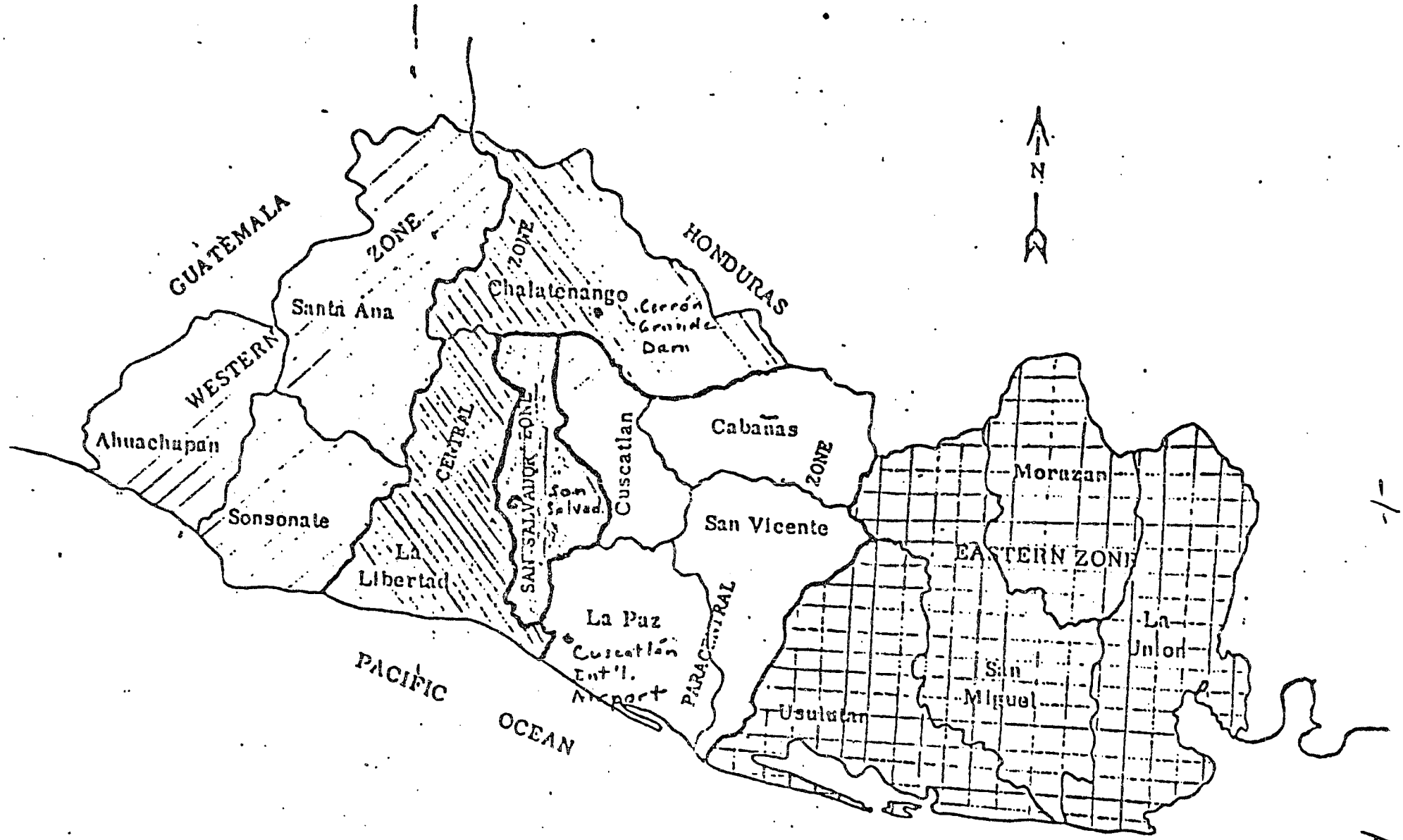
(2) Emergency Procurement Waiver

Waiver for nomal bidding and advertising procedures for the emergency procurement of up to thirty (30) pharmaceuticals and thirteen (13) medical supplies for the Cooperating Country. U.S. Dollar value of the emergency commodities is not known at present. Pharmaceuticals and medical supplies financed by A.I.D. under the Project will have their source and origin in the U.S. including the Emergency Procurement list.

ANNEX H

COMPONENT I

HEALTH SUPPLIES MANAGEMENT



FIVE HEALTH REGIONS OF EL SALVADOR

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H-IoA

CONSOLIDADO DE LOS SERVICIOS DE SALUD.

MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL

Regiones / Establec.	R.Occidental.	R. Central.	R. Metropolit.	R. Para-Cent.	R. Oriental	Total.
Hospitales.	3	2	5	2	2	14
Centro de Salud.	2	1	1	3	5	12
Unidad de Salud.	21	13	24	12	27(6)	97 (6)
Puesto de Salud.	29	40 (15)	2(1)	34(4)	53(13)	158(33)
Puesto Comunitario de Salud.	11	7 (1)	5	1	8(3)	32(4)
Dispensario.					6(2)	6(2)
Total servicios.	66	63	37	52	101	319

DAMCH/mav.

(No.) Número de Establecimientos cerrados.

H-I-4

ESTABLECIMIENTOS REGIONALES DE SALUD - CERRADOS.

REGION CENTRAL.

ESTABLECIMIENTO:	NOMBRE:
Puesto de Salud.	Concepción Quezaltepeque.
	La Laguna.
	Comalapa.
	San Antonio los Ranchos.
	Potonico.
	San José Las Flores.
	Ojo de Agua.
	Arcatao.
	Las Vueltas.
	San Fernándo.
	Nueva Trinidad.
	San Isidro Labrador.
	El Carrizal.
	San Antonio la Cruz.
	San José Cancasque
Puesto Comunitario de Salud:	San Rafael

REGION METROPOLITANA.

Puesto de Salud	El Paisnal

REGION PARA-CENTRAL.

Puesto de Salud.	San Carlos Lempa.
	Santa Clara.
	San Lorenzo.
	Cinquera.

REGION ORIENTAL.

Unidad de Salud.	Perquín
	Corinto
	Tierra Blanca
	Jucuarán
	Ozatlán
	San Gerardo.

H-I-A.

ESTABLECIMIENTO:	NOMBRE:
REGION ORIENTAL.	
Puesto de Salud.	San Agustín.
	San Francisco Javier.
	Isla de Méndez.
	San Luis de la Reina.
	Carolina.
	Nuevo Edén de San Juan.
	Torola.
	Meanguera.
	San Fernándo.
	Joateca.
	Lislique.
	Monteca.
	Las Chercas
Puestos Comunitarios:	Puerto Avalos.
	Cantón Samorano.
	San Carlos.
Dispensario de Salud.	Sabanetas.
	San Jacinto.

ESTRUCTURA ORGANIZATIVA REGION OCCIDENTAL DE SALUD

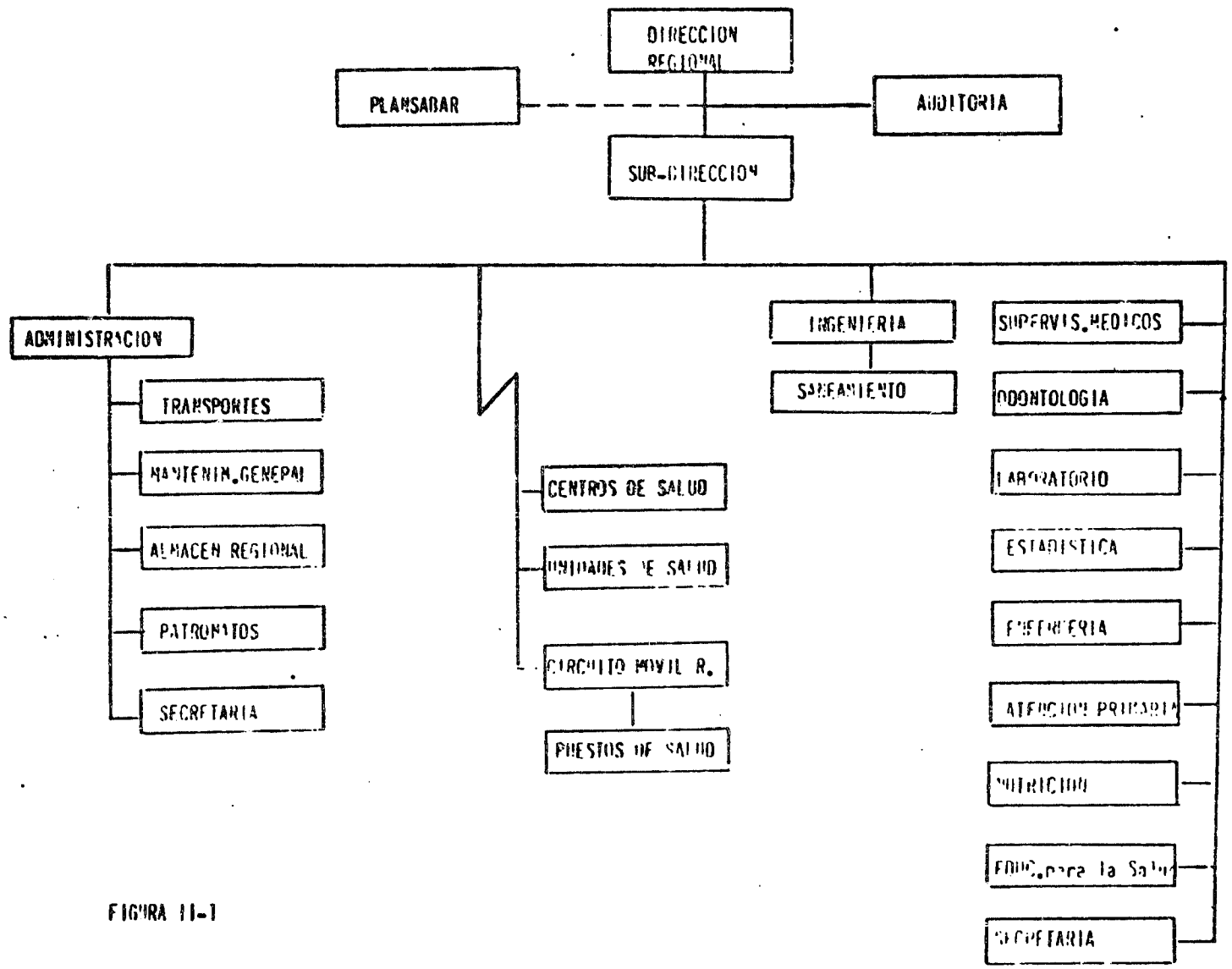


FIGURA II-1

H-I-B

ESTRUCTURA ORGANIZATIVA "CENTRO DE SALUD"
REGION OCCIDENTAL

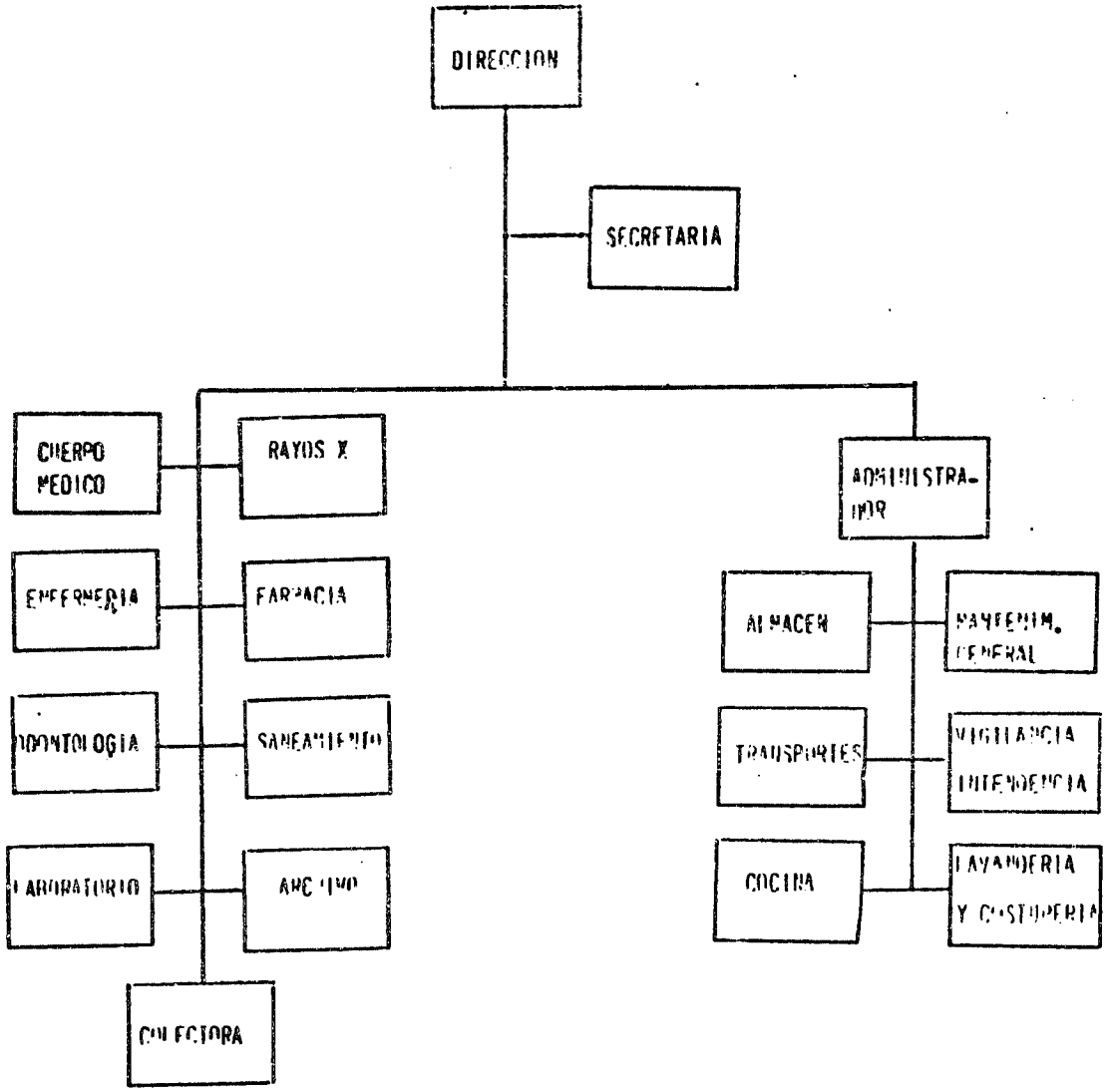


FIGURA II-2

H-I-C

ESTRUCTURA ORGANIZATIVA "UNIDAD DE SALUD"

REGION OCCIDENTAL

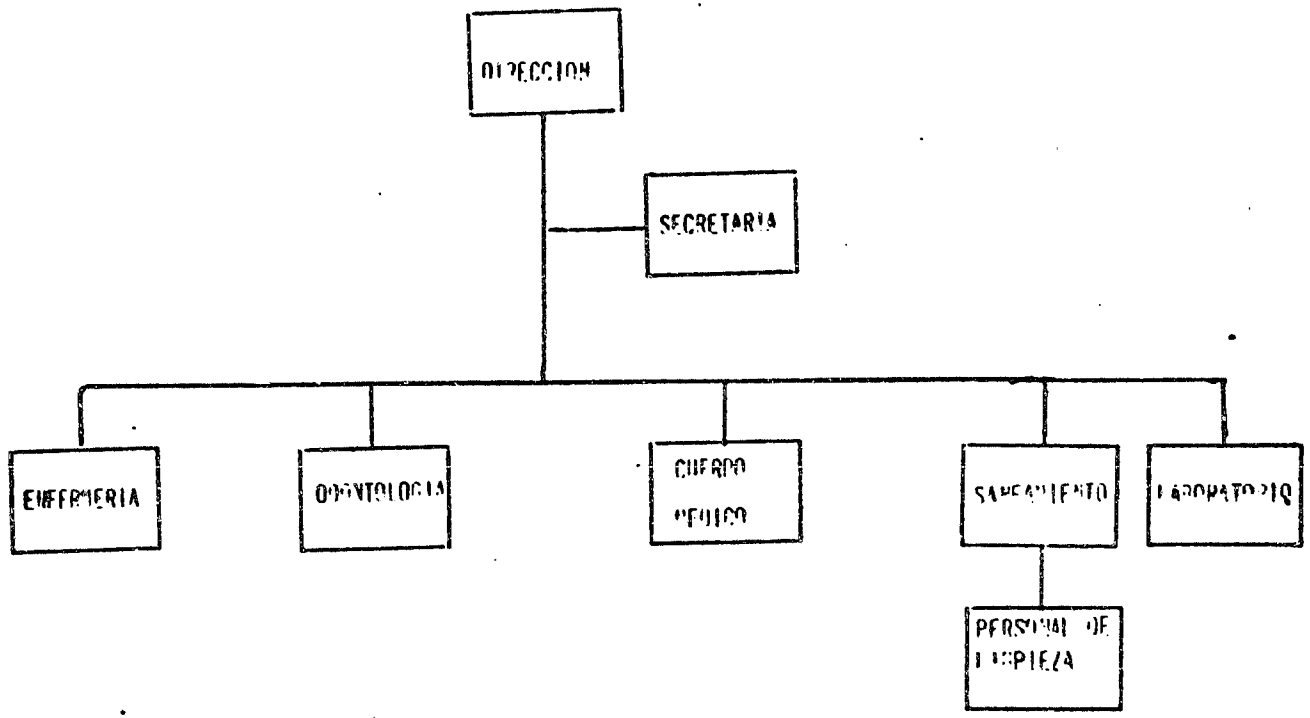


FIGURA II-3

ESTRUCTURA ORGANIZATIVA "PUESTO DE SALUD"

REGION OCCIDENTAL

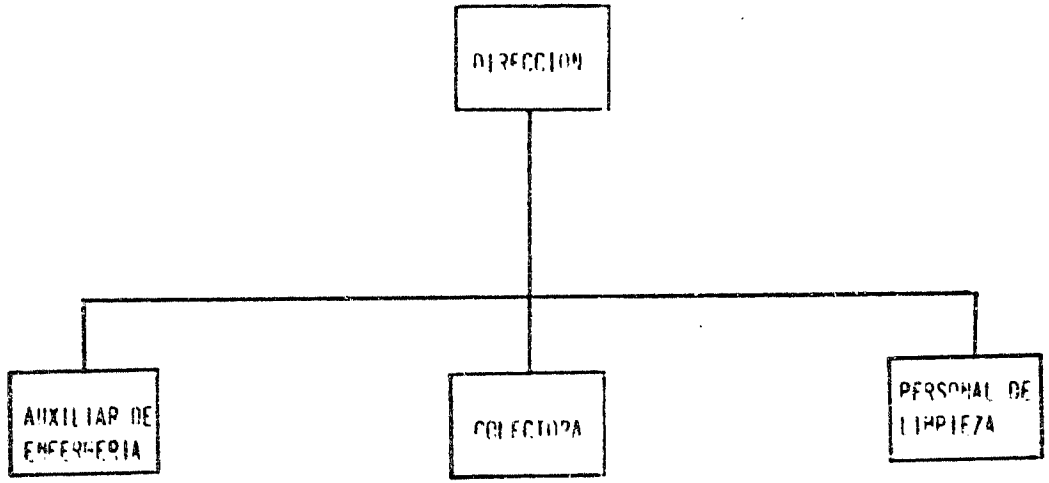


FIGURA II-5

ESTRUCTURA ORGANIZATIVA "UNIDAD MOVIL RURAL"

REGION OCCIDENTAL

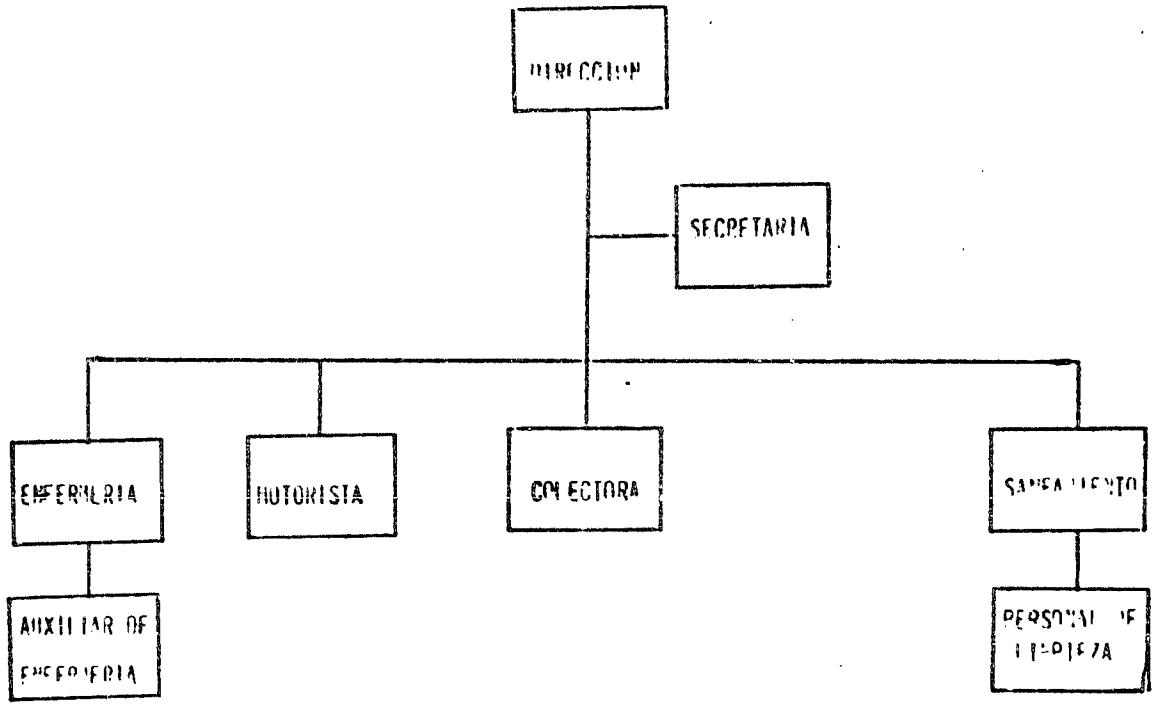
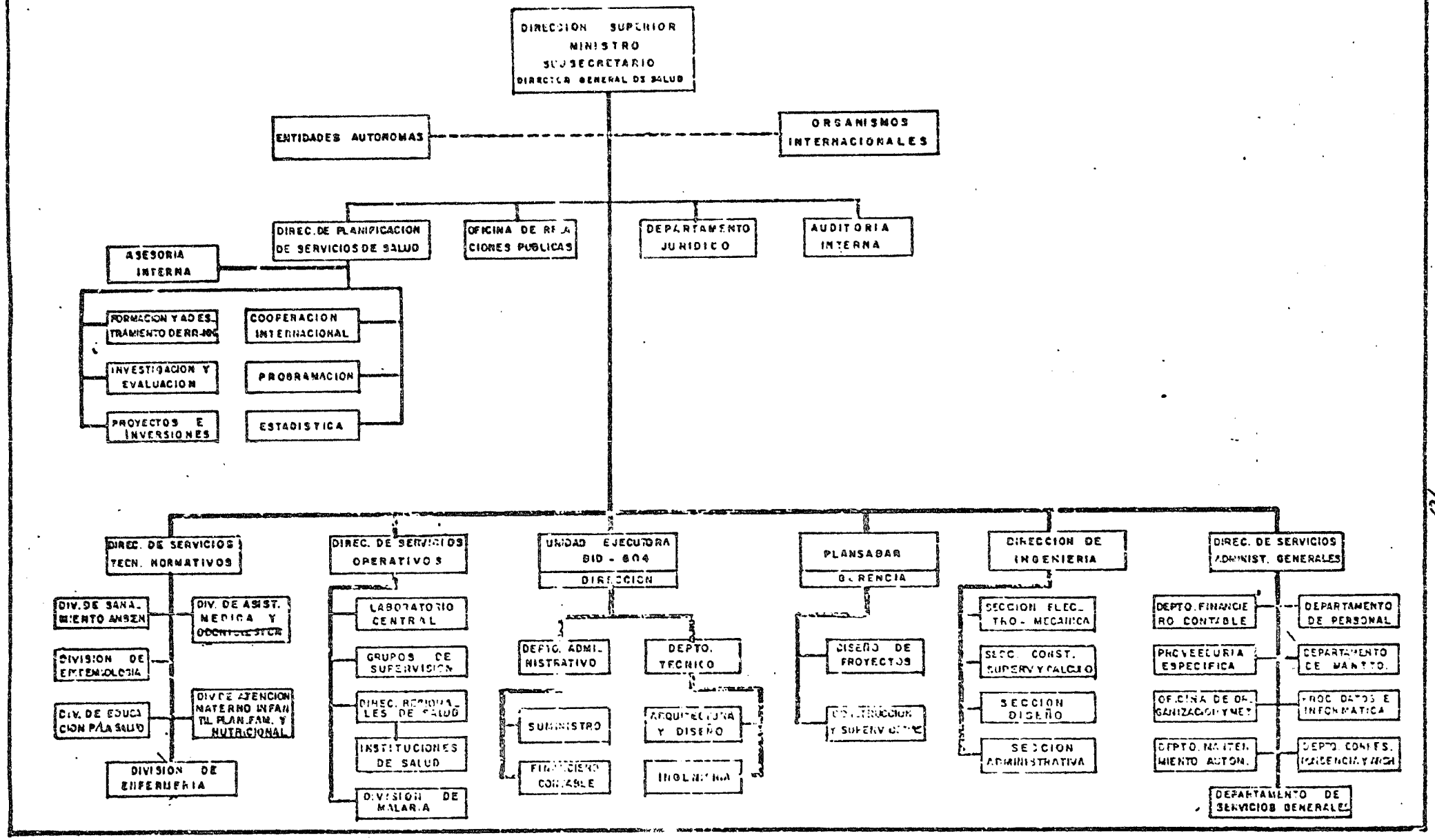


FIGURA II-4

Chart 2

ORGANIGRAMA DEL MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL



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H-I-6

SCOPE OF WORK

I. Health Supplies Management

A. Technical Specialty: Health Supply Management and Team Leader.

B. Level of Effort: 18 months.

C. General Objective: Provide technical assistance to MSPAS during the development and revitalization of a comprehensive supply management system.

D. Specific Tasks.

1. Technical

   a. Assist MSPAS in the implementation of an emergency medical service, specific tasks, of which include scheduling arrival of pharmaceutical products, medical equipment and vehicles, assisting MSPAS Executive Supply Management Group (ESMG) in receiving, warehousing, and distribution.

   b. Advise the MSPAS ESMG in the revitalization of a comprehensive supply management system, including inventory control, warehousing, delivery.

   c. Develop in country training programs for MSPAS supply management personnel.

   d. Coordinate with MSPAS ESMG and procurement section to facilitate the development of an optimal procurement plan.

   e. Advise MSPAS ESMG in the upgrading of a cold chain system for distribution of vaccines.

   f. Assist MSPAS in coordination of project activities with MSPAS, MIS, maintenance, procurement, and planning units.

   g. Advise MSPAS ESMG in the development of standard manuals for warehousing, inventory management, and distribution.

2. Administrative:

   a. Advise in selection of short term technical assistance.

   b. Supervise short term technical advisor.

   c. Produce periodic reports for MSPAS-AID.

   d. Produce annual report at the end of each year.

Desired qualifications

MBA or equivalent experience in an area such as supply management logistics, distribution management, adn 3 years direct experience as as logistics manager in an LDC setting. Person must be able to relate to MIS personn' medical professionals, Ministry personnel. Fluent Spanish and cultural sensitivity re necessary. Train Leader for T.A.

SCOPE OF WORK

1. Health Suppliers Management

A. Technical Specialty: Warehouse Management

B. Level of Effort: 6 months

C. General Objective: Provide technical assistance to MSPAS during the development and revitalization of a comprehensive warehousing system.

D. Specific Tasks

1. Assist MSPAS in its planning and implementation of central level warehouse construction (1500 m^2),and repair and remodeling of MSPAS central and regional warehouse (2000 m^2).

2. Assist MSPAS executive supply management group develop a storage plan and system for the distribution of medicines, medical supplies, hospital equipment, cold chain supplies to MSPAS operating units through central level and regional level warehouses.

3. Develop OFT training progrms and in-country seminars on warehouse management for MSPAS warehouse logistics personnel.

4. Assist MSPAS optimize the cold chain storage systems.

5. Assist ESMG prepare warehousing guidelines and formats.

6. Assist ESMG and MIS group develop a computerized warehouse Inventory management system.

7. Advise ESMG in the developoment of warehousing manual.

E. Administrative

1. Submit reports and recommendations to the Supply Management Consultant.

2. Prepare monthly work plan

3. Prepare evaluation of training programs provided to MSPAS warehousing personnel before leaving country.

4. Prepare and submit a six month activity report.

F. Desired qualifications

Professional warehouse management experience. Two years experience in warehousing commodities and health products in LAC Selting. Degreeor experience in design and implementation of training programs. Person must be able to relate to MIS personnel, medical professional, Ministry personnel. Fluent Spanish is necessary.

SCOPE OF WORK

1. Health Supplies Management:

A. Technical Specialty: Health Supply Management.

B. Level of Effort: 6 months.

C. General Objectives: Provide short term technical assistance to the MSPAS during the first 6 months of a project designed to revitalize the supply management system.

D. Specific Tasks:

1. Technical.

a. Assist long term supply management person and MSPAS Executive Supply Management Group ESMG distribute medicines, medical equipment, hospital equipment and supplies to regional level hospitals and health facilities that serve 85% of the Salvadoran population.

b. Assist ESMG develop mechanisms of inventory control during the first phase of the project.

c. Assist ESMG develop reporting mechanisms during first phase of the project.

d. Implement OJT training sessions of regioal and national level.

e. Assist ESMG perform management audits of MSPAS supply management system of central and regional levels.

f. Assist ESMG develop an internal auditing programs.

2. Administrative.

a. Submit weekly progress as determined by the long term supply management person.

b. Produce periodic reports requested by MSPAS and AID.

c. Produce final report evaluation upon completion of six month period.

Desired Qualifications:
Five years direct experience as supply distribution manager. Degree in business, engineering, or economics. Person must be able to relate to MIS personnel, medical professionals, ministry personnel, fluent Spanish is necessary.

TECHNICAL ASSISTANCE

Long Term TA

Procurement Management

1. Title: Procurement Management Advisor (PMA).

2. Education Qualifications Required:
   BA in Business Administration, or equivalent.

3. Special Experience Qualifications:

   a. Four years of experience as a Procurement Officer or six years as a Supply Management Officer (or combination of these) in a Government Agency, preferably having served i such capacity abroad. Ideally this experience would have been with AID or a similar foreign assistance agency. Must be familiar with AID procurement regulations and procedures, specifications, writing, expediting, etc.

   b. Prior service in a Latin American environment preferable, but not essential.

4. Language Requirements:
   Fluency in Spanish language at a foreign service level of 3 in speaking, reading and writing.

5. Grade Level Equivalency: GS 14 or 15.

6. Time Required in Country: One year.

7. Duties and Tasks:
   The purpose of long term technical Assistance in the procurement area of the Ministry of Public Health and Social Assistance (MSPAS) is: First, to provide management, in-country, for the emergency acquisition of critically needed commodities, including drugs (pharmaceuticals, medicines, vaccines), medical supplies, equipment, vehicles and parts. These commodities will be procured by a private contracting agency under the project. Second, to examine management and administrative practices in the Procurement Office and related elements of the MSPAS, develop improvement in these areas and advise and assist the Ministry in implementing and institutionalizing such improvements.

   b. Efforts in management/administrative improvement of the procurement area of the MSPAS are to commence at the inception of the project, to the extent practicable. However, priority attention must be given to management of the emergency procurement during that procurement cycle.

c. Management of Emergency Procurement:

(1) Review, on a continuing basis, procurement plan and delivery schedules prepared by short term PMA, update and revise expand as necessary.

(2) Examine all facits of the procurement, as prepared or initiated by the short term PMA, including specifications, waiver and special authority requests, standarizations, etc., and follow-up with the contracting agency on any needed corrections or additions.

(3) Monitor, analyze, control, expedite whole procurement cycle of the emergency procurement being effected by the contracting agency.

(4) Review all commodity requirements under this project forcomplience with AID regulations and eligibility rules, initiating, as necessary, waivers and requests for special authorizations, eg., source/origin, propietary procurement, certifications, etc.

(5) Work closely with the MSPAS Procurement Office assisting and advising them regarding t e assimilation of procurement information generated by the emergency procurement.

(6) Screen Excess Property lists periodically to identify substitutes for new procurement within the scope of the project and initiate action to effect such substitutons.

d. Institution Building:

(1) Review the relevant laws, regultions, and procedures of the Procurement Office and determine need for revision, improvement.

(2) Examine management/administrative practices, systems, methods, forms, routines, etc., to identify areas needing improvement as well as training.

(3) Develop a procurement management improvement plan to be followed over the ensuing two year period of the project.

(4) Work closely with the Technical Assistance Managment Informations System Advisor (MIS) and the Procurement Office in identifying procedures/forms, etc., that need to be altered to accomodate the itegration of procurement information into the MIS program.

(5) Examine control and expediting techniques and advise/assist Procurement Office in implementing improved methods.

(6) Review commodity coding system used by MSPAS to determine possible alternate system (eg., SIC codes, Schedule B, etc.) if present system is inadequate.

(7) Provide guidance/advice/assistance to Procurement Office, Directorate of Operations Services and other MSPAS elements concerned to institute a requirments pre-planning program. This should involve responsible persons with knowledge of lead times, specifications, prices, availabilities, etc., (procurement), with those possessing information on warehouse stocks, usage rates, re-order levels, etc., (Administrative Services Directorate), and the requirements development officials (Operations Services Directorate) in periodic pre-planning meetings and exchanging data. PMA must work closely with MIS to determine information to be entered in the information system for this purpose.

(8) Examine lists of existing equipment to develop long term standarization programs.

(9) Assist the Procurement Office in developing a useful, up-to-date procurement catalog library.

(10) Advise/assist the Procurement Office in developing standarized specifications for recurring requirements.

(11) Establish, conduct on the job training program to each specification writing technique.

(12) Establish on the job training programs for all other procurement areas determined to need management improvement, eg., expediting, etc.

(13) Monitor/assist the MSPAS in its effort to reduce the essential drugs list and establish a national formulary.

(14) Develop guidelines for monitoring and evaluating progress in management reforms and in the institution building programs.

(15) The PMA, in the 11th month of the project, will provide the SMA with a report of progress and status on management improvements and institutions building in the Procurement Office.

(16) PMA should obtain and bring following publications to El Salvador.

1. Drug (Pharmaceuticals, medicines, vaccines) catalogs.

2. Latest Excess Property Lists.

3. AID Documents Kit for Export Supplies.

TECHNICAL ASSISTANCE
SCOPE OF WORK
Short Term

1. Title: Procurement Management Advisor (PMA).

2. Education Requirements: BA in Business Administration or equivalent.

3. Special Experience:

   a. Four years of experience as a Procurement Officer or six years as a Supply Management Officer (or combination of these) in a Government Agency, preferably having served in such capacity abroad. Ideally, this experience would have been with AID or similar foreign assistance agency. Must be familiar with AID procurement regulations and procedures, specifcations writing, expediting, etc.

   b. Prior service in a lating American environment preferable, but not essential.

4. Language requirements: Fluency in Spanish language at foreigh service level of 3 in speaking, reading and writing.

5. Grade Level Equivalent: GS-14 or 15.

6. Time Required in Country: Six months. The PMA will be brought on board by the end of the sixt month following.

7. Duties and Tasks:

   a. The purpose of short term technical assistance in the procurement area of the Ministry of Public Health and Social Assistance (MSPAS) is: First, to assist the providing long term PMA in management, in-country, for the emergency acquisition of critically needed commodities, including drugs (pharmaceuticals, medicines, vaccines), medical supplies, equipment, vehicles and parts. These commodities will be procured by a private contracting agency under the project. Second, to assist in the examination of management and administrative practices in the Procurement Office and related elements of the MSPAS, assist in the development of improvement in these areas and advise and asist the Ministry in implementing and institutionalizing such improvements.

   b. Managment of Emergency Procurement:

      (1) Assist in the review, on a continuing basis, of the procurement plan and delivery schedules prepared by short and long term PMA, update and revise, expand as necessary.

(2) On a continuing basis, assist the long term PMA to examine all facits of the procurement, as prepared or initiated by the advance, short term PMA, including specifications, waiver and special authority requests, standarizations, etc., and follow-up with the contracting agency on any needed corrections or additions.

(3) Assist the PMA to monitor, analyze, control, expedite the whole procurement cycle of the emergency procurement being affected by the contracting agecy.

(4) Continually review all commodity requirements under this project for compliance with AID regulations and eligibility rules, initiating, as necessary, waivers and requests for special authorizations, eg., source/origin, proprietary procurement, certifications, etc.

(5) Assist the PMA and with him, work closely with the MSPAS Procuremer Office assisting and advising them regarding the assimilation of procurement information generated by the emergency procurement.

(6) Assist the PMA n screening excess property lists periodically to identify substitutes for new procurement within the scope of the project and initiate action to effect such substitutions.

c. Instution Building: Assist the PMA in all of the following functions:

(1) Review the relevant laws, regualtions, and procedures of the Procurement Office and determine need for revision, improvement.

(2) Examine management/administrative practices, systems, methods, forms, routines, etc., to identify areas needing improvement as well as training.

(3) Develop a procurement management improvement plan to be followed over the ensuing two year period of the project.

(4) Work closely with the Technical Assistance Management Informations System Advisor (MIS) and the Procurement Office in identifying procedures/forms, etc., that need to be altered to accomodate the integration of procurement iformation into the MIS program.

(5) Examine control and expediting techniques and advise/assist Procurement Office in implementing improved methods.

(6) Review commodity coding system used by MSPAS to determine possible alternate system (e.g., SIC codes, Schedule B. etc.), if present system is inadequate.

(7) Provide guidance/advice/assistance to Procurement Office, Directorate of Operations Services and other MSPAS elements concerned to institute a requirements pre-planning program. This should involve responsible persons with knowledge of lead times, specifications, prices, availabilities, etc., (procurement), with those processing information and warehouse stocks, usage rates, re-order levels, etc., (Administrative Services Directorate), and the requirements development officials (Operations Services Directorate) in periodic pre-planning meetings and in exchanging data. PMA must work closely with MIS to determine information to be entered in the information system for this purpose.

(8) Examine lists of existing equipment to develop long term standarization programs.

(9) Assist the Procurement Office in developing a useful, up-to-date procurement catalog library.

(10) Advise/assist the Procurement Office in developing standarized specifications for recurring requirements.

(11) Establish, conduct on the job training program to teach specification writing techniques.

(12) Establish on the job training programs for all other procurement areas determined to need management improvement, e.g., expediting, etc.

(13) Monitor/assist the MSPAS in its effort to reduce the essential drugs list and establish a national formulary.

(14) Develop guidelines for monitoring and evaluating process in management reforms and in the institution building programs.

01 Immunologicals, vaccines

ODE								
010120	Bottle	Tetanus Antitoxin	191,000	3.875	740,125	NO		

740,125

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CODE CLASSIFICATION: 02 ANTIBIOTICS

CODE	UNIT ISSUE	PHARMACEUTICAL	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)	MANUFACTURED LOCALLY X = YES	PURCHASED LOCALLY X = YES	PURCHASED INTERNATIONAL X = YES
020101	100's	Ampicillin 250 mg. (tab or cap)	59,846	9.23	552,379	YES		
020115	BOTTLE	Ampicillin 250 mg./5 ml oral suspension	141,717	1.92	272,097	YES		
020120	Vial	Ampicillin 500 mg vial	153,000	.50	76,500	YES		
020125	Vial	Ampicillin 1 G. vial	54,000	.996	53,784	YES		
020301	Amp.	Chloramphenicol Sodium Succinate 1 G (IM/IV)	167,000	4.25	709,750	NO		
020310	100's	Chloramphenicol Palmitate 250 mg. caps	31,000	4.25	131,750	NO		
020501	100's	Erythromycin Tabs (Enteric Coated)	35,000	9.80	343,000	YES		
020510	Bottle	Erythromycin Ethyl Succinate (for oral suspension)	173,000	1.95	337,350	YES		
020702	Vial	Gentamicin Sulfate 2 ml (20 mg per ml)	38,000	2.33	88,540	NO		
020710	Amp.	Gentamicin Sulfate 2 ml (40 mg per ml)	83,000	6.00	498,000	NO		
020820	100's	Griseofulvin Tabs 500 mg.	11,500	17.95	206,425	YES		
020901	Vial	Kanamycin Sulfate 500 mg.	30,000	1.00	30,000	YES		
020905	Vial	Kanamycin Sulfate 1 G.	35,000	1.39	48,650	YES		
021010	Vial	Lincomycine 500 mg x 2 ml	6,000	1.50	9,000	NO		
021101	Vial	Methicillin Sodium 1 G	22,000	1.75	38,500	NO		
021210	Tube	Nystatin Ointment 100,000 IU/G.	33,000	2.25	74,250	YES		
021220	BOTTLE	Nystatin Oral Suspension with dropper 100,000 IU	30,000	2.50	75,000	YES		
021230	100's	Nystatin Vaginal Tablets 100,000 IU	10,000	2.25	22,500	YES		
021310	Vial	Pencillin G. Benzathine 1,200,000 IU	255,000	.65	165,750	NO		
021340	Vial	Pencillin G. Procaine 4,000,000 IU	342,000	1.87	639,540	NO		

H-I-J

CODE CLASSIFICATION: 02 ANTIBIOTICS

CODE	UNIT ISSUE	PHARMACEUTICAL	[illegible]	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUIREMENTS PURCHASED LOCALLY (COLONES)	MANUFACTURED LOCALLY X - YES	PURCHASED LOCALLY X - YES	PURCHASED INTERNATIONALLY X - YES
021345	Vial	Fenicillin G. Sodium 1,000,000 IU (IV Use)	557,000	.68	378,760	NO		
021405	100's	Rifampin caps 300 mg	8,000	65.00	520,000	NO		
021430	Bottle	Rifampin Oral Suspension 100 mg./5ml	15,000	6.00	90,000	NO		
021501	100's	Tetracycline Caps. 250 mg.	51,500	3.83	197,245	YES		
							5,558,770	

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H-I-J

CODE	UNIT ISSUE					
030101	100's	Nalidixic Acid Tabs 500 mg.	22,500	20.25	455,625	YES
030110	Liter	Nalidixic Acid Oral Suspension 250 mg/5 ml	10,250	22.00	225,500	YES
030310	100's	Ethambutol Hydrochloride 400 mg. Tabs	9,000	11.48	103,320	NO
030710	100's	Isoniazid Tabs 100 mg.(INH)	37,000	1.48	54,760	NO
030805	100's	Methenamine Mandelate Tabs 1 G	5,375	8.50	45,688	NO
031020	100's	Nitrofurantoin Tabs 100 mg.	19,000	2.32	44,080	YES
031501	100's	Trimethoprim/Sulfamethoxazole Tabs (20 mg + 100 mg)	22,000	6.00	132,000	YES
031505	100's	Trimethoprim/Sulfamethoxazole Tabs (80 mg + 400 mg)	33,000	7.54	248,820	YES
031510	Bottle (50 ml)	Trimethoprim/Sulfamethoxazole Oral Suspension 40 mg. + 200 mg/5 ml	68,000	13.92	946,560	YES

2,256,353

CLASSIFICATION: 04 MALARIA DRUGS

CODE	[illegible]	[illegible]	[illegible]	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF SUPPLIES TO BE PURCHASED LOCALLY (COLONES)	MANUFACTURED LOCALLY X = YES	PURCHASED LOCALLY X = YES	PURCHASED INTERNATIONALLY X = YES
40220	100's	Chloroquine Phosphate Tabs 250 mg Equivalent to 150 mg. of base	2,500	5.50	13,750	YES		
40410	100's	Primaquine Phosphate Tabs 15 mg.	17,000	7.10	120,700	YES		
					134,450			

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H-I-J

[illegible] 05 ,06 05: ANALGESICS 06: ARTHRITIS DRUGS

CODE	[illegible]	[illegible]	[illegible]	LOCAL COST [illegible]	TOTAL VALUE OF REQUIRED [illegible] PURCHASED LOCALLY (DOLLARS)	MANUFACTURED LOCALLY X = YES	PURCHASED LOCALLY X = YES	PURCHASE [illegible] X = [illegible]
050101	100's	Acetylsalicylic Acid Tabs 100 mg.	130,000	.96	124,800	YES		
050110	100's	Acetylsalicylic Acid Tabs 500 mg.	187,000	1.37	256,190	YES		
050210	Liter	Acetaminophen Syrup 120 mg x 5 ml	15,000	6.60	99,000	YES		
050220	Each	Acetaminophen Suppositories	45,000	.12	5,400	YES		
050230	100's	Acetaminophen Oral Tabs 500 mg.	32,000	2.00	64,000	YES		
050701	Amp.	Meperidine Hydrochloride Injection 100 mg/2 ml	29,000	.95	27,550	NO		
050901	Amp. 10 ml	Morphine Hydrochloride 10 mg/ml	2,000	1.95	3,900	NO		
					580,840			
060101	100's	Indomethacin Caps. 25 mg.	10,000	9.10	91,000	YES		

671,840

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CLASSIFICATION 07 ANTI-INFLAMMATORY DRUGS

CODE					TOTAL VALUE (OF PRODUCTS MANUFACTURED LOCALLY [OR PURCHASED])	MANUFACTURED LOCALLY X - YES	PURCHASED LOCALLY X - YES	PURCHASED INTERNATIONALLY X - YES
070101	Amp.	Chymotrypsin 4000 USP	69,000	.70	48,300	YES		
070130	100's	Papain Tabs 20,000 IU	20,000	4.90	98,000	YES		
					146,300			

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H.I.T

CLASSIFICATION: 08 SOLUTIONS CORRECTING WATER, ELECTROLY. AND ACID-BASE DISTURBANCES

CODE	UNIT	DESCRIPTION	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)	MANUFACTURED LOCALLY X = YES	PURCHASED LOCALLY X = YES	PURCHAS INTERNATI X = YE
080105	Amp.	Distilled Water for Injection 5 ml.	846,000	.20	169,200	YES		
080110	Amp.	Distilled Water for Injection 10 ml	1,245,000	.40	498,000	YES		
080140	Vial	Distilled Water for Injection 50 ml	87,000	1.80	156,600	YES		
080201	Amp.	Sodium Bicarbonate 9 mEq/10 ml	14,000	2.94	41,160	YES		
080210	Vial	Sodium Bicarbonate 44.5 mEq/50 ml	10,000	4.54	45,400	YES		
080320	Amp.	Potassium Chloride 4 mEq/2 ml	225,000	.60	135,000	YES		
080330	Amp.	Potassium Chloride 20 mEq/10 ml	138,000	.88	121,440	YES		
080360	Amp.	Sodium Chloride 20%/ 10 ml	36,000	2.45	88,200	YES		
080401	Bottle	Dextrose in Water 5% (IV) 250 ml	100,000	1.95	199,000	YES		
080410	Liter	Dextrose in Water 5% (IV) 1000 ml	206,500	3.42	706,230	YES		
080415	Bottle	Dextrose in Water 10% (IV) 250 ml	35,500	2.21	78,455	YES		
080425	Liter	Dextrose in Water 10% (IV) 1000 ml	53,000	3.78	200,340	YES		
080430	Bottle	Normal Saline Solution 5% 250 ml	27,500	2.20	60,500	YES		
080440	Liter	Normal Saline Solution 5% 1000 ml	116,500	3.55	413,575	YES		
080445	Vial	Dextrose in Water 50% for Injection 50 ml	21,000	3.55	74,550	YES		
080601	Amp.	Calcium Gluconate sol. 10%/ 10 ml	44,000	.69	30,360	YES		
080910	Bottle	Normal Saline Sol. 250 ml	14,000	2.20	30,800	YES		

CODE								
081010	Bottle	Isotonic Electrolyte Sol. 250 ml. Na 140 mEq Ca 5 mEq Cl 155 mEq K 7 mEq Mg 3 mEq Dextrose 5%	16,000	2.75	44,000	YES		
081020	Bottle	Isotonic Electrolyte Sol. 1000 ml (same as 081010)	31,000	3.60	111,600	YES		
081025	Bottle	Isotonic Electrolyte Sol. 250 ml Na 140 mEq Ca 5 mEq Cl 105 mEq K 7 mEq Mg 3 mEq Lactate 50 mEq	25,000	2.35	58,750	YES		
081035	Bottle	Isotonic Electrolyte Sol. 1000 ml (same as 081025)	92,000	3.75	345,000	YES		
081040	Bottle	Isotonic Electrolyte Sol. 250 ml Na 131 mEq Mg 4 mEq Dextrose 5 % Cl 155 mEq K 20 mEq	22,000	2.35	51,700	YES		
081050	Bottle	Isotonic Electrolyte Sol. 1000 ml (same as 081040)	33,000	3.50	115,500	YES		
081055	Bottle	Electrolyte Sol. Na 52 mEq + Cl 52 mEq 250 ml.	110,000	1.98	217,800	YES		
081201	Amp.	Magnesium Sulfate Inj. 50% 10 ml	13,000	1.50	19,500	NO		
081701	Envelope	Oral Rehydration Salts (WHO formula)	500,000	.45	225,000	YES		4,237,660

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H-I-J

11: DIURETICS 13: ANTI-HYPERTENSIVES 15: ANTIASTHMATICS 17: ANTI-ALLERGICS ANTI-HISTAMINES

11, 13,15, 16,17 16: ANTI-EMETICS

CODE								
110301	Amp.	Furosemide 20 mg/2 ml	50,000	.38	19,000	YES		
110310	100's	Furosemide 40 mg Tabs	10,000	2.12	21,200	YES		
130101	100's	Methyldopa 250 mg. Tabs	3,300	13.75	45,375	NO		
130503	Amp.	Hydralazine 25 mg.(Inj)	2,000	3.50	7,000	NO		
130502	100's	Hydralazine 50 mg. Tabs (enteric coated)	850	37.00	31,450	NO		
150101	Amp.	Aminophylline 0.25 mg x 10 ml	49,000	.78	38,220	YES		
150110	100's	Aminophylline Tabs 200 mg.	12,000	2.48	29,760	YES		
160101	100's	Dimenhydrinate 50 mg. Tabs	13,000	2.28	29,640	NO		
160102	Amp.	Dimenhydrinate 50 mg. amp.	57,000	.72	41,040	NO		
170201	100's	Chlorpheniramine Maleate 4 mg. Tabs.	14,000	1.12	15,680	YES		
170210	Amp.	Chlorpheniramine Maleate 10 mg./ml	50,000	.29	14,500	YES		
170215	Liter	Chlorpheniramine Maleate 4 mg./5 ml Syrup	26,000	2.49	64,740	YES		

357,605

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H-I-J

CODE CLASSIFICATION: 18, 19 , 20 18: Expectorants 19: DERMATOLOGIC 20: ENDOCRINE

CODE	UNIT	DESCRIPTION	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)	MANUFACTURED LOCALLY X = YES	PURCHASED LOCALLY X = YES	PURCHASED INTERNATIONALLY X = YES
180602	Liter	Diphenhydramine Hydrochloride	74,000	8.15	603,100	NO		
180605	Liter	Diphenhydramine Hydrochloride with Codeine (Like Actifed Expectorant)	44,000	15.75	693,000	NO		
191201	Liter	Benzyl Benzoate Suspension	20,600	9.00	185,400	YES		
91310	Liter	Calamine Lotion	19,000	3.85	73,150	YES		
91601	Tube	Clotrimazole Cream 30 G	41,000	4.75	194,750	YES		
92601	Kgs.	Hydrocortisone Cream 1%	2,250	54.75	123,188	YES		
94701	Bottle	Tolnaftate Tincture 1% 15 Ml.	13,000	3.50	45,500	YES		
201003	Vial(10 ml)	Regular Insulin 80 IU x 1 ml	1,800	8.20	14,760	NO		
201061	Vial (10 ml)	NPH Insulin 80 IU	11,000	8.50	93,500	NO		
201401	100's	Methimazole 5 mg Tabs	900	7.80	7,020	YES		
202210	100's	Tolbutamide 500 mg Tabs	16,000	8.25	132,000	NO		

2,165,368

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23 , 24

23: ANTIPARASITIC 24: HEMATOLOGY (ANTI-ANEMIA DRUGS)

CODE				LOCAL COST (COLONES)	TOTAL VALUE OF PURCHASE LOCALLY (COLONES)	MANUFACTURED LOCALLY X - YES	PURCHASED LOCALLY X - YES	PURCHASE INTERNATIONALLY X - YES
230601	100's	Mebendazole 100 mg. Tabs	56,000	2.90	162,400	YES		
230602	Liter	Mebendazole Oral Suspension 100 mg/5 ml	2,000	25.00	50,000	NO		
230703	100's	Metronidazole 500 mg. Tabs	29,000	3.49	101,210	YES		
230711	Liter	Metronidazole Oral Suspension 4%	5,750	15.00	86,250	YES		
230720	100's	Metronidazole Vaginal Tabs 500 mg.	22,000	4.90	107,800	YES		
					507,660			
240412	100's	Ferrous Sulfate (enteric coated) 300 mg. Tabs	180,500	.86	155,230	YES		
240420	Liter	Ferrous Sulfate Syrup	41,000	3.18	130,380	YES		
					205,610			

793,270

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H-I-J

ODE						
10301	Amp.	Dexamethasone Sodium Phosphate (INJ. 4 mg/ 1 ml amp)	27,000	12.50	337,500	NO
0410	Vial	Hydrocortisone (Sodium Succinate) 500mg/5 ml	19,000	5.40	102,600	NO
0601	100's	Prednisone 5 Mg. Tabs	11,000	2.97	32,670	YES
0820	Vial	Triamcinolone Acetonide 10 mg/5 ml	3,000	6.25	18,750	NO
0310	Amp.	Atropine Sulfate 1 mg/1 ml	100,000	1.15	115,000	YES
0410	Liter	Belladonna & Phenobarbital Elixir	59,000	2.95	174,050	YES
0801	100's	Pancreatin 700 mg with Biliary Salts	13,000	6.55	85,150	YES
0910	100's	Magnesium, Aluminium & Simethicone Tabs (Standard Concentration)	39,000	3.50	136,500	YES
0915	Liter	Magnesium, Aluminium & Simethicone Oral Suspension	78,000	6.89	537,420	YES
1002	Liter	Kaolin/Pectin Oral Suspension	31,000	2.70	83,700	YES

1,623,340

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H-I-J

CODE	UNIT ISSUE					
260601	100's	Chlorpromazine HCl 25 mg. Tabs	16,000	2.10	33,600	YES
260610	100's	Chlorpromazine HCl 100 mg Tabs	12,000	6.72	80,640	YES
260620	Amp.	Chlorpromazine HCl 25 mg. x 5 ml.	90,000	1.10	99,000	YES
260905	100's	Diazepam 5 mg. Tabs	56,000	.66	36,960	YES
260910	100's	Diazepam 10 mg. Tabs	46,000	1.10	50,600	YES
260930	Amp.	Diazepam 10 mg. x 2 ml	127,000	.38	48,260	NO
261030	100's	Diphenylhydantoin Sodium (100 mg. Tabs)	56,000	1.80	100,800	NO
261440	100's	Phenobarbital 100 mg. Tabs	43,000	1.90	81,700	YES
261460	Amp.	Phenobarbital Sodium 0.13 grs. IV/IM	25,000	2.95	73,750	YES
261710	100's	Imipramine HCl 25 mg. Tabs	9,000	13.75	123,750	NO
262001	100's	Maprotiline Hydrochloride 25 mg. Tabs	1,300	12.75	16,575	NO
262210	100's	Meprobamate 400 mg Tabs	24,000	2.94	70,560	YES
262910	100's	Thioridazine HCl 25 mg. Tabs (enteric coated)	3,500	7.89	27,615	NO
263010	100's	Trifluoperazine HCl 10 mg. Tabs (enteric coated)	800	12.55	10,040	NO

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ODE	UNIT ISSUE					
70101	100's	Methocarbamol Tabs 500 mg	28,000	4.25	119,000	YES
70105	Amp.	Methocarbamol 1 G/10 ml	48,000	1.26	60,480	YES
80401	Vial	Vitamin B Complex for Injection 10 ml	258,000	.69	178,020	YES
80610	100's	Multivitamin Tablets (Like Tabron)	173,000	1.82	314,860	YES
80620	Liter	Multivitamin Oral Suspension Syrup (Like Theragran Liquid)	41,000	15.98	655,180	YES
80801	100's	Vitamin A 25,000IU Capsules	20,000	2.25	45,000	NO
80880	Amp (1 ml)	Vitamin K1 10 mg x 1 ml (IV use)	80,000	.75	60,000	NO
					1,253, 060	

1,432,540

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CODE	UNIT ISSUE					
290710	Tube	Choramphenicol Ophthalmic Ointment 5 G Tube	53,000	1.77	93,810	YES
290801	Bottle	Ophthalmic solution with steroids & antibiotics 5 ml Bottle	14,000	2.50	35,000	YES
292001	Bottle	Ophthalmic Solution: Sulfacetamide Sodium 10% Concentration	119,000	1.50	178,500	NO
300221	Bottle	Otic Drops (Solution) with polymyxin + Neomycin Sulfate 5 ml.	23,000	1.97	45,310	NO

352,620

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CODE	UNIT ISSUE					
320201	Tube	Vaginal Cream with Sulfa (Like Vagilia) 90 G Tube	73,000	5.38	392,740	YES
320301	Amp.	Ergonovine Maleate 0.2 mg/ml	53,000	.55	29,150	YES
320310	100's	Ergonovine Maleate 0.2 mg Tabs	12,000	7.00	84,000	YES
320401	Tube	Lubricant Jelly for Gynecologic Use (Like KY Jelly)	10,000	2.38	23,800	YES

529,690

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CODE	UNIT ISSUE					
330301	Amp. (10 ml)	Propanidid 0.5 gr. x 10 ml	25,000	2.95	73,750	NO
330301	Can	Soda Lime 35 lbs. can	700	140.70	98,490	NO
330710	Vial	Tubocurarine Chloride 30 mg./10 ml	8,500	7.50	63,750	NO
331301	Amp.	Ketamine HCl 10 mg/ml (IM/IV)	7,000	15.50	108,500	NO
331305	Amp.	Ketamine HCl 50 mg/ml (IM/IV)	8,000	25.50	204,000	NO
331701	Amp.	Pontocaine HCl 20 mg.	16,250	8.73	141,863	NO
332001	Bottle	Thalamonal 10 ml.	8,000	6.50	52,000	NO
330201	Bottle	Local Anesthetic 50 ml at 2% concentration (like Lidocaine hydrochloride)	60,000	3.24	194,400	NO

33 ANESTETICS

ODE	UNIT ISSUE					
330701	Vial	Succinylcholine-Chloride 500 mg	20,000	4.25	85,000	NO
330803	Bottle	Ethrane (inhalant) (made by Abbott Labs) 125 ml	2,700	70.00	189,000	NO
330804	Cylinder	Nitrous Oxide (ea. cylinder with 3.6 gallons)	700	50.00	35,000	NO
330104	Amp.	Thiopental (Sodium Salt) 1 G.	1,000	1.90	1,900	NO
330105	Amp.	Thiopental (Sodium Salt) 5 G.	5,000	10.25	51.250	NO
330107	Amp.	Pancuronium Bromide Injection Concentration: 2 mg/ml 2 ml	25,000	6.50	162,500	NO

1,461,403

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A-I-J

CODE CLASSIFICATION: 34 RADIOLOGICAL MATERIALS

CODE	UNIT ISSUE	ITEM	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)
340601	Bottle (1 gal.)	Fixing Liquid for X-rays (automatic processing)	1,000	8.55	8,500
340605	Bottle (1 gal.)	Fixing Liquid for X-rays (manual processing)	3,000	5.15	15,450
340610	Bottle	Developer Liquid for automatic processing 1 gallon.	1,000	10.25	10,250
340615	Bottle	Developer liquid for manual processing 1 gallon	3,000	5.15	15,450
340715	100's	Diagnostic Medium for Cholecystographic/Oral	1,000	39.57	39,570
340720	Amp.	Diagnostic Medium for Cholecystographic/IV	600	9.75	5,850
340725	Bottle	Iodine diagnostic medium for pyelography	1,500	6.75	9,375
340810	Boxes of 100	X-ray Film 8" x 10"	1,000	184.00	184,000
340810	Boxes of 100	X-ray Film 10" x 12" (polyester base)	1,000	212.50	212,500
340815	Boxes of 100	X-ray Film 11" x 14" (polyester base)	500	272.50	136,250
340820	Boxes of 100	X-ray Film 14" x 14" (polyester base)	500	347.00	173,500
340825	Boxes of 100	X-ray Film 14" x 17" (polyester base)	800	421.45	337,160
340830	Roll	X-ray Film 100 ft. x 70 mm x 400 exposures	500	45.00	22,500

C. . CLASSIFICATION: 34 RADIOLOGICAL MATERIALS

CODE	UNIT ISSUE	ITEM	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)
340302	Bottle (30 ml)	Medium Contrast for Bronchography	200	25	5,000
340303	Amp. (3 ml)	Medium Contrast for Myelography & Ventriculography	1,000	9	9,000
340701	Pound	Barium Sulfate	1,500	4.47	6,705
					1,191,060

CODE CLASSIFICATION: 35 , 36 35: Antiseptics 36: Medical/Surgical Material

CODE	UNIT ISSUE	ITEM	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY
350501	Gallon	Liquid Disinfectant (like Hibiscrub)	5,000	85	425,000
360101	Dozen	Hypodermic Needles 19 x 1.1/2"	400	2.80	1,120
360104	Dozen	Hypodermic Needles 22 x 1.1/2"	3,000	2.80	8,400
360106	Dozen	Hypodermic Needles 24 x 1.1/2"	500	2.80	1,400
360110	Dozen	Needle Suture Abdominal, Keith, straight	500	3.50	1,750
360301	Box (500)	Wooden Tongue Depressers (Adult)	3,000	2.27	6,810
360401	Each	Plasma Transfer Bags (500 ml)	3,000	3.50	10,500
362101	Can (6 per can)	Blood Transfusion Bags (250 ml) (Disposable Sets with Needle No. 18 x 1 1/2)	4,000	6.16	24,640
362102	Can (6 per can)	Blood Transfusion Bags (500 ml) (Disposable sets with Needle No. 18 x 1 1/2)	8,000	6.16	49,280
					528,900

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CODE CLASSIFICATION: 36 36: Medical/Surgical Material

CODE	UNIT ISSUE	ITEM	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)
361703	Each	Hypodermic Syringe 3 ml.	2,000	2.05	4,100
361705	Each	Hypodermic Syringe 5 ml. with Luer look	3,000	2.70	8,100
361710	Each	Hypodermic Syringe 10 ml. with Luer look	5,000	2.90	14,500
361715	Each	Hypodermic Syringe 50 ml. with Luer look	1,000	9.93	9,930
361906	Each	Disposable Syringes of 2 1/2 or 3 ml with Needle No. 23 or 24 x 1 1/2" with Luer look	1,000,000	.25	250,000
361907		Disposable Syringes of 5 ml (same needle as 361906)	50,000	1.40	70,000
362001	Roll	Suture black silk 100 yds. No. "0"	300	34.75	10,425
362005	Roll	Suture black silk 100 yds. No. "00"	400	34.75	13,900
360301	Pound	Cotton (Hydrophilic)	15,000	5	75,000
362201	Each	Oral Thermometer	4,000	2.10	8,400
362202	Each	Rectal Thermometer	4,000	2.10	8,400
362301	Dozen	Plaster Bandages 4" x 5 yds.	2,000	23.42	46,840
362303	Dozen	Plaster Bandages 6" x 5 yds.	1,000	34.42	34,420
362305	Dozen	Plaster Bandages 8" x 5 yds.	500	45.93	22,965
362307	Dozen	Plaster Bandages 4" x 5 yds. (quick dry)	500	20.70	10,350
362309	Dozen	Plaster Bandages 6" x 5 yds. (quick dry)	500	37.56	18,780
362311	Dozen	Plaster Bandages 8" x 5 yds. (quick dry)	500	50.08	25,040
					631,150

CODE CLASSIFICATION: 36 36: Medical/Surgical Material

CODE	UNIT ISSUE	ITEM	QUANTITY REQUESTED	LOCAL COST PER UNIT (COLONES)	TOTAL VALUE OF REQUEST IF PURCHASED LOCALLY (COLONES)
360501	Dozen	Chromic Catgut No. 0	3,000	25.50	76,500
360502	Dozen	Chromic Catgut No. 00	3,000	25.50	76,500
360503	Dozen	Chromic Catgut No. 000	1,000	25.50	25,500
360505	Dozen	Simple Catgut No. 0	500	25.50	12,750
360506	Dozen	Simple Catgut No. 00	1,000	25.50	25,500
360507	Dozen	Simple Catgut No. 000	1,000	25.50	25,500
360601	Each	Nylon Surgical Brushes	1,000	3.75	3,750
360905	Each	Venoclysis Set (IV) disposable with Needle No. 22 x 1 1/2	250,000	1.375	343,750
361101	Roll	Adhesive Tape 1" x 12" x 10 yds.	2,000	15.50	31,000
361103	Roll	Adhesive Tape 3" x 12" x 10 yds.	1,500	15.50	23,250
361104	Roll	Adhesive Tape 4" x 12" x 10 yds.	1,000	15.50	15,500
361110	Roll	Adhesive Tape 2" x 12" x 10 yds.	3,000	15.50	46,500
361210	Roll	Surgical Gauze (100 yds.) (36 inches wide)	5,000	34.35	171,750
361301	Roll	Glucose Reagent Tape (standard length)	1,000	5.50	5,500
361401	Pair	Surgical rubber gloves No.6	5,000	1.15	5,750
361402	Pair	Surgical rubber gloves No.6 1/2	15,000	1.15	17,250
361403	Pair	Surgical rubber gloves No. 7	30,000	1.15	34,500
361404	Pair	Surgical rubber gloves No. 7 1/2	30,000	1.15	34,500
361405	Pair	Surgical rubber gloves No.8	15,000	1.15	17,250
361501	Dozen	Surgical knife blade Size 10	250	2.55	637.50
361510	Dozen	Surgical knife blade Size 22	2,000	2.55	5,100
361511	Dozen	Surgical knife blade Size 23	1,500	2.55	3,825
361512	Dozen	Surgical knife blade Size 24	1,500	2.55	3,825
361601	Each	Bandages used for orthopedic purposes before applying plaster 36" x 6 yds.	5,000	7.55	37,750
					1,043,637.5

H-I-X

H-I-L

ANNEX.____

PRIORITY MEDICAL EQUIPMENT

		US DOLS. .
I.	Medical Equipment	
A.	123 Centrifuges (6640-00-930-9034 (GSA)) lab. small, 115 V for all hospitals, health centers and health units at Ea. 385.33.	47,396
B.	123 Sterilmatic-Sterilizers Model STME14-460 at Ea. 3,471	426,933
C.	123 Litters (Stretchers) (6530-00-783-7905 (GSA)) with folding aluminum poles at all hospitals, health centers and health units at Ea. 50.66	6,232
D.	123 Otoscope and Ophtalmascope sets (6515-00-550-7199 (GSA)) for all hospitals, centers and health units at Ea. 79.22	9,744
E.	123 Sphygmomanometer Aneroids (6515-01-039-4884 (GSA)) for all hospitals, centers, and health units at Ea. 16.58	2,040
	Sub-Total	492,345
	Freight & Insurance (15%)	73,852
	Procurement Fee (7%)	34,464
	TOTAL	$600,661

* Although 6 Health Units are closed at present it is assumed they will reopen, therefore they have been included in list of 123 facilities.

Component 1, Subcomponent A
SUMMARY FINANCIAL TABLE

	PROJECT YEAR 1		PROJECT YEAR 2		TOTAL	
	FX	LC	FX	LC	FX	LC
1. Technical Assistance						
A. Supply Management Adv. (18 PM at $10,000 mo.)	120,000		60,000		180,000	
B. Warehousing Advisor (6PM at $11,000 mo).	66,000				66,000	
C. Supply Management Advisor (6 PM at $11,000 mo.)	66,000				66,000	
	66,000				66,000	
D. Procurement Advisor (12 PM at $10,000 mo.)	120,000				120,000	
E. Procurement Management Advisor (6 PM at $11,000 mo.)	66,000				66,000	
Logistical Support	12,500		2,500		15,000	
SUB-TOTAL	450,500		62,500		513,000	
2. MSPAS Executive Management Group Support Costs						
A. Group Director (Annual Salary)		8,750		8,750		17,500
B. Group Assistant Director (Annual Salary)		7,000		7,000		14,000

C. Two Group Coordinators (Annual Salary at $6,650 ea.)		13,300		13,300		26,600
SUB-TOTAL		29,050		29,050		58,100
3. In-Country Training						
A. Supplies Management		10,000		10,000		20,000
B. Warehousing/ Inventory Control		10,000		10,000		20,000
SUB-TOTAL		20,000		20,000		40,000
4. Commodities						
A. Pharmaceuticals (See Annex HIJ)	5,500,000		2,868,000		8,368,000	
B. Contraceptive Supplies			340,000		340,000	
C. Medical Supplies (See Annex HIK)	1,357,900		1,357,900		2,715,800	
D. Medical Equipment (See Annex HIL)	600,661				600,661	
E. Warehouse Equipment						
A. Matasano Warehouse						
1. Hydraulic Lift Trucks (100 lbs. to 78 inches) 4 at $700 ea.	2,800				2,800	
2. Hydraulic Skid Trucks (400 lbs. capacity) 4 at $1,500 ea.	6,000				6,000	
3. Power walker pallet Trucks (4000 lbs. capacity) 2 at $3,000 ea.	6,000				6,000	

4. E-Z Haul Platform Trucks (30" x 60") 6 at $400 ea.	2,400				2,400
5.Aluminum Platform Trucks (30" x 60") 6 at $350 ea.	2,100				2,100
6. Two-way-toter Magnesium Trucks (Hand Truck) 10' x 3.75'. 6 at $300 ea.	1,800				1,800
7. Spare Parts, Casters, etc.	5,000				5,000
8. Assorted Warehouse Tools and Materials	5,000				5,000
9. Ladders - 9-1/2 Feet 6 at $200 ea.	1,200				1,200
10. Mobile Maintenance Platform 72" length 6 at $100.	600				600
B. For MSPAS Warehouses					
1. Tape Calculators 20 at $100 ea.	2,000				2,000
C. Freight and Insurance (15%)	5,235				5,235
D. Procurement Fee (7%)	2,443				2,443
SUB-TOTAL (E)	42,578				42,578

F .Cold Chain Equipment					
A. Equipment					
1. Plant Equipment for Two Cold Rooms-80 m^2 ea. (Matasano and San Miguel Regional Warehouse)					
2 Electric Generators at $12,500 ea.	25,000				25,000
2 Sets Refrigerator Equipment at $22,500 ea.	45,000				45,000
2. One Refrigerator Truck 15 m^3 capacity.	35,000				35,000
3. Refrigerator Units (Kerosene/ Electric) 20 at $450 ea. (10'3)	9,000				9,000
4. Freezer 110 Volts/50/60Hz 20"3 7 at $700 ea.	4,900				4,900
5. Thermos Containers 55 at $20 ea.	1,100				1,100
6. Thermometers 200 at $3.10 ea.	620				620
7. Ice Packs 900 at $2,65 ea.	2,385				2,385
B. Freight and Insurance (15%)	18,821				18,821
C. Procurement Fee (7%)	8,783				8,783
SUB-TOTAL (F)	153,074				153,074

G. Upgrading Reproduction / Printing Capacity						
A. 1. Local Maintenance Contract for Photocopying Machines		10,000		10,000		20,000
2. Mechanical Camera Image 20" x 24" Lense Opening 30" x 40"	11,500				11,500	
3. Printing Machine Maximum Size of Paper 20-7/16" x 14-3/8" x 13-1/2" (With Numbering, Perforating and Cutting System One Unit at $65,000.	65,000			65,000		
4. Wire Stitcher 1-1/8"	7,500			7,500		
5. Paper Cutter with Cutting Capacity 37" x 42", height 6" w/6 blades	22,500			22,500		
6. 43" Length of Cutting Light of 1 Centimeter	8,500			8,500		
7. Press - Surface 57 x 81	9,000			9,000		
8. Stamping Machine 2" Width x 9" length Immediate Action Rollers	6,500			6,500		
B. Freight and Insurance (15%)	19,575					
C. Procurement Fee (7%)	9,135					
SUB-TOTAL (G)	159,210	10,000		10,000	159,210	20,000

5. Construction/ Upgrading					
A. Warehouse Construction 1500 m^2 at $228 per m^2 (Matasano)	342,000				342,000
B. Upgrading Warehouses Total 2000 m^2					
1000 m^2 at Matasano	50,000				50,000
1000 m^2 among 5 regions at $50 m^2	50,000				50,000
C. Cold Room Construction Matasano and San Miguel each 80 m^2 at $60 m^2	9,600				9,600
SUB-TOTAL (5)	451,600				451,600
6. Commercial Transport/ Warehousing					
1. In-Country Air Transport (20 trips per year at $1,000 trip).	20,000		20,000		40,000
2. Truck Transport (100 trips at $200 ea.	20,000				20,000
3. Interim Warehousing	5,000				5,000
SUB-TOTAL (6)	45,000		20,000		65,000

H-I-M

TOTAL	YEAR I FX	YEAR 1 LC	TOTAL
	$6,947,923	$592,050	$7,539,973
	YEAR 2 FX	YEAR 2 LC	
	$5,944,000	$ 79,050	$6,023,050
	$12,891,923	$671,100	$13,563,023

SCOPE OF WORK

1. Title of Position/Consultant
A. Level of Consultant Grade - Malaria Control Officer
B. Source of Consultant - Local hire, senior grade
- San Salvador

2. Education, Experience and Previous Work Activity

A. Education

This officer must possess at least a master's level degree in the biological or engineering sciences with a degree in medical entomology or parasitology preferred. Completion of a special course in Malaria Eradication or Malaria Control is mandatory. A specialized course in vector control techniques would be desirable. Must be fluent in both Spanish and English at the FSI S/3-R/3 level.

B. Experience

It is required that this specialist have no less than five years experience in mosquito control or malaria control work. It is also required that this specialist be familiar with the proper application and use of pesticides in a malaria control or mosquito control operation and be able to train personnel in these subjects with special emphasis on health safeguards.

C. Previous Work Activities

The officer should have worked at least three years in an international organization, U.S. Agency or a country program which has as its main activity the control of malaria or other vector-borne diseases.

3. Duties and Tasks

This officer acts as the part time USAID/San Salvador specialist in the malaria control activities for the Health Service Vitalization Project. The duties of this position are as follows:

A. Assists the USAID/San Salvador in all matters relating to the malaria control component of U.S. assistance including planning, operation, monitoring and evaluation. Maintains close contact with Malaria operations at the National Division of Malaria and Polo levels to identify and assist GOES and USAID authorities in solving any potential or existing technical or management problems connected to U.S. assistance efforts in malaria control. Prepares reports on these contacts and problems to A.I.D.

B. Monitors field operations where U.S. supplied commodities are being used to ensure that these commodities are (1) being used in a technically sound fashion (2); in accord with US-GOES agreements; (3) properly stored and controlled; and (4) in a safe manner which protects the health of malaria program personnel as well as villages populations. Makes actual site visits to spray operations and prepares a report on the findings of these visits.

C. Assists the GOES in the establishment of a viable training program for the safe use and application of U.S. supplied insecticides and participates in this training if requested by the GOES. Evaluation of the GOES training procedures for pesticide management and use will be expected at the completion of this assignment.

D. Assists the Office of Human Resources/Humanitarian Affairs of A.I.D. (HR/HA) in the development, preparation and follow-up of USAID procurement for the malaria control program. Assists in the end use audits of U.S. supplied commodities.

E. Assist the A.I.D. HR/HA office in planning future U.S. assistance in malaria control.

F. Acts as USAID Control Officer for short term consultants and US officers concerned with malaria control. Meets with representatives of International Agencies, private concerns and other donor nations.

G. Prepares reports and recommendations as directed on malaria control, vector control or public health activities.

H. Attends meetiongs and conferences as directed by the HR/HA office of AID.

I. Performs the duties as assigned.

4. Time Required for this Specialist

It is expected that this specialist will be locally contracted by the USAID/San Salvador for a period of seven months beginning o/a December 15, 1983 and terminating o/a July 15, 1983. If, at this time, there is to be a continuing interest on the part of USAID/San Salvador, then additional contract time may be required.

SCOPE OF WORK

1.	Title of Position/Consultant	- Mosquito Control Specialist
A.	Level of Consultant Grade	- GS-12, GS-13
B.	Source of Consultant	- U.S. - Mosquito Abatement District in California, Florida, Texas.
C.	Est.Time required	- two weeks

2. Education, Experience and Previous Work Activity.

A. Education

A degree in the Biological Sciences, Physical Sciences or Engineering is desirable but not mandatory. Special training in mosquito control using Cold Foggers (ULV), Thermal Foggers, dusters and mist applicators for adult and larva control is mandatory. Completion of a course on malaria control would be desirable.

B. Experience

This specialist must have minimum of five years experience in mosquito control of which at least two years must have been directly related to the application of insecticides through the use of ULV, fogging or misting ground equipment. Must be able to prepare and provide hands-on training in the proper use of ULV , fogging and dusting equipment.

C. Previous Work Experience

This specialist should have worked at least three years with a U.S. local, state or federal agency or international organization in a mosquito and other vector control program in a position which required actual application of insecticides by ground equipment and supervision of personnel carry out such tasks. Actual experience in the safe application of such insecticides as fenitrothion, Propoxur, Landrin, Abate, Dursban, Actellic, Bendiocarb using ground equipment is essential Work experience in an overseas area for a period of two years would be desirable. Experience in Latin America would be preferred.

3. Duties and Tasks

This specialist is primarily concerned with the short term training of host country nationals in the proper use and maintenance of Ultra Low Volume (U.L.V.), fogging and dusting equipment used in the National Malaria Control Program.

Duties include:

A. Short-term basic and refresher training of host country nationals who are assigned by the Division of Malaria to operate and maintain U.S.-supplied ground equipment used in the National Malaria Program for adult mosquito control and larviciding.

B. Demonstrates proper calibration techniques of such equipment and assures that trainees can accurately carry out such calibrations at the end of the training period. Presents a model reporting system which can be used in managing such application.

C. Presents proper field application techniques for concentrates, formulated insecticides, dusts, and larvicides using such equipment to a training group.

D. Coordinates training with the Division of Malaria and follows their suggestions on training schedules and sites.

E. Renews operation manuals with Division of Malaria operators to ensure their understanding of the instructions given in the manuals. Assists in preparing spanish versions of the manuals if necessary.

F. Prepares a brief report on the training provided, evaluation of the results and recommendations for USAID prior to departure from El Salvador.

G. Other duties as assigned in the final Scope of Work.

4. Time required for Specialist/Consultant

It is estimated that a period of two weeks will be required for this short term technical assistance activity. It will be necessary for the USAID/San Salvador to make arrangements for the training with the Division of Malaria prior to arrival of the consultants. It is foreseen that at least two or three training sessions of three days each at various locations will be necessary to carry out this work.

The specialist must be fluent in Spanish at the FSI S/3 - R/3 level.

I. Annex

SPECIFICATIONS FOR COMMODITIES FOR
MALARIA CONTROL SYSTEM SUBCOMPONENT

SUBJECT AREA	UNIT DESCRIPTION	COST/UNIT ($)	QUANTITY	TOTAL COST	SUGGESTED SOURCE
1. INSECTICIDE NOTE PIO/C to state "funds controlling" on all insecticide procurement.	a. Abate (Temephos), 1% granules for treating domestic water. 15 kg. units in cardboard drums.	$1.10/kg. (FOB Miami)	30,000 Kg. (15,000 Kg. 1st year)	$33,000	American Cyanamid New Jersey
	b. Abate (Temephos), 44% E.C. For use in larviciding in surface water. In 5-gallon metal containers	$73.~~00~~ 35/gallon (FOB Miami)	3,000 gallons (1,500 gallons 1st year)	$220,000	American Cyanamid New Jersey
	c. Propoxur (OMS-33), "Baygon" 50% water dispersible powder, prepared in plastic bags of 800 grms each for a total of 30,000 kgs.	$12.00/kg.	60,000 Kg. (30,000 kg. 1st year)	$720,000	Mobay Chemical Co. Missouri
2. ANTI-MALARIA DRUGS	a. Chloroquin Diphosphate (150 mg. base) plus Primaquine (15 mg.) tablets (Amodiaquin). Bottles of 1000 tabs.	$25.00/btl.	6,000 Bottles (3,000 1st year)	$150,000	General Service Administration (GSA)
	b. Chloroquin Diphosphate (75 mg. base) plus Primaquin (7.5 mg. base) tablets Bottle of 1,000 tabs. each.	$33.33/btl.	600 Bottles (300 1st yr.)	$ 20,000	GSA
	c. Primaquin (15 mg. base) Bottles of 1,000 (For malaria treatment)	$15.70/Bottle	1,400 Bottles (700 1st year)	$22,000	GSA

SUBJECT AREA	UNIT DESCRIPTION	COST/UNIT ($)	QUANTITY	TOTAL COST	SUGGESTED SOURCE
2.con't.	d. Primaquin (5 mg. base) Bottles of 1,000 tablets (For malaria treatment)	$23.30 Bottle	600 Bottles (300 1st yr.)	$14,000	GSA
	e. Chloroquin Disphosphate (150 mg. base) 1,000 tabs per bottle (Trade names: Aralen, Avloclor)	$24.00 Bottle	2,000 Bottles (1,000 1st yr.)	$48,000	GSA
3. VEHICLES AND SPARE PARTS	a. Pick-up 3/4 ton, 6 ply tires with tubes	$13,000 Each.	5	$65,000	American Motors (Standardize with other vehicles in project)
	b. Vehicle Tires, Tractor-type, 6 ply, steel-belted. (for vehicles in existing fleet)				
	700 x 16	$80 ea.	30	$2,400	
	735 x 14	70	16	1,120	
	750 x 15	100	26	2,600	
	700 x 15	110	108	11,880	
	750 x 10	100	70	7,000	
				$25,000	
	Vehicle Tires for New Vehicles			$ 2,500	
4. SPRAYING EQUIPMENT	a. ULV Spray Unit(Truck mounted) with Briggs & Stratton 16 hp. LECO, model H-D Series D-7000-12 or equivalent	$4,500 ea.	5	$22,500	Lounder Engineering Co. 125 Blanchard St.,Baldosta, GA. 31601 USA

SUBJECT AREA	UNIT DESCRIPTION	COST/UNIT ($)	QUANTITY	TOTAL COST	SOURCE
4 con't. SPRAYING EQUIPMENT	b. Spray Pumps, 3 gal. capacity without pressure gauge Hudson X-Pert Sprayer #67322 (Proprietary procurement since all such pumps in El Salvador's Malaria Program are of this make)	$70	200 (100 1st yr.)	$14,000	H.D. Hudson 500 N. Michigan Chicago, Illinois 60611 USA
	c. Nozzle tips, for Hudson X-Pert, 3 gal. sprayer, HSS-8002E Tee-jet	$2.40	4,000 (2,000 1st yr.)	$9,600	H.D. Hudson
	d. Nozzle tips, for Hudson X-Pert Sprayer, Cone-Jet for larviciding	$2.40	4,000 (2,000 1st yr.)	$9,600	Spraying Systems
	e. Fogging Unit, Model D-H-90 52 3/4 inches long 13 1/4 inches wide 9 5/8 inches wide with 1/2 gallon gas tank and an insecticide tank of one (1) gallon to produce droplet size 5-50 microns, or equivalent model	$600.00	5 ea.	$3,000	Dyna-Fog Co. or Micro-Gen in Texas
	f. Dusting, ULV and larviciding sprayer, back pack, with 2 cycle engine	500.00	30 ea.	$15,000	H.D. Hudson Chicago, Ill.
5. SCIENTIFIC EQUIPMENT	a. Microscopes, bi-nocular with built-in light source 60 cyl x 110 lenses 10 and 100 x for oil immersion with carrying case, similar to AO model 369-363, Series 150	$1,540 ea.	20 ea.	$30,800	American Optical or Baush and Lomb

SUBJECT AREA	UNIT DESCRIPTION	COST/UNIT ($)	QUANTITY	TOTAL COST	SOURCE
6. ENTOMOLOGICAL SUPPLIES	a. Sample tubes, microscope slides, sensitivity testing supplies, mosquito pans, tubing, dissection forceps, larvae collectors, etc.			$8,000	Various

DRUG QUALITY CONTROL LABORATORTY

1 EQUIPMENT

Since the equipment, glassware, books and other commodities are going to be procured only after eight monthly of the Project, here it is mentioned only some of the specialized equipment which should be considered for the establishment of the drug quality laboratory.

Analytical balances

*	1.	Semi-micro,Analytical Metter Model H54AR 16-2381-01.	$3,480.00
*	1.	Analytical, Digital, Metter Model H80 16-2386-01	$1,695.00
*	1	Semi-micro, Electronic Analytical Metter Model H252 16-2800-01	$5,190.00
*	1.	Electronic Metter Model PE200 with data output 16-2396-05	$1,345.00

* Thin Layer chromatographic kit, consisting of

Basic set - Preiser catalog.	17-1660-02	$ 600.00
Developing Chamber 2 x 8 inc.	17-1666-39	$ 18.00
Glass Plates, ground 20 x 20 cm.	17-1666-40 (4 sets)	$ 120.00
Baker-Flex TLC sheets (J.T. Baker)	17-1695-01 (1 pack)	$ 41.70
	17-1695-02 (1 pack)	$ 44.00
	17-1695-03 (1 pack)	$ 69.40
	17-1695-10 (1 pack)	$ 44.00
	17-1695-11 (1 pack)	$ 69.40
	17-1695-20 (1 pack)	$ 69.40
	17-1695-30 (1 pack)	$ 80.20
	17-1695-40 (1 pack)	$ 80.20
17-1478-20 Kieselguhr. (2)		$ 66.00
17-1478-26 Silicagel 60G (1)		$ 317.00
17-1478-32 Silicagel 60GF-254(1)		$ 317.00
17-1486-28 Silicagel 60 (2o x 20) 2 pack. 2 x		$ 48.85
17-1486-34 Silicagel 60 F-254 (2o x 20) 2 pack 2 x.		$ 48.85
17-1488-02 Silicagel 60 (20 x 20) 2 pack 2 x.		$ 43.30
17-1488-05 Silicagel 60 F254 (20 x 20) 2 pack. 2 x.		$ 43.30
17-1488-08.Silicagel 60/Kieselguhr F254 (20 x 20)2 pack.2 x		$ 71.05
17-1488-14.Cellulose (20 x 20) 2 pack. 2 x		$ 75.50
17-1489-02.Silicagel 60,(20 x 20) 2 pack.		$ 48.85
17-1489-04.Silicagel 60F-254 (20 x 20) 2 pack. 2 x		$ 48.85

H-I-P

*	Compact Chromato-Vue, Cabinet for Flourescent analysis, Model CC-206		
		17-1710-01	$ 515.00
	Repl. Parts.	17-1710-15	$ 11.75
		17-1710-17	$ 9.00
		17-1710-19	$ 3.75
		17-1710-25	$ 98.00
		17-1710-27	$ 33.00
*	Dessicating Cabinet, storage, Stainless	17-1648-01	$ 215.00
	Oven-Vacuum - High Temp. Forma Model 6512	20-7532-01	$ 1,950.00
	Dessicator - Vacuum, Labconco.	12-1050-01	$ 475.00
	Karl-Fisher Tibrator	22-3915-01	$ 2,789.00
		22-3913-01	$ 42.50
		22-3914-01	$ 361.00
		22-3951-04	$ 120.00
*	Spectrophotometer Perkin - Elmer Model Laudde 3		
	Catalog C618-0900		$ 9.110.00
	Acc. Cat. C030-0310 4 x 56		$ 224.00
	C030-0300 2 x 155		$ 310.00
	C055-0500 3 x 36		$ 108.00
	C055-505		$ 400.00
	C055-0403		$ 185.00
*	Spectrophotometer difrared - Perkin Elmer		
	Catalog not available	Estimated price	$.15,000.00
	Kbr. Pellet Press.	21-3301-01	$ 272.40
		21-3302-01	$ 80.00
		21-3302-02	$ 80.00
		21-3302-03	$ 75.00
*	Polarimeter. Full Circle Kern.	21-3085-01	$ 1,495.00
		21-3140-53	$ 56.00
		21-3142-53	$ 101.00
		21-3142-67	$ 105.50
*	Digital phmeter Cornny Model 125	21-2142-01	$....925.00
	Gas-Chromatoph, Cat. unavailable - Estimated price		$ 15.000.00
	Syringes	17-1141-01 (2)	$ 60.00
		17-1141-02-(2)	$ 60.00
		17-1141-03-(2)	$ 60.00
		17-1141-05-(1)	$ 35.00
	Columus - from the same manufacturers as the equipment.		

Support for gas dermatograph. idem.

*	Equipment to determine desintegration time of tablets according to U.S. Pharmacopreia - Cat. not available. Cost estimated...	$ 800.00
.	Waters QA-1 High Pressure liquid chromatography Analizer - or similar Operating supplies as recommended by Waters. Estimated value Including Recorder/Plotting integrator	$ 3.500.00
.	Spectro flouremeter Estimated value	$ 2.000.00
.	Differential Thermal Analyzer. Estimated value (Mettler)	$25.000.00
*.	Demineralizer - Bautam, Barnstead	
	17-8000-01 (2)	$2 x 300.00 = $ 60(
	17-80005-01 (15)	$15 x 46.00 = $690
	17-8005-02 (5)	$5 x 46.00= $230
	17-8005-03 (5)	$5 x 51.00=$255
	17-8005-04 (5)	$5 x 39.00= $195
	17-8005-05 (5)	$5 x 33.00= $165
	17-8005-06 (5)	$5 x 76.00=$380
	17-8005-07 (5)	$5 x 77.00=$385
*.	Barnstead water purificator System	
	17-8009-01	$ 1.590.00
	17-8009-05 (2)	$ 2x 110.00 =$220
*	Distilling Apparatus Batam, Automatic. Barnstead 17-8260-12	$ 1.495.00
	Flash Evaporator - Rotavapor Model R-110 Brichi	
	18-1441-12	$ 1.395.00
	18-1453-01(5)	$5x 13.25=$66.25
	18-1456-01	$ 86.50
	Micro-Kjeldahl Destillation Unit- 20-6120-01	$ 1.050.00
	" " Digestion Unit	$ 635.00
*	Kjeldahl Distillation - Digestion Unit M-3800-12 American Hospital Supply ( )	$ 8.255.00
*	Melting Point Apparatus - Model 510K - Bridri	
	19-2015-01	$ 1.495.00
	19-2017-01 (100)	$100 x 62.00=$6,200
	19-2017-02 (10)	$10 x 45.00=$ 450
	19-2017-04 (1)	$ 22.00

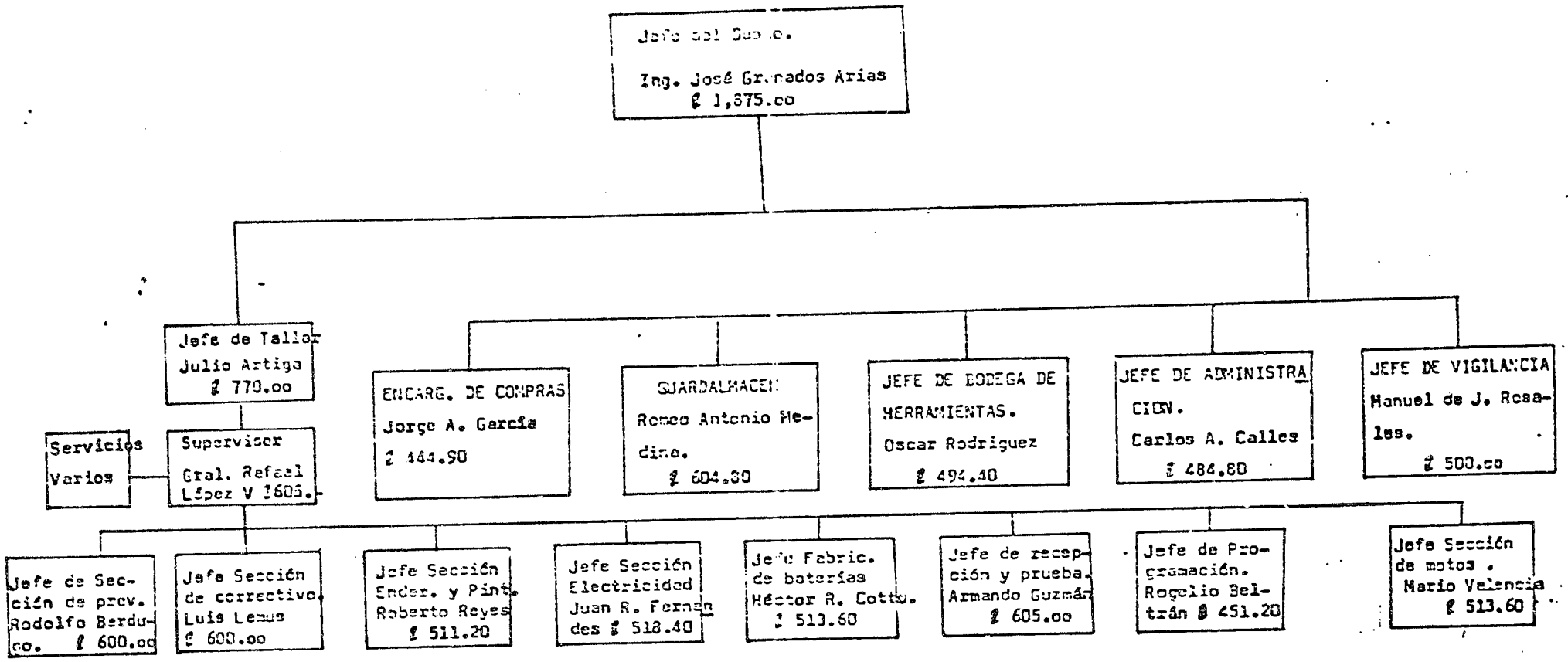
H-IP

Melting Point Apparatus. Thermolyne		
19-1980-01		$ 723.00
19-1981-01		$ 21.95
Refractometer- Abbe with Digital Redout		
21-5457-04		$ 2,515.00
21-5457-05		$ 39.50
21-5457-07		$ 8.00
	Sub-total	$124,906.95
	15% Freight + Ins.	18,736.00
	7% Procurement Fee	8,743.50
	Total	$152,386.00

ANNEX H

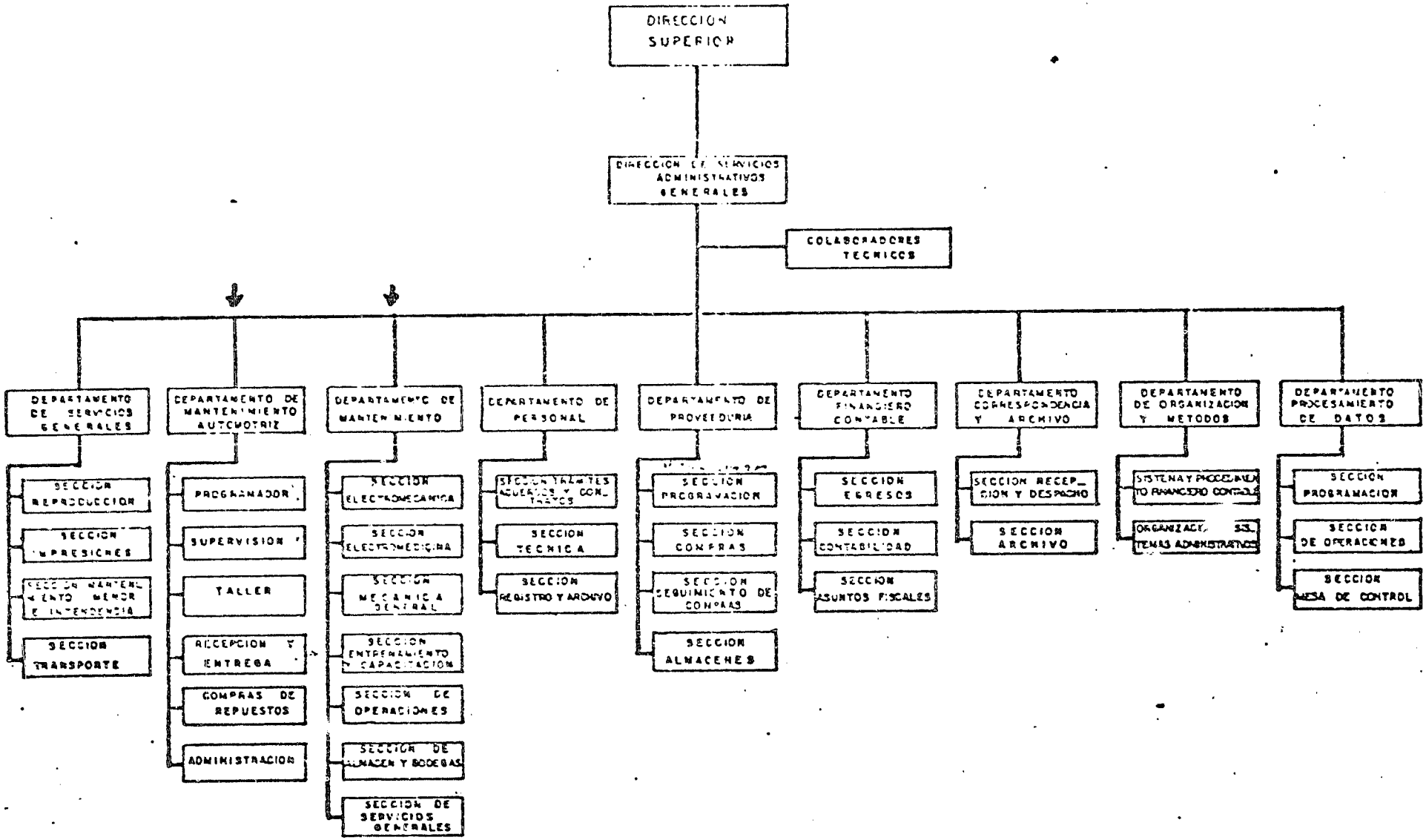
COMPONENT II

PUBLIC HEALTH INFRASTRUCTURE MAINTENANCE AND REPAIR


Jefe del Depto.
Ing. José Granados Arias
$ 1,875.oo
Jefe de Taller
Julio Artiga
$ 770.oo
Servicios Varios
Supervisor
Gral. Rafael López V 3605.-
ENCARG. DE COMPRAS
Jorge A. García
$ 444.90
GUARDALMACEN
Romeo Antonio Medina.
$ 604.80
JEFE DE BODEGA DE HERRAMIENTAS.
Oscar Rodriguez
$ 494.40
JEFE DE ADMINISTRACION.
Carlos A. Calles
$ 484.80
JEFE DE VIGILANCIA
Manuel de J. Rosales.
$ 500.oo
Jefe de Sección de prov.
Rodolfo Berduco. $ 600.oo
Jefe Sección de correctivo.
Luis Lemus
$ 600.oo
Jefe Sección Ender. y Pint.
Roberto Reyes
$ 511.20
Jefe Sección Electricidad
Juan R. Fernandes $ 518.40
Jefe Fabric. de baterías
Héctor R. Cotto.
$ 513.60
Jefe de recepción y prueba.
Armando Guzmán
$ 605.oo
Jefe de Programación.
Rogelio Beltrán $ 451.20
Jefe Sección de motos.
Mario Valencia
$ 513.60

ANNEX-H-II-B

ESTRUCTURA ORGANIZATIVA ACTUAL DE LA DIRECCION SERVICIOS ADMINISTRATIVOS GENERALES



ANNEX H-II-C

Vehicle Distribution

Models and Quantities

	TYPE	$ PER VEHICLE	QUANTITY
Occidental Region	Pick-up J-20	13,000	2
Santa Ana	Truck 4 Ton	25,000	1
Central Region	Pick-up J-20	13,000	2
Santa Tecla	Truck 4 Ton	25,000	1
ParaCentral Region	Pick-up J-20	13,000	2
	Truck 4 Ton	25,000	1
Metro Region	Pick-up J-20	13,000	2
San Salvador			
Oriental Region	Pick-up J-20	13,000	2
	Truck 4 Ton	25,000	1
Transport Dept.			
PLANSABAR	4 x 4 Dump Truck	30,000	2
	4 X 4 Truck 8 Tons	30,000	2
Advisor	Jeep CJ-7	10,000	2
Metro	Truck 8 Ton	26,000	2
	Bus 45 Passenger	25,000	1
	1/2 Pick-up 2 x 4	11,000	2
	Jeep CJ-7	10,000	10
	Chev. Van 9 Pass.	16,000	1
	Pick-up 1 Ton 4 X 4 Mobile	13,000	2
		TOTAL	38

Vehicle Specifications

(Jeeps and Pick-ups)

1. Jeep. 1983. CJ-7, Diesel, 4 X 4, hard top w/doors. color white, spare size of tires H78 X 15, black, standard transmission 4 speed, stabilizer bar front axle, with rear seat, warn lock-out hubs. Tools for changing tire, spare wheel lock.

2. Pick-up, J-10, 2 X 4, 6 cylinder, 258CID spare tires, color white, tires black size 750:16 tube type. Standard transmission 4 speed. Hd radiator, HD shocks, HD springs front and back, power steering. Tools for changing tire, spare wheel lock.

3. Pick-up, J-20, 4 X 4, 6 cylinder 258CID, 2BBL, spare tire, color white, tires black, size 750:16 tubetype. Standard transmission 4 speed, HD radiator, HD shocks, HD spring front & rear, warm lock-out hubs, stabilizer bar, front axle, power steering, tools for changing tires, spare wheel lock.

ANNEX XIV
GOOD YEAR
THE GOODYEAR TIRE & RUBBER COMPANY
Government Sales Dept.
1144 East Market Street,
Akron, Ohio 44316

PRODUCT		PRICE	F.E.T..	EA.	QUANT.	TOTAL
102-618-150	Tire Suburbanite, Polyester, B4, Size 678-15, Black	32.97	2.60	35.57	1000	35,570.00
120-044-331	Tire, Light Truck C, Tubetype, Black, size 700:15	41.28	2.81	44.09	1000	44,090.00
120-099-331	Tire, Light Truck, Load D Tubetype, Black Size 7:50/16	51.43	3.51	54.94.	300	16,482.00
122-209-339	Tire, Truck, Load F, Tubertype Black, Size 900/20	143.27	8.09	151.36	140	21,190.40
193-354-200	Tube, Size 900/20	12.17	0.72	12.89	140	1,804.60
192-591-200	Tube, Size 750/16	7.65	0.38	8.03	300	2,409.00
192-230-200	Tube, Size 700/15	8.29	0.34	8.63	1000	8,630.00
192-212-200	Tube, Size 678-15	5.99	0.28	6.27	1000	6,270.00
						$136,446.00

In addition:

1.	Spare parts for new vehicles	$140,000.00
2.	Spare parts for existing vehicles	$225,000.00
		$365,000.00
	Total of tires and parts	$501,446.00

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ANNEX XV

RADIOS

1.	20 Units a $1000 =	$20,000.00
2.	Control a $12,000 =	$12,000.00
	TOTAL RADIOS	$32,000.00

TOOLS FOR TRANSPORT DEPARTMENT OF MOH, ES or EQUAL ANNEX-H-II-D

The following tools are being order from McMASTER-CARR Supply Co.; P.O.Box 4355, Chicago, Ill 60680, U.S.A.

PAGE	No.	DESCRIPTION	CAT.#	COST/UNIT	UNIT	TOTAL $
1281	2374D3	Presses & brakes	86	2596.77	1	2596.77
1281	2374A1	Presses & Brakes	86	1467.74	4	5870.96
438	1066K11	Wheel bearing packers	87	193.67	5	968.35
439	1103K1	Self-tapping lubrication	87	0.27	200	54.00
1693	6713A12	Brake Cylinder Hones	87	13.14	6	78.84
1693	6713A14	Replacement Stones	87	3.38	12	40.56
1693	6552A37	Body Repair Tools	87	157.52	2	315.04
292	2897T16	Ram & Pump Assemblies	87	250.00	1	250.00
293	2988T14	Wedge Type Hidraulic Set	87	249.67	1	249.67
1691	6856A11	Tire Changing Stand	87	398.08	4	1592.32
1691	6691A1	Tire tool Service	87	163.24	4	652.96
1691	6691A2	Tire Tool Service	87	239.92	1	239.92
1691	6003A14	Tire Changing Impact Tool	87	85.43	4	341.72
1691	6868A11	Wheel Weight pliers	87	13.78	1	13.78
1691	6854A11	Wheele Balancer	87	215.92	1	215.92
1690	6115A12	Tire Tools	87	1.58	7	11.06
1291	2461D18	Forges	86	1024.09	1	1024.09
1290	2481D23	Anvils	86	1683.33	1	1683.33
1290	2481D38	Stand for Anvils	86	444.44	1	444.44
1295	2679A4	Ridgid Pipe Cutters	86	84.90	1	84.90
1295	2680A23	Replacement Pipe Cutters	86	4.30	25	107.50
835	7881T	Duck Tarpavlins 20x30 Size 1241	86	168.00	12	2016.00
835	7881T	Duck Tarpavlins 24x36 size 1241	86	107.52	5	537.60
510	1340T5	Eyeglass Loupes	86	8.25	6	49.50
1687	6877A11	Valve Seat Grinder Set	87	845.24	1	845.24
1687	6734A12	Valve Spring Compressor	87	10.29	2	20.58
1687	6702A12	Valve Grauders	87	11.48	2	22.96
1687	6729A12	Valve Grinders	87	9.42	2	18.84
1687	6890A11	Valve Spring Compressor	87	17.52	2	35.04
					SUB-TOTAL	20,381.89

ASTER-CARR-... (2)

1687	6889A21	Valve Face Grinding	87	1490.46	1	1490.46
1590	6959A53	Torx Keys Set	87	13.88	1	13.88
1304	2629A16	Tap & Die	86	486.43	1	486.43
840	7850T14	Spray Guns	86	90.40	3	271.20
524	5248T1	Aprons	86	12.64	2	25.28
527	5278T13	Gloves	86	2.31	2	4.62
203	1729T25	Weight Sets	86	65.00	1	65.00
161	9845T1	Battery Service Kit	86	31.36	1	31.36
161	9847T3	Battery Fillers	86	290.00	1	290.00
1674	6623A13	Roller Cabinets	87	180.50	20	3610.00
1238	6848A61	Tape Rules	87	2.58	10	25.80
439	1103K2	Selftapping Lubrication	87	0.49	100	49.00
439	1103K3	Selftapping Lubrication	87	0.49	50	24.50
439	1103K4	Selftapping Lubrication	87	0.27	100	27.00
439	1103K6	Selftapping Lubrication	87	0.49	50.	24.50
439	1351K11	Extension Adapter	87	21.50	2	43.00
335	3256T15	Folding Boom Crane	87	1331.00	1	1331.00
297	2896T15	Truck Transmission Jack	87	1241.04	1	1241.04
230	2539T24	Steel Platform Trucks	87	428.02	1	428.02
1690	6750A11	Sparkplug tester/Cleaner	87	91.13	6	546.78
1690	6750A12	Adapter Kit	87	1.22	2	2.44
1690	6750A13	Abrasive Refill	87	1.37	50	68.50
1468	7095A11	Metal Shears 36"	89	654.37	1	654.37
591	6022T7	Watch Clock	87	392.00	1	392.00
591	6023T2	Record Dials	87	14.73	2	29.46
591	6022W4	Stations of 1 to 5	87	30.67	5	153.35
					SUB-TOTAL	31,710.88

ASTER-CARR.....(3)

1285	2479A14	Pipe Benders	86	1144.00	1	1144.00
1712	6132A12	Brake Deliner & Riv.	88	-1484.13	1	1484.13
1362	2952A5	Drill Blank Sets	88	110.43	1	110.43
1362	2940A13	Drills	88	8.04	10	80.40
1712	6672A14	Ridge Reamers	88	24.34	5	121.70
1712	6672A17	Extra Carbide Cutter	88	7.76	10	77.60
1713	6686A10	Piston Ring Compressor	88	6.60	6	39.60
1713	6686A60	" " "	88	14.10	1	14.10
1284	8587A11	Precision Metric	88	144.44	1	144.44
1443	3470A20	Punch	88	67.12	1	67.12
1615	7162A31	Key Sets	88	4.91	1	4.91
1615	7162A18	Key Sets	88	5.78	1	5.78
1615	7162A21	Key Sets	88	3.43	1	3.43
1615	7162A22	Key Sets	88	6.31	1	6.31
1350	2999A14	Expansion Reamers	87	338.50	1	338.50
					TOTAL	35,353.33

H-II-D

SEARS 1982

	CATALOG No.	DESCRIPTION	UNIT PRICE	QUANTITY	TOTAL
651	32K60258N	5-tier wall shelf	19.90	20	399.80
896	9K33129C	Mechanics tool set	399.00	15	5,985.00
897	9K6512	Tool box	21.99	15	329.85
894	9K44968	Wrench sets	79.99	15	1,199.85
1579	42K6402N	Fans	219.99	5	1,099.95
604	28K1244	Jack stands	9.99	40	399.60
604	28K1226L	Steel ramps	49.99	10	499.90
604	28K1205N	Floor jacks	289.99	6	1,739.94
604	28K12505L	Creeper seat	27.99	12	335.88
605	28K12023	Jacks	16.99	25	424.75
605	28K12014C	Jacks	29.99	5	149.95
875	9K5808C	Fire extinguishers	84.99	8	679.92
883	9K24272N	Table saw	249.99	1	249.99
883	9K32783	Table sew accessory kit	74.99	1	74.99
891	9K4257	Vernier	26.99	6	161.94
892	9K44478	Tongue wrench	59.99	6	359.94
892	9K44479	" "	54.99	1	54.99
893	9K43892	Socket set	16.99	6	101.94
893	9K43893	" "	16.99	6	101.94
893	9K43487	Socket wrench set	34.99	15	524.85
893	9K44092	" " "	29.99	15	449.85
913	30K40195N	Ladders	29.99	3	89.97
679	3A3459('83)	Rotary dial wall phone	39.99	1	39.99
				TOTAL	15,454.78

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G. S. A.

PAGE	CATALOG NUMBER	DESCRIPTION	UNIT PRICE	QUANTITY	TOTAL
62	3750-00-243-2408	Bow style iron garden rake	6.40	1	6.40
63	3750-00-086-7690	Rake, Lawn	2.80	1	2.80
63	3750-00-978-6159	Shears, Grass-cutting	2.65	1	2.65
64	3750-00-203-3933	Sprinkler, lawn	4.10	1	4.10
71	4240-00-542-2048	Shield, face	3.25	3	9.75
70-	4240-00-052-3776	Goggles	0.77	10	7.70
70	4240-00-998-4418	Goggles	3.15	10	31.50
70	4240-00-203-3804	Goggles	3.20	10	32.00
70	4510-00-580-2958	Faucet, single	5.70	10	57.00
141	7920-00-269-1259	Brush	1.85	20	37.00
246	5120-00-943-9929	Spreader	5.10	2	10.20
251	5120-00-203-6436	Clamp, C	10.20	5	51.00
272	5120-00-596-8092	Lifter	1.50	6	9.00
272	5120-00-239-8686	Lifter	17.40	6	104.40
272	5120-00-239-0326	Lifter	6.00	6	36.00
272	5120-00-529-2283	Lifter	29.00	6	174.00
275	5120-00-268-3579	Pliers	1.85	5	9.25
275	5120-00-184-9403	Pliers	2.30	2	4.60
276	5120-00248-9407	Pliers	3.10	3	9.30
277	5120-00-801-0958	Pliers	4.00	3	12.00
277	5120-00-595-9551	Pliers	4.15	8	33.20
279	5120-00-288-7714	Puller	116.00	5	580.00
280	5120-00-089-3660	Puller	119.00	1	119.00
284	5120-00-017-2849	Riveter	14.50	1	14.50
285	5120-00--60-2004	Screwdriver	0.55	10	5.50
285	5120-00-240-8716	Screwdriver	0.38	10	3.80
285	5120-00-529-3101	Screwdriver	1.05	10	10.50
286	5120-00517-6906	Screwdriver	2.75	2	5.50
286	51-20-00-278-1267	Screwdriver	0.63	10	6.30
286	5120-00-227-7356	"	0.43	10	4.30
286	5120-00-260-4837	"	0.56	10	5.60
286	5120-00-227-7334	"	0.77	10	7.70
286	5120-00-596-8653	"	0.57	10	5.70

BEST AVAILABLE

H-II-D

..... (2)

	5120-00-293-0314	Screwdriver	0.78	10	7.80
286	5120-00-180-0708	"	0.92	10	9.20
286	5120-00-555-2063	"	1.90	5	9.50
287	5120-00-223-6963	"	1.33	5	6.65
287	5120-00-240-5232	"	0.92	10	9.20
287	5120-00-241-3170	"	1.05	6	6.30
287	5120-00-242-3268	"	1.35	6	8.10
303	5120-00-224-3146	Wrenchbox	1.50	30	45.00
303	5120-00-596-8556	"	1.15	30	34.50
303	5120-00-277-3364	"	1.70	20	34.00
303	5120-00-224-3148	"	1.25	20	25.00
303	5120-00-293-0081	"	2.05	10	20.50
303	5120-00-277-1438	"	2.75	10	27.50
303	5120-00-293-0082	"	7.20	8	57.60
303	5120-00-222-1593	"	2.60	8	20.80
303	5120-00-277-1588	"	4.55	6	27.30
303	5120-00-277-1591	"	19.50	6	117.00
303	5120-00-228-9521	"	4.10	6	24.60
303	5120-00-184-8676	"	9.00	6	54.00
303	5120-00-184-8677	"	13.60	6	81.60
303	5120-00-184-8678	"	19.10	6	114.60
304	5120-00-892-6089	Wrench	2.00	20	40.00
304	5120-00-288-9997	"	0.75	20	15.00
304	5120-00-288-9671	"	1.05	20	21.00
304	5120-00-228-9503	"	0.75	20	15.00
304	5120-00-278-0342	"	1.05	10	10.50
304	5120-00-228-9504	"	0.74	10	7.40
304	5120-00-228-9505	"	0.78	10	7.80
304	5120-00-228-9506	"	0.80	10	8.00
				TOTAL	2,277.60

H-II-D

TOOLS FOR TRANSPORT DEPARTMENT OF MOH, ES or EQUAL

The following tools are being order from Pacific International P.O. Box 63281, Los Angeles, CA 90063, U.S.A. (1983 Edition)

PAGE	No.	DESCRIPTION	COST/UNIT	UNIT	TOTALS
430	2W459	Key Control Cabinets	131.50	6	789.00
654	1Z991	Single Stage Compressors	973.90	4	3895.60
575	2W413	Calculators	160.00	6	960.00
740	1P868	Centrifugal Pumps	394.00	1	394.00
578	5H516	Music Amplifier	447.50	1	447.5
578	2W485	Conductor Speaker	33.00	5	165.00
579	5H456	Paging Speaker	27.50	10	275.00
579	5H455	Paging Speakers	39.95	5	199.75
579	5H452	Desk Microphone	82.95	1	82.95
256	6X251	Timing light	63.70	8	509.60
257	3Z634	Battery Testers	144.95	2	289.90
302	4Z587	Electric Drills	138.00	6	828.00
327	1Z750	Electric Solder	28.80	5	144.00
327	4X172	Replacement Solder	0.96	25	24.00
327	2Z174	Brand Solder	9.45	50	472.50
446	2W458	Rolling warehouse	84.45	3	253.35
238	6X756	Light Reels	43.89	10	438.90
238	2W049	Jumper Cables	46.98	6	281.88
326	2Z204	Electric Engraver	19.50	6	117.00
417	1W819	Platform Truck	132.45	2	264.90
595	3H261	Water Cooler	432.15	1	432.15
				TOTAL	11,264.98

H- II-D

The following tools are being order from Buying Guide,
Bodé Export Corp., 48 N.W. 29th Stree, Miami, Fl 33127

	No.	DESCRIPTION	COST/UNIT	UNIT	TOTAL $
	2Z984	Acetyline Welding Single Stage	288.50	4	1154.00
[illegible]	5X395	Single-Stage	67.50	4	270.00
[illegible]	5X396	Single-Stage	73.50	4	294.00
[illegible]	2Z987	Heating Assemble	49.50	2	99.00
[illegible]	3Z335	Welder Outfit	155.00	5	775.00
[illegible]	2Z529	Wheel Kit	8.50	6	51.00
[illegible]	3Z832	Pressure Washer	1150.00	1	1150.00
[illegible]	4Z125	Bench Grinders	325.00	4	1300.00
[illegible]	2Z555	Hoists	253.60	5	1268.00
[illegible]	4X258	Solderless Terminal Kits	34.00	5	170.00
233	6X808	Grease Gun	13.39	6	80.34
233	6X809	Grease Hose	7.44	6	44.64
239	2W309	Oiler	12.64	7	88.48
331	2Z736	Sander-Grinder	192.00	2	384.00
331	2Z742	Disc Assembly	14.90	2	29.80
331	2Z742	Disc Assembly	17.10	2	34.20
331	2Z740	Safety Guards	15.10	1	15.10
331	2Z741	Safety Guards	17.30	1	17.30
439	7W056	Parts Storage Units	358.15	1	358.15
369	2Z003	Portable Steam Cleaner	1035.00	1	1035.00
369.	3Z004	Steam Solvent	39.50	5	197.50
660	4X395	Spray Cleaner	18.88	6	113.28
660	4X394	Plews	5.92	6	35.52
173	2X909	Measuring gauge	25.56	1	25.56
				TOTAL	8,989.87

T. A.

Title: Transport equipment maintenance

Specialist:

Education: B.A. degree on Business Administration or Mechanical engineering, and fluently in spanish language.

Experience: Must have not less than 4 years of experience in the development of vehicles maintenance systems, operation of motor pools, vehicle control, toll control, parts inventories.

Previous activities: Must have worked at least 3 years with international agencies, such as AID or similar.

TA will arrive in country at the arrival of equipment and vehicles for the duration of one year. $ 120,000

To reinforce previous work he will returne every 3 months for one month.

3 x 11,000.... $ 33,000

$ 153,000

Annex H-II-F

Policy Discussion Areas in Vehicle Maintenance and Repair

(a) The MSPAS should be urged to implement a policy of vehicle standardization.

(b) A policy must be established to discard vehicles that are not economically repairable and vehicles that are older than 10 years.

(c) The MSPAS should establish a minimal time requirement in which to dispose of a vehicle after the vehicle has been reported to be unrepairable or too old. The time limit should not exceed 3 months.

(d) MSPAS should be encouraged to approve the new staff positions required in the TD, although the personnel might be seconded or transferred from other divisions.

(e) The Ministry should require that the TD remove spare parts and equipment that are not usable from the warehouses of the transport department.

Machine grinding bench	$ 120
Drill Masonary hd star lin	20
Drill set masonary	50
Riveter, blind, hand	25
Wrench set socket 1/2 in	60
Wrench set metric	90
Wrench set metric socket	40
Drill masonary rotar 1/2	20
Drill masonary rotar 1/4	15
Drill electr 3/4 in	80
Drill set twist	45
T/K med eq main and repair-jensen w/milti meter	3,500
Tool set med eq. maint-rep shop-roll-a-around to include items not requested hereon:	
Solder, nuts, bolts, etc.	500
Ladder step alum 6 ft	30
Kit terminal	25
Tape insulation elc 85 T.	20
10x50 ohm attenuator	60
Power sup DC reg/20V var	300
Tester defibrillator ener	460
Calibrat-generat Egg simulator 12 channel	270
Attenuator 1000 X ohms	
Tectronics 10 MH storage Scope SC 503	5,100
Medical instr calibration system mix - system with power supply	8,000
Resistor-decade	80
Voltmeter digital	240
Tachometer vib read dual	300
Table work plastic lamina	2,280
Tension tester outlet	10
Outlet analyser	50
Hospital electrical analyser neurodyne	1,000
Patien isolator	80
Audiometer test	
Drill 1/2 inch elec	90
Drill 1/4 inch elec	60
Drill press 1/2 inch cap elect. bench model	200
50 lb. vise, 6 inch jaw	60
Vise small parts, bench	30
Solder gun light duty	60
Solder gun medium duty	40
Drill set for 1/2 inch drill	50
Light bench hi-intensity	90
nuts, bolts, solder, tape, rivets, etc.	300
100 lb. acetelyne welding apparatus	600
150 lb. air compressor	600
Kit, individual, repair for trainees	1,500
	28,050

PARTS FOR LABORATORY, STERILIZATION EQUIPMENT AND TENSION-METER

345 Air bag (bracelet) for sphygmomanometer

100 Seal for autoclave's door

80 100 watts. 110 volts bulbs for photocolormeters

80 Photoceld for photocolormeters "Clett"

Leather cover for sphygmomanometer

345 Rubber cover for sphygmomanometer

345 Cover for baumanometer sphygmomanometer

100 0-30 PSI manometer for sphygmomanometer

100 Manometer for sphygmomanometer aneroid

100 0-400 of temperature meters

345 Rubber bulb with air control for sphygmomanometer

100 0 to 30 PSI piresostat

100 0 to 400 of thermostat

100 260 mm glass pipe for column sphygmomanometer

100 25 i. 1/2" steam's safety valve

100 110 volt AC 1/2"

100 Solenoid valve with 110 VAC coil for cold and hot water. Coil's diameter 1/2" (inlet-and outlet)

OXIGEN'S PARTS

100 1.5 lts. respiratory bag

100 2.3 lts. respiratory bag

100 3 lts. respiratory bag

100 Elbow for death mask

50 Connector, 1/8" class thread for hose

50 Connector, 3/4 class. thread for hose

50 Position's control for circulation, turn off and temperature control of oxigen's chamber

25 Anesthesia's chronometer

100 Water filter for the oxigen's chamber

100 Oxigen's filter for the oxigen's chamber

300 700 mm sleeve

300 1000 mm sleeve

300 1500 mm sleeve

100 1/8" transparent plastic hose for oxigen tank conection with the oxigen's chamber

100 3/4" transparent plastic hose for oxigen tank conection with the oxigen's chamber

50 1/4 H.P. monophasic electric motor for the recirculation system of cooling of oxigen's chamber

100 1/8" thickness transparent plastic to make the oxigen's chamber cover

Exhalation's valve

Inhalation's valve

100 Oxigen's regulation valve

100 NO_2 regulation valve

15 PSI regulation valve class relay

100 110 v. resistance for incubator

2.

20	Standard cool control for refrigerator, Trade Mark Delco.
5	Standard cool control for freezer, Trade Mark Delco.
10	Standard temperature control for cool-room 0 a 50°F Trade mark Delco.
10	Standard temperatura control for air conditioned trade mark Delco.
100	Gasket for hose manometers for gas freón charge.
300	Ft. Refrigerator magnetic door gasket No. 2004.
30	Air conditioned aluminum filters 25" x 15"
30	Air conditioned aluminum filters 25" x 17".
50	Filters-drier ¼ x ¼" for refrigeration.
10	Caus flux for silver weld electrode.
300	Pds. gass freon 12.
300	Pds. gass freon-22.
5	Klixon ¼ HP General Electric.
5	Motors, one-phase; 115 voltios, 1725 RPM; ¼ HP; trade mark G.E.
2	Motors one phase; 115 voltios; 1725 RPM; 3/4 HP; Trade mark G.E.
5	Relays 1/3 HP; type knife; 110 voltios, trade mark G.E.
5	Relays ¼ HP; 110 voltios, trade mark G.E.
10	Relays 1/5; 110 voltios; trade mark G.E.
15	Relays 1/6 HP m/Delco; trade mark G.E.
25	Pds. Silver Weld electrode.
10	Higth pressure switch 0-300 PSI cool room.
10	Low pressure switch 0-200 PSI, cool room
5	Refrigerator switch ligth 9' higth.
200	Plug ¼" tube copper.
10	Cons tawsone.
10	Gold ribbon thermometer- 40° to 120°F (Mercury).
300'	Ft. Tube, copper heave 3/16"
300'	Ft. tube copper heave ¼"
300'	Ft. tube copper heave 5/16"
300'	Ft. Tube copper heave 3/8"
100'	Ft. Tube copper heave ½"
50	Refrigeration flared cap. nut 5/16.
50	Refrigeration flared cap nut 3/8"
5	Cons cleaners- Unic X-12 (Unichem).
100	Refrigeration unions and couplings.
10	Expansion valve GF ¼ tons; R-12 (air conditioned)
10	Expansión valve GF ½ tons; R-12 (air conditioned).
10	Expansión valve GF 10 tons; R-22 (air conditioned).
10	Expansión valve M/sporland 1 tons; modelo GFE-Z
10	Expansion valve " 1½ tons model GFE-Z.

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LIST OF SPARE PARTS FOR REFRIGERATION AND A.A. EQUIPMENTS.

10	Galón refrigerant oil No. 150, Trade Mark Zuniso
10	" " " No. 300, Trade Mark Zuniso.
10	Star capacitor 45-53 MED, 220 voltios Trade Mark G.E.
10	" " 61-72 MED, 250 voltios Trade Mark G.E.
10	Capacitor 72-82 MED (Micro-farade) G.E.
5	" 72-88 MED Trade Mark, G.E.
5	" 88-108 MED Trade Mark G.E.
10	" 108-130 MED, Trade Mark G.E.
10	" 124-156 MED. Trade Mark, G.E.
10	" 145-175 MED, Trade Mark, G.E.
15	" 124-189 MED " " "
15	" 161-193 MED " " "
15	" 200-240 MED, " " "
15	" 215-259 MED, " " "
15	" 216-259 MED, " " "
10	" 243-270 MED, " " "
15	" 270-324 MED, " " "
10	" 270-324; 340-408 MED for ¼ HP. Trade Mark, General Electric.
10	Capacitor 270-328 MED for ½ HP. Trade Mark. G.E.
10	" 324-389 MED, Trade Mark G.E.
10	Star capacitor 340-408 MED; Trade Mark G.E.
10	Capacitor 400-480 MED; Trade Mark, G.E.
10	" 460-552 MED, Trade Mark, G.E.
10	" 540-648 MED, Trade Mark G.E.
5	90° Elbows of copper tubing, Trade Mark, Imperial.
3	Hermetic compresers 1/3 HP; 220 v; 3 Phase, hight and low torque; for freón 12, Trade Mark Tecumse.
1	Hermetic compresers for freon-22; 9000 BTU/hr; 110 v; Trade Mark Tecumse.
1	Hermetic compresers for freon-22; 9000 BTU/hr; 220 v; Trade Mark Tecumse
3	Hermetic compresers, one phase 1/8 HP; 110 voltios for R-12.
2	Hermetic compresers for freon-22; 12000 BTU/hr; 220 voltios, Trade Mark Tecumse.
2	Hermetic compresers for freón 22; 15000 BTU/hr; 220 - voltios, Trade Mark Tecumse.
3	Hermetic compresers for freon-22, 18000 BTU/hr. 220 voltios, Trade Mark Tecumse.
1	Hermetic compresers, one phase; ¼ HP; 110 voltios for Freón 12; Trade Mark Tecumse.
3	Hermetic compresers one-phase; 1/5 HP; 110 voltios for freon 12, Trade Mark Tecumse.
4	Hérmetic compresers one phase; 1/6 HP; 110 voltios for freón 12; Trade Mark Tecumse.

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SPARE PARTS FOR DENTAL UNITS - RITTER 180

10 Coal for low speed motors

30 Seal for handle part, high speed

3 Extractor for handle part, high speed

5 Ejector of saliva

10 bulb for Ritter lamp

5 bulb for dental unit 100 volt

3 Syringe three ways

3 Syringe three ways with hose

7 Lubricate for high speed

7 Lubricate for low speed

200 meters 1/4" hose rubber for protective cloth

5 Rough hose for handpiece of high speed

5 Hose for three ways syringe

5 Handpiece for high speed. TITAN

5 Handpiece for low speed. TITAN

30 shop for handpiece

5 Spray clips for handpiece

5 High speed turbine for handpiece

5 Turbine start flite futura 2 Chayes Virginia FM-1502

10 Seal for handpiece start flite

10 100 watt, 24 volt bulb Chayes Virginia

10 24 volts, 100 watts bulb Pelton

10 Spray clips for start flite futura 2

15 Hose for start flite futura 2

15 Turbine start flite concentrix Weber, Mod. P-62

6 Syringe three ways

6 Saliva's ejector

10 20 ampers, 10 volts class elbow switch

20 1/4" hose with cover cloths (meters)

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ACCESORIOS PARA CALDERAS

10 UNIDADES -	Arrancadores magnéticos, de 3 polos para 2 H.P., 220 voltios, ~~modelo 65365-B02~~ bobina de 220 voltios	c/u. $ 300
10 PLIEGOS -	Asbesto plano espesor de ½"	c/u. $ 25
3 UNIDADES -	Bombas diesel derecho de 12.1 G.P.H; 80-120 PSI	c/u. $ 100
10 unidades -	Bombas inyectoras de diesel para calderas de 60 H.P. modelo J4 PA - 100-3 derecha - MARCA SUNDSTRAND	c/u. $ 100
10 UNIDADES -	Bombas inyectoras de diesel para calderas de 60 H.P. modelo J4 PA - 100-3 izquierda, MARCA SUNDSTRAND	c/u. $ 100
10 unidades -	Bombas inyectoras de diesel para caldera de 60 H.P. modelo ~~H-11-77~~; 22R2210-3AA14, derecha MARCA WEBSTER	c/u. $ 100
10 UNIDADES -	Bombas inyectoras de diesel para caldera de 60 H.P. modelo ~~H-11-77~~; 22R2210-3AA14, izquierda MARCA WEBSTER	c/u. $ 100
8 UNIDADES -	Contactores 3 polos, para 2 H.P. con bobina ~~modelo 850258~~ 110 V ó 220 V	c/u. $ 20
50 UNIDADES -	Empaque asbesto, para registro de hombre de caldera	c/u. $ 5
50 UNIDADES -	Empaque para registro de mano de caldera (3½" x 2½" x ¼")	c/u. $ 4
20 UNIDADES -	Filtro tipo "Y" de 3/4" para vapor de 150 psi.	c/u. $ 50
20 UNIDADES -	Filtro tipo "Y" de ½" para vapor de 150 psi. ~~modelo 901~~	c/u. $ 40
20 UNIDADES -	~~Foto~~celda modelo C7015A ~~[illegible]~~ (14¼" x 11" x 1¼" x ¼")	c/u. $ 4
10 UNIDADES -	Transformadores 120 V a 10000 V de salida hacia abajo ~~para cocina modelo 312-66 [illegible]~~	c/u. $ 90
15 UNIDADES -	Válvulas de purga de 1"	c/u. $ 20
15 UNIDADES -	Válvulas de purga de 1¼"	c/u. $ 25
15 UNIDADES -	Válvulas de purga de 1½"	c/u. $ 30
15 UNIDADES -	Válvulas de prueba de ½"	c/u. $ 40
15 UNIDADES -	Válvulas de prueba de 3/4"	c/u. $ 50
15 UNIDADES -	Válvulas globo para vapor de 150 psi. de 1¼"	c/u. $ 30
15 UNIDADES -	Válvulas globo para vapor de 150 psi. de 1½"	c/u. $ 35
15 UNIDADES -	Válvulas globo para vapor de 150 psi. de 2"	c/u. $ 40
25 UNIDADES -	Válvulas reguladora de presión vapor, 0-60 psi. de ½"	c/u. $ 80
25 UNIDADES -	Válvulas reguladora de presión vapor, 0-60 psi. de 3/4"	c/u. $ 90
25 UNIDADES -	Válvulas selenoide de 3/8, para dicha a 300 lbs/pulg2. tipo eléctrico a 115 V. MARCA I.T.T.	c/u. $ 30
25 UNIDADES -	Válvulas selenoide, 110V para quemador 120 psi, modelo 8210 OI de 3/8" (MARCA ASCO)	c/u. $ 30
25 UNIDADES -	Válvulas selenoide, 220V. para quemador 120 Psi. modelo 82 62023 de ¼" (MARCA ASCO)	c/u. $ 30

MATERIAL DE REFRIGERACION.

HOJA No 12

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
	Aceite refrigerado # 150.	galón.	tiene movimiento
	Aceite refrigerado # 300.	galón.	" "
	Capacitadores de arranque 45-53 MED 220 v.	%	" "
	Capacitadores de arranque 61-72 MED 250 v.	%	" "
	Capacitadores 72-82 MED	%	" "
	Capacitadores 72-88 MED (material de refrigeración).	%	" "
	Capacitadores 88-108 MED (material de refrigeración).	%	" "
	Capacitadores 108-130 MED (material de refrigeración).	%	" "
	Capacitadores 124-156 MED (material de refrigeración).	%	" "
	Capacitadores 145-175 MED (material de refrigeración).	%	" "
	Capacitadores 124-189 MED para $\frac{1}{4}$ HP, (material de refrigeración).	%	" "
	Capacitadores 161-193 MED (material de refrigeración).	%	" "
	Capacitadores 200-240 MED (Material de refrigeración).	%	" "
	Capacitadores 215-259 MED (material de refrigeración).	%	" "
	Capacitadores 216-259 MED (material de refrigeración).	%	" "
	Capacitadores 243-270 MED (material de refrigeración).	%	" "
	Capacitadores 270-324 MED (material de refrigeración).	%	" "
	Capacitadores 270-324, 340-408 MED para $\frac{1}{4}$ HP.	%	" "
	Capacitadores 270-328 MED para $\frac{1}{2}$ HP.	%	" "
	Capacitadores 324-389 MED (material de refrigeración).	%	" "
	Capacitadores de arranque 340-408 MED.	%	" "
	Capacitadores 400-480 MED (material de refrigeración.)	%	" "
	Capacitadores 460-552 MED (material de refrigeración).	%	" "
	Capacitadores 540-648 MED (material de refrigeración).	%	" "
	Codos de cobre de $\frac{1}{2}$".	%	" "
	Compresores herméticos de 1/3 HP, 220 v.	%	" "

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MATERIAL DE REFRIGERACION.

HOJA No 11

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
1	Compresores herméticos para freón 22 de 9.000 BTU, 110 v.	%	tiene movimiento
1	Compresores herméticos para freón 22 de 9.000 BTU/220 v.	%	" "
1	Compresores herméticos para freón 22 de 12.000 BTU/220 v.	%	" "
1	Compresores herméticos para freón 22 de 15.000 BTU/220 v.	%	" "
3	Compresores herméticos para freón 22 de 18.000 BTU/220 v.	%	" "
1	Compresores monofásicos de $\frac{1}{4}$ HP para refrigeradora.	%	" "
3	Compresores monofásicos de 1/5 HP para refrigeradora.	%	" "
4	Compresores 1/6 HP 115 v. (material de refrigeración).	%	" "
—	Compresores 1 HP, 230 v. para aire acondicionado mod., No. AR 5512 E de 12.000 BTU M/TECUMSEM.	%	" "
—	Compresores para aire acondicionado "COPELAND 18.000 BTU/H"	%	" "
—	Compresores TECUMSEM de 1/3 HP, 115 v. 1/60 CPS.	%	" "
20	Controles de frío para refrigeradora.	%	" "
5	Controles de frío para freezer (material de refrigeración).	%	" "
1	Controles de temperatura para cuartos fríos de 0 a 50° F.	%	" "
10	Controles de temperatura para equipos de aire acondicionado de ventana, de 60° a 70° F.	%	" "
100	Empaques para manguera de manómetros (material de refrigeración).	%	" "
100	Empaques magnético # 2004 para puerta de refrigeración.	%	" "
30	Filtros de aluminio 25" x 15".	%	" "
30	Filtros de aluminio 25" x 17".	%	" "
50	Filtros secadores de $\frac{1}{4}$" x $\frac{1}{4}$" (material de refrigeración).	%	" "
100	Flux para soldadura de plata.	bote.	" "
200	Gas freón 12. 10	libra.	" "
	Gas freon 22. 10	libra.	" "

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MATERIAL DE REFRIGERACION.

HOJA No 2

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
5	Kelixón de ¼ HP, "G.E."	%	tiene movimiento
[illegible]	Motor monofásico 115 v. 1725 RPM 1/3 HP "G.E."	%	" "
2	Motor ¼ HP 1725 RPM 115-230 v. G.E. (material de refrigeración).	%	" "
5	Relay de 1/3 H.P de cuchilla (material de refrigeración).	%	" "
—	Relay de 1/3 H.P M/DELCO (Material de refrigeración).	%	" "
5	Relay de ¼ HP.	%	" "
15	Relay de 1/5 HP. —	%	" "
15	Relay de 1/6 HP M/DELCO (material de refrigeración).	%	" "
15	Relay de 1/8 HP M/DELCO (material de refrigeración).	%	" "
[illegible]	Soldadura de plata (material de refrigeración).	onzas.	" "
10	Switch alta presión 0-300 PSI para cuarto frío. —	%	" "
10	Switch baja presión 0-200 PSI para cuarto frío. —	%	" "
5	Switch de luz para refrigeración. DE 9'65 ARTICULO	%	" "
200	Tapones machos de ¼" (material de refrigeración).	%	" "
10	Tawsone (material de refrigeración). —	frasco.	" "
10	Termómetro de bolsillo. —	%	" "
[illegible]	Tubo cobre suave de 3/16" (material de refrigeración).	pié	" "
[illegible]	Tubo cobre suave de ¼" (material de refrigeración). —	pié	" "
[illegible]	Tubo cobre suave de 5/16" (material de refrigeración).	pié	" "
[illegible]	Tubo cobre suave de 3/8" (material de refrigeración).	pié	" "
[illegible]	Tubo cobre suave de ½" (material de refrigeración). —	pié	" "
50	Tuercas de 5/16" (material de refrigeración). —	%	" "
50	Tuercas de 3/8" (material de refrigeración). —	%	" "
[illegible]	Unic X-12 (limpiador de serpentines A.A) —	galón.	" "

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MATERIAL DE REFRIGERACION.

HOJA No 13

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
[illegible]	Uniones de $\frac{1}{4}$" (material de refrigeración). [illegible]	%	tiene movimiento
1[illegible]	Válvulas de expansión GF $\frac{1}{4}$" ton. R-12. [illegible]	%	" "
1[illegible]	Válvulas de expansión GF $\frac{1}{2}$" ton. R-12. [illegible]	%	" "
10	Válvulas de expansión GF 10 ton. R-22. [illegible]	%	" "
15	Válvulas de expansión M/SPORIAND $\frac{1}{2}$ ton. modelo GFE de $\frac{1}{2}$ Z. - [illegible]	%	" "
10	Válvulas de expansión, M/SPORIAND, 1 ton. modelo GFE 1 Z. - [illegible]	%	" "
10	Válvulas de expansión, M/SPORIAND, $1\frac{1}{2}$" ton. modelo GFE Z. - [illegible]	%	" "
1	Compresores 1/3 HP,-115-v.-(material de refrigeración). -	%	" "

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REPUESTOS DE RAYOS "X".

Precio en dolares

HOJA No 12

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
	Bellows Cat. 1005555 P1.	$ 5.-	tiene movimiento 2 Por año
	Cable alta tensión 8', terminales con céntricos ambos lados Cat. 16 080.	% $100.-	" 4 "
	Cables de alta tensión de 15'con terminales federal Cat. No. T4177AC	% 140.-	" 4 "
	Cables alta tensión 15'con terminal federal tornillos ambos lados, para ubicarse en trasnf. de alta tensión [illegible].	% 150.-	" 4 "
	Cables alta tensión 18'terminales federal Cat. No. 16AC180.	% 160.-	" 4 "
	Cables alta tensión 23'terminales federal Cat. No. 16AC230.	% 180.-	" 4 "
	Cables alta tensión de 25'Cat. No. C1666D.	% 200.-	" 4 "
	Cables alta tensión 33'con terminales federal Cat. No. L-AC330	% 250.-	" 4 "
	Cables alto voltaje 18'con terminales t/Spring y concéntricos lado del tubo Cat. No. LCHK180.	% 160.-	" 2 "
	Cables de alto voltaje 20'terminales federal ambos extremos No. 11-11CAT T4177 PD.	% 170.-	" 2 "
	Compensadores de voltaje de línea alimentación Cat. No.514A14-7 P1.	% 60.-	" 2 "
	Compensadores de kilovoltaje mayor y menor para control G.E. Modelo KX-21 Cat. 514A 147P2.	% 60.-	" 2 "
	Compensadores de KV mayor Cat. No. 82517.	% 60.-	" 2 "
	Compensadores de kilovoltaje mayor (ohmite) para control maxicon C. Electric, Mod. 47 Cat. 82517.	% 60.-	" 2 "
	Compensadores de KV menor Cat. No. 82518.	% 60.-	" 2 "
	Compensadores de kilovoltaje ohmite para control maxicon G.E. Modelo 47, Cat. 82518.	% 60.-	" 2 "
	Compensadores de kilovoltios menor Cat. 10376-K.	% 60.-	" 2 "
	Compensadores de arranque 70-(MFD) 80 MFD, 60 ciclos C-125 voltios Cat. No. 59-203.	% 12.-	" 1 "

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REPUESTOS DE RAYOS "X".

Precio en dolares

HOJA No.

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
	Condensadores 25 MFD por 360 voltios para motor, Cat. Picker.	% 15.-	tiene movimiento
	Contactor de exposición comp. Cat. No. 10126 - K	% 67.-	" 1 por año "
	Contactores de exposición de control M-12, Cat. T07651.	% 65.-	" 1 "
	Contactores de plata para contactor de control KX-12 Cat. T00528.	% 10.-	" 10 "
	Contactos para contractor de exposición T0052B de control G.E Maxicon 47 Cat. T0052B.	% 10.-	" 6 "
	Contactos para compensadores de línea de alimentación Cat. No.59-395	Juego. 15	" 3 "
	Escobillas para compensador de voltaje Cat. No. 17-471.	Juego. 15	" 3 "
	Escobillas para el selector de técnica Cat. No. T00011.	juego. 15	" 3 "
	Escobillas para el selector KV, Cat. No. 17-310.	juego. 15	" 3 "
	Escobillas para switch de encendido Cat. T00510.	juego. 15	" 3 "
	Focos de 6V. 15 w con base de bayoneta para centraje de bucky Cat. T72-42.	% 1.-	" 5 "
	Casket For CRT Casing No. 12-519.	% 3	" 2 "
	Casket For CRT Casing No. 12-645.	% 3	" 2 "
	Casket For CRT Casing No. 12-1138.	% 3	" 2 "
	Casket CRT Casing No. 12-1141.	% 3	" 2 "
	Casket For IDXC Casing No. 1005550P1	% 3	" 2 "
	Inserto Rayos X, T/HRT, de 1.0, 2.0, Cat. No. D0075A.	% 2000	" 2 "
	Interruptor de mano para preparación y exposición radiográfica Cat. No. 46114133 GL.	% 100.-	" 2 "
	Interruptores de seguridad para movimientos Cat. Picker.	% 150	" 1 "
	Interruptor panel Cat. No. 59-286.	% 40	" 1 "
	Interruptores principal línea de alimentación Cat. Picker.	% 50	" 1 "
	Interruptor principal de líneas (Circuit Proaker) 60 Amps. Cat.T0179	% 50	" 1 "
	Interruptor principal de líneas Cat. No. AT29-11.	% 50	" 1 "

REPUESTOS DE RAYOS "X". Picker -

Precio en dolares

HOJA No 11

CODIGO	DESCRIPCION DEL ARTICULO	UNIDAD DE MEDIDA	OBSERVACIONES
	Milianperímetros con escala de 0-125 KV para control PH-300, Cat. No. Picker.	% 100	1 por años tiene movimiento
	Miliamperímetro con escala de 0.50 y 0-250 MA, Cat. 3000322P102	% 100	" 1 "
	Miliamperímetro y medidor de M.A.S. con escala de 0-10, 0-100, 0-200 Cat. 3000322P133.	% 100	" 1 "
	Miliamperímetro con escala 0-200 con indicadores, Cat. 3000322 P103.	% 100	" 1 "
	Medidor de miliamperios de 0-5 y 0-200 MA., Cat. No.B-T68-41MA.	% 100	" 1 "
	Medidor de kilovoltaje de 0-110 Kilovatios Cat. No. B-T67110.	% 100	" 1 "
	Motor para movimiento de mesa rayos X, Cat. No. T93A-46.	% 150	" 1 "
	O-Ring PHP 509-10, Cat. 12196.	% 1	" 2 "
	O-Ring PHP 902-15, Cat. 12194.	% 1	" 2 "
	O-Ring 909-3 Cat. 12195.	% 1	" 2 "
	O-Ring 909-17 Cat. 12197.	% 1	" 2 "
	Partes de Adaptación para usar K-SSR-150, Cat. No. 1000028262.	% 15	" 4 "
	Partes de adaptación G.E. para adaptación de válvulas rectificadores (Kenotrones), Cat. 1000282G2.	% 15	" 4 "
	Receptores de películas expuestas de rollo de 70 mm. x 100 para cámara MGS 70-4 Cat. H1B1002.	% 100	" 1 "
	Rejilla para bucky con relación 8.1, 60 líneas 17 1/4" x 19" para distancia focal de 36" a 42", Cat. C2663A.	% 300	" 1 "
	Relay RE-6 VDC No. Part. 6R1259 Cat. N1 81004.	% 40	" 1 "
	Relay de 24 VDC para Unidad de relevos cámara eldelca Cat.NL81006.	% 30	" 1 "
	Relay de 110 VAG 600 Cat., No. 59-464, Selector de técnica radiográfica y Main Switch para 200-L, 100-L, 25-3 y fluoroscopía Cat. 2000226P1.	% 50	" 1 "
	Selector de técnica de rotación OL255 508-100L, 200L, Cat.46121669P3	% 100	" 1 "
	Selector de tiempo de exposición 1/60-10, Seg. Cat. No. 403B96081	% 100	" 1 "

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TECHNICAL ASSISTANCE
LONG TERM T.A
MAINTENANCE SYSTEMS ADVISOR

1. Title: Maintenance System Advisor

2. Qualifications Required: Bachelor in Business Administration or equivalent

3. Special Experience Qualifications:

a. Twelve to fifteen years experience as a Medical Material Officer with control over Medical Maintenance for an entire foreign country. Experience with AID or similar foreign assistance agency.

b. Prior service in Latin America essential

4. Language Requirements:

Fluent in speaking, reading and writing Spanish.

5. Grade Level Equivalent GS 14 or 15

6. Information and Duties

a. Background Information

First, an analysis of the MOH's equipment maintenance program was made and found to be operating on as required basis, (if a piece of equipment broke down it would be fixed provided spare parts were available and 99% of the time they weren't). Maintenance personnel are available in most all areas however in the medical maintenance they are grossly understaffed with qualified personnel. Second, maintenance work shops were found to be either non-existant, disorganized, or so full of junk that maintenance couldn't find parts if they had them. Tools were in short supply in the general maintenance area and medical maintenance test equipment was non-existent. Third, presently maintenance personnel are not only in short supply in technical areas but are required to work on equipment that they aren't technically qualified. In some instances they have been fortunate enough to locate problems but those instances are few.

b. Tasks

1. Provide management and technical assistance for the establishment of medical maintenance departments and recommended staffing for hospitals, centers, and units. Scheduled preventive maintenance will be performed by qualified personnel to keep down time to an absolute minimum. It is suggested that spare parts inventories be established at each using activity. Suggest that a library of equipment operating instructions be set up at each facility with an original copy at the regional medical maintenance center. A long term training program should be started to provide future medical maintenance staffing. Suggest that a goal of 72 trained medical technicians be set. Short term training will be provided by in country technicians.

ii. Organization of management and administrative improvement of the medical maintenance area of the MSPAS will start at the inception of the project to the extent possible. Priority effort must be given to repair of life saving and essential medical equipment. Other essential equipment must also receive repair by their respective technicians.

iii. A review of GOES Project 604SF-ES is satisfactory in principal, however, situational requirements indicate immediate action to insure problems do not get overwhelming. The immediate problem as viewed is primarily economic. The lac of funding to procure spare parts has resulted in many equipment items being out of service due to lack of parts and a technician having time available to make repairs.

iv. Technical assistance required is urgent and should receive immediate attention primarily in the best interest of patient care. Personnel in the Medical Maintenance area of general maintenance should be identified for long term schooling in the Medical Maintenance field. Efforts to obtain a minimum of 72 qualified technicians for staffing at the 12 Hospitals and Units. Technicians at the Regional Center in San Salvador should make scheduled maintenance visits to hospitals, centers, units and posts for preventive maintenance. The San Salvador Center can also be called for technical assistance as well as personnel.

v. The list of Spare Parts and critical equipment have been reviewed and are a definite necessity in the interest of patient care. The list of spare parts are in English but the equipment needs are in Spanish. Recommend the purchase of Medical Maintenance equipment sets for each Hospital and Center. In addition, the purchase of a Medical Maintenance mobile unit would assist the entire country in maintenance capability.

c. Management of Equipment Purchases

i. Review on a continuing basis, equipment due-in prepared by the short term MSA, update and revise scheduled installations.

ii. Insure that all needed items have been placed on order with procurement. Insure that standardization has been strictly adhered to.

iii. Review on a continuing basis equipment to be salvaged and that requirements have been submitted for replacement.

iv. Insure that all manuals required for on hand equipment have been ordered and date material is expected.

d. Medical Equipment Maintenance

i. Review on a continuing basis the status of space available for implementation of the medical maintenance program.

ii. Insure that personnel training requirements have been submitted form MOH and (PAHO) has programmed the training on a continuing basis until requirements are fullfilled for Hospitals and Medical Centers.

iii. Follow-up on target dates for establishment of medical maintenance department in hospitals and medical centers.

iv. Review on a continuing basis the establishment of preventive maintenance programs for hospitals and medical centers and respective target dates.

v. Insure that a library has been established for operating and maintenance manuals for bio-medical equipment.

ANNEX H

COMPONENT III

MANAGEMENT INFORMATION SYSTEM

ANNEX H- III-A

LIST OF COMMODITIES

A MIS Component

Description	Quantity
512 KBYTES CPU	1
800/1600 BPI TAPE DRIVE	1
300 MBYTES DISK DRIVE	1
600 LPM PRINTER	1
CRT	36
128 KBYTE CPU	5
125 LPM PRINTER	5
90 MBYTE DISK DRIVE	5
2-1/2 TON AIR CONDITIONERS	7
10 KVA VOLTAGE REGULATOR	1
5 KVA VOLTAGE REGULATOR	1
5 KVA VOLTAGE REGULATOR	5
BATTERY PACK	6
MODEMS	6
MULTIPLEXER	1

ANNEX H-III-B

STATEMENT OF WORK

I MIS Component

A. TECHNICAL SPECIALTY: Management Information Systems

B. Level of Effort : 24 Mos.

C. General Objective : Provide technical assistance to the MSPAS during the development of a comprehensive management information system.

D. Specific Tasks:

1. Technical

a. Assist in the development of computer programs to support the other components of the project - maintenance, procurement, and supply management.

b. Coordinate the development of a statement of information requirements for the MSPAS.

c. Advise in the general design of a comprehensive information system.

d. Advise in the writing of hardware/software RVP.

e. Advise in the development of a methodology to evaluate proposals.

f. Coordinate hardware/software selection and procurement.

g. Advise in site selection and preparation.

h. Coordinate hardware installation.

i. Advise in the detailed design of sub-systems.

j. Coordinate training program.

2. Administrative

a. Advise in the selection of short term technical assistance.

b. Supervise short term technical advisors

c. Produce periodical written progress reports for MSPAS-AID

d. Write annual report of the end at each year.

Desired Qualifications -

Bachelors or Masters degree in an area such as computer science, information information systems, mathematics, economics, operations research, business administration, plus minimum of ten years in the design of complex information systems for large organizations. Person must be fully bilingual-English/Spanish- and of easy adaptation to the Salvadorean culture.

Short Term Technical Assistance

Area	Time of Assignment
. Accounting, Finance, Payroll, Personnel	4 weeks
. Inventory Management	4 weeks
. Maintenance Management	4 weeks
. Logistics Management	4 weeks
. Health Statistics	4 weeks

Short term technical assistance should have a minimum of ten years experience in developing information systems in one of the following areas:

ANNEX H-III-B

POSITION DESCRIPTION

A - MIS Component

1. Systems Analyst

Minimum requirements - The equivalent of four year university education in an area such as computer science, mathematics, engineering, economics, business administration, etc., plus five years experience in the design of complex information systems. Up to two years of education can be substituted by additional experience at a rate of two years of experience per year of education.

Responsibilities -

a. Head the sytems analysis section within DMIS in the MSPAS.

b. Act as head of the DMIS in the absence of the official head.

c. Design information systems including:

1) Input forms

2) Edits

3) Overall programming technique

4) Data base structure

5) Outputs

6) Users manuals

d. Coordinate programming effort with programming section of DMIS

Reporting -

Reports directly to the Chief, Department of Management Information Ssytems, MSPAS.

Annex H-III-B

I. Technical Specialty: Health Planning

II. Level of Effort: 6 PM

III. General Objective: To advise and assist the MSPAS in developing mechanism for use of data generated by the MIS (Component III) for the planning of near and mid-term financial and material resource allocations.

IV. Specific Tasks:

1. Perform a critical review of the present planning process, with special emphasis on linkages between budgetary resource availabilities, program priorities and allocation of funds to programs.

2. With the MIS advisor, review present and planned uses of information generated by the system, with a view to making the MIS useful for both day-to-day decision making and for planning purposes.

3. With counterparts in the Planning Division and the DMIS, develop procedures for data utilization in the planning process.

4. Design or supervise and design and implementation of a study to determine the feasibility of various options for user fees as a means of partially offsetting the costs of health service delivery.

5. Develop proposals for future directions, priorities and tentative funding levels for AID development assistance after PACD of this project.

ANNEX H

COMPONENT IV

EMERGENCY MEDICAL SERVICES

DEPARTMENT OF HEALTH & HUMAN SERVICES

-105-

ANNEX II-

IV - A

Office of the Secretary

H-IV-A

Memorandum

Date: May 18, 1983 (Draft Submission)
June 16, 1983 (Final)

From: Gerald A. Faich, M.D., Deputy Director, OIH
Richard Coppedge, M.D., M.P.H.
Director, Division of Disease Control, State of Arizona

Subject: Medical Assessment Team Report - El Salvador, April 27 - May 15, 1983

To: Ms. Paula Feeney, LAC/AID/Washington
Dr. John Massey, AID Health, El Salvador

PURPOSE AND SCOPE OF WORK

We traveled to El Salvador at the request of the Agency for International Development to estimate the civilian need for emergency medical services, particularly in contested areas, and to make recommendations for immediate means to improve such services (see Annex A for scope of work). To accomplish this, we reviewed data available at the Ministry of Health (MSPAS), visited selected health facilities, and reviewed present and proposed health projects.

ITINERARY

After briefing in Washington, Dr. Richard Coppedge arrived in El Salvador the evening of April 27th and stayed until May 8th. He was joined by Dr. Gerald Faich on May 1; Dr. Faich left the country on May 15 (itinerary details and trip expenses are submitted separately). We contacted U.S. Government officials, GOES officials and health personnel in San Salvador and around the country (see Annex B and C).

April 28 - May 1

Meetings with U.S. Defense Attache, USAID staff, Subsecretary, MSPAS and the Red Cross.

May 2

Meeting with Subsecretary MSPAS. Visit to Hospital Rosales

May 3

Visit to Cojutepeque Health Center and San Vincente Hospital.

May 4

Visit to Hospital Militar - San Salvador

May 5

Visit to new and old hospital in San Miguel and to the hospital in Usulutan.

May 6

Visit to San Francisco Gotera Health Center.

May 7

Visit to Chalatenango Hospital.

May 8

Meeting with Subsecretary, MSPAS, and John Massey.

May 9

Visit to Santa Tecla Hospital.
Meeting with Westinghouse team.

May 10

Visits to La Libertad and the Santa Lucia Clinic.

May 11

Meetings at the Ministry (MSPAS) - Operations and Statistics and with the U.S. MilGroup.

May 12

Visits to the Red Cross, Hospital Bloom, PAHO and to Rehabilitation Centers.

May 13

Visits to health units and posts in the Department of La Libertad.
Visit with the Subsecretary MSPAS. Presentation to AID Missions.

The trips to San Miguel, Usulutan, Gotera and Chalatenango were made by helicopter to save time and because of the insecurity of surface travel. These travel points were selected based on the location of displaced persons and on advice provided by the Defense Attache. Most of the conflict is occurring in the four Eastern departments (Usulutan, San Miguel, Morazan and La Union) and in the Departments of Chalatenango, Cabanas and San Vincente. Wherever possible, we met with GOES military personnel to explore the interaction between military and civilian emergency medical care systems.

BACKGROUND

The civilian medical care system in El Salvador has deteriorated in recent years. This deterioration is well described in the Project Identification Document (PID) for a Health Systems Vitalization Project. As the PID notes, the deterioration is the result of violence, a declining economic situation, a

decrease in the MSPAS budget and a growing population of displaced persons. In 1983, after 2 years of level funding, the MSPAS budget was reduced 5% and all funds for medical equipment were eliminiated. Health facilities have been closed for budgetary reasons and disruption due to war activities. The distribution system for drugs and supplies has been disrupted in the contested areas. Equipment and vehicle maintenance has been compromised.

The MSPAS system operates the following facilities largely through 5 regional offices:

Hospitals	-	14
Centers	-	12
Units	-	97
Post, dispensaries and nutrition centers	-	221

Over 85% of the population has geographic access to these facilities. Hospitals and centers located in urban areas consume the bulk of the MSPAS budget. Although health personnel and hospital beds have increased in recent years, this increase was outstripped by the population growth.

The Vitalization PID calls for a two-year project with several components:

1. Health Supplies Management (AID - $6 million, GOES - $1.7 million).

   Procurement of pharmaceuticals and medical supplies, replacements, parts, vehicles and development of a supplies management system.

2. Public Health Infrastructure Maintenance System (AID - $1.2 million, GOES - $.3 million).

   Building equipment and vehicle maintenance

3. Information Management System (AID - $.7 million, GOES - $.2 million).

To develop the project proposal, some 10 Westinghouse consultants providing 27 man-weeks of effort began work in El Salvador on May 8. We met with these consultants frequently.

Except for the proposed Health System Vitalization Project, other USAID health projects have little relationship to emergency medical services. Of concern, however, is the interaction between civilian and military care systems as they relate to emergency and routine medical services. It has been suggested that the military system is burdened by civilians.

CONCEPTUAL FRAMEWORK

Several steps are involved in assessing the needs and capabilities of an emergency medical system (EMS). For need determination, we made site visits

and reviewed available data, including vital statistics, hospital discharge information and outpatient and emergency room utilization figures.

The outcome of trauma, in terms of morbidity, mortality and disability, is directly affected by the skill and timing involved in the application of several EMS and medical care components. These components include:

1. first aid; e.g., splinting, stopping hemorrhage, etc.

2. transportation or evacuation

3. medical stabilization; e.g., treatment of shock, pain, and cleaning of open wounds

4. medical treatment; e.g., surgery, setting fractures, etc., and

5. rehabilitation.

This report is divided into sections dealing with the need for emergency medical services, followed by general observations on the above noted EMS components, followed by observations about hospitals and medical treatment.

TRAUMA MORBIDITY AND MORTALITY - THE NEED

Even before the present conflict, violence and traumatic accidents were important causes of morbidity and mortality in El Salvador. Motor vehicle accidents and intentional assault, as well as nonvehicular accidents, have been leading causes of death and hospitalization for over 10 years in the country. Guerrilla warfare, military activity, paramilitary action and terrorism began significantly affecting morbidity and mortality in 1979.

The two main data sources available to measure trauma morbidity and mortality are 1) death registers and 2) hospital discharges. Both data systems are flawed in that they are delayed and detailed tabulations are often lacking.

Less than half of all deaths are registered in El Salvador. Of these, only about one-third have physician recorded causes of death, while the rest are assigned a cause by a civil registrar based on history provided by the family. Trauma deaths usually have a physician's diagnosis. While incomplete, comparison of secular trends in reported deaths and examination of proportional mortality is of interest. Analysis of traumatic death trends for the five-year period 1976-1980 (Table 1) shows that trauma accounted for 7.6% and 11.2% of registered deaths in 1976 and 1978 respectively. This proportion rose abruptly in 1980 due to an increase in homicide and international violence reaching a total 22.2% of all deaths in 1980. In 1980, about one in every six reported deaths was due to homicide. Also in 1980, homicide replaced diarrhea and gastroenteritis as the leading reported cause of death in El Salvador, while other accidents and motor vehicle accidents ranked as the fourth and fifth most common causes of death. Unfortunately, more recent death data for 1981 and 1982 are not available. Anecdotal information suggests that deaths due to homicide may have declined in recent months.

For hospital discharge information by diagnoses, the most recent data available are for the first half of 1980. Comparison of these 1980 data with those from 1975 show that discharges for the 11 most frequent trauma diagnoses rose from 6,369 to 9,803 (54% increase) (Table 2). Of interest is that the increase was due almost entirely to increases in skull fractures (+121%), extremity fractures (+99%), intracranial injuries (+167%) and chest, abdeomen and pelvic trauma (+201%). Discharges for soft tissue injuries, burns, contusions and other types of trauma remained relatively unchanged. This pattern is consistent with increased trauma due to intentional violent acts with firearms. Case-fatality rates by diagnosis did not significantly change between the two time periods except for increased death rates in 1980 for adult males.

Based on our direct observation of injured patients in hospitals, several conclusions can be drawn:

1. Extremity wounds often with fractures are common.

2. Extremity amputations following gunshot and mine explosions are common.

3. Wound contaminaton and infection are common.

4. Relatively few head, chest and abdominal injury victims were seen in the hospital, suggesting early hospital and prehospital deaths are occurring.

FIRST AID AND MEDICAL STABILIZATION

Information on first aid, medical stabilization and emergency transport was obtained by interviewing MSPAS officials, physicians, personnel at a Regional Health Office (Santa Tecla), health post and unit personnel and hospitalized patients.

Most rural victims of significant trauma receive only rudimentary first aid by untrained persons and are then taken directly to hospitals according to patient interviews.

Apparently MSPAS personnel in health posts and units have had first aid training, but have little opportunity to use such training. At the several units visited in the Department of Lallibertad only a few minor lacerations were treated. Trauma supplies in health posts are minimal.

It should be noted that in many areas of conflict MSPAS facilities continue to function. For example, the Regional Office of the Departments of La Libertad and Chalatenango is in charge of 2 hospitals, 1 center, 15 units and 38 posts. Of these, only 1 unit and 10 posts have been closed. A number of facilities continue to function in guerrilla-held areas.

In urban areas, first aid and medical stabilization is often provided by voluntary ambulance services (see below).

Most civilian war-related casualties suffer gunfire or mine injuries. Over the past year, these have tended to occur in rural areas. Often MSPAS health posts and units have been closed in the affected areas. Those that are not closed often have very limited supplies.

EVACUATION - TRANSPORT

The most seriously injured patients seen in the hospitals arrive directly without stopping at a health post or health unit. The most common form of transport for rural patients is private truck. Generally the injury victim is taken to the nearest road and passing vehicles are waved down.

Patients experience long delays in getting to the hospital if they are coming from remote areas or if they come from areas where there is active conflict. We saw patients where delays up to several days had occurred. These delays resulted in lost extremities and severe infections. For example, a 23-year old double amputee received his wounds two days before admission. He overnighted in a health unit without treatment, then he traveled out by truck after the fighting stopped. On arrival his wounds were severely infected, complicating the healing process. He will need stump revisions because of this.

Most hospitals have a single ambulance which is fully occupied with patient transfers, patient transport to home and supply pickup. These vehicles are generally in poor repair. Drivers are not trained in first aid techniques.

Both the Red Cross and the Green Cross are active in urban and periurban areas of El Salvador. These two organizations provide most of the available ambulance services for the country since hospital based ambulances do not pick up patients. We have little detailed information on the Green Cross but, in general, it functions much the same way as the Red Cross.

The Red Cross is supported by donations and is a private nonprofit entity. It operates first aid posts, as well as an ambulance service. Since 1979 (see Table 4), Red Cross activity in the country has markedly increased. In 1982, over a quarter million patients were treated by Red Cross facilities. In 1982 there were 63,000 visits to emergency clinics where first aid and minor surgery was done, 165,000 visits to first aid posts, 5,300 visits for displaced persons and 146,000 persons were transported via ambulance. In 1983 there are 85 ambulances operated by the Red Cross. Population coverage by the Red Cross is approximately 2,348,000 persons or approximately 50% of the population.

The Red Cross has some 4,000 volunteers in the country who are trained in first aid and a paid staff of 85 persons. The paid staff consists of 20

drivers, 13 nurses, 4 senior medical students, 12 secretaries, 12 maintenance persons, and 24 persons in administration, fund raising and public relations. Red Cross volunteers receive a basic training course of four months, consisting of ten hours of instruction per week. These courses are taught by experienced volunteers who use training materials provided by the International Red Cross. After completion of the course, competency testing is done and volunteers are placed on one year of probation prior to becoming fully certified first aid technicians.

Generally, Red Cross ambulances travel with a driver and two volunteer aides. Ambulances are usually dispatched following a telephone call to a central point. There is little interaction with the hospital at the time of patient dropoff. At times, there is dispute between Red Cross workers and hospital employees over whether a given patient needed hospital care.

According to Red Cross policy, services are to be rendered free of charge. Red Cross personnel are instructed not to ask for a fee. It is not certain whether this policy is followed; allegations are made that Red Cross personnel demand payment prior to service at times.

HOSPITAL OBSERVATIONS

Because we were particularly interested in war-related injuries, we primarily visited hospitals and facilities in the eastern two-thirds of the country. A total of 10 hospitals in these areas and in San Salvador were visited. Specific brief observations on each hospital are given below. Since the visited areas have had the most conflict, they have also had the largest number of displaced persons (Table 5). Generally speaking, most displaced persons are residing in areas where there are few physicians.

Examination of general and emergency outpatient visits to selected hospital facilities in El Salvador from 1977 to 1981 shows several items of interest. (Table 6). The total number of visits rose about 30% over the five-year period and emergency visits accounted for about 20% of all visits over this interval. The increase may be due to the closing of some peripheral facilities and to increased demand. In any case, it appeared that the system was able to deal with the increased volume although we could in no way evaluate the quality of care provided.

Table 7 gives general data on hospitals and centers visited. Except for Rosales, the Military Hospital and San Miguel, the number of trauma patients actually seen at each hospital during our visit was relatively small. This may be because active conflict was at a relatively low level at the time of our visit. Additionally, planting was occurring around the country; this may have taken precedence over fighting and transport of injured individuals. It appears that an adequate number of beds is available for trauma victims except at the above noted hospitals.

Most visited hospitals have been able to maintain a high volume of major

surgery (Table 7). They have also maintained provision of a high number of outpatient visits. Nurse staffing numbers appeared adequate. Blood is in chronic short supply and is not stockpiled to any extent anywhere (Table 7).

As shown in the Table, most facilities outside San Salvador are lacking in certified, trained surgeons. Also, resident physicians are in short supply in a number of areas.

All hospitals were very short of medications, particularly antibiotics; none of the hospitals visited had aqueous penicillin. Most had only ampicillin and no other antibiotics.

All hospitals were short of X-ray film. Most had a shortage of dressings. All needed surgical instruments. All were short of fuel for ambulances and auxilliary generators. All sustained frequent power outages. Many lacked sufficient lighting in the operating rooms.

BRIEF OBSERVATIONS OF HOSPITALS AND CENTERS

1. Chalatenango

Excellent physical plant - opened in 1971. Heavily used for battle casualties. Director and head nurse assassinatd last year. Very short supply of surgeons. The air conditioner in the OR needs to be repaired.

Close working arrangement with the military. Provides OPD and inpatient emergency services to the military. Ten soldiers were inpatients at time of visit. Major surgery done on troops by military physicians or residents, particularly when helicopter evacuation not possible.

Many posts and units closed in area, greatly increasing patient loads.

Many displaced persons in area.

Many civilian casualties seen.

A number of recent civilian amputees on the wards.

Supplies and medications, except antibiotics, better here than elsewhere, in part, because some provided by military.

Water system needs revision.

2. San Francisco Gotera Center

Greatly increased load due to war. Town population is up from 25,000 to 40,000, with inflow of 10,000 displaced persons and 5,000 soldiers. No concomitant increase in staff, supplies or budget. Only 6 of 26 posts are functioning. All units closed in area. Fortress mentality prevails. As in Chalatenango, close cooperation with the military

(62 troops treated in March 1983). In March, 16 war casualties admitted; of these 11 were military.

3. Cojutepeque

Center that could accommodate 200 beds in future. Very short on surgical staff; consequently, all surgery sent to Hospital Rosales. Residents are medical students with limited knowledge and training. No general anesthesia available. Close ties to military - emergency and TB screening provided.

4. S. Vincente

Old but clean, well functioning plant. Operating room antiquated. Sterilizer problems. Have operated on a number of soldiers.

5. Usulutan

Plant similar to that in Chalatenango. Acute physician shortage. Few surgeons. Residents left out of fear after two were killed last year. Only 3 of 14 resident positions are filled. Very short of all supplies. Water and electrical problems. Most posts and units closed in area. Supplies and repair are delayed because overland transport into the area is often impossible.

6. S. Miguel

Heavy loads as seen in Table 7. Worst physical plant. Unsanitary, crowded, deteriorating. Two operating rooms constantly occupied. Urgent replacement of plant needed.

New hospital visited. 95% complete. Outpatient department functioning. Strong consideration should be given to opening the hospital.

7. S. Tecla

Also an ancient, crumbling plant. New building with patient beds but without ancillary suport services awaiting occupancy. Most major trauma bypasses hospital on way to Rosales. Operating rooms are very inadequate - small, leakly roof and no ventilation.

8. H. Rosales

For trauma, the key unit is a 90-bed emergency unit which is relatively new. It is greatly overburdened, running 150% occupancy. Unit runs about 13,500 admissions per year with about 500 deaths per year. Adequate staffing. More bed space urgently needed.

9. Bloom

Modern plant and operating rooms. Little trauma surgery done.

Because of time limitations, we were unable to evaluate the rehabilitation needs or facilities in El Salvador. Based on the type of injuries occurring and the large number of amputees seen in hospitals, it is likely that the potential demand and the need for rehabilitation following trauma is great. No central data are available on this.

In San Salvador, three rehabilitation facilities were briefly visited. Seguro Social, Hospital Militar and the Centro del Aparato Locomotor. Additionally, physical therapy units exist at a number of hospitals.

The Centro del Aparato Locomotor has an excellent plant which is under-equipped and apparently understaffed and underutilized. In 1982, this Center evaluated only 855 new patients and followed only 150 patients. The Centro has an orthopedic device and prosthesis shop which prepared 115 prostheses in 1982. There are also private sources for prostheses in El Salvador.

MILITARY MEDICAL CARE SYSTEM

While not our primary mission, we examined some aspects of the GOES military medical system. We were particularly interested in military-civilian medical interactions. Visits were made to the Military Hospital and field commanders.

Routine medical care in the field for soldiers is provided at dispensaries and infirmaries found at each military base. Local civilian physicians are employed to take sick call at these bases. Medicines are sent to each base from the Miltary Hospital. Civilian employees and dependents of the military are seen at sick call, but the general civilian population is not. Civilian facilities are often used for nonurgent services such as X-rays and minor surgical care.

Military casualties are treated in the field by paramedics. These are apparently poorly trained, poorly equipped and poorly utilized. Apparently, one paramedic per 100 soldiers is provided. When helicopter transport is available, injured soldiers are evacuated directly to the Military Hospital. When helicopters are not available, the nearest civilian hospital is used. This is particularly true for the Gotera and Chalantenango hospitals. At these hospitals, surgery is done either by military or civilian physicians.

Field commanders do not have accurate data on the number of ill, injured or killed soldiers in their units.

Civilian war-related casualties do occasionally receive treatment from military paramedics, but this is apparently uncommon and not documented. In newly liberated areas, civilian populations receive some care from the military. Again, no data exists on the volume of such care.

Hospital care for the military is centalized at the 400-bed Military Hospital. While the physical plant is old and cramped, it appears to be relatively (compared to civlian hospitals) adequate and well equipped. The

Hospital staff consists of 10 full-time military physicians, 50 residents and 150 part-time civilian physicians. It has a large nursing and auxiliary staff.

Even though the Military Hosptal treats a different population and must deal with more war-related trauma, comparison of it to civilian hospitals is revealing (Table 7). Its major operative load is about one third of that of Hospital Rosales (150 vs 450 per month). Like other hospitals, much of the trauma seen is not due to war-related activities (82 hospital deaths due to accidents vs 74 due to subversive action in 1982). Relative to other hospitals, the number of laboratory and X-rays taken is much higher. Its outpatient load per physician is lower than that of civilian hospitals.

It should also be noted that many wounds treated at the Military Hospital are accidental (Tables 8 and 9).

CONCLUSIONS AND RECOMMENDATIONS

The recommendations below include a call for the expenditure of scarce resources for hospital-based services. We recognize that such expenditures may detract from preventive and primary health care. Nonetheless, they can now be justified on several grounds in El Salvador. First, the need for hospital services has increased due to a rise in trauma casualties. Second, the accessibility to transport and surgical care has decreased. Third, shortages of supplies and equipment undoubtedly are contributing to unnecessary morbidity and mortality. Lastly, the credibility of a network c health facilities depends to some extent on the availability and performance of hospitals. If lifelong disabilities and needless trauma deaths are to be prevented then investments in emergency medical and surgical services must be made.

1. Conclusion: There is a high rate of civilian trauma in El Salvador
   Traumatic injuries consume health resources and often result in death, disability and loss of productivity. War-induced trauma over the past 4 years has been superimposed on high levels of preexisting, "background," trauma due to motor vehicle and occupational accidents.

   a. Available data are delayed and limited to persons arriving at health facilities and to the restricted number of deaths that are registered.

   b. As would be expected, trauma is most frequent in areas of conflict. These areas shift with time, but presently include portions of the departments of Chalatenango, Morazan, San Miguel, San Vicente, La Union and Usulutan.

c. Adult males are those most affected by trauma.

d. Extremity wounds, often leading to amputation, are the most frequently seen serious injuries in hospitals.

e. Relatively few head, chest and abdominal injury victims were seen in hospitals. This is probably because victims with such injuries die before or soon after hospital admission.

f. Many gunshot wounds appear to be caused by high velocity missiles resulting in great tissue destruction.

g. Many wounds are due to mines and are complicated by contamination and infection.

Recommendation: Analyses of existing hospital-based trauma data and conduct of prospective studies of trauma should be considered.

a. Hospital discharge trauma data for 1980 - 1982 have been collected by the Division of Statistics (MSPAS) but are not tabulated nor analyzed. Analyses by age, sex, type of trauma, hospital and area would be useful in targeting resources and providing a baseline for evaluating program impact.

b. A one-month prospective study in all hospitals now and one year after program initiation would allow for program evaluation. Such a study should include data on cause of trauma (not usually coded), delay time, and type of transport (Annex D).

c. Long-range planning for trauma programs should include prevention efforts aimed at motor vehicle and burn accidents.

2. Conclusion: First aid and medical stabilization of trauma victims is often crude, delayed or nonexistent.

While the network of government health facilities is said to be accessible to over 85 percent of the population for primary health care, this is not the case for first aid or medical stabilization of injuries because:

a. war-related injuries often occur in areas where peripheral health facilities (posts and units) are not functioning;

b. these injuries, as well as those due to other causes, often occur outside the operating hours of health facilities;

c. peripheral health facilities are poorly equipped and their personnel often lack suitable training to deal with significant trauma;

d. victims of severe trauma are often taken directly to the hospital, bypassing peripheral facilities;

e. only about 50% of the population, those in urban and periurban areas, has access to ambulances (Red and GreenCross) which provide first aid, medical stabilization and transport.

Recommendation Simplified first aid training should be provided to all MSPAS personnel in hospitals, centers, and selected health posts and units. Additionally, simple trauma kits containing first aid supplies should be distributed to peripheral facilities. Transport means should be arranged by each facility. Injured persons should be encouraged to use these facilities:

a. While geographic and temporal access may be limited, perhipheral facilities should be used whenever possible.

b. New training materials should be encouraged to survey available transport and develop informal arrangements for their use and promoton.

c. Each health facility should be encouraged to survey available transport and develop informal arrangements for their use and promotion.

d. Trauma kits should contain splints, dressings and disinfectants. Unless such kits are set apart for trauma cases, there is a possibility that these materials will not be available when needed.

3. Conclusion: Transport for injured persons is often unavailable, primitive and dependent on private vehicles. Such transport is uncoordinated and markedly delayed, particularly in rural areas.

a. In most rural areas there is no emergency transport system available. Consequently, trauma victims are carried to the nearest road and transport from passing private vehicles is sought.

b. MSPAS medical facilities, including hospitals, do not have their own ambulances for initial transport of injured persons.

c. Ambulances assigned to hospitals are used to transport discharged patients, transfer patients to other facilities and to carry supplies.

d. The Red Cross and Green Cross ambulance services function mainly in urban areas. Dispatch of an ambulance usually follows a telephone call or direct personal request. Little coordination with hospitals is done. In outlying areas hours of operation may be limited. Ambulance personnel have limited training. Lack of gasoline is a frequent problem.

Recommendation: Additional ambulances should be assigned to hospitals and regional offices to allow for evacuation of injured persons, particulary in contested areas.

a. In contested areas, group casualties occur. Hospital-based ambulances could be dispatched for transport of such casualties using the existing MSPAS radio system.

b. At least one new ambulance should be assigned to each hospital and center.

c. Ambulances assigned to regional offices should be placed in strategic locations near where casualties are occurring when needed.

Recommendation: MSPAS ambulance drivers and attendents should receive appropriate training.

4. Conclusion: Hospitals generally have adequate physical plants and bed capacities to deal with trauma victims (see San Miguel).

a. Most hospitals have beds available for trauma victims. One exception is Hospital Rosales where injured persons are received by a special, relatively new, 90-bed emergency unit which often is greatly overloaded.

b. New prefabricated or field hospitals are not needed. Existing structures offer adequate access.

c. Several of the centers and hospitals visited were constructed since 1970 and have sound and well designed physical plants.

d. All hospitals experience frequent electric power outages; AID-provided emergency generators are widely available and used at these facilities. The only visited facility lacking a needed generator is the Usulutan hospital. Fuel for these generators is in short supply and probably should be increased.

e. Water storage and supply is lacking at the hospitals in Chalatenango and Usulutan.

Recommendation: Provision of water systems for the Usulutan and Chalatenango hospitals should be urgently considered. Additionally the Usulutan hospital needs an auxiliary generator.

5. Conclusion: Hospital emergency and operating rooms are lacking in critical equipment.

a. Portable surgical lamps are needed everywhere.

b. Sterilizers and autoclaves are often broken down.

c. Surgical instruments are in poor condition and short supply.

Recommendation: Surgical instruments and support equipment should be provided to all hospitals and centers.

a. Two portable, medium sized, surgical lamps, one standard surgical and one orthopedic instrument kit, and one medium sized electric autoclave should be provided to each hospital and center.

6. Conclusion: The San Miguel Hospital is obsolete, dirty and inadequate.

a. The hospital was built over 100 years ago. Its physical plant has deteriorated beyond the point of repair. The operating rooms are overused and grossly inadequate.

b. The new hospital in San Miguel is 95 percent complete. Apparently all its equipment is on hand.

Recommendation: An immediate cost analysis for opening and operating approximately 300 beds in the new San Miguel Hospital should be prepared. Every consideration should be given to opening the hospital as soon as possible.

a. The hospital is greatly needed for dealing with trauma.

b. Opening the hospital would be a highly visible gesture of humanitarian concern.

c. The old San Miguel hospital might be useful for military needs.

7. Conclusion: Hospital, surgical and postoperative supplies and medications are in very short supply.

a. Nearly every facility visited was lacking in antibiotics such as aqueous penicillin, suture material and reusable surgical needles.

b. X-ray film is greatly lacking.

c. Dressings and plaster are in short supply in some hospitals.

Recommendations: Surgical supplies and medications should be included in those items to be purchased through the Health Revitalization Project.

8. Conclusion: Nonphysician manpower in hospitals is generally adequate.

a. Nurses, aides, and anesthesia technicians are found in adequate numbers at most facilities. They have not received special training in the management of war wounds.

9. Conclusion: Physician surgical manpower is inadequate in numbers and often insufficiently trained except in Santa Ana, San Miguel, and San Salvador.

   a. Even where overburdened, physicians seem highly motivated and dedicated.

   b. Residents are often the only available physicians in hospitals. In some cases, such as at the Usulutan Hospital, even they are in short supply. Generally their surgical training and ability is limited.

   c. Few physicians have received specialized training in the management of war-related injuries.

   Recommendation: Two mobile surgical teams should be assembled so that they can provide urgent surgical input when needed to outlying hospitals and centers.

   a. Two teams are suggested to ensure coverage.

   b. Each team might consist of 3 to 5 Salvadorans (at a minimum a surgeon, an orthopedist, and a trained nurse would be on a team). They should carry some of their own supplies.

   c. Criteria and methods for dispatching a team should be developed.

   d. One team might be stationed in San Salvador and another in San Miguel.

   Recommendation: Some incentive system for encouraging physicians, particularly surgeons, to work in outlying shortage areas should be considered.

   Recommendation: Training programs dealing with the management of war wounds should be organized for nurses and surgeons.

   a. Generally, U.S. surgeons with military experience are those best prepared to provide such courses. This might be done in conjunction with the Military Hospital. Specially trained physician assistants, nurses, and emergency medical technicians could train non-physicians.

10. Conclusion: Rehabilitation needs have not been defined and rehabilitation facilities are limited.

   a. No good data exists on the need for protheses and rehabilitation.

   b. Most hospitals have a rudimentary physiotherapy service. Equipment and personnel are often lacking.

Recommendation: A survey of rehabilitation needs and services should be done as soon as possible.

11. Conclusion: Military medical system observations can be summarized as follows:

a. Civilians generally do not burden the military medical care system. Except civilian employees, dependents and retirees, few civilians are treated by the military.

b. Military personnel, particularly in contested areas, are often treated in civilian facilities; in these areas there appears to be good civilian - military cooperation although surgical manpower and supplies are often unavailable.

c. Routine medical care for the military in the peripheral garrisons is decentralized, dependent on hired civilian physicians, and marginally adequate.

d. Military paramedics may be inadequate in number, poorly equipped and poorly utilized.

e. Many wounds result from accidents and poor weapon handling.

f. Data may be systematically collected or maintained on wounds or deaths by field commanders.

g. Generally, little care is provided to civilian casualties.

h. The present military hospital appears to be adequately staffed and supplied.

i. There may be need for a military medical facility in the eastern part of the country.

Recommendations:

a. Military assistance should be given to strenghtening surgical capabilities at Chalatenango and Gotera.

b. Paramedics should be increased in number, better trained and better equipped.

c. Field commanders should maintain registers of those wounded, disabled, and killed.

d. Careful examination of the costs and benefits of opening the new military hospital should be done. The present hospital may be adequate with some modifications.

e. Mobile surgical teams should be considered.

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Annex A

Scope of Work

Medical Assessment Team - El Salvador

Objectives

to estimate the unmet need of the civilian population, particularly in contested areas, for emergency medical services to make recommendations regarding improving such emergency medical services.

Statement of Work

The team will assess:

the incidence of civilian, war-related casualties (e.g., head, chest and extremity wounds)

the capacity of the civilian health delivery system (Ministry of Health, private health facilities, private voluntary organizations, etc.) to provide emergency medical services for the civilian casualties.

the current utilization of civilian and military health facilities by the civilian population for emergency medical services

the current utilization of civilian and military health facilities by the civilian population for routine inpatient and outpatient services.

the manpower, supply, transport, facilities and other civilian health sector needs to address emergency medical problems.

The team will prepare a report which will include:

a presentation of any data available on the topics outlined above observations from site visits made to facilities and from interviews with key Salvadoran and U.S. Mission personnel

a list of persons interviewed

a list of installations/institutions visited

a bibliography of documents and reports

recommendations for immediate assistance needed for improving emergency medical services

estimated costs for any proposed assistance.

Relationships and Responsibilities

The team will be briefed in AID/Washington by LAC, ARA, OFDA, and DOD prior to arrival in San Salvador. In San Salvador the team will work under the general supervision of John Massey, USAID's Health Advisor and the Mission Director. Staff support will be provided by two Salvadoran physicians (Dr. Guillermo Toledo and Dr. Jose Moran) of USAID.

Level of Effort

Two U.S. and two Salvadoran physicians are needed for two weeks to perform the assessment, with an additional week in the U.S. for finalization of the report and Washington briefings.

Qualifications

U.S. Citizen, Physican with Board Certification in Preventive Medicine and/or Internal Medicine, Graduate training in Public Health, LAC experience, F.S.I. equivalent 3.3 in Spanish.

LAC/DR:LMORSE:4/8/83:#0007H

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Annex B

List of Contacts

I. U.S. Government Personnel

A. AID El Salvador
Martin Dagata, Chief of Mission
Leo Ruelas, Human Services
John Massy, Health Officer
David Thompson, Program Unit for Displaced Persons Program
Jose Raul Moran, M.D., Contract Physician
Guillerno Toledo, M.D., Contract Physician

B. Defense Attache
Colonel John Cash

C. Military Group
Colonel Waghelstein
Major Doyle Raynor
Major Ortiz

II. Ministry of Public Health and Social Assistance (MSPAS)

Dr. Antonio Figueroa, Subsecretary
Dr. Eduaro Navarro, Director of Operations
Dr. Sagastumi, Chief of Statistics
Maria Hernandez Cordero, Director, Chalatenango Hospital
Dr. Rafael Larios, Chief Resident, Chalatenango Hospital
Dr. Juan Pablo Castillo, Director, Center in Gotera
Dr. Samuel Hernendez Borja, Director, Center in Cojutepeque
Dr. Osaldo Octavio Orantes, Director, Hospital San Vincente
Dr. Alvarez, Director, Usulutan Hospital
Dr. Olfilio Lasso, Director, San Miguel Hospital
Dr. Jose Max Molina, Director, Hospital Rosales

III. Military Personnel of El Salvador

Colonel Adelio Quinteros, Director, Military Hospital, San Salvador
Captain Juana Melendez, Director of Statistics, Military Hospital
Colonel Roberto Amando Rivera, Military Commander, Cojutepeque
Col. Rigeberto Blanco, Military Commander in San Miguel
Lt. Col. Vasconcelos, Military Commander in Usulutan
Colonel Elena Fuentes, Military Commander in Gotera

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IV. Other

Oscar Morales, General Manager, Red Cross of El Savador
Carlos Santa Maria, Administrator, Centro del Aporato Locomotor

V. Westinghouse Consultant Team

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1339 E. Davenport
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Telephone: (319) 338-1637

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John D. Henson - Procurement
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Miami, Florida 33156

Carlos R. Pereira - Equipment maintenence
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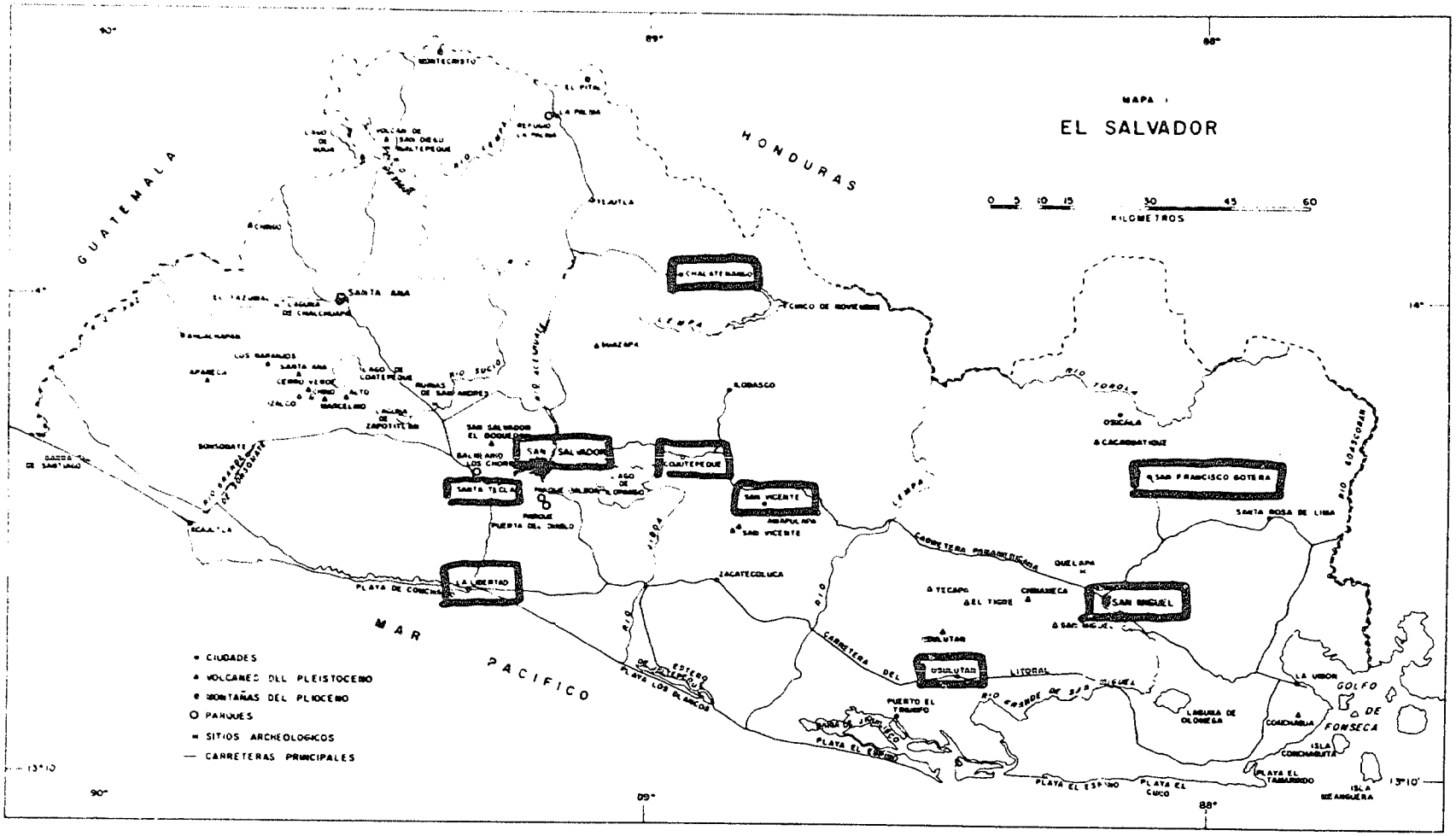
Vista, CA 92083

Raphael Martinez O'Ferall - Information Systems
OS, DHHS

Mauricio Sauerbrey - Malaria
Calle Circunvalcion
No. 208 San Benito
San Salvador, El Salvador

Joe Harinati - Water
c/o AID Washington


MAPA 1
EL SALVADOR
KILOMETROS
0 5 10 15 30 45 60
GUATEMALA
HONDURAS
MAR PACIFICO
GOLFO DE FONSECA
SAN SALVADOR
SANTA TECLA
LA LIBERTAD
COJUTEPEQUE
SAN VICENTE
CHALATENANGO
SAN FRANCISCO GOTERA
SAN MIGUEL
USULUTAN
SANTA ANA
ZACATECOLUCA
CARRETERA PANAMERICANA
CARRETERA DEL LITORAL
PLAYA DE COMASAGUA
PLAYA LOS BLANCOS
PLAYA EL ESPINO
PLAYA EL CUCO
PLAYA EL TAMARINDO
PUERTO EL TRIUNFO
LAGUNA DE OLOMEGA
ISLA CONCHAGUITA
ISLA MEANGUERA
LA UNION
SANTA ROSA DE LIMA
CACAHUATIQUE
OSICALA
GOTERA
OLOCASCO
TECAPA
EL TIGRE
CHINAMECA
QUELAPA
SAN MIGUEL
SAN VICENTE
ZAPOTITLAN
LAGO DE COATEPEQUE
LAGUNA DE CHALCHUAPA
LAGUNA DE ZAPOTITLAN
VOLCAN DE SAN SALVADOR
VOLCAN DE SAN VICENTE
VOLCAN DE SAN MIGUEL
RIO LEMPA
RIO TOROLA
RIO GRANDE DE SAN MIGUEL
ESTERO DE JALTEPEQUE
CIUDADES
VOLCANES DEL PLEISTOCENO
MONTAÑAS DEL PLIOCENO
PARQUES
SITIOS ARCHEOLOGICOS
CARRETERAS PRINCIPALES

Annex D

One Month Study of Trauma Admissions

A one month propsective study of all trauma admissions to all Centros and Hospitals in El Salvador should be done as soon as possible. This will provide needed information for programming purposes and provide a baseline for future evaluation. Data collection forms for the variables listed below should be prepared. Using these forms, a responsible individual at each hospital should visit the surgical and orthopedic wards daily. Data for sections I, III, IV and V should be readily available from the patient's chart or by patient interview soon after admission. On discharge Section II should be completed.

I. Name
Age
Sex
Date admitted
Time of day admitted
Hours for transport (delay)
Means of transport
Peripheral health facility used (+ or -)

II. Date discharged
Length of stay
Vital status on discharge (dead or alive + or -)

III. Cause of injury
Motor vehicle
Fall
Knife or blunt weapon
Gunshot
Mine or bomb
Burn
Other

IV. Affected part
Extremity
Head or neck
Thorax
Abdomen
Other

V. Amputation (+ or -)
Fracture (+ or -)
Major surgery (+ or -)

Table 1

Registered Traumatic Deaths (%) by Type

Two Year Intervals

El Salvador - 1976-1980

	Deaths Number (%)		
	1976	1978	1980
Homicide and Intentional Violence	1279(4.1)	1551(3.8)	6145(15.8)
Motor Vehicle Accidents	618(2.0)	981(3.3)	1013(2.6)
Other Accidents	522(1.6)	1245(4.1)	1463(3.8)
Total Registered Deaths	30826	30119	38967

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Table 2

Half Year Hospital Discharges
For Trauma*, El Salvador
1975 and 1980

Code	Diagnosis	Discharges 1975	1980	% Change
138	Skull Fracture	114	252	+121%
139	Vertebrae or Trunk Fracture	136	147	+ 8
140	Extremity Fracture	1352	2695	+ 99
141	Subluxation	86	210	+144
142	Soft Tissue Injury	24	21	- 13
143	Intracranial Injury without Fracture	406	1085	+167
144	Chest, Abdomen or Pelvis Trauma	367	1106	+201
145	Lacerations	2603	2961	+ 14
146	Contusions	185	169	- 9
147	Eye or Ear Penetration	161	122	- 24
148	Burns	935	1036	+ 11
All Trauma		6369	9803	+ 54
Total Beds		5773	5987	+ 4
Total Discharges		102,013	108,151	+ 6
Total Population		4,090,000	4,796,974	+ 17

According to 150 cause classification

*Half Year used because only Jan.-June 1980 data available. Half year for 1975 obtained by dividing whole year figures by 2.
Data tabulated from information at Division of Statistics, MSPAS.

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Table 3

Death-Case Ratios, Selected
Trauma Discharge Diagnoses,
MSPAS Hospitals El Salvador
1975 and 1980

Code	Diagnosis	Death to Case Ratio %* 1975	1980
138	Skull Fracture	12%	0%
139	Vertebrae or Trunk Fracture	1	10
140	Extremity Fracture	0.8	0.5
141	Subluxation	0	0
142	Soft Tissue Injury	0	30
143	Intracranial Injury and Fracture	22	21
144	Chest, Abdomen or Pelvis Trauma	7	15
145	Lacerations	1	3
146	Contusions	0.5	0
147	Eye or Ear Penetration	0.6	0
148	Burns	3	3
All Above		3%	6%

*Number of Cases Same as Those in Table 2

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Table 4

Red Cross Activity *

El Salvador 1979 - 1982

Type of Service	Year			
	1979	1980	1981	1982
Clinic Visit **	49235	71966	58526	63152
First Aid Post Visit ***	35126	51128	138619	165791
Displaced Person Clinic Visit	597	19727	48537	53128
Persons Transported by Ambulance	?	81109	115685	146179

* Data from the Main Office, Red Cross El Salvador

** 4 clinics located in San Salvador, San Miguel, Santa Ana and Santa Tecla

*** 48 Posts in 1982 in cities

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Table 5

Distribution of Displaced Persons (DP) and Physicians by Department

El Salvador

Pop. Density (Est. 1980) 1/	Department	Estimated 1981 Population ('000) 2/	Estimated DP Pop. Dec. 1981 ('000) 3/	% DP of Total Pop.	Population/ MD 1976 Physician 4/
101	Chalatenango	221.1	38.3	17.3	34,164
125	Morazan	197.4	29.8	15.1	30,227
140	Cabanas	172.9	19.6	11.3	37,478
241	Cuscatlan	199.4	15.2	7.6	31,127
157	San Vicente	202.9	10.0	4.9	12,042
168	Usulutan	400.9	14.9	3.7	10,082
1,185	San Salvador	1,142.9	24.2	2.1	1,106
136	La Union	318.5	3.9	1.2	26,451
196	San Miguel	437.2	4.5	1.0	7,045
181	Ahuachapan	243.0	1.3	0.5	11,289
225	La Libertad	399.9	1.7	0.4	9,590
186	La Paz	249.1	0.6	0.2	16,611
200	Santa Ana	427.9	0.2	0.05	4,068
249	Sonsonate	332.6	0.1	0.03	8,274

Sources:

1/ Estudios de Poblacion, Ministerio do Planificacion, Dec. 1979, quoted in El Salvador: A Country Profile, Office of Foreign Disaster Assistance, AID, 1982.

2/ Direccion General de Estadistica y Censos, quoted in Anuario No. 14, 1981, Depto. de Estadisticas de Salud, Ministerio de Salud Publica y Asistencia Social, 1983.

3/ Comision Nacional de Asistencia a la Poblacion Desplazada (CONADES) quoted in Quantitative Health and Population Data, Displaced Families Program, AID, March 1982.

4/ World Bank, Demographic Issues and Projects of El Slavador, 1979, quoted in El Salvador: A Country Profile, AID, 1982.

Table 6

Outpatient Visits (Routine OPD and Emergency)

Selected Departments, El Salvador 1977 and 1981

Department - Facility	Type of Visit	1977	1981
Chalatenango - Hospital	OPD	33,350	53,725
	Emergency	7,991	3,121
Morazan - Center (Gotera)	OPD	16,568	28,699
	Emergency	1,595	10,025
Cuscatlan - Center (Cojutepeque)	OPD	30,959	36,396
	Emergency	6,020	10,058
San Vicente - Hospital	OPD	35,123	49,504
	Emergency	16,328	7,837
Usulutan - Hospital	OPD	53,304	50,896
	Emergency	21,928	35,056
San Salvador - H. Rosales	OPD	192,832	182,498
	Emergency	27,645	47,570
San Miguel - Hospital	OPD	84,771	100,737
	Emergency	25,734	36,369

Table 7

Selected Hospital Characteristics and Volume, El Salvador

Location	Chalatenango	SF Gotera	Cojutepeque	San Vicente	Usulutan	San Miguel	S. Tecla	Rosales	Bloom	Military
Type of Facility *	H	C	C	H	H	H	H	H	H	H
Beds Total	126	63	76	202	245	316	200	695	400	400
Beds Surgical	28	12	13	48	66	91	45	220	80	200
1981 - % Occ of Surg Beds	100	61	43	53	77	8[illegible]	70	88	70	85
No. of Trauma Patients on Day of Visit	17	16	7	5	15	90	35	82	4	200
One Month Volume (March or April 1983)										
Major Operations	90	113	1	50	70	211	90	450	387	150
Med OPD	3,782	2,004	1,060	780	2,150	8,838	6,719	?	?	9,174
Emerg OPD	219	823	136	?	2,510	4,221	1,164	?	?	472
Staff Surgeons (certified)	1	2	1	0	3	5	11	23	10	26
Residents	8	7	6	14	3	20	20	50	50	50
Other MDs	1	1	4	8	12	12	20	125	90	120
Grad RN	19	10	12	28	27	34	47	92	80	100
Auxil RN	44	30	40	72	69	155	85	330	160	250
One Month Volume March or April 1983										
Blood Tx	9,500	19,600	3,000	14,000	29,700	72,000	39,000	237,000	65,421	?
X rays	241	279	120	200	48	848	55	?	1,300	?

* H = hospital C = center

Table 8

Hospital Militar Activity*

El Salvador

1982

Total annual OPD visits	103,592
Total admissions	5,001
Total blood transfused	1,703,500 ml (3400 units)
Total major op. surg.	478,813
Total killed in subversive action	74
Total wounded in subversive action	1,922
Total bodies brought to hospital	113
Deaths due to accident or other causes	82
Total lab examinations	102,168

*Department of Statistics - Hospital Military

Table 9

Number of Discharges, April 1983, in Order of Frequency
Hospital Military, San Salvador

War wounds	79
Gastroenteritis	27
War sequelae	26
Motor vehicle trauma	10
Malaria	10
Hernia	9

SCOPE OF WORK

I. Specialty: Trauma Management

II. Level of Effort: Three PM (est.)

III. General Objective: To assist the MSPAS in strengthening its capacity in dealing definitively with civil strife related wounds, through improved surgical techniques, thereby reducing mortality and amputation rates.

IV. 1. Through site visits and review of available data, develop a profile of the types of trauma being attended by hospitals and centers. The profile will serve as a basis for developing a competency based training program for various levels of health professionals.

2 With curriculum design experts and surgical staff of the MSPAS develop training modules for the mobile surgical teams.

3. With surgical staff develop criteria for surgical team composition, recruitment and selection.

4. With MSPAS training coordinators, develop training plans, including resources required (human, financial and materials), and tentative implementation schedules.

5. With surgical staff develop a list of basic equipment and supplies for mobile surgical units; design efficient packing of the equipment and supplies, as well as a replenishment schedule for those items with expiration dates.

6. With Training Coordinators and other MSPAS subject matter experts, supervise and assist directly in the implementation of the Training modules.

7. With MSPAS curriculum designers, modify and improve the modules, so that the surgical team may subsequently implement the modules, creating a "multiplier effect".

8. With curriculum designers, develop a plan for evaluation of this subcomponent.

V. Qualifications:

1. Board certified in general or orthopedic surgery.
2. Combat experience.
3. Preferred, but not essential, a background in research in trauma managment.

VI. Reporting Requirements:

The contractor will provide the MSPAS and USAID with a report within 30-days of completing the mission which includes, but is not limited to:

A. Review of the entire design, initial implementation and evaluation process of the modules.

B. Recommendations for follow-up activities, including inclusion of trauma management in the curricula for graduate nurse and auxiliary nurse training programs

SCOPE OF WORK ANNEX-H-IV-C

I. Specialty: Wound Stabilization and Combat First Aid.

II. Level of Effort: 2 PM (est.)

III. General Objectives: To assist the MSPAS in strengthening its capacity to deal effectively with intermediate and first level wound management, through improved wound stabilization and first aid techniques, thereby improving the survival rates during the evacuation process.

IV. Specific Tasks:

1. Through site visits and review of available date (preferably in collaboration with the trauma management specialist), develop a profile of the trauma being attended in hospital/centers and at (lower other) levels of the evacuation chain. The profile will serve a basis for developing competency based training modules for graduate nurses, auxiliary nurses and possibly, ambulance attendants.

2. With curriculum design experts and surgical nursing instructors, develop training modules for the above mentioned categories of personnel.

3. With MSPAS Training Coordinators develop training plans, including resources required (human, financial and material) and tentative implementation schedules.

4. With surgical nursing instructors, develop a list of basic equipment and supplies for the first aid kits to be placed in puestos.

5. With Training Coordinators and other MSPAS subject matter experts, supervise and assist directly in the implementation of the modules.

6. With MSPAS curriculum designers, develop plans for evaluation of this component.

V. Qualifications:

1. A licensed P.A. or E.M.T.
2. Combat experience
3. Experience in Teaching; curriculum design skills not essential as MSPAS has trained staff.
4. Spanish speaker at or above FSI-3 level, or equivalent.

4. Experience in teaching; curriculum design skills not essential, as MSPAS has trained staff.
5. Spanish speaker at or FSI-3 level equivalent, or above .

VI. Reporting Requirements:

The contractor will provide the MSPAS and USAID with a report within 30-days of completing the mission which includes, but is not limited to:

A. Review of the entire design, initial implementation and evaluation process of the modules.

B. Recommendations for follow-up activities, including inclusion of trauma management in internship and surgical residency training programs.

E M S COMPONENT

COMMODITIES

I. EMERGENCY GENERATOR SETS

A. For Health Center (3)

Generator - Marathon Electric, Magna One 62.5 KVA, 50 KW, MODEL 36DFDR8012GGN282.

Motor - Detroit Diesel, Model 10337005

Radiator - Detroit

Automatic Start Transfer Box: Lake Shore Electric, Model 07443

Fuel tank, relays, Switches, Cables, Starting Battery, etc

Est. cost $36,000 x 3 = $108,000 *

* including crating and shipping a 20%

B. For Hospitals (2)

Generator - Marathon Electric, Magna One 169 KVA, 135 KW, Model 440 FDR8024-GG-282W

Motor - Detroit Diesel, Model 10437305

Radiator - Perfex

Auto-Start Transfer box - Lake Shore, Electric Model 07443

Same accessories as unit above.

Est. Cost $ 96,000 x 2 units = $192,000 *

C. For Hospital (1)

Generator - Marathon Electric, Magna One 250 KVA, 200 KW, Model 440FDR 8035?B-H193W

Motor - Detroit Diesel, Model 10637305

Radiator - Detroit

Auto Start transfer box - Russ

Electric, Model BMT-4003 CE.

Plus same accessories as units above

Est. cost $132,000 *

II. Cistern Water Pump Sets for Health Units and Health Post (100 locations)

A. Centrifugal Pump, Cast-iron body, plastic impeller, stainless steel shaft, 62 qpm at 5ft. lift, 2" diam. suction, 1 1/2"diam. discharge.

Motor, 2HP, 220-240 volt, 60 Hz., AC, 2288 watts

Sears 1983 Spring/Summer Catalog

No. 42A261DN

Price: $279.95 Shipping Wt: 91 lbs.

B. Pressure Switch, 1/2" diam. threads, operating range 30 to 50 psi,

Catalog No. 42A2781

Price: $13.95 Wt. 14 oz.

C. Foot valve with brass strainer

Fits 3/4" diam. inside, 1" diam. outside

Catalog No. 42A2738

Price: $5.50 Wt: 7 oz.

D. Captive Air Water Pressure Tank

Capacity: 85 gallons. Size: 24 1/2" diam. x 53" height;

Discharge: 1 1/2" diam. Precharged tank with integral plastic membrane.

Catalog No. 42A2917N

Price: $220.00 Weight: 135 lbs.

Est. cost per pump set complete with installation wires, connections, pipe and fittings:

(a) Pump and Motor	279,95
(b) Pressure switch	13.95
(c) Foot valve	5.50
(d) Pressure Tank	220.00
(e) Accessories	80.60
	$ 600.00
Plus 20% packing, shipping.	120.00
	$ 720.00 per set

100 sets x $720.00 = $ 72,000.00

Total E M S Commodities

3 - 50KW Emergency Generators	$ 108,000
2 - 135 KW Emergency Generators	192,000
1 - 200 KW " "	132,000
100 - Water Pump Sets	72,000
	$ 504,000

ATTACHMENT 6

EMERGENCY MEDICAL SUPPLIES AND EQUIPMENT

I. Medical Stabilization Kits.

A. 6545-00-999-6446 - Group 3

Med Equip Set Med Fld Rx Facility Surgery Kits

Ea. 1417.82

212.67 - 15% Surcharge

1630.49 x 26 = $ 42,393.00

B. 6545-00-924-4825 - Group 2

Mass Casualty Rx

Ea. 436.18

65.43 - 15% Surcharge

501.61 x 26 = 13,042.00

C. Replacement of Consumables 30,000.00

II. Emergency Surgical Lamps

A. 6530-00-027-5018

Light Surgical Ceiling

Ea. 1057.21

158.58 - 15% Surcharge

1216.09 x 26 = 27,486.46

III. Surgical Instrument Kits

A. 6545-00-914-3480 - Group 2

Chest Med Inst Supply No. 3

Ea. 130.07

1.95 - 15% Surcharge

132.02 x 123 = 16,239.00

B. 6545-00-181-7120 - Group 4

Med Equip Set Med Fld Ortho Evac

Ea. 559.81

83.99 - 15% Surcharge

643.90 x 26 = 16,742.00

C. 6545-00-922-1200

First Aid Kit - General purpose, rigid case

97 (a) $ 50.00 ea., plus 15% surcharge 4,947.00

IV. X-Ray machines, films and cassetts.

A. 12 X-Ray machines

300 MA Mobile (GE or Picker) at

$12,500 plus 15% surcharge 177,500.00

B. 3696 film, Radiographic 10 x 12 (G Sri)

100 s for hospitals and health centers at

Ea. 68.79 1848 Boxes

10.32 - 15% surcharge

79.11 = 146,196 ~~292,391.00~~

C. 6525-01-015-4674 (G Sri)

3696 Film, Radiographic 8 x 10

100 s at

Ea. 47.33 1845 Boxes

7.20 - 15 % surcharge

54.53 = 100,772 ~~201,553.00~~

D. 6525-01-015-4671

3696 Film, Radiographic 14 x 17

100 s at 1845 Boxes

Ea. 132.37

20.86 - 15% surcharge

153.23 = 283,129 ~~566,339.00~~

E. 6525-00-721-9813

100 Cassette, Radiographic

Film 8 x 10 at

Ea. 93.82

14.07 - 15% surcharge

107.89 = 10,789.00

F. 6525-00-721-2814

100 Cassette, Radiographic

Film 10 x 12 at

Ea. 124.20

18.83 - 15 % surcharge

147.83 = 14,283.00

G. 6525-00-721-9816

100 Cassette Radiographic

Film 14 x 17 at

Ea. 198.53

29.77 - 15% surcharge

228.30 = 22,830.00

V. Suction Machines.

A. 6515-00-782-2625

26 Suction Pressure Apparatus

for hospitals and centers at

Ea. 676.77

101.52 - 15 % surcharge

778.29 = 20,235.00

VI. Ambulances

A. 3 Star-line Star

Model III for Emergency

Surgical Teams deployed at

San Salvador and San Miguel

(1 in reserve) at

ea. 36,000

7,200 - 20% for spare parts

6,480 - 15% surcharge

49,680 = 149,040.00

NOTE: The Star-Line line of ambulances are manufactured by GMC (Chevie) and are the only ones for which specifications include a 72" high ceiling which is necessary for sustained surgical activity anticipated to occur in connection with the use of these units. Procurement from other U.S. manufacturers would be dependent on their meeting the height specification.

B. 24 Jeep Integrated body ambulances
4 patient for hospitals, health
centers and regional centers at
Ea. 25,000
5,000 - 20% for spare parts
4,500 - 15 % surcharge
34,500 = 828,000.00

NOTE: Jeep ambulances specifications include piped oxygen, suction machines, air conditioning, emergency lights and siren plus surgical instruments and consumable supplies. Jeep ambulances are being purchased as part of the standarization policy of the MOH and thus acquisition would be on a basis of propriatory procurement.

Sub Total E M S $2,395,700.00

BUDGET - COMPONENT IV
EMERGENCY MEDICAL SERVICES

ANNEX-H-IV-E

A. Training Costs

1. Technical Assistance

a) Surgical Trauma Management Specialist 3 mo. x $11,000/mo	$	33,000
b) Trauma Stabilization/First Aid Specialist 2 mo x $11,000 mo.	$	22,000
Sub-Total	$	55,000

2. Local Training Costs

a) Mobile Surgical Teams

(Three teams each consisting of 1 general surgeon, 1 orthopedic surgeon, 1 surgical nurse).

1) Training materials (paper, chalk, transparencies, etc.)	$	1,000
2) Two surgical kits (see commodities below for costs).		
3) Faculty honoraria 135 hours x $10.00/hr	$	1,350
4) Miscellaneous/Contingencies	$	250
Sub-Total	$	2,600

b. Wound Stabilization Training

1) Graduate and Auxiliary Nurses (500 graduate and 200 aux. (estimated)

a) Perdiem 28 courses x 5 days duration x 25 persons per course x $8.00 Per day	$	28,000
b) Training Materials $200 per course x 28 courses	$	5,600

c) Fifteen Trauma Kits (see commodities below for costs.)

d) Faculty honoraria
80 teacher hrs per week x 28 courses x $10.00/hr. $ 22,400

e) Miscellaneous/Contingencies
$100 per course x 28 $ 2,800

Sub-Total $ 58,800

2) Anesthetists:
(120 estimated)

a) Per Diem
6 courses x 5 days x 20 persons x $8.00 per day $ 4,800

b) Training Materials
$200 per course x 6 courses $ 1,200

c) Faculty Honoraria:
40 hours/wk x 6 courses x $10/hr $ 2,400

Sub-Total $ 8,400

3) General Medical Officers
(120 estimated)

a) Per Diem
6 courses x 5 days x 20 persons x $8.00 per day $ 4,800

b) Training Materials
$200 per course x 6 $ 1,200

c) Faculty Honoraria
40 hrs/wk x 6 courses x $10/hr. $ 2,400

Sub-Total $ 8,400

c. First Aid Training for Auxiliary Nurses (160 working in Health Posts).

1)	Per Diem 8 courses x 5 days x 20 persons x $8.00 per day	$	6,400
2)	Training Materials $200 x 8 courses	$	1,600
3)	Five First Aid Kits See commodities below for cost		
4)	Faculty Honoraria 40 hrs/week x 8 courses x $10/hr.	$	3,200
5)	Miscellaneous/Contingencies $100 per course x 8 courses	$	800
	Sub-Total	$	12,000

d. Patient Handling Techniques for Ambulance Drivers (50 est.)

1)	Per Diem 2 courses x 2 days x 25 persons x $8.00/hr.	$	800
2)	Training Materials 2 courses x $50	$	100
3)	Five stretchers (See Component One, Subcomponent A Budget)		
4)	Faculty Honoraria 8 hrs/day x 2 days x 2 courses x $10/hr.	$	320
5)	Miscellaneous/Contingency $50 per course x 2	$	100
	Sub-Total	$	1,320

3. Training Support Equipment

a)	Four overhead projectors @ $ 500	$	2,000.00
b)	Four projector stands @ $ 75	$	300.00
c)	Two slide projectors @ $ 250	$	500.00
d)	Two small portable screens @ $ 50	$	100.00
e)	Spare parts (bulbs, etc.) for projectors	$	300.00
f)	Transparencies, markers, etc	$	300.00
g)	Freight, Insurance and Procurement Fee 22%	$	770.00
		$	4,270.00
	Sub-Total (A)	$	150,790.00

B. Commodities (Note: Commodity Costs per line item include Freight and Insurance 15%; Procurement Fee 7% unless otherwise noted)

1. Medical Stabilization Kits

a)	Medical Equipment Set - 26 x $1,417.82 + 22%.	$	44,973.00
b)	Mass Casualty Treatment Set 26 x $436.18 + 22%	$	13,836.00
c)	Replacement of Consumables	$	30,000.00

2. Emergency Surgical Lamps

	26 x $1,057.21 + 22%	$	33,535.00

3. Surgical Instrument Kits

a)	Chest Med 123 x $130.07 + 22%	$	19,518.00
b)	Med. Equip. Set. 26 x$ 559.81+ 22%	$	17,757.00
c)	First Aid Kit 97 x $50.00 + 22%	$	5,917.00

4. X-Ray Machines/Film

a)	12 X-Ray Machines at $12,500 + 22%	$ 183,000.00
b)	X-Ray Film 10 x 12 1848 Boxes of 100 x $68.79 + 22%	$ 155,091.00
c)	Film 8 x 10 1848 Boxes of 100 x $47.33 + 22%	$ 106,708.00
d)	Film 14 x 17 1848 Boxes of 100 x $132.37 + 22%	$ 298,436.00
e)	X-Ray Cassette, 8 x 10 100 x $93.82 + 22%	$ 11,446.00
f)	X-Ray Cassette, 10 x 12 100 x $124.20 + 22%	$ 15,152.00
g)	X-Ray Cassette, 14 x 17 100 x $198.53 + 22%	$ 24,221.00

5. Suction Machines

Suction Pressure Apparatus
26 x $676.77 + 22% $ 21,467.00

6. Ambulances

a) 2 Star Line Model III $105,408.00
(for surgical teams) Each
$ 36,000
$ 7,200 (20% for Spare Parts
$ 6,480 (Freight & Insurance 15%)
$ 3,024 (Procurement Fee 7%)

Each $ 52,704

b) 25 Standard Ambulances $915,000.00
$ 25,000
$ 5,000 (20% for Spare Parts)
$ 4,500 (Freight & Insurance 15%)
$ 2,100 (Procurement Fee 7%)

Each $ 36,600

7. Emergency (Back-up) Generators

3 - 50 KW Generators (for health centers) $30,000 + $6,000 (Pack/ship, 20%) + $2,100 (Procurement fee 7%) $38,100 ea. 3 x $38,100 = $114,300	$ 114,300.00
2 - 135 KW Generators (for hospitals) $80,000 + $16,000 (Pack/ship)+$5,600 (Procurement) 2 x $101,600 = $203,200	$ 203,200.00
1 - 200 KW Generator (for hospital) $110,000 + 22,000 (Pack/ship) +$7,700 (Procurement) = $139,700	$ 139,700.00

8. Cistern Water Pump Sets

100 Sets x $762= (includes 20% Pack/ship charge and 7% procurement fee) (for Health Units and Posts)	$ 76,200.00

9. Radio Communication

a) Beeper type for surgical teams 12 x $183.00 (includes 15% shipping, 7% procurement fee	$ 2,196.00
b) Portable and/or mountable for ambulances 13 units x $1,220 (includes 15% Pack/ship, 7% procurement fee)	$ 15,860.00
Sub-Total (B)	$2,552,921.00

C. Emergency Transportation Costs

1. Ambulance Operating Costs (gas, oil, and preventive maintenance)	$215,000.00
2. Helicopter Transport Contract for Surgical Teams.	$ 75,000.00
Sub-Total (C)	$ 290,000.00

D. Special Studies

1.	Trauma Admissions/Discharges	
	a) TA - 2PM x $11,000	$ 22,000
	b) Data Processing/Contingencies	$ 1,000
2.	Rehabilitation Needs Assessment	
	a) TA - 2 PW x $2,750/wk	$ 5,500
	b) Data Processing/Contingencies	$ 1,000
	Sub-Total (D)	$ 29,500
	COMPONENT IV TOTAL	$3,023,211