CONCEPT PAPER

THE REHABILITATION
OF
CIVILIAN AMPUTEES
IN
EL SALVADOR

SUBMITTED TO USAID/EL SALVADOR

SUBMITTED BY:
The People-to-People Health Foundation, Inc.
(Project HOPE)

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BACKGROUND/STATEMENT OF PROBLEM

Due mainly to the indiscriminate use of land mines by Salvadoran guerrillas in contravention of the Geneva Convention, the amputee population of El Salvador is growing at an alarming rate. The most recent statistics demonstrate that during the past three years approximately 1,600 individuals lost one or more limbs and of that number 653 were civilians. Non military land mine casualties grow at the rate of approximately 48 per month, indicating that the end of 1987 more than 1,200 civilians will be in need of prosthetic and/or orthotic devices.

The productive capacity of El Salvador to construct artificial limbs and braces and to provide physical and occupational rehabilitational services is overwhelmed not only by the current backlog of civilians needing devices and services but by the monthly increase in the number of civilian amputees. The Salvadoran Civilian Rehabilitation Institute (ISRI) has a production capacity of from 12-15 devices per year. At this rate most of these individuals will have to wait as long as three years to be fitted with a device. Currently there are 153 individuals on ISRIs confirmed waiting list for prosthetic devices, these being persons who are able to pay the $120-300 prorated fee for services. For the majority for whom this cost is too great, the future consists of an existence using crutches and crude homemade or plaster devices.

One of the greatest constraints on increasing the production and the fitting of prosthetic devices is the limited availability of trained prosthetic and orthotic technicians, physical therapists, and occupational therapists in El Salvador. Additional constraints facing ISRI are GOES limitations on personnel levels and insufficient operating capital for raw materials. Further complicating matters are the disastrous effects of the recent earthquake which has not only severely damaged some of the physical structures of ISRI but has established a whole new set of priorities

for the use of limited resources available to GOES. ISRI, in all likelihood, will not rank high on the list of priorities for significant funding in a post earthquake reconstruction program aimed at rebuilding major hospitals and health facilities destroyed in the October 10th disaster.

Project HOPE and the Limb Loss Victim

Project HOPE has been and is very much aware of the technical and therapeutic needs of victims of limb loss in El Salvador. Frequently, assistance has been sought for such victims at some of the 88 dispensary locations around the country operated by the HOPE under the aegis of its Displaced Persons program. In the past, HOPE has arranged for specialized treatment to be provided to limb loss victims at institutions in the US. In collaboration with interested parties and working through the International Committee on Migration (ICOM), resources have been identified to facilitate the transportation of children injured by land mines to institutions in the US where they can receive appropriate attention. Most recently, HOPE has played a major role in organizing an airlift of limb loss and other victims arising from the earthquake to the US for emergency and rehabilitative treatment at Shriner institutions.

Project HOPE, working in close collaboration with the Shriners of North America is in the process of articulating a joint approach in responding to the needs of limb loss victims (particularly children) on an emergency basis. Also under consideration are ways through which both organizations might assist in developing an institutional capacity in El Salvador to manufacture prosthetic and orthotic devices and to operate a comprehensive rehabilitation program for amputees. Some aspects of such a joint effort would include:

a) The provision of Managerial and Administrative Direction as well as Professional and Technical direction for an operational and educational program in El Salvador.

b) Utilization of Shriner facilities in some 18 states in the US for emergency and/or highly specialized treatment of limb loss victims.

c) Utilization of human and material resources of HOPE and the Shriner organization to conduct outreach clinics and workshops for amputees and rehabilitation trainees in El Salvador.

d) The identification and utilization of long- and short-term Prosthetics Production Expert/Educators and Consultants in El Salvador.

A REHABILITATION PROGRAM FOR CIVILIAN AMPUTEES IN EL SALVADOR

GOALS AND OBJECTIVES

The overall goal of such a program would be to accomplish the successful reintegration of civilian amputees into Salvadoran society. Specific objectives include:

1. The rebuilding and reorganization of the structure of ISRI's prosthetic manufacturing unit.

2. The provision of managerial, professional and technical direction for an educational and operational program.

3. The design and implementation of a service delivery program consisting of the manufacture and fitting of prosthetic

devices and the training of handicapped persons in their proper use and care.

4. The training of technicians, therapists and rehabilitation specialists in sufficient numbers to deal with the influx of amputees.

5. The coordination and integration of human and material resources to be provided by a variety of Salvadoran and international organizations.

6. The development of a functioning vocational/skills program that trains handicapped persons in appropriate skills.

7. The development of an outplacement system that provides continuing support to graduates of the skills training programs.

8. Identification of and contractual agreement with a US-based organization which will evaluate and fit backlog patients with prosthetic devices.

ADMINISTRATION AND MANAGEMENT

An experienced US administrator will be appointed as Project Director, with responsibilities for the following divisions:

- Finance
- Administration (including Logistics, Communications, Personnel, Procurement, Warehousing, Maintenance)
- Rehabilitation and Occupational Therapy (including institutional social work and follow-up of patients by home visits)
- Prosthesis Construction (including training of prosthetic and orthotic technicians)

- Orthopedics (including scheduling of patients, liaison with hospital orthopedic services, post-operative nursing and rehabilitation)

- Data Processing (including data collection and processing, reporting and communications)

Each division will be headed by an appropriately qualified US or local-hire contractor, with secretarial and logistic support. US and third-country technical assistance will be utilized to support the educational activities including curriculum design, recruitment and evaluation of students, continuing education of professional staff including patient evaluation, orthopedic surgical techniques, anesthesiology and post-operative care, nursing practices, resolution of social readjustment problems, occupational therapy, job identification, general health problems including nutrition.

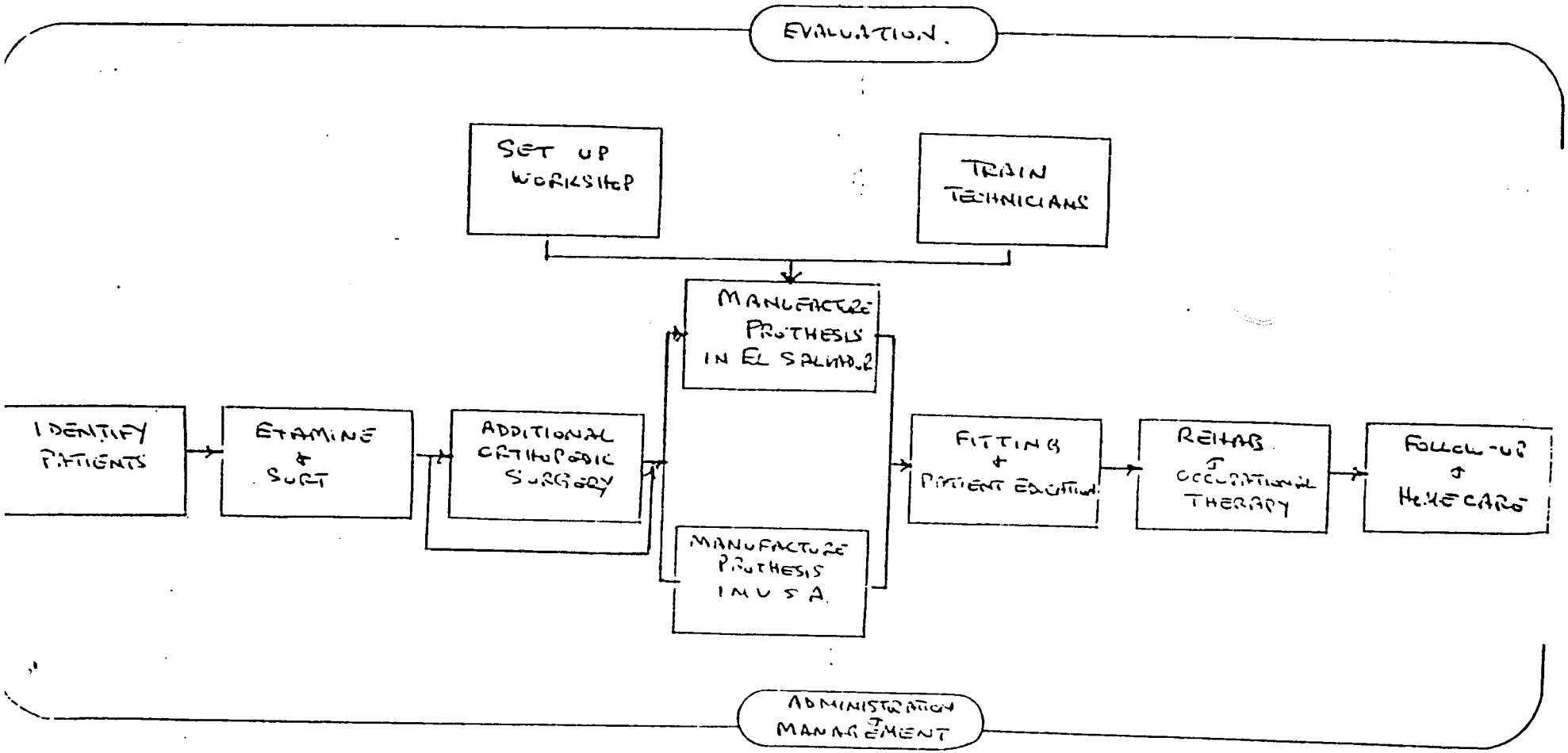
PROJECT DESCRIPTION

The project will be based at the Ministry of Health Hospital, San Rafael at Santa Tecla, on the outskirts of the capital city, San Salvador and easily accessible by road from all parts of the country.

The hospital, with new construction recently completed through a loan from the Inter-American Development Bank is at present largely unused because of lack of funds to provide the necessary equipment and staff. However there is a functional orthopedic service now in operation under Dr. A. Meardi, an experienced surgeon who completed his post-graduate training in orthopedics at Bologna, Italy.

The project will provide a comprehensive service to those in need of prosthetic or orthotic devices (see Flow Diagram of Program Activities). This will include:

a) Identification of patients in need
b) Medical care including orthopedic surgery



FLOW DIAGRAM OF PROGRAM ACTIVITIES

c) Construction and fitting of prosthetic devices
d) Rehabilitation and occupational therapy
e) Follow-up and home care

a) Identification of Patients in Need

Many adults and children who have been injured by explosive devices receive treatment at a local health unit or regional hospital and are returned to their homes. Only the most severely injured are directed to the major military and civilian hospitals situated in the capital.

For this reason, it has proved exceedingly difficult to assemble reliable information concerning numbers of persons injured, the nature of their injuries, personal details, etc. No single civilian source of information exists in which all war-related injuries are registered and accounted for.

As an initial step, a system will be established that will collect data at the health unit and regional hospital level, as well as from the major hospitals so that the numbers and locations of the persons injured can be determined and their health status investigated.

A constant inflow of data will be incorporated into the computerized data base management system so that the status and outcome of surgical and other interventions can be reviewed whenever there is need.

Responsibility for collecting these data will reside with the project field staff. Input into the data base will be the responsibility of the Department of Data Processing.

b) Medical Care including Orthopedic Surgery .

Using short-term consultants, an assessment will be made of the hospital facilities in order to define the additional material and human resources required to meet the demands anticipated by the project. This survey must necessarily be comprehensive and include not only surgical operating and post-operative facilities but also medical service, radiologic and clinical laboratory facilities, dietetic services, and the quality and quantity of manpower needed for these to function adequately.

However, it must be recognized that even after six months when the unit is functioning fully, its capacity will not be sufficient to make significant impact on the backlog of cases within a reasonable timeframe measured in months, instead of years.

For this reason, continued use of facilities in the US will be needed for a minimum period of two years so that those already injured and in need of additional orthopedic surgery and prostheses can receive treatment expeditiously. Arrangements will be made for these patients, accompanied by a relation where appropriate, to be accommodated at US institutions participating in the project. In particular the close relations already established with the Shriners Hospital will provide a rapid and effective means to address the "backlog" problem, the magnitude of which places it beyond the present and anticipated future capacity of the project in El Salvador.

c) Construction and Fitting of Prosthetic Devices

It is proposed to construct a workshop adjacent to the San Rafael Hospital capable of assembling some 25 prosthetic devices per month. A trained prosthetic technician can construct one device in

approximately two weeks, therefore from 12 to 15 technicians will be required.

As these technicians are currently unavailable in San Salvador, it is proposed to conduct a training program that will produce and maintain the designed number of technicians. For this reason, the workshop will be constructed with the necessary educational facilities so that the unit can be entirely self-contained. These additional facilities would comprise a classroom, library with seating capacity for 15 students, staff offices, storage area and toilet facilities. Presently available unoccupied space in the hospital may be utilized for some or all of these purposes.

Technical assistance will be provided to assess the existing facilities, recommend necessary additions, provide lists of equipment needed and design the training program including definition of curriculum and teaching methodologies. Additional longer term technical assistance will be needed to conduct the training of a Salvadoran counterpart.

Arrangements will be explored with US institutions now training prosthetic technicians to provide the needed assistance by rotating staff and experienced students through the El Salvador training program. It may be possible to establish a mutually beneficial "sister" relationship so that a long-term commitment for assistance can be provided.

With regard to the backlog of cases where additional surgical interventions are not needed, a US team will visit El Salvador periodically in order to measure patients for prosthetic devices to be constructed in the US and subsequently for fitting them.

In this way the number of patients requiring treatment in the US will be reduced to a minimum and the social disruption and cultural readjustment problem will be avoided.

If this is done synchronously with the development of the teaching program in El Salvador, an excellent opportunity for constructive "on-the-job" education of the Salvadoran trainers will be provided in which they interact and learn from their more experienced US colleagues.

d) Rehabilitation and Occupational Therapy

It is important to recognize that the problem of rehabilitation of amputees does not reside exclusively in the manufacture and fitting of prostheses. In order for an amputee to be successfully reintegrated into society not only his physical needs but also his emotional and psychological needs must be addressed.

Therefore it is proposed to establish i) a facility for the physical rehabilitation of patients through physical therapy, ii) an occupational therapy service that will include vocational training to facilitate the economic reintegration of amputees into society.

The services described will be located at the San Rafael Hospital, with a regional facility for counselling, prosthetic adjustments and vocational training in San Miguel. In this way many patients undertaking vocational training or requiring other services can reside at home and attend daily instruction at the center (San Salvador or San Miguel) nearest to them.

e) Follow-up and Home Care

It is essential to provide an effective system of follow-up and home care for patients who have been fitted with prosthetic devices. This is of particular importance in the case of children because normal growth requires more frequent monitoring and readjustment of the devices in order to avoid trauma leading to infection.

In addition, it is important to ensure not only the physical (including nutritional) status of these patients but also their mental and emotional responses as they attempt re-entry into society.

Depending on location and numbers of patients, social workers based in San Salvador and San Miguel accompanied pericdically by another member of the project team (e.g., prosthetic technician, nurse, nutritionist or physician as needed) will visit patients in their homes and report on their physical and mental status, reactions of family, employment, etc. These reports will be reviewed by members of the project team at weekly meetings and actions recommended accordingly.

From the point-of-view of project evaluation, information gathered at the community and home level is representative of the "product" or "impact" of the project as opposed to the evaluation of functional stages or "process."

Regionalization

As the internal conflict within El Salvador diminishes and the numbers of patients requiring treatment is reduced markedly, the facilities developed at the San Rafael Hospital could gradually assume a regional function serving the Central American countries.

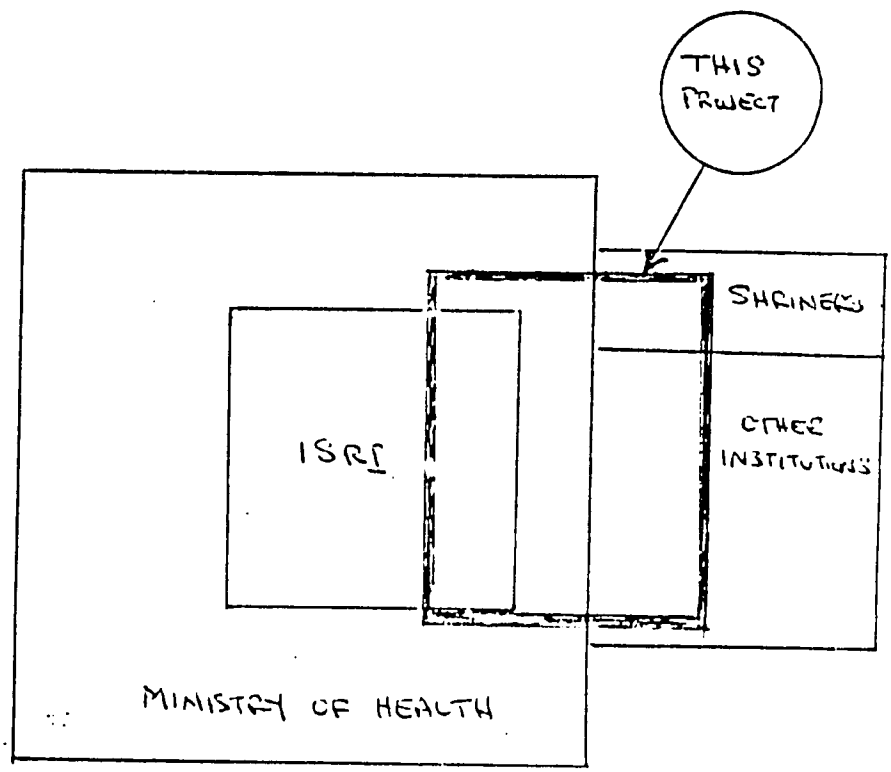
In this way some revenue could be generated that would help to sustain the project at its proposed or at a reduced level.

COORDINATION AND INSTITUTIONALIZATION

The Ministry of Health is actively engaged in dialogue with a number of international organizations wishing to contribute to the development of an institutional capacity to deal with the range of services needing to be provided the limb deficient patient. Organizations such as USAID/El Salvador, International Red Cross, Physicians Without Frontier, CARE (Germany) are just some of the groups which have indicated a readiness to contribute to components of an overall program. For example, the International Red Cross is interested in providing Hostel/hotel facilities for the patient who comes from the interior of the country for the period of time he must spend being measured, fitted and trained in the use of a prosthetic or orthotic device. Physicians Without Frontier has expressed its willingness to construct and operate a surgical unit so that stumps may be prepared to be fitted with a device. CARE (Germany) is reportedly ready to fund a comprehensive rehabilitation program so that amputees can be reintegrated into the social and economic life of the country. USAID/El Salvador has agreed to build and equip a workshop for the manufacture of prosthetic devices and provide technical assistance for various aspects of an overall program.

All of these proposed inputs need to be coordinated and made to function in a mutually supportive manner so that ISRI profits from the combined input and develop its own institutional capacity to care for the limb deficient patient backlog and influx.

The following diagram indicates the relationship of a proposed HOPE program to the MOH, ISRI, Shriners and other organizations wishing to contribute.



RELATIONSHIP OF THIS PROJECT

TO MOH, ISRI, SHRINERS & OTHER INSTITUTIONS

Other institutions include:
USAID/El Salvador
International Red Cross
World Rehabilitation Fund
CARE (Germany)
Medicos sin Fronteras

The program outlined in this concept paper indicates what ISRI will need by way of material, human and technical assistance resources to provide managerial-administrative direction for the articulation, development and implementation of a detailed work plan leading to an effective Amputee Rehabilitation Program with realistic prospects of becoming institutionalized and self-sustaining in three to five years.

EVALUATION

Responsible management requires evaluation of both the process and the product of program outputs.

- "Process" Evaluation: conducted on a continuous basis with enumeration of critical parameters including:

  Number patients examined, nature of injury, age, sex, location, etc.

  Number patients referred for prostheses.

  Number trainees: academic achievement during course of instruction

  Number occupational interventions, characteristics

  Percent occupancy for facilities

  Number follow-up visits, outcomes, etc.

  Medical records including skills assessment and photography

- "Product" Evaluation: conducted at mid-term and end-of-project including:

  Percent of target population reached

  Number patients rehabilitated

  Number patients employed, levels of income

  Cost-effectiveness of program

Cost-effectiveness of training

Attitudes of patients, families and community program satisfaction, "quality of life" of rehabitees.

In order to construct the data base needed to make possible these quantitative outputs, an IBM/AT Microcomputer, uninterrupted power supply, modem and software including Lotus Revision 2, dBase III and SPSSS will be utilized.