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MINISTRY OF EXTERNAL COOPERATION OF NICARAGUA

NON GOVERNMENTAL ORGANIZATIONS UNIT  
FUNCTIONAL REQUIREMENTS

USAID TECHNICAL ASSISTANCE  
AID PROJECT 524-0301

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## EXECUTIVE SUMMARY

USAID/Nicaragua Development and Support Project [524-0301] is providing technical assistance to the Ministry of External Cooperation (MCE) in implementing a Management Information System for its Non-Governmental Organization (NGO) Unit. The system will provide key decision makers in the government with information to effectively plan the use of donations in projects that will improve the conditions of the poor in Nicaragua.

AID/IRM has been requested to provide technical support to coordinate the effort. IRM analyst Alvaro Garcia traveled to Managua on TDY from 3/10 to 3/21 to conduct an information requirements analysis. His major findings and recommendations follow:

### Major Findings

- Current manual system is limited and does not provide information in a timely manner. Some of the needed information is not captured properly and the project tracking function is not carried out. NGO analysts do not verify whether donations actually reach program beneficiaries, since they are too busy performing repetitive and clerical tasks.
- Information system resources at the MCE are limited. The systems department has a total of three employees. Four major systems initiatives will be carried out using external consultants and equipment financed by the United Nations Development Program (PNUD). Two of the current information systems resources are also funded by the PNUD.
- The NGO Unit is aware of its limitations and is looking forward to using the new system to perform its functions more effectively. Current NGO unit human resources are capable, and their contribution in meeting NGO Unit objectives will increase with tools such as the proposed information system. No additional personnel will be required in the Unit as a result of the new system implementation.

## Major Recommendations

- . IRM analyst proposes implementing a micro-based system with two workstations and a printer. In minimizing maintenance and support, off-the-shelf software solutions are recommended to meet major functional system requirements.
- . IRM recommends three modules to meet system functionality:
  - Profile Manager Module to maintain data in structured entities by program, location, socio-economic sector, and type of donation.
  - Reporting and Query Module to serve the information needs of the GON, Donors, and Implementors.
  - Administrative Module to meet office automation requirements: word processing, electronic spreadsheets, and management presentations.
- . IRM analyst recommends contracting local resources for designing, developing and implementing the new systems. A project team should be formed with the contracted resource (acting as a lead analyst/programmer), one MCE programmer, and MCE/NGO Unit analyst. The proposed project plan estimates four months to complete the project. The system then should be turned over to the MCE/NGO Unit for its operation, and to the MCE/Information Systems Division for support and maintenance.

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PRIVATE VOLUNTARY ORGANIZATIONS  
MANAGEMENT INFORMATION SYSTEM

OVERVIEW

1. Purpose

This paper provides an assessment of the information systems requirements of the Ministry of External Cooperation (MCE), Non Governmental Organizations Management (NGO) Unit. This report is one of the deliverables IRM will provide institution as technical assistance under USAID/Managua Development and Support Project [524-0301].

The MCE manages and coordinates resources donated by foreign governments and other international institutions. The NGO unit coordinates resources from International Non Governmental Organizations (NGOs). Specifically, the NGO unit is responsible for:

- . Identifying financial and/or technical assistance from international NGOs to support Government of Nicaragua (GON) development and social programs/projects.
- . Coordinating and monitoring the use of available funds to ensure that program goals and objectives are met.
- . Coordinating and managing donations from international organizations.

The unit receives financial or technical assistance requests from Government of Nicaragua (GON) and GON support institutions when government funds are not sufficient to implement projects critical to meeting the basic needs of the poor. The unit then identifies sources of financing sources, technical assistance or donations, as well as possible local NGOs that could work as project implementors.

The NGO Unit is also responsible for coordinating the flow of sporadic or scheduled donations to ensure that cash, goods, or technical assistance reach project implementors.

The NGO unit urgently needs an information system to help GON decision makers to plan programs and projects to meet the basic needs of the poor in the most efficient manner.

The Ministry of External Cooperation (MCE) requested USAID assistance in implementing a mechanized system to support the

information needs of its NGO unit. In meeting this requirement, USAID/Managua has requested technical assistance from IRM using the existing contract with Executive Resource Associates (ERA).

The NGO Management Information System (MIS) will focus on information needs to serve key decision makers at the MCE: The Minister, The General Director, and the Executive Director. The system should respond in a timely manner to questions such as:

- . Which projects are being implemented to provide water to rural communities on the Atlantic Coast?
- . Who are the implementors and who are the donors?
- . What amount is being invested in Education with NGO funds.

Furthermore, the system should provide the capability for on-line queries to serve the information needs of external entities:

- . Ministries
- . Support Institutions
- . Financial Sources
- . NGOs

In defining the project plan, IRM analyst identified four major phases: 1) Requirement Analysis, 2) System Design, 3) System Development, and 4) System Implementation. To accomplish Phase I, IRM analyst gathered data during a TDY from 3/10 to 3/21/91.

This report summarizes IRM analyst findings and recommendations as well as a project management plan to accomplish the four proposed phases.

## 2. Objectives

The goal of the project is to design and implement an automated computer system which provides basic information regarding Private Voluntary Organizations (PVOs) in Nicaragua.

The specific objectives of Phase I are to:

- . Identify information requirements to support key decision makers at the MCE;
- . Evaluate current information resources and identify problems and limitations; and

- . Propose a system design concept that meets the identified information requirements, taking into account institutional constraints.

### 3. Background

Main tasks of the scope of work are:

- . Identify user requirements
- . Design the system concept
- . Define the specs for hardware and software requirements
- . Prepare the development and implementation plans
- . Identify resources for system development and implementation
- . Monitor the execution of the development and implementation phases.

IRM analyst Alvaro Garcia has been assigned to carry out the first task.

### Methodology of the Assessment

In cooperation with the AID Project Officer, IRM analyst established a four-phase plan to complete the project. Analyst prepared interview guidelines and conduct interviews with USAID officials, and MCE personnel. A list of project phases and activities, documentation reviewed, and interviewed personnel is shown in Appendix A.

Findings and recommendations are summarized below.

## FINDINGS

### 1. Current Organization

MCE is currently organized as one General Directorate reporting directly to the Minister, and an Advisor reporting also to the Minister. There are no Deputy Ministries. The General Directorate has six departments: Bilateral Cooperation - Western Countries, Bilateral Cooperation - Eastern Countries, Multilateral Cooperation (AID, United Nations, Food and Agriculture Organization, etc), Planning Department, and the NGO Unit (Exhibit F-1).

The Ministry is undertaking a major reorganization. A new Executive Directorate is being created to coordinate U.S. financial aid through USAID Nicaragua. The new Executive Director will be the Legal Representative UCI-USAID-GON (Coordination and Implementation Unit for USAID and GON). This directorate might absorb some departments currently under the General Directorate. As shown in Exhibit F-2, the Directorate will have four divisions, a Legal Advisor and a Comptroller (delegate from the General Comptroller's office). In addition, the Directorate will have a Coordination Committee and administrative staff.

The MCE Information Systems Department, which is already reporting to the Advisor, will become one of the four divisions under the Executive Directorate as a Management Information Division. It will be a support office responsible for coordinating and implementing information systems initiatives.

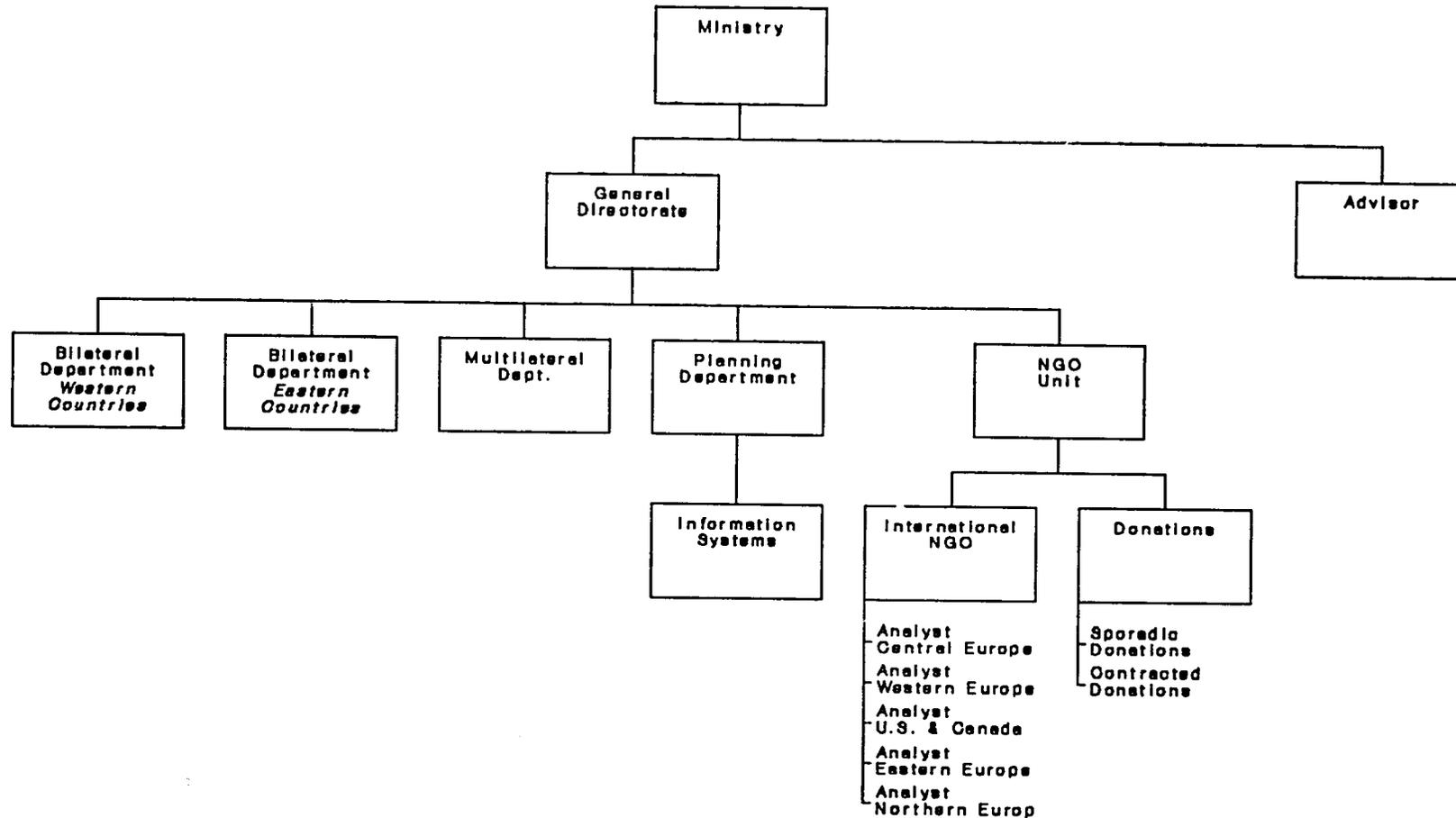
The MCE reorganization might include changes in other departments (including the NGO Unit); however, at this point in time, IRM analyst is reporting only documented changes.

Although the scope of this study is the NGO unit, the imminent MCE organizational changes might significantly affect the functionality of the proposed system. These constraints will be taken into account in subsequent system phases.

The NGO Unit is organized into two divisions: Donations Division and NGO Coordination Division. The Donation division has only one Full Time Employee (FTE). The NGO Coordination Division has five FTEs.

# Exhibit F-1

## Ministry of External Cooperation

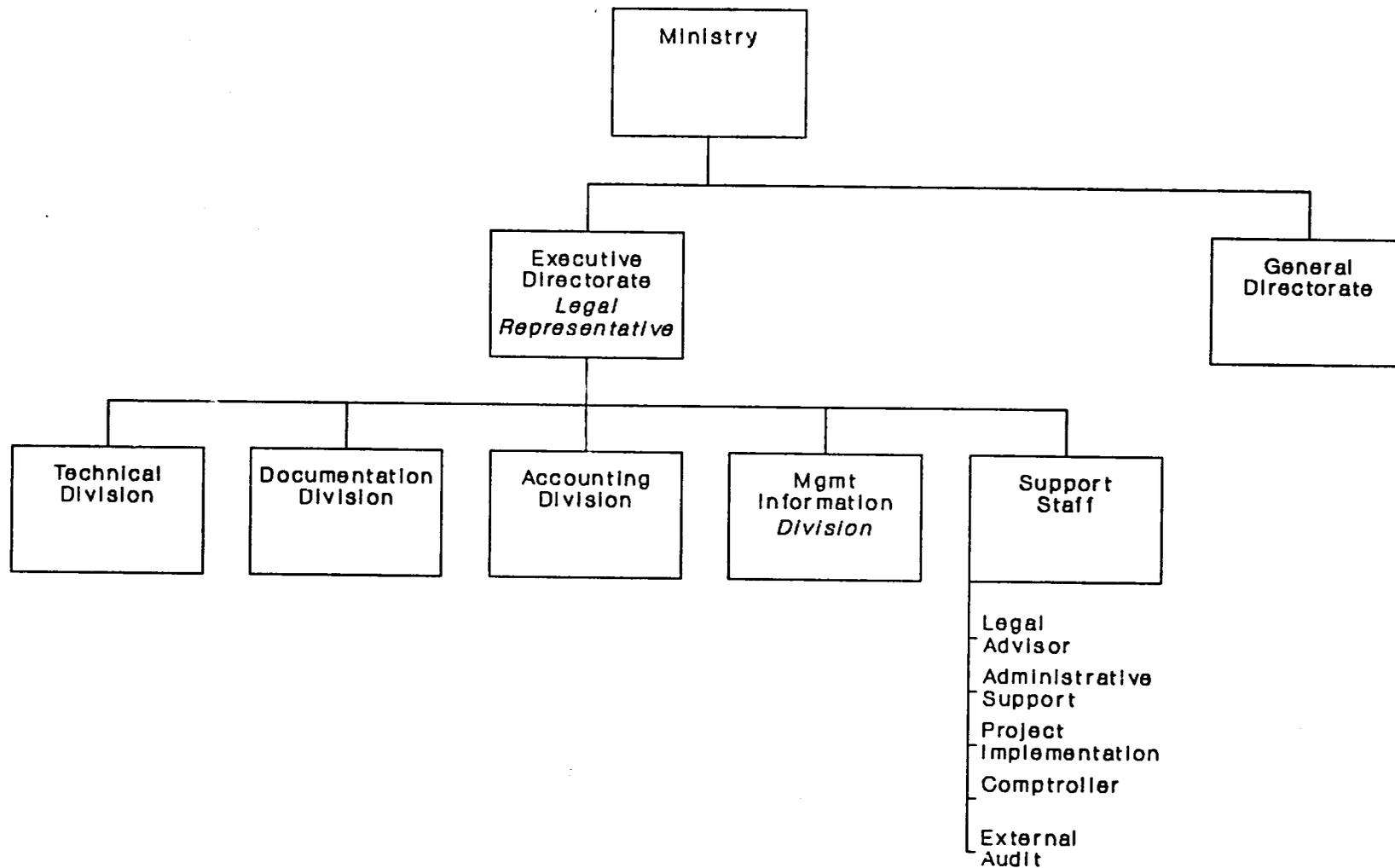


Current Organization

9

# Exhibit F-2

## Ministry of External Cooperation



New Organization

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## 2. NGO Unit Mission Statement

The NGO unit will serve as a vehicle to channel donations from International NGOs in such a way that donated resources are used optimally in programs that will improve the standard of living of the population in Nicaragua.

Programs and projects defined by GON requiring financial or technical assistance from International NGOs cover four major sectors:

- . Production and Development
- . Economy Infrastructure
- . Social Infrastructure
- . Other (includes GON operational infrastructure, religious and union groups, private enterprises, etc.)

## 3. NGO Functions to Support Mission

- . Identify programs/projects under the jurisdiction of Health, Development, Education, Agriculture Ministries or other Governmental Institutions that require NGO financial assistance.
  - Requests for financial or technical assistance arrive at the NGO unit from ministries and other support institutions, by personal letter or by phone to NGO Unit Director.
  - Information is analyzed by the NGO Director, who decides if project requests qualify for support from registered or unregistered international NGOs.
- . Identify financial sources from the International NGO database (by sector).
  - The NGO Coordination Division identifies the sector and location where project would be implemented, and creates a project profile.
  - NGO analysts search for possible NGOs that could provide needed resources. There are four types of resources:
    - .. Financial
    - .. Goods
    - .. Technical Assistance
    - .. Project Implementors (Local NGOs)

Criteria for selection are: sector, location, and resource type.

- Information is sent to the appropriate NGO, which answers requests with a letter to MCE granting or denying the requested support. Answers sent by MCE to requesting ministries are based on the NGO communication, which might propose a combined budget solution (government and NGO) to fund a project. If all parties agree, then NGO Unit and MCE sign an agreement to handle the donation. This contract becomes the official document that will drive project execution. The contract includes project information such as purpose, scope, total amount and disbursements.
  - Analyst prepares "Avals" or requests for exemption from tax duties for donations of goods and sends letter to the Customs Service.
  - Analyst prepares letter to Central Bank requesting new accounts to handle cash donations.
- . Control project execution (financial tracking)
- Analyst requests schedule of disbursements if this information is not part of the donation agreement.
  - Analyst prepares project profile data to log planned and actual disbursement, project description, major activities, dates, and total project value.
  - Analyst contacts NGO and project to verify whether resources have reached destination (not currently done).
  - Analyst visits project and verifies use of donated resources and project progress (not currently done).
- . Coordinate donations (money or goods) flow from source to project implementor.
- Provide logistics and coordination to transport donations to final destination. (Sporadic in-kind donations or donations under agreement).
  - Request Central Bank to open accounts for donations in cash. Notify NGO of availability of account.
  - Analyst appraises in-kind donations, if amount is not available from donor, and prepares "aval" for tax exemption.
  - Director deposits sporadic cash donations in special account. This fund is available for funding project

components that require alternative financial sources in addition to those provided by international NGOs.

#### 4. Administrative Support Functions

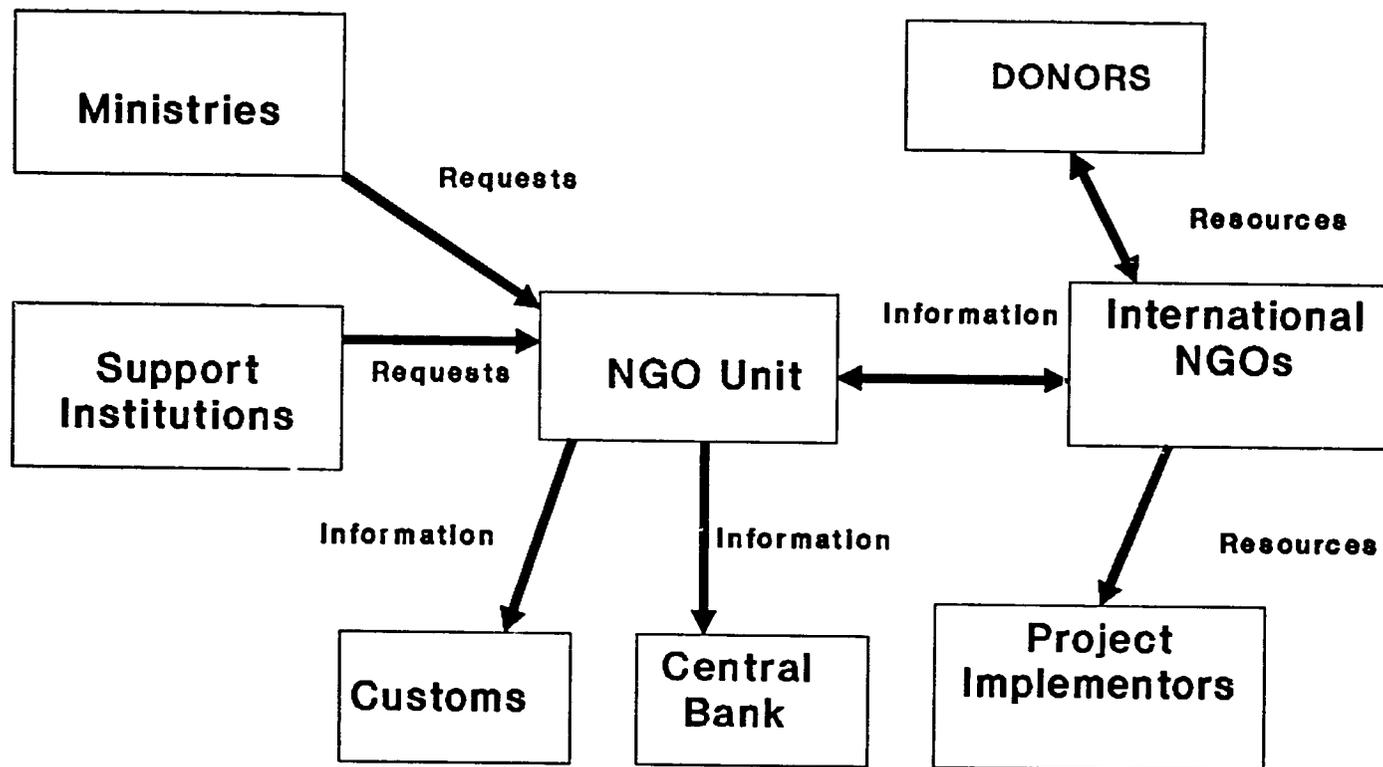
- . Establish donation agreements
  - Analyst prepares draft agreement using project profile, NGO profile, and letter from NGO granting requested resources.
  - Donation agreements are signed and become the official documents to track project execution.
- . Provide information to users
  - Gather monthly or quarterly donations activity by country, NGO and Program/project, using project and NGO profiles.
  - Prepare reports
  - Distribute reports to users: NGO director, MCE Ministry, and ministries and institutions within NGO scope sectors.
  - Prepare ad-hoc reports to meet ongoing queries from users.

#### 5. Information Flow

Information flow and data relationships are shown in Exhibit F-3. Information scope for this analysis focuses on the NGO unit. Other entities (bilateral and unilateral) have not been included.

# Exhibit F-3

## Ministry of External Cooperation



Data Relationships

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## 6. Users

The current system, based on manual procedures is intended to meet information requirements for the following users:

Ministries (MCE, Health, Education, Agriculture, Finance)  
Public Service institutions (Sewer and Water, Energy,  
Telephone)

Support Institutions

International NGOs

Local NGOs

Financial Sources

AID

Aid Canada

CEE (European Community)

RRPR (GON resources)

GOB (Foreign Governments)

## 7. Major inputs and outputs

Documents, letters and telephone calls are the major data sources. Some letter templates are stored in the NGO microcomputer (XT 8088); however, analysts do not use this resource. They rely more on their secretary to type individual letters as needed.

Project analysts register donations by extracting data from letters sent to the NGO Unit by International NGO, and transferring this data into a form. This document is the main source to identify donation amounts by program and NGO. Also, this form is used to track disbursements and financial balances, and request tax exemptions.

Most data are identified by analysts from letters they receive from international NGOs, donation agreements, project folder, donation specification letter from NGO, and technical assistance summary by project.

In summary, current input data and volume requirements are:

- . Government Program Plan and priorities (not available for 1991)
- . Local NGO or other possible project executor source file (1000 local NGOs)
- . International NGO file (110 NGOs)
- . Project file (500 Programs/projects)

- . Project summary sheets (500 summary sheets)
- . Ministry letter requests for financial or technical assistance (20/month)

Main reports/intermediate outputs are:

- . Letters to ministry with approval/disapproval for financial assistance (20/month)
- . Letters to NGOs requesting financial or technical assistance (20/month)
- . Project progress report (monthly)
- . Project summary sheet (monthly)
- . NGO summary sheet (110/monthly)
- . Donation Agreement (20/monthly)
- . Donation summary (Aval, 400/month)
- . Donation balance amounts by type of good, by financing source, by NGO, by Country (200/month)
- . Summary of donations by country, by NGO, by type of good (monthly)
- . Summary of donations by institutional destination, by NGO (monthly)

## 8. Current Hardware and Software

Since MCE has an Information Department which will support all information systems initiatives within the ministry, analyst considers that an evaluation of current resources at this level will identify the department's capability to handle the development and implementation phases of the MIS for the NGO unit.

### 8.1 Hardware

- . MCE departments have 10 8088-type microcomputers. One of these machines is currently installed in the NGO unit. The configuration for these computers is: Sherry 8088 Turbo processor, 640 KB of RAM, 20 MB hard disk, and Epson 286a printer, UPS.

- . The Information Systems Department has two IBM PS/2 for systems support and application development with 1MB RAM memory, 40MB hard disk and 286a Epson printers.
- . MCE has recently acquired an ACER 386-type machine (Taiwanese company) and six workstations. This configuration will be connected through a LAN using Novell Communication software in an Ethernet topology. Users at MCE will have access to the LAN locally and in remote sites using dialed telephone lines.

## 8.2 Support Software

MCE has developed in-house administrative and financial applications using the following support software:

DOS V 4.0  
 WordPerfect (Spanish) V5.1  
 Quattro Pro V1.0  
 Harvard Graphics  
 TSP (Statistical package for Economics)  
 Clipper  
 FoxBase  
 Novell  
 Screen Generator  
 Utilities

The first four packages are installed in the PC at the NGO Unit.

## 8.3 Application Software

### 8.3.1 The Financial Information System (SIF).

This system has been developed to meet MCE financial information needs, and is currently being revised. Although the system has been in operation for about six months, its integration within the current organization has not been completed. The system needs major adjustments to meet actual user requirements.

### 8.3.2 Donation Registration Module (in testing status)

The system stores basic information captured from the donation profile form. This form is prepared by the Donations Division of the NGO Unit. The system operates in a batch mode, involving a considerable amount of time to capture and store information. The system also needs to be integrated properly within the organization.

### 8.3.3 Technical Cooperation Information System

The main user is the Department for Bilateral Cooperation from Eastern Countries. This information system collects data from proposed programs that involve transfer of technology from Cuba and other socialist countries. Its real use has been very limited.

#### 8.3.4 Forecast Information System

This system captures data from contracts or agreements established by MCE and donors, including bilateral, multilateral, and NGO institutions. Although the system is storing data, its real use has not yet been determined.

### 8.4 Information Systems Personnel Resources

The Information Systems Department has one FTE acting as a Director, System Analyst, and Programmer. There is also a full time contractor financed by the United Nations Development Program (UNDP), which supports the Director in developing and implementing systems applications. Both the Director and Contractor have strong backgrounds in Clipper (Relational Database Management and data manipulation package). Recently, a new professional was hired as a contractor funded by UNDP. The new hire has a strong background in system analysis and design.

The Executive Director states that one person from the group would be available to participate in the development and implementation phases for the proposed system.

## 9. Other NGO information initiatives

### 9.1 Local NGO database

The Association of Nicaraguan Women is creating a directory of all Private Voluntary Organizations (PVOs) carrying out social and economic development programs in Nicaragua. A local contracting firm is developing a form to collect data from selected institutions. IRM analyst evaluated the form and documented his findings and recommendations. The proposed database will provide a valuable information source to the GON and International NGOs, as well as identifying financial sources for possible program/project implementors. IRM analyst suggested modifications to the form, including precodes to facilitate data entry and processing by a mechanized information system. Project is being financed by USAID.

## 9.2 USAID PVO Co-financing Project

The USAID Mission in Nicaragua is defining the procedures and infrastructure required to channel subgrants to local PVOs. The objective of this project is to work through the PVO community to complement sectoral activities and GON priorities, especially in the areas of employment generation, primary health care, microenterprise development and environmental protection. In implementing this initiative, USAID will create a Project Management Unit (PMU) to coordinate and track project execution.

AID/FVA/PVC has defined procedures for registration of local PVOs through USAID missions. The PMU will coordinate this registration with local NGOs in Nicaragua. Information collected from the registration process should become part of the USAID NGO database. This information source will be an important component of a project tracking system to be implemented by the PMU.

The NGO unit of the MCE will interact with the USAID PMU. Project implementors will be drawn from the same data source. International NGOs need local NGOs as project implementors. It is clear that projects to be funded by USAID that involve local NGOs with one another as project executors should work very closely to avoid duplication of effort and maximize the use of resources.

## 10. NGO Unit Problems and limitations

- . Information is difficult to update and reports are tedious to produce. Since production of outputs involves manual procedures, information is difficult to manipulate. A simple new request requires going over entire manual files to select and consolidate specific data fields.
- . Users have identified the most common information requirements as those which involve programs and beneficiaries by geographical location (Regions, Departments, and Municipalities). This level of information is not available in the current system.
- . Funds from GON to finance specific projects components are not always available. Financing alternatives are not explored; therefore, some programs are canceled.
- . Resources are not used effectively. Analysts are involved in too many clerical, repetitive and tedious activities.

- . Project tracking function is not carried out. Analysts do not verify whether donations actually reach program beneficiaries and lack mechanisms to measure the effectiveness of program implementation.
- . The NGO cannot respond in a timely fashion to information requests from key decision makers (Ministries, NGOs, Donors)
- . Sporadic donations in cash are not registered appropriately.
- . International NGOs prefer to work directly with local NGOs or other private groups instead of working with Government counterparts. Consequently, GON projects are difficult to implement or do not receive the priority needed to meet GON objectives.
- . Donations in cash pass through MCE only when beneficiaries request that accounts be opened. Subsequent cash disbursements are not registered.
- . In kind donations without declared value are not properly registered. Valuations are very subjective. Goods are difficult to classify since neither procedures nor resources to perform this activity are available.
- . Since MCE cannot increase salaries and other benefits above certain ceiling levels, some professional categories have been classified as part-time jobs. Analysts and information systems personnel fall within this category. This constraint will reduce significantly the availability of MCE resources for the system implementation.
- . Organizational changes in the MCE might slow the implementation of the MIS.
- . NGO needs to share information with USAID and other financial institutions. Currently there is no standard policy on codes to facilitate data sharing among institutions.
- . MCE will soon be implementing new systems initiatives: Management Information System, Integrated Document Tracking and Office Management System, and a Project Tracking System. These systems will require considerable resources from MCE and demand a definition of standards, codes, policies, procedures, etc. In addition, current reorganization in MCE will slow the implementation of these initiatives.

## **RECOMMENDATIONS**

### **1. Conceptual Design**

#### **1.1 Hardware and Software Architecture**

- . The system should be simple and easy to use. It should minimize the need for specialized technical personnel for its operation. It should not create additional administrative cost for MCE and should meet the functional requirements identified by IRM analyst, solving most of the identified problems and limitations.
- . In meeting these requirements, IRM analyst proposes a microcomputer-based system running under a DOS operating system environment. The system would have two workstations, one located at the MCE NGO unit and the other in analysts' office. A high quality printer will be shared by these two workstations using an electronic switch box.
- . A Local Area Network (LAN) is not recommended, since this approach will generate additional operational costs and would make the system more difficult to operate and maintain. Instead, data will be updated by analysts directly on a daily basis, and then information will be transported on diskette to the NGO unit workstation for reporting and query needs. NGO analysts would be responsible for quality of data.
- . In meeting future system integration requirements with other MCE information systems initiatives, IRM analyst does not anticipate any compatibility issues. Connectivity to an MCE LAN under NOVELL could be feasible, if Ethernet communication boards and software are installed in proposed micros. Micros should be configured with capacity for expansion to support future communications requirements.
- . As development software tools, IRM analyst recommends to use of a Relational Database Management System (DBMS) such as Clipper, to organize and manipulate data structures, since programming resources at MCE are proficient in this language. In addition, Clipper has powerful off-the-shelf report generator interfaces capable to meet MCE/NGO's query and reporting requirements.
- . IRM analyst also recommends an off-the-shelf software solution to generate application code, and create forms to enter and display data. These software packages will decrease the programming effort, producing documented structured code, easy to support and maintain.

#### **1.2 System Functionality**

The information system would have three modules:

- Profile Manager Module

Will allow users to enter data from predefined forms or existing manual files, create/modify project profiles, NGO profiles, sporadic donation profiles, and scheduled donation profiles. Forms to request exemptions would be generated by the system. This module will allow users to maintain codes and descriptions. Data will be captured and stored in the following data relations:

- NGO Profile
- Program/Project Profile
- Donation Profile
- Locations (Master file with codes and descriptions)
- Socio-economic Activities (Master file with codes and descriptions.)
- Implementors (Local NGOs)

- Reporting and Query Manager Module

Will allow users to generate predefined reports (current reports) with data selection criteria for period dates, sector, location, and activity codes. The module will also have a query language capability to generate ad-hoc reports using the data relations defined above. Each relation will have primary keys and secondary keys. Primary keys will allow users to access unique data records. Secondary keys will allow users to access more than one record that meets specific selection criteria. Master code files will only have primary keys.

This module will also allow the NGO Unit to create ASCII files and store them in diskette with selected data from their database. Predefined file formats should be part of a menu to export data to specific users. The module will allow data import as well.

- Administrative Support Module

Functionality for this module will be met with off-the-shelf software solutions and will not require programming effort. The module will allow analysts and support personnel access to a word processor, a spreadsheet package, and a graphics software to support their office automation needs. A high quality printer (laser-type) will provide the necessary printing capabilities to print letters, forms, reports, and presentations as needed.

### 1.3 Integration Requirements

The system will require that some current procedures be changed or simplified, as follows:

- . Implement a form to document the assistance requested by GON ministries and other support institutions. This form should also be sent to identified NGOs after information has been logged into the system. The form should then be sent back to the NGO granting or denying the assistance including the terms and conditions that will drive the cooperation.
- . Eliminate manual procedures for scanning information from letters and agreements. Forms for clearance of goods in customs, program of disbursements in cash, opening accounts and subsequent deposits in cash should be generated automatically by the system. Institutions (Central Bank, Customs Service) should not be submitted on forms other than those generated by the system. Forms should be generated in advance.
- . The existing coding system being used by MCE in the Donation Registration System and other systems should be reviewed and the final version become the standard for new MCE information systems.

## 2. Current Problems Addressed by the new system

Major NGO Unit problems include lack of timely information; flexibility to address ad-hoc query information needs; and a need to define more effective procedures to handle current NGO unit functions. IRM analyst would like to make the following recommendations to address identified problems and limitations:

### 1. Problem

Information is difficult to update and reports are tedious to produce.

The NGO unit cannot respond in a time fashion to information requests from key decision makers (Ministries, NGO donors)

### Solution

Build an automated system to capture, update, and process on an on-line, interactive basis. The database will store information from the following entities:

Program/project  
International NGOs  
Local NGOs  
Sporadic donations  
Donation agreements  
Sectors  
Activities

Since data will be captured interactively, errors or data inconsistencies will be detected while data is digitized. Analysts will be able to contact the source immediately for clarification.

System should be flexible and easy to use. It should have a query language capability to produce ad-hoc reports as needed. Answers to requests could be generated in seconds.

System should answer specific queries such as:

- Which programs (and total amount) are being funded for child survival in Granada for current fiscal year, and how does this compare to total funds invested in Region IV?

- What are the financial sources, total beneficiaries and US\$ from development programs in Special Zone 1?. What are the financial sources for these programs?
- Which programs, amounts and financial sources are being implemented or projected in Chinandega Department to improve the environment?

In addition, the system should have word processing capabilities and predefined letter forms.

## 2. Problem

Current system does not file information regarding program location and beneficiaries so there is duplication in scope of programs/projects; resources are not used effectively.

### Solution.

Create a reference entity as part of the database to store information on Country Regions, Departments, and Municipalities. Data entities should have a geographical location code built with a region code, department code, and municipality code to properly cross-reference information from NGOs and program profiles. Coding procedures should be defined for programs covering entire departments or regions.

Codes should be approved by MCE, and if possible, should be defined as the standard for all ministries as well.

## 3. Problem

Financing alternatives are not always identified since analysts do not have the time or information available to search for alternative financial sources.

### Solution

The proposed mechanized information system will release a considerable amount of time currently used by analyst in repetitive and clerical duties; furthermore, analysts could use the system to search for alternative financial sources. For instance, they could formulate a query to retrieve all NGOs implementing programs in specific socio-economic activities and locations. They could generate letters

requesting financial or technical support to identified NGOs automatically.

Existing hardcopy reports need to be reevaluated. Since data is available for ad-hoc reports, routine hardcopy reports should be minimized. For example, system should produce consolidated summary reports for periodic distribution. Detailed reports or specific data should be produced on a request basis.

#### 4. Problem

Project tracking function is not carried out. NGO analysts do not verify whether donations actually reach program beneficiaries.

#### Solution

Project profile will have basic financial data, dates, and key descriptive data to provide analysts with information for essential project tracking. Although the system is not intended to be and should not be a project tracking system, financial data such as total amounts, disbursements, planned and actual dates at the project level should exist.

In capturing data, analysts should have a form with previous project data prior to visiting the project. This form will help analysts in the field to assess project progress. Updates and modifications should be made on the form. Later, these changes should be transferred to the database.

#### 5. Problem

Donations can be in either cash or goods. Goods that need an authorization to get import duty exemption are currently registered; Cash donations that need a new account in the Central Bank are registered; however, subsequent deposits do not pass through the NGO Unit.

#### Solution

The registration function consists of transferring data from donation agreements, sporadic donation letters, and requests for duty import tax exemptions into registration forms; however, the proposed system will simplify these procedures. For example, a screen data entry form will capture information from incoming documents. The project profile output form will

reflect the disbursement status. Analysts will take this form to check project progress and verify project status. They will update project forms and enter this information into the system.

Since account numbers are opened for specific projects, analysts could ask NGOs to send copy of balance statements for those accounts. Analysts then can update this information on their screen.

6. Problem

International NGOs prefer to work with local NGOs or other private institutions instead of working with Government counterparts.

Solution

NGO efficiency and image will improve if the proposed system meets its objectives. The project tracking function will generate progress reports and statistics to show project progress and impact on the Nicaraguan community. A clear cut of responsibilities and project tracking will increase government efficiency. The limited resources existing today in the government make private organizations more attractive sources as project implementors, however, information technology could compensate in some ways for the imbalance. The NGO unit needs to disseminate its new information capabilities. Quick and accurate responses to requests will be the best way to sell the system to end-users.

7. Problem

MCE NGO unit salaries are low and resources to manage the system are very limited since employees work only part time.

Solution

The system will eliminate repetitive clerical duties. Resources will be better used. Morale will improve in part if analysts can perform more professional tasks. The new system emphasizes the analytical skills of professionals at the NGO unit and minimizes clerical, repetitive duties.

8. Problem

MCE will be carrying out many new information initiatives simultaneously. The proposed management information system will generate additional burden to MCE resources.

#### Solution

The two first phases of proposed system (systems analysis and design), do not require significant resources from MCE since they are being carried out by external consultants. For detail design and development, there are two alternatives as follows:

Alternative A: In-house development using existing MCE information systems resources. Although this alternative could be very attractive, two analysts/programmers are not sufficient to carry out the load from five information systems initiatives.

Systems developed in-house usually have a better user acceptance and institutional ownership than systems developed by external sources.

Alternative B: Enhance resources of the MCE Information Department. If MCE decides to follow this approach, IRM Analyst suggests MCE hire a programmer/analyst and explore possibilities for funding from external sources.

#### 9. Problem

In-Kind Donations without a specific value are difficult to classify. Valuations are very subjective and there are no procedures to facilitate this function.

#### Solution

The NGO unit should have access to the Customs classification manual. A mechanized valuation module is one of the more difficult and costly system to implement; however, analysts should have access to commercial price lists. A future system module could provide access to international databases but at this point in time, analysts will have to rely on commercial catalogs, manuals from the customs service, and other sources. The system will not address this requirement.

### 3. Project Management Approach

Project has allocated financial resources to existing ERA contract with PIO/T 524-0301-3-1-0023 to pursue the implementation of the Management Information System for the MCE, NGO unit.

Project has budgeted 30 man-days of labor for an ERA contractor and hardware and software procurement. Project Officer has specified that project should be kept within this budget as closely as possible. Given this constraint, IRM in conjunction with ERA has defined the following management strategies:

- . IRM will define the overall plan to carry out the project automation component.
- . ERA, under contract to IRM, will conduct the Functional Requirements Analysis including a design concept.
- . MCE would provide a programmer for approximately three months. The NGO Unit would provide an analyst during the Implementation Phase for coding and loading data into the system. MCE Resources are allocated part time).
- . ERA will assist project in identifying local resources to carry out the General Design, Development, and Implementation Phases.
- . IRM will provide an analyst to monitor and evaluate the work delivered by local contractor.

Project Estimated Resources in Table M-1 show funds for allocated an IRM analyst and a local contractor. Resources from MCE are needed for the development and implementation phases; however, their cost should be already part of the MCE operational expenses.

The project team should be formed with the Local contractor, MCE Programmer, and MCE/NGO Analyst. Outputs and delivered products will be evaluated by IRM. IRM will also provide technical assistance as needed.

The local contractor would be responsible for system deliverables. IRM analyst has allocated 40 man-days of the local resource's time to implement the system. Training and Manuals are major deliverables of this phase.

Total budget assumes three round trips for IRM analyst, and four months of contract services for local analyst/programmer. In keeping the project under the budget limitations, IRM could absorb the cost of salary for IRM analyst during the TDYs. Released funds could be used by project for contracting the local resource. MCE could be the vehicle for contracting purposes.

Detail of these figures is shown in Table M-1. Level of required effort is in man-days.

**Position Description for Local Resource:**

**Position: Systems Analyst**

**Title: Project Leader**

**Experience: Three to five years in systems analysis and design of micro-based systems applications. The candidate must have experience in leading design, development and implementation of information systems using Clipper database management language. Previous programming experience using Clipper is required.**

**The position should report administratively to the head of the Information Systems and functionally to the Director of the NGO Unit.**

**Project Management Plan**

TASK	March	April	May	June	July	IRMA	LOCC	TOTAL
Prepare Plan	-----D					5	0	5
Requirements Analysis	-----D					10	0	10
General Design		-----D				5	20	25
Development			-----D				20	20
Implementation				-----D		5	40	45
<hr/>								
<b>Total man-days</b>						<b>25</b>	<b>80</b>	<b>105</b>
<b>IRM Analyst (IRMA)</b>	<b>15</b>		<b>5</b>		<b>5</b>			<b>25</b>
<b>Local Contractor (LOCC)</b>		<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>			<b>80</b>
<b>MCE/NGO Analyst</b>			<b>10</b>	<b>10</b>	<b>10</b>			<b>30</b>
<b>MCE/Programmer</b>			<b>10</b>	<b>10</b>	<b>10</b>			<b>30</b>
<b>Total (man-days)</b>	<b>15</b>	<b>20</b>	<b>45</b>	<b>40</b>	<b>45</b>			<b>165</b>
<hr/>								
<b>Total Labor US\$</b>	<b>3640</b>	<b>2000</b>	<b>3820</b>	<b>2000</b>	<b>3820</b>	<b>7280</b>	<b>8000</b>	<b>15280</b>
<b>Travel Expense US\$</b>	<b>2460</b>	<b>0</b>	<b>1630</b>	<b>0</b>	<b>1630</b>			<b>5720</b>
<b>Hardware and Software US\$</b>			<b>8500</b>					<b>8500</b>
<b>Other (Supplies)</b>			<b>1000</b>		<b>1000</b>			<b>2000</b>
<b>Administration Cost</b>	<b>1525</b>	<b>500</b>	<b>3738</b>	<b>500</b>	<b>1613</b>			<b>7875</b>
<b>Total US\$</b>	<b>7625</b>	<b>2500</b>	<b>18688</b>	<b>2500</b>	<b>8063</b>			<b>39375</b>
<hr/>								
<b>D: Deliverable</b>								
<b>IRM analyst salary covered by IRM/MPS--&gt;</b>			<b>7280</b>					
<b>Estimated cost for local resource-----&gt;</b>			<b>8000</b>					

TABLE M-1 MCE/NGO

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## **NEXT STEPS**

1. Draft of Functional Requirements delivered for MCD review and approval (IRM/MCE).
2. Final document delivered (IRM)
3. Identify/contract local resource (ERA/USAID/MCE).
4. Start General Design Phase (Local Contractor)

**APPENDIX A**

**Project Phases and Activities**

## 1. Activities

Analyst proposes the following schedule of activities:

### Phase I: Information Needs Analysis. (Four weeks)

- 1.1 Review Background Documentation
- 1.2 Contact AID/FVA
- 1.3 Contact Selected PVO's -U.S.
- 1.4 Plan Interviews GON, AID, PVOs -Nicaragua
- 1.5 Conduct Interviews
- 1.6 Analyze and Summarize Data
- 1.7 Identify Functional Requirements
- 1.8 Identify High Level Information Flow, Transactions, and Outputs
- 1.9 Identify Operational Constraints
- 1.10 Define the Preliminary System Concept
- 1.11 Test and Evaluate the System Concept
- 1.12 Document Results

### Phase II: General System Design (Four weeks)

- 2.1 Translate functional requirements into operational requirements (Alternative options)
- 2.2 Define feasible options to meet operational requirements (manual and computerized procedures)
- 2.3 Analyze Options (cost/benefit analysis)
- 2.4 Select Option
- 2.5 Define Resources requirements
- 2.6 Prepare Hardware and Software specs
- 2.7 Document Results

### Phase III: Detail System Design and Development (7 weeks)

- 3.1 Acquire Hardware and Software
- 3.2 Identify Programming Resources
- 3.3 Detail Input, Process, Output Definition
- 3.4 Prepare Logical File design
- 3.5 Prepare Physical File design
- 3.6 Define Data Conversion Requirements
- 3.7 Define programs and subprograms
- 3.8 Produce Code
- 3.9 Prepare Software and Test Acceptance
- 3.10 Test programs, system (User Approval)
- 3.11 Prepare User's Manual
- 3.12 Prepare Systems Manual
- 3.13 Define Implementation Plan

### Phase IV: System Implementation (2 weeks)

- 4.1 Define System Integration Procedures
- 4.2 Convert/Load Data

- 4.3 Staff and Train
- 4.4 Define Start-up procedures
- 4.5 System in Operation

2. Personnel Interviewed

Liliana Ayalde	USAID/GDO, Division Chief
Frank Valva	USAID/PVO, Project Officer
Gabriel Urcuyu	MCE/NGO Unit Director
Roberto Atha	MCE Executive Director and Legal Representative
	UCI-USAID-GON
Rigoberto Medrano	MCE Information Systems Director
Roberto Lopez	MCE Systems Consultant/PNUD
Miriam Munis	MCE/NGO Specialist
Auxiliadora Ocon	MCE/NGO Specialist
Migdalia Prudente	MCE/NGO Specialist
Mila Inser	MCE/NGO Specialist
Diego Blanco	MCE/NGO Specialist
Jose Benito Suazo	MCE/NGO Assistant
Alejandro Gutierrez	IPD Subcontractor
Jacinto Mena	IPD Subcontractor
Gerald B. Lewis	ADRA (International NGO)
Jan Axelson	SVS (International NGO)
Jeff Jones	USAID/Contractor
Philip Boyle	USAID/Contractor

3. Documentation Reviewed

Local NGO study (IPD deliverable)  
Proposed form to collect data on local PVOs (IPD deliverable)  
Local NGO directory (Capri publication)  
Functional Manual for the MCE/NGO unit  
Procedures and Reporting manuals for the MCE/NGO unit  
Organizational Charts  
MCE systems documentation manuals  
Systems Proposal for the MCE  
Scope of Work for the Project Paper Team  
Quarterly Report on Program Implementation (ADRA/USAID)  
Local PVO Registration procedure  
Donation Registration Procedures