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♦ CONSORTIUM POUR LE DÉVELOPPEMENT LÉGISLATIF

TECHNICAL REPORT & RECOMMENDATIONS

for the

AUTOMATION OF INFORMATION SYSTEMS

at the

LEGISLATIVE ASSEMBLY, REPUBLIC OF PANAMA

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Revised as of Friday, May 8, 1992, 6:58pm

I. Introduction

The Consortium for Legislative Development, under Modification No. 2 of Cooperative Agreement No. LAC-0770-A-00-0034-00, is authorized to expend \$250,000.00 (\$200,000 in bilateral funds, \$50,000 in regional funds) for the design, implementation and development of automated information systems in the Panama Legislative Assembly. This technical report and its attendant recommendations have been developed based on the following hierarchical steps:

- A. To determine the Legislative Development Committee's priorities for automating its legislative and administrative functions;
- B. To identify the information systems (manual and automated) and functions as well as types of documentation being processed currently in use in these areas;
- C. To preliminarily identify opportunities for improvement in these information systems and functions;
- D. To recommend information systems and functions that should be automated;
- E. To recommend software solutions for automating the recommended information systems;
- F. To recommend hardware configurations for utilizing recommended software;
- G. To recommend user training and data base and software applications development for implementing the automated systems; and,
- H. To assess current technical personnel and recommend support personnel for the proposed automated system.

Based on the Legislative Development Committee's priorities as outlined below, the limited availability of United States Government regional and bilateral funding, and the findings of this study, the Consortium has adopted an open-ended, core-system approach to automating

the Legislative Assembly. The *goal* of this effort is to provide tools to enhance the Legislative Assembly's institutional capability to process information in support of the work of the members of the legislature. The *objectives* of this effort are:

1. to develop a networked computer system to automate the information systems and functions identified in this report; and,
2. to develop automated databases and work routines that will enhance the legislature's efficiency and effectiveness.

Once these automated information management systems have been developed, the open-ended design of the system will allow other critical users to be incorporated into the Network. However, it is important to understand that the development of these data bases and work routines will not occur spontaneously and will require a significant long-term effort. Until these systems are properly organized, computer equipment would be of little more than clerical use in the legislature's permanent committees and individual members' offices.

This study was researched and written by The Center for Democracy on behalf of the Consortium for Legislative Development. From January 28 through February 8, 1992, the Center led a Consortium technical assistance team to Panama to conduct field research for this study (see Attachment 1 for List of Interviews). The research team was headed by the Center's Americas Program Director, Caleb C. McCarry, and included Mr. Manuel Lorenzo of Florida International University's School of Public Affairs, Mr. Richard Langley, Director of the Florida State Legislature's Systems and Data Processing Joint Legislative Management Committee, and Mr. William Krause, an international consultant with extensive information systems experience in and out of the United States Government.

The Center for Democracy is solely responsible for errors of fact and statements of opinion to be found in this report. The views expressed do not necessarily reflect the views or policies of the United States Agency for International Development, or of the institutions that participated in researching and drafting this report. Center for Democracy staff, including Ms. Kristi Bessette, assistant program director for the Americas, Mr. Blair Phifer, operations assistant, and Mr. Andrew Crone, research associate, served as contributing authors to this report. Ms. Donna Gold, executive assistant to the President of the Center, contributed as editor.

The Center for Democracy would like to thank the officers and staff at the USAID/Panama mission, but primarily Ms. Debra McFarland and Ms. Carol Horning, and Mr. Alvaro Garcia of AID/W/IRM, for their strong support for the technical team during its field visit and during the drafting of this report. The Center is especially grateful to the leaders and professional staff of the Legislative Assembly of Panama for their openness and full support of this effort. The Legislative Development Committee, led by Assembly President Marco A. Ameglio S., lent its vision and strong backing, and the staff coordinator and members of the Legislative Development Committee, Secretary General Rubén Arosemena Valdés, Deputy

Secretary General Mario Lasso and Legal Department Chief Harley James Mitchell worked together to fully provide the necessary counterpart technical guidance and expertise. As always, the Secretary General's Administrative Assistant, Ms. Estela Koyner, provided outstanding support to the team before, during and after its field visit.

Finally, this is a working report and its recommendations are advisory. The Center has attempted to reflect the Legislative Assembly's priorities as accurately as possible. The Center has also attempted to be as thorough as possible in reporting on and analyzing the information systems and functions found by the technical team. The Center hopes and expects that this document will receive rigorous reviews by the Legislative Assembly and USAID and that this process will render a final plan that best meets the Assembly's information systems automation priorities and needs within the constraints of available funding.

II. The Legislative Assembly's Automated Systems & Support Equipment Priorities

The Legislative Assembly of Panama, through its Legislative Development Committee, has prioritized the implementation of automated information systems within two major areas (see Attachment 2). Of these two areas, the higher priority has been assigned to automating Legislative Information Functions. The Assembly's priorities are:

1. Legislative Information Functions:

- a. President's Office
- b. Secretary General and Deputy Secretary
General's Office**
- c. Legal Advisers Department/Style Committee**
- d. Plenary Chamber*
- e. Reports and Congressional Record Department
"Actas"***
- f. Press and Public Relations*
- g. Budget Committee**

2. Administrative Information Functions:

- a. Administrative & Financial Directorate*
- b. Personnel/Payroll**
- c. Accounting***
- d. Budget (internal)
- e. Audit (internal)

Lower priority area not presently automated

- * High priority area not presently automated
- ** High priority area presently automated to some degree
- *** Lower priority area presently automated to some degree

3. Support Equipment:

Procuring a photocopier for the Plenary Chamber to facilitate the reproduction of floor amendments has been identified as an immediate need. Additional peripheral, non-computer equipment, such as a facsimile machine with a phone line in the Plenary, may also be appropriate. The section below, detailing the needs of the Press and Public Relations Department, suggests the possibility of procuring video equipment to modernize its operations.

III. Description of Areas Identified and their Information Functions

Systems and

A. LEGISLATIVE INFORMATION FUNCTIONS

1. President's Office

a. Personnel

- (1) 4 Professional Assistants (contractors)
- (2) 5 Secretaries
- (3) 3 Messengers
- (4) 2 attendants
- (5) 2 drivers
- (6) 2 security agents

b. Description of Functions

The President of the Legislative Assembly presides over and directs the debates of the Legislative Assembly. The President is charged by law with maintaining order in the sessions. The President, acting with the *Junta Directiva*, sets the Plenary Agenda (*Orden del Día*). The President must sign all reports, laws and resolutions issued by the Legislative Assembly. The President authorizes expenditures from the Assembly's internal budget and is authorized to appoint and remove administrative staff in consultation with or by informing the *Junta Directiva* of these actions. The President administers oaths to staff who, by virtue of their positions, must be sworn-in before the Assembly. The President must sign the Plenary Minutes and may direct correspondence received by the Assembly through the Secretary General. The President has the critical authority to set and

enforce deadlines for committees to report on bills as well as to appoint special groups or *ad hoc* committees as needed to study matters not assigned to the standing committees.

c. Types of Documents Processed¹

Documents in the President's Office are filed in chronological order, including originals and/or copies of:

- (1) Resolutions
 - (a) regulatory
 - (b) informational
- (2) Decrees (in numerical order)
- (3) Correspondence (telegrams, telexes, faxes, invitations)
- (4) Administrative policy memoranda
- (5) Correspondence with legislators and alternate legislators (separate file for each legislator in alphabetical order)
- (6) Donations
- (7) Personnel files for President's staff (vacations, leaves of absence)
- (8) Resolutions of administrative staff appointments, of condolence;
- (9) Letters of Recommendation

d. Manual and Automated Information Systems and Functions

- (1) In-coming and out-going correspondence*
- (2) Internal memoranda*
- (3) Resolutions and decrees*
- (4) Filing system
- (5) President's Schedule
- (6) Messenger system for information sharing

Computer equipment and software in use:

*Wordprocessing typewriter.

e. Opportunities for Information Processing Improvement

¹. The sections detailing the types of documentation produced and managed in each office or department covered in this report are from the "Manual de Procedimientos de: Correspondencia, Archivos, Consultas Legislativas y Microfilamación de la Asamblea Legislativa" prepared by Assembly Archivist Licda. Ana Clara Espino.

The President's Office is the political decision-making center of the Assembly. In addition to automating the administrative functions of the President's Office, access to the several automated databases recommended for development in this report in the Secretary General's Office, the Legal Department and the Financial & Administrative Directorate and its subordinate offices must be available to the President and the *junta directiva* to facilitate their decision making. The current volume of documents is manageable and manual filing and indexing should be sufficient to meet needs. However, the President's Office may wish to develop an automated database to index key documents.

Software Requirements:

WORD PROCESSING SOFTWARE will automate drafting correspondence, decrees and resolutions. ELECTRONIC MAIL and LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS SOFTWARE will be implemented to facilitate communication with technical and administrative departments, especially the Secretary General's Office. As indicated, the President's Office will need read-only access to database and spreadsheet applications developed in subordinate departments. A SCHEDULING SOFTWARE package would also be helpful. PRESENTATION GRAPHICS and UTILITIES software should also be made available to the President's Office.

Hardware Requirements:

Five (5) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN should be installed in the President's Office (1 for the President, 2 for professional assistants and 2 for secretaries). Five (5) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. The two (2) existing IBM laser printers in the *Actas* Department should be transferred to the President's Office and upgraded with SCALABLE FONT TECHNOLOGY, one for the Professional Assistants and another for the secretaries. A plain paper fax operating from the LAN should also be installed.

2. Secretary General/Deputy Secretary General's Office

a. Personnel

- (1) 1 Secretary General
- (2) 1 Administrative Assistant
- (3) 1 Assistant Administrator
- (4) 2 Secretaries (maintain indices and Bill Status)
- (5) 1 Secretary (member attendance and payroll)
- (6) 3 drivers/messengers

(7) 3 attendants

(8) 1 Deputy Secretary General

(9) 1 Secretary

(10) 1 driver

b. Description of Functions

The functions listed below are housed in the Secretary General's Office. The Deputy Secretary General assists in administrative matters as determined by the Secretary General and fills in for the Secretary General in his absences. The Secretary General and/or the Deputy Secretary General preside along with the Assembly's other elected leaders in Plenary sessions. The Secretary General is a non-voting member of the *junta directiva*.

Bill Tracking/Status

The Secretary General must maintain several of the most important legislative information systems at the Assembly, including maintaining chronological bill history dossiers and a record of documents sent to and returned from committee. The Secretary General must record the date and time that all bills and constitutional acts are received by the Assembly. The Secretary General also assigns bill numbers and transmits bills approved in second reading to the Revision and Style Correction Committee to be prepared for third reading. The Secretary General or Deputy Secretary General sit at the rostrum during Plenary sittings and must keep a tally of voice, roll call and secret votes cast in the Plenary and announce vote results.

Support for Legislators

The Secretary General maintains attendance records for members of the Assembly at Plenary, committee and special sessions and prepares the legislators' payroll, which is based on their attendance. The Secretary General processes member requests to be excused from sessions. The Secretary General is also responsible for attending to legislators' requests for assistance that fall within his purview (duty-free entry of cars, license plates, franking privileges, etc.).

Key Document/Information Oversight

The Secretary General must certify most key documents and supervise the flow of information at the Assembly. By law, he must revise session reports and assure they represent accurate written summaries. The Secretary General is also charged with drafting official communiques for the President to sign and maintains an

index of orders and instructions given by the President, making this index available to legislators. The Secretary General must also issue personnel regulations and oversees the development of the Assembly's official publications.

Archive

The Secretary General is the repository of all official documents and acts of the Legislative Assembly, and a major portion of his legally-defined duties is to maintain the Assembly's archive. To this end, the current Secretary General has significantly improved the Legislative Assembly's archive, which is attached organizationally to the Secretary General's Office. The Secretary General maintains active bill dossiers and passes completed bill dossiers, registries and other technical legislative documents to the Assembly's archive. The Secretary General must also remit certifications and authentic copies of Assembly reports and resolutions to the Assembly's archive and is required to add to and preserve the legislative library collection. The Secretary General is also required by law to maintain an inventory of the Assembly's archive to turn over to his or her successor.

The Assembly's Internal Rules stipulate that the Secretary General must maintain a series of indexes or registries, including:

- (1) Plenary Minutes from public sessions;
- (2) Plenary Minutes from secret sessions;
- (3) Proposals and Resolutions, in chronological order, including author's name and session in which these were considered and the action taken;
- (4) Approved laws, in chronological order, including dates they were read and debated in committee and the Plenary, dates these were signed by the Executive went into effect;
- (5) Dates of presentation to the Assembly (in chronological order) of every bill and legislative act;
- (6) Names and positions of staff;
- (7) Minutes of the *Junta Directiva's* meetings;
- (8) Committee Reports;
- (9) Copies of official communications drafted by the Secretary General's Office for the President's signature;
- (10) Copies of official communications written and signed by the Secretary General;
- (11) Inventory of the Library, bill dossiers and other documents in the Assembly's archive;
- (12) Receipts for all documents given to committees or individual legislators;
- (13) Names and biographical data of members of the Assembly;
- (14) Plenary Agendas (Orden del Día); and,
- (15) Inventory of the Assembly's property.

c. *Types of Documents Processed*

Most documents are filed in chronological order, including originals and/or copies of:

(1) Key Legislative Documents

- (a) Bill Tracking/Status Reports
- (b) Chronological listing of Bills
- (c) Bills
- (d) Chronological listing of Pre-bills²
- (e) Pre-bills
- (f) Laws
- (g) Plenary Minutes
- (h) Committee Reports
- (i) Resolutions
- (j) *Junta Directiva* Minutes
- (k) Plenary Agendas (*Orden del Día*)
- (l) Forms for recording transmission and receipt of documents by committees and the Plenary.

(2) Key Administrative Documents

- (a) Regulations
- (b) Decrees
- (c) Administrative Policy Guidance Memoranda
- (d) Reports for liquidating unused or worn-out inventory
- (e) Assembly Vehicle Files:
 - i) Insurance Policies
 - ii) Daily and Weekly Maintenance reports
 - iii) Gasoline/Diesel Receipts
 - iv) Vehicle Registrations

(3) Key Legislator Support Related Documents

Organized in separate dossiers for each legislator, these documents include:

- (a) Duty-free automobile permits

² Pre-bills are bills that have been proposed by one or more legislators. They can not be introduced to the Plenary for second reading as full bills until they have been reviewed and agreed to by the committee to which they are assigned. The Legal Advisors draft an adoption note (*nota de prohiijamiento*) which accompanies pre-bills and authorizes their introduction to the full legislature for second reading and debate.

- (b) Certifications for legislators
- (c) Attendance records (committees, Plenary, special sessions)
- (d) Legislators payroll
- (e) Authenticated copies of documents
- (f) Documents extending franking privileges

(4) Chronological Correspondence File

d. Manual and Automated Information Systems and Functions

- (1) Document Processing*
- (2) SG/DSG Schedules
- (3) Bill Tracking/Status* (see Attachment 3)
- (4) Legislator and Alternate attendance and payroll records and summary reports*
- (5) Annotated Indices
 - (a) Plenary minutes*
 - (b) Proposals and resolutions
 - (c) Sanctioned laws
 - (d) Personnel list
 - (e) *Junta Directiva* minutes*
 - (f) Committee reports*
 - (g) Names and biographical data for legislators
 - (h) Official communications (President)*
 - (i) Official communications (Secretary General)*
 - (j) Receipt of documents in the Plenary and committees
 - (k) Plenary agendas*
 - (l) Inventory of assets
- (6) Messenger system for information sharing

*Automated with wordprocessing.

Computer equipment and software in use:

- (a) 2 Wang word processors with Wang wordprocessing software
- (b) 1 Wang daisy-wheel printer
- (c) 1 80286 workstation participating on network using Wordperfect 5.1
- (d) 2 wordprocessing typewriters

e. Opportunities for Information Processing Improvement

The Secretary General's Office is at once the nerve center and cross-road for the most important legislative and administrative information in the Assembly. As such, full automation of this Office is critical to avoid unnecessary bottlenecks

and to permit the Secretary General to implement the several annotated indexes stipulated by the Assembly's internal rules.

The Bill Tracking/Status information system is the most important and most frequently consulted legislative information system in the Secretary General's Office. This system is currently produced using a Wang wordprocessor. This system could be made substantially more effective by transferring it to a database. It would be highly recommendable for Technical Assistance (under the Other Legislative Techniques and Technologies element of the bilateral legislative development project) to be applied to fully develop a database application for the bill status/tracking information system.

The sanctioned laws and President's official communications are currently manually indexed. The personnel list has been compiled by the Personnel and Payroll Department but must be updated. An inventory of assets is available in the internal auditor's office but also needs to be updated. The other indexes required by the Assembly's internal rules have not been developed; however, the documents that these indexes would reference have been properly filed in chronological order. Key information for developing the required indexes on an automated database should be identified and organized manually to facilitate the automation process.

Software Requirements:

The bulk of the automation needs of the Secretary General and Deputy Secretary can be met with expanded use WORDPROCESSING SOFTWARE to deal with an extremely heavy document processing workload. However, as noted above, DATABASE SOFTWARE should be implemented and developed to automate this office's mandatory indexes. ELECTRONIC MAIL and LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS SOFTWARE will be critical to facilitate communication between this office and the several technical and administrative departments identified in this report. As in the President's Office, a SCHEDULING SOFTWARE package would be helpful. UTILITIES SOFTWARE and PRESENTATION GRAPHICS SOFTWARE should also be made available to the Secretary General's Office.

Hardware Requirements:

The Secretary General is tentatively planning to move the existing microcomputer participating on the LAN to the Payroll Department, since this unit is used exclusively to process member attendance and payroll. It is, therefore, recommended that six (6) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN be placed in the Secretary General's Office and one (1) INTELLIGENT MICROCOMPUTER participating on the proposed LAN be

placed in the Deputy Secretary General's Office. Seven (7) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. Three (3) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTERS WITH SCALABLE FONT TECHNOLOGY should be procured, two for the Secretary General's Office and one for the Deputy Secretary General's Office. A plain paper fax operating from the LAN should also be installed in the Secretary General's Office.

3. Legal Department

a. Personnel

- (1) 9 Attorneys
- (2) 4 Assistant Attorneys
- (3) 2 Economists
- (4) 1 Grammarian
- (5) 6 Secretaries
- (6) 1 Messenger

b. Description of Functions

Along with the Secretary General's Office, the Legal Department is a principal actor in the Assembly's Legislative Information Systems. This department's functions include providing legal counsel and technical assistance in the Plenary and standing and *ad hoc* committees, as well as to individual members and Assembly staff. The Legal Department also is charged with drafting bills and legislative and administrative resolutions adopted by the Plenary or the *Junta Directiva*. The Legal Department reviews all bills introduced into the Assembly to test their constitutionality and impact on existing legislation and must forward a written report with their findings to the relevant committees. Legal Department attorneys and assistant attorneys must attend committee hearings and draft the committee bill reports for both majority and minority opinions. The Legal Department also drafts adoption notes (*notas de prohijamiento*) for converting pre-bills (introduced by an individual legislator) into full bills. The Legal Department provides staff support to the Revision and Style Correction Committee in engrossing bills approved in second reading.

In addition to its legislative functions, the Legal Department is also called on to support the Assembly's administrative operations, drafting and reviewing all contracts for goods and services entered into by the Assembly and drafting and reviewing responses to all legal correspondence received by the Assembly.

c. Types of Documents Processed

(1) Legislative Documents

- (a) Legal opinions on bills
- (b) Archive of legislation
- (c) Committee reports
- (d) Legal & technical studies
- (e) Adoption notes (pre-bills)
- (f) Supporting documentation for bills

(2) Administrative Documents

(a) Contracts

- i) Consultancies
- ii) Professional Services
- iii) Supply and Maintenance Agreements
- iv) Rental Agreements
- v) Publicity
- vi) Covenants

(b) Index of Contracts

- i) By Contractor Name
- ii) By Company Representative
- iii) By Rescinded Contracts

(c) Resolutions:

- i) Administrative Appointments
- ii) Condolences
- iii) Recognition
- iv) Support

(d) Judicial Documents

- i) Court Orders
- ii) Embargoes
- iii) Subpoenas

d. Manual and Automated Information Systems and Functions

- (1) Document Processing*
- (2) Bill Drafting*
- (3) Committee Report System/Archive*
- (4) Legislation Archive
- (5) Legal and Technical Studies System/Archive*
- (6) Judicial Documents Archive
- (7) Contract Index

(8) Messenger system for information sharing

*Partially automated with wordprocessing.

Computer equipment and Software in use:

- (a) 4 stand-alone WANG wordprocessors with 8" diskette drives
- (b) 4 slow, impact printers (3 @ 3 pages/minute, 1 @ 1 page/minute)

e. Opportunities for Improving Information Processing

The Legal Department performs well within pronounced constrictions in manpower, physical plant facilities, and especially information processing equipment. The Legal Department's computer equipment stands as a clear example of how out-of-date computer technology, though speeding document production, can create bottlenecks and limit productivity. The Legal Department's computers are not connected to other automated data systems in the Assembly. There is no hard disk storage (limited capacity diskettes only), prohibiting automated cross-referencing and indexing. The data format used is incompatible with practically any other computer hardware or software. The equipment itself consists of discontinued models with spare parts becoming difficult to procure.

Printers are exceedingly slow (minimum print time for a 30 page document on the fastest printer is probably 40 minutes, as the sheets must be manually fed into the printers). There are occasions when the Assembly is functionally inoperative while in session, waiting for bills or amendments to be edited, printed, copied and delivered to the floor. If multiple bills are in process, the bottleneck problem only gets worse. This occurs mostly in the latter part of the legislature's second four-month session.

Software Requirements:

The projected computer procurement for the Legal Department (described below) will change its document processing functions to a WordPerfect environment. Once in the new automated environment, the Legal Department's bill drafting and legal and technical studies and Committee Report systems/archives should be consolidated in a machine readable format. This data could then be accessed by a powerful TEXT-RETRIEVAL SOFTWARE program such as *Folio Views* which includes a powerful, transparent database manager that allows for text searches to be conducted from a hard disk drive, floppy diskettes or CD-ROM. This would provide a strong, versatile and efficient database for future work. SOFTWARE should be procured TO CONVERT all current WANG diskette data TO

WORDPERFECT format. In addition, the Legal Department's Contract Index, and possibly other information, could be automated within DATABASE SOFTWARE. The Legal Department will be upgraded to include ELECTRONIC MAIL and LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS SOFTWARE and will be provided UTILITIES SOFTWARE.

Hardware Requirements:

The Legislative Assembly has received approval from the Controller General's office to purchase six (6) microcomputers (80286 microprocessors functioning at 12MHz, with 2MB RAM, Ethernet Cards, and 1 98MB HDD) and two dot-matrix printers. The Assembly plans to place this equipment in the Legal Department and integrate the microcomputers into the existing Local Area Network. Six (6) 40 MB HDD, and six (6) 2MB RAM upgrades should be purchased for these microcomputers. Six (6) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. The addition of two (2) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTERS WITH SCALABLE FONT TECHNOLOGY and one (1) OPTICAL SCANNING DEVICE to this configuration is also recommended. In addition, a plain paper fax operating from the LAN should be installed.

4. The Plenary

a. Personnel

The Plenary is primarily staffed by personnel from other areas of the Assembly. The Plenary normally meets in the evenings, after regular office hours. Some staff, noted with an asterisk, remain in their departments after-hours to support the Plenary.

- (1) 1 Secretary General
- (2) 1 Deputy Secretary General
- (3) 1 Administrative Assistant to the Secretary General*
- (4) 4 Stenographers
- (5) 3 Secretaries (1 in Secretary General's Office, 2 in President's Office)*
- (6) 2 Secretaries (permanently assigned to the Plenary)
- (7) 2 Legal Department Advisors
- (8) 1 Grammarian*
- (9) 1 Librarian*
- (10) 2 Press and Public Relations Officers
- (11) 4 Attendants*
- (12) 2 Photocopier Technicians*

b. Description of Functions

The Plenary, supported by the standing and *ad hoc* committees, is the focus of legislative activity by the sixty-seven members of the Legislative Assembly. The President's Office, Secretary General's Office and Legal Department's Legislative Information Systems are substantially designed to support the Plenary. The Plenary's daily functions include: establishing a quorum (50% +1); approving the Plenary Agenda (*Orden del Día*); reading, discussing and approving the minutes of the last session; reading selected correspondence that should be made known to the members of the Assembly. In addition, the Plenary is charged with electing the members of the *Junta Directiva* and the Secretary General and Deputy Secretary General. The Plenary's legislative duties include reviewing the Executive's observations or objections to bills passed by the Assembly and debating and amending bills and committee reports in second reading. The Plenary is also required to give bills a third and final reading and vote on them. The Plenary may also read committee or other special reports that do not pertain to specific bills, debate and vote on resolutions, interpellate ministers and directors of autonomous government institutions and attend to other business proposed by members.

c. Types of Documents Processed

- (1) Bills
- (2) Resolutions
- (3) Floor Amendments
- (4) Agenda (*Orden del Día*)
- (5) Vote Tallies
- (6) Committee Reports
- (7) Resolutions
- (8) Official Correspondence

d. Manual and Automated Information Systems and Functions

- (1) Drafting and enrollment of floor amendments
- (2) Counting and recording votes
- (3) Revision of the Agenda
- (4) Transfer documents for storage and dissemination

Computer equipment and software in use:

No information systems are automated in the Plenary.

e. Opportunities for Information Processing Improvement

Currently, floor amendments and marked-up bills from second reading are hand-carried to the Legal Department for processing. As noted above, two attorneys participate in Plenary sessions. The capture of amendments, currently accomplished by a secretary using a typewriter, should be automated. Recording roll call votes, currently accomplished manually, should also be automated.

Software Requirements:

The Plenary's information systems can be automated with WORDPROCESSING and DATABASE SOFTWARE applications. Application of ELECTRONIC MAIL and LAN WORKSTATION-TO-WORKSTATION SOFTWARE would facilitate necessary communication with the Legal Department and other departments providing remote support to the Plenary.

Hardware Requirements:

Two (2) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN should be placed in the Plenary. One workstation should be located at the rostrum, sunken into its surface where it would be out of sight, for the Secretary or Deputy Secretary General to record roll call votes into a database and consult the bill status/tracking system or other information on a read-only basis. A second workstation, operated by a secretary, should be installed on the floor to capture floor amendments. This function is currently accomplished manually on a typewriter. The second workstation should be directly linked to one (1) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTER WITH SCALABLE FONT TECHNOLOGY. TWO (2) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided.

Support Equipment:

A complementary PHOTOCOPIER would greatly expedite the amendment process.

5. Reports and Congressional Record/Actas Department

a. Personnel

- (1) 1 Department Chief
- (2) 19 Stenographers (15 Committees, 4 Plenary)
- (3) 2 Grammarians
- (4) 1 Messenger

b. Description of Functions

The Reports and Congressional Record/*Actas* Department provides the clerical underpinnings for the technical and analytical work undertaken by the Legal Department and the Secretary General's Office. In turn, these offices support the decision-making function of the President, *Junta Directiva*, standing and *ad hoc* committees and the Plenary. *Actas* personnel attend regular and special Plenary sessions, regular and *ad hoc* committee hearings and make audio recordings of these proceedings. *Actas* personnel then make verbatim transcripts from the audio recordings and also edit these to produce draft Plenary and committee hearing minutes. The *Actas* Department also serves as a central secretariat for the standing and *ad hoc* committees, updating and posting the daily committee hearing schedule and drafting correspondence. This department also maintains a short-term archive of audio tapes, making copies available to legislators on request.

c. Types of documents processed

- (1) Chronological correspondence file
- (2) Congressional record
- (3) Draft Plenary minutes
- (4) Transcription of standing and *ad hoc* committee hearings
- (5) Draft Committee minutes
- (6) Committee correspondence
- (7) Copies of requisitions
- (8) Requests for copies of audio tapes

d. Manual and Automated Information Systems and Functions

This department presently has fully automated its primary information systems. Most manual processing has been superseded by microcomputer workstations. The *Actas* Department's primary information systems include:

- (1) Document processing
- (2) Transcriptions
- (3) Session reports from transcripts
- (4) Committee calendar
- (5) Index of audio tapes
- (6) Messenger system for information sharing

e. Opportunities for Improving Information Processing

Please see section V(B) for an initial assessment of the Novell network based in the *Actas* Department.

Computer equipment and software in use:

- (1) 386/25 File Server with 90MB HDD and 2 MB RAM running Novell 286 Operating System version 2.15c. and WordPerfect 5.1
- (2) 10 PC 286 workstations (networked to the server) with floppy diskette drives
- (3) 2 IBM laser printers
- (4) 1 Viper 60MB Tape backup
- (5) 1 Uninterrupted Power Supply unit (for server)

Software Requirements:

The *Actas* Department's primary information systems are for document processing, including the Congressional Record, Committee minutes, draft Plenary minutes, and transcriptions of standing and *ad hoc* committee meetings, and are fully automated using WordPerfect. Implementation of DATA BASE SOFTWARE is recommended to allow this department to develop an inventory of all audio tapes processed into the system. These tapes are now re-used, though they are valuable historical records and the Assembly may wish to revise this policy to preserve them permanently. ELECTRONIC MAIL and LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS SOFTWARE will be critical to facilitate communication between the *Actas* Department and the Secretary General's Office and Legal Department. UTILITIES SOFTWARE should be made available to this department.

Hardware Requirements:

The ten existing workstations are sufficient to support the *Actas* Department's needs. These microcomputers should, however, be upgraded with 2 MB of RAM each. Two (2) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTERS WITH SCALABLE FONT TECHNOLOGY should be added to the *Actas* Department's inventory to better handle the high volume of printing output. Printers should be procured with lower cartridge replacement costs than the \$300 currently being charged to replace cartridges in the existing IBM laser printers. As was noted above, the existing printers in the *Actas* Department should be transferred to the President's Office. Ten (10) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided.

6. Press and Public Relations

a. Personnel

- (1) 1 Department Chief
- (2) 1 Information & Public Relations Assistant
- (3) 2 Information Officers
- (4) 4 Secretaries
- (5) 2 Photographers
- (6) 1 Laboratory Assistant
- (7) 1 Messenger
- (8) 1 Driver

b. Description of Functions

The Press and Public Relations Office is responsible for drafting press releases and arranging interviews to facilitate media coverage of Plenary and committee meetings, special Assembly events and visitors to the legislature. Activities and statements by individual legislators and Assembly activities outside the institution are also covered by this office. An Information Officer and the Department Chief are responsible for drafting press releases for the institution and its members. This office also accredits journalists, maintaining a registry of the accredited legislative press corps. Two staff photographers provide photographic coverage of Assembly events. Prints are developed in the Assembly's darkroom.

c. Types of Documents Processed

- (1) Chronological correspondence
- (2) Memoranda
- (3) Press releases and reports
- (4) *Boletín Informativo* (periodic magazine)
- (5) Press clippings on the Assembly

d. Manual and Automated Information Systems and Functions

The Press and Public Relations Department is currently not automated. The following manual information systems are in place.

- (1) Document processing
- (2) Archive of press releases and reports
- (3) Selection and distribution of press clippings
- (4) Registry of accredited journalists
- (5) *Boletín Informativo*
- (6) Video coverage (proposed)

(7) Messenger system for information sharing

e. Opportunities for Information Processing Improvement

The Assembly's press office serves two major functions. First, it serves as a central point of contact between the Assembly's members and journalists. Secondly, it develops news releases to facilitate journalists' coverage of the Assembly. A wordprocessing capability linked to automated databases developed under this project, such as the bill status/tracking system in the Secretary General's Office, would substantially enhance the effectiveness and efficiency of the Press and Public Relations Department's news release and reporting production. This department's photographers adequately serve coverage of the Assembly in printed media. However, in order to facilitate television coverage of the Assembly, it would be recommendable for the department to acquire basic 3/4" video camera and editing equipment. However, a rough, projected cost of some \$60,000 for a basic professional video outfit makes it difficult to implement under this project.

Software Requirements:

WORDPROCESSING SOFTWARE would automate the press release drafting and other document processing needs of this department. DATABASE SOFTWARE would permit the automation of the registry of the accredited legislative press corps and would permit access to other selected automated data bases on a read-only basis to facilitate journalists' coverage of the Assembly. DESKTOP PUBLISHING SOFTWARE should definitely be purchased for this department to facilitate production of the *Boletín Informativo* and other promotional and educational materials. ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE should also be made available to this unit.

Hardware Requirements:

Four (4) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN should be placed in this department. Four (4) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. Given the high volume and time sensitive nature of the printed materials produced by this department, ONE (1) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTERS WITH SCALABLE FONT TECHNOLOGY should be provided.

Support Equipment:

The purchase of one (1) 3/4 inch, professional video camera and one (1) 3/4 inch video player should be investigated.

7. The Budget Committee

a. Personnel

- (1) 1 Administrative Assistant
- (2) 5 Secretaries
- (3) 1 Messenger
- (4) 1 Advisor
- (5) 2 Assistant Advisors

b. Description of Functions

Although this report recommends a core-system approach that postpones automating the Assembly's standing and *ad hoc* committees, the Budget Committee has already computerized several of its primary information systems and therefore has been included at this stage. The Budget Committee's push to automate has been driven by its substantial involvement with the Ministry of Planning and Fiscal Policy (MIPPE) and the Controller General. Both agencies operate at a sophisticated level of automation.

The Budget Committee has substantial authority and a major role in setting Panama's budget priorities and in overseeing the Executive's implementation of the budget. The Budget Committee is authorized to review and accept or reject the General Budget Bill of the State presented by the Executive and to approve or reject supplemental or extraordinary credits requested by the Executive over and above the approved budget. Additionally, the Budget Committee is charged with approving or rejecting the Payroll Bill presented by the State. The Budget Committee is consulted by the Executive during the development of the General Budget Bill and oversees the implementation and auditing of the national budget.

c. Types of documents processed

- (1) Chronological correspondence file
- (2) List of committee members
- (3) Committee hearing calendar
- (4) Agenda (*Orden del día*)
- (5) Transcripts of committee hearings
- (6) Pre-bills
- (7) Index of amendments
- (8) General Budget Bill of the State
- (9) The State Payroll Bill

- (10) Committee reports
- (11) Counterproposals
- (12) Semiannual Reports on budget execution from all government agencies
- (13) Invitations to hearings
- (14) Index of line item transfers
- (15) Notifications
- (16) Regulations
- (17) Payrolls (for each institution in alphabetical order)
- (18) Subcommittee technical reports

d. Manual and Automated Information Systems and Functions

- (1) Document processing
- (2) Index of line item transfers
- (3) Index of amendments
- (4) Analysis of payrolls (for each institution in alphabetical order)
- (5) Analysis of Semiannual Reports on budget execution from all government agencies
- (6) Committee hearing calendar
- (7) Messenger system for information sharing

Computer equipment and software in use:

The Budget Committee has two stand-alone microcomputers (1 Epson and 1 Cannon 80386sx) and a laptop microcomputer that the Budget Committee Chairman uses.

e. Opportunities for Information Processing Improvement

Budget Committee staff have indicated that they currently have adequate software and hardware to accomplish the analytical tasks that the Committee routinely undertakes. They have indicated, however, that technical assistance is needed to deepen their use of existing resources. While limited computer-specific technical assistance may be provided under the budget component of the Consortium's AID-financed project, it is recommended that in-house programming expertise be secured to assist the Budget Committee in developing additional databases. It is also recommended that the Budget Committee's existing microcomputers be integrated into the proposed LAN in order to take full advantage of the computing power of the proposed 80486 servers and to facilitate access to databases being developed and information sharing with the several departments recommended for inclusion under this project.

Software Requirements:

The Budget Committee's existing microcomputers should be upgraded with the SPREADSHEET, DATABASE, WORDPROCESSING, PRESENTATION GRAPHICS, ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE being proposed for other areas in the Assembly.

Hardware Requirements:

While no additional microcomputers are specifically recommended, three (3) NETWORK CARDS, three (3) 2MB RAM UPGRADES and CABLING will be required to integrate existing hardware into the proposed Local Area Network. three (3) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided.

B. ADMINISTRATIVE INFORMATION SYSTEMS

1. Financial & Administrative Directorate

a. Personnel

- (1) 1 Director
- (2) 1 Deputy Director
- (3) 3 Secretaries
- (4) 2 Messengers

b. Description of Functions

The Financial and Administrative Directorate was established as an overarching office responsible for managing information prepared and maintained by subordinate units. Its specific functions are to direct and coordinate all subordinate administrative and financial units, developing annual workplans with each and monitoring their implementation. The Directorate is charged with preparing the Assembly's internal budget and with implementing budget modifications as authorized by the President and regulated by the Controller General under applicable law and government regulations. The Administrative and Financial Directorate negotiates and oversees the implementation of contractual agreements entered into by the Assembly. The Directorate is also responsible for reviewing all purchase orders and drafting and disseminating administrative guidance. As the highest financial unit, the Directorate is the Assembly's principal interlocutor with the Controller General's permanent, on-site external auditor.

c. Types of Documents Processed

- (1) Chronological correspondence file
- (2) Regulations
- (3) Administrative specifications
- (4) Annual work plan
- (5) Administrative policy memoranda
- (6) Policy memoranda
- (7) Bankcheck request
- (8) Purchase orders
- (9) Telephone use/call listing
- (10) Inventory of legislators' property
- (11) Work progress reports
- (12) Maintenance Contracts
 - (a) elevator
 - (b) photocopier
 - (c) fumigation

d. Manual and Automated Information Systems and Functions

- (1) Document processing
- (2) Annual work plan
- (3) Annual budget & amendments
- (4) Inventory of legislators' property
- (5) Analysis of audit reports
- (6) Review of purchase order/payment voucher
- (7) Messenger system for information sharing

Computer equipment and software in use:

No information systems are automated in the Plenary.

e. Opportunities for Information Processing Improvement

The Financial & Administrative Directorate's primary information management tool, the annual work plan, is not in place. The team was told that lines of authority vis à vis the President and Secretary General do not correspond to the existing organizational chart, which has the effect of atrophying this department's utility as an administrative oversight and coordination mechanism. A new Deputy Director, with substantial government experience, has recently joined the Assembly's staff and is reviewing procedures for the Financial & Administrative Directorate and its subordinate offices. This new staff person has begun to identify specific outside technical assistance that can be procured to support the implementation of improvements in the Assembly's administrative structure.

Software requirements:

The Directorate will need access to all software applications developed for subordinate offices. WORDPROCESSING SOFTWARE will be required to automate the Directorate's document processing needs. SPREADSHEET SOFTWARE will allow the Directorate to work with the Budget Department (see below) to oversee the development and execution of the Assembly's internal budget. SPREADSHEET SOFTWARE can also be used to track and review expenditures with the Accounting and Audit Departments. DATA BASE SOFTWARE will permit the Directorate to develop an automated property inventory and to access databases developed by the Personnel and Payroll Department. PRESENTATION GRAPHICS, ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE should also be made available to the Directorate. Technical assistance will be required to develop sufficient security for sensitive financial, payroll and personnel information accessible from this department.

Hardware Requirements:

Two (2) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN will provide ample support for this unit. TWO (2) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. One (1) HIGH WORKLOAD, DUAL BIN, PRESENTATION QUALITY LASER PRINTER WITH SCALABLE FONT TECHNOLOGY and ONE (1) FORM FEEDING, DOT MATRIX PRINTER will provide printing support for this management unit.

2. Personnel/Payroll Department*a. Personnel*

- (1) 1 Personnel and Payroll Chief
- (2) 1 Payroll Chief
- (3) 1 Personnel Analyst Supervisor
- (4) 4 Personnel Analysts
- (5) 1 Secretary
- (6) 2 Clerks

b. Description of Functions

The Personnel and Payroll office administers personnel policy, including the hiring, discipline and firing of personnel in coordination with the Controller

General. This department maintains up-to-date personnel records within a personnel classification regime which records and tracks vacation, sick leave, transfers, removals and Presidential appointments. This department is presently developing an employee evaluation system and has begun organizing several training programs for staff. Clerical duties within this department include collecting and recording data from time cards and maintaining and administering payrolls for staff (base & sick leave and vacation) and elected members (regular sessions, special sessions and "*dietas*" or allowances). Other clerical duties include preparing certificates of employment and issuing and maintaining records of personnel identification badges. The Personnel and Payroll Office coordinates the development of personnel policy with the Ministry of Planning and Fiscal Policy (MIPPE).

c. Types of Documents Processed

- (1) Chronological correspondence
- (2) Regulations
- (3) Personnel organizational chart
- (4) Applications for employment
- (5) Recruitment - Hiring
- (6) Personnel files:
 - (a) Appointment
 - (b) Decree
 - (c) Contract
 - (d) Professional services
 - (e) Licenses
 - (f) Salary history
 - (g) Adjustments
- (7) Work attendance
- (8) Time cards
- (9) Leaves of absence
- (10) Vacation accrual
- (11) Incapacitation
- (12) Overtime
- (13) Job certifications
- (14) Transfers
- (15) Warnings
- (16) Suspensions
- (17) Work letters
- (18) Attendance record
- (19) Uniforms
- (20) Identification cards
- (21) Separations
- (22) Resignations

(23) Retirement

d. Training

- (1) Courses and seminars
 - (a) Name of course
 - (b) Place where these are held
 - (c) Training subject matter
- (2) Scholarships (local and foreign)
 - (a) Letters of Recommendation
 - (b) Scholarship recipient file
 - (c) Bankchecks
 - (d) Evaluative Reports
- (3) Payrolls
 - (a) Regular administrative payroll
 - (b) Members payroll
 - (c) Additional payroll
 - (d) Honoraria

e. Manual and Automated Information Systems and Functions

- (1) Document Processing
- (2) Biweekly reports on employee attendance
- (3) Personnel database (including)
 - (a) Job classification
 - (b) Timekeeping
 - (c) Personnel evaluations
 - (d) Hires/removals
- (4) Other databases:
 - (a) Payroll (with Controller) for employees
 - (b) Payroll (internal) for members
- (5) ID card index, linked to personnel master record
- (6) Messenger system for information sharing

Computer equipment and software in use:

One (1) 80286 workstation participating on network using Wordperfect 5.1

f. Opportunities for Information Processing Improvement

The existing microcomputer is being used for wordprocessing applications only. Personnel records should be automated with a comprehensive database program. This program could be developed in-house or possibly bought off-the-shelf. The

Controller General may be helpful in identifying such an existing program. Employee training records should be linked to employees' master personnel records. A payroll program should be implemented, which the Controller General may again be helpful in identifying and/or developing.

Software Requirements:

DATA BASE SOFTWARE, either tailored in-house or purchased off-the-shelf should be implemented to automate personnel records. A PAYROLL SOFTWARE program, including CHECK GENERATING SOFTWARE should be implemented to automate the several payrolls at the Assembly. WordPerfect can continue to support the Personnel and Payroll Department's document processing needs. ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE should also be made available to this unit. Technical assistance will be required to develop sufficient security for sensitive payroll and personnel information.

Hardware Requirements:

It is expected that the existing 80286 microcomputer in the Personnel and Payroll Department will be augmented by the 80286 microcomputer presently being used for elected member attendance and payroll in the Secretary General's Office. Two (2) 40 MB HDD and Two (2) 2MB RAM upgrades should be procured for this equipment. Once networked to the proposed LAN, this upgraded equipment should suffice to fully automate the Assembly's payrolls. Two (2) INTELLIGENT MICROCOMPUTERS participating on the proposed LAN should be added to this department's inventory to automate and integrate the Assembly's personnel records. FOUR (4) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. Two (2) FORM FEEDING, DOT MATRIX PRINTERS will provide printing support for this department.

3. Accounting Department

a. Personnel

- (1) 1 Accounting Chief
- (2) 1 Secretary
- (3) 4 Accountants
- (4) 1 Petty Cash Clerk

b. Description of Functions

The Accounting Department manages and accounts for funds in the Assembly's primary revolving account and petty cash account. This department executes all payments for service contracts, personal services contracts and vendor bills drawn on the revolving and petty cash accounts, as well as those requiring a check request to the Controller General. The Assembly's in-house accountants reconcile the Assembly's books on a monthly basis and provide line-item expenditure information to the budget office. The Accounting Department cooperates with the Controller General's permanent, on-site external auditor.

c. Types of Documents Processed

- (1) Chronological correspondence file
- (2) Regulations
- (3) Signature cards
- (4) Reports, substantiated by receipts and copies of checks
- (5) Petty cash account
- (6) Revolving fund account
- (7) General account (reimbursements)
- (8) Accounts-payable list
- (9) Adjustments and corrections:
 - (a) Requisitions
 - (b) Purchase Orders
 - (c) Reimbursements
- (10) Account reconciliations
- (11) Daily fund balance statements

d. Manual and Automated Information Systems and Functions

- (1) Document processing
- (2) Check generation
- (3) Fund account ledgers
- (4) Daily account balance report
- (5) Monthly analysis of telephone usage
- (6) Year-end fund account reconciliations
- (7) Messenger system for information sharing

Computer equipment and software in use:

One (1) 80286 workstation participating on network using Wordperfect 5.1, Lotus 123, and Clipper Data Base software.

e. Opportunities for Information Processing Improvement

The Accounting Office does not have an integrated, comprehensive budget analysis system in place. The Assembly should provide outside technical assistance to support the Accounting Department in the development of a more sophisticated analytical capability such as currently exists in most Executive branch agencies. Spreadsheet software should be changed to Quattro-Pro to standardize with Controller General's operations. The Assembly's in-house computer specialists are currently working with Clipper to develop two databases for use by the Accounting Department:

- 1) An inventory with depreciation analysis,
- 2) A purchase order tracking system.

Additional external expertise, preferably from the Controller General, should be secured to fully develop an accounting software package for this department. Specialized training should be provided to the accounting staff to further advance their automation efforts.

Software Requirements:

WORDPROCESSING SOFTWARE will be required to automate the Accounting Department's document processing needs. The Assembly should consider requesting technical assistance from the Controller General's office to develop microcomputer-based ACCOUNTING APPLICATIONS SOFTWARE compatible with the main-frame "Mantis" program used by the Controller General and MIPPE. SPREADSHEET SOFTWARE can be utilized to automate fund account ledgers, balance reports and account reconciliations. This software should be changed to Quattro to standardize with the Controller General and MIPPE. CHECK-GENERATING SOFTWARE should be procured to automate the check-issuing facet of the Accounting Department's work. ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE should also be provided to the Accounting Department. Technical assistance will be required to develop sufficient security for sensitive financial information.

Hardware Requirements:

The existing 80286 microcomputer in the Accounting Department should be upgraded with a 40MB HDD and 2MB of RAM and should be augmented with one (1) additional INTELLIGENT MICROCOMPUTER, with both units participating on the proposed LAN. TWO (2) UNINTERRUPTED POWER SUPPLY UNITS (5 minute capacity) should also be provided. One (1) FORM FEEDING, DOT MATRIX PRINTER will be sufficient to provide printing support for this department.

4. Budget Department

a. Personnel

- (1) 1 Budget Chief
- (2) 2 Budget Analysts
- (3) 1 Secretary

b. Description of Functions

The Budget Department prepares the draft internal budget for the Assembly and records expenditures for each approved budget line item with data provided by the Accounting Department. The Budget Department prepares semiannual analyses of budget expenditures for the President and *Junta Directiva* (including the Secretary General) and the Administrative Director. Other duties include assigning budget line item numbers to purchase orders and preparing semiannual budgets, within fiscal limitations, for the Assembly's workplan. The Budget Department updates budget line item codes as necessary and verifies audit controls. The Budget Department coordinates closely with the Ministry of Planning and Fiscal Policy (MIPPE) and the Controller General in developing and executing the Assembly's internal budget.

c. Types of Documents Processed

- (1) Chronological correspondence file
- (2) Assembly internal budget
- (3) Draft budget
- (4) Expense assignment
- (5) Monthly reports
- (6) Semiannual report
- (7) Constitutional report
- (8) Overdrafts (per diem)

d. Manual and Automated Information Systems and Functions

- (1) Document processing
- (2) Monthly and semiannual reconciliations by cost center with reports from Controller General
- (3) Cash flow analysis
- (4) Development of budget
- (5) Messenger system for information sharing

e. Opportunities for Information Processing Improvement

All information systems in the Budget Department are manually maintained. Expenditure data is recorded by hand on pre-printed file cards. The Budget Department's counterparts in the Executive, MIPPE and the Controller General are automated. The Budget Department has requested implementation of electronic communication with the Controller General to facilitate recording budget implementation, and with MIPPE in the area of budget formulation. All three institutions will have to use standardized equipment and software. While this would be an optimal solution, diskettes could be exchanged in most cases. The manual fund account ledger system should be automated. This might be written as a spreadsheet application in-house, but might also be acquired as an off-the-shelf application if it can be tailored to the specific needs of the budget system.

Software Requirements:

WORDPROCESSING SOFTWARE would automate this department's limited correspondence. Quattro-Pro SPREADSHEET SOFTWARE usage would allow for full automation of the ledgering information systems identified above. FORMS GENERATOR SOFTWARE would be helpful in this department. Technical assistance will be required to develop sufficient security for sensitive financial information.

Hardware Requirements:

ONE (1) INTELLIGENT MICROCOMPUTER linked to the proposed LAN would provide sufficient computing power and access to stored data to incorporate the Budget Department into an integrated, automated financial management system. ONE (1) UNINTERRUPTED POWER SUPPLY UNIT (5 minute capacity) should also be provided. Printing should be accomplished at a remote, secure location (such as the Financial and Administrative Directorate) to safeguard confidential budget information.

5. Audit Department

a. Personnel

- (1) 1 Chief Auditor
- (2) 3 Assistant Auditors
- (3) 1 Clerk
- (4) 1 Secretary
- (5) 1 Messenger

b. Description of Functions

The Audit Department tests internal financial controls and audits the Assembly's revolving and petty cash accounts. This department also reviews reimbursements and analyzes the accounts-payable list. The Accounting Department is also charged with maintaining separate inventories of Assembly and member-owned equipment and furniture to avoid confusion. This Department is required to submit its audit reports to the Financial & Administrative Directorate and cooperates with the Controller General's permanent, on-site external auditor.

c. Types of documents processed

- (1) Chronological correspondence file
- (2) Regulations
- (3) Audit reports
- (4) Index of audit reports
 - (a) Auditor's name
 - (b) Origin of audit
- (5) Audit statements
 - (a) Revolving fund account
 - (b) Petty cash account

d. Manual and Automated Information Systems and Functions

- (1) Financial audits
- (2) Document processing
- (3) Inventories of assembly and member-owned equipment and furniture
- (4) Index of audit reports
- (5) Messenger system for information sharing
- (6) Equipment inventory

e. Opportunities for Information Processing Improvement

The Auditing Department currently is not automated. According to the deputy director of the Administrative and Financial Directorate, the in-house audit function at the Legislative Assembly is in its early stages of development, having been instituted only after the installation of the new legislature. The legislature presently relies heavily on the Controller General's external audit services. The Legislative Assembly plans to strengthen its internal audit capability and financial controls.

Software Requirements:

The Audit Department will require access to software applications developed in the Accounting and Budget Offices, including WORDPROCESSING SOFTWARE and SPREADSHEET SOFTWARE to work with the Budget Department and to

review and track expenditures with the Accounting Department. Any microcomputer-based ACCOUNTING APPLICATIONS developed with the Controller General should obviously be made available to the Audit Department. DATA BASE SOFTWARE will permit the Audit Department to automate the property inventories it is charged with keeping and to index audit reports. ELECTRONIC MAIL, LAN WORKSTATION-TO-WORKSTATION COMMUNICATIONS, and UTILITIES SOFTWARE should also be made available to the Audit Department. Technical assistance will be required to develop sufficient security for the sensitive financial, payroll and personnel information accessible from this department.

Hardware Requirements:

A single (1) INTELLIGENT MICROCOMPUTER participating on the proposed LAN would allow the Audit Department to interface with the other financial departments included in this study. ONE (1) UNINTERRUPTED POWER SUPPLY UNIT (5 minute capacity) should also be provided. Again, to maintain the security of sensitive information, the Audit Department's printing queues should be routed to the Financial & Administrative Directorate to which it reports.

IV. Table of Information Systems and Functions to be Automated and Software/Hardware Recommendations by Department (Excluding Existing and Planned Assembly-procured Inventory)

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|--------------------|--|--|--|
| PRESIDENT'S OFFICE | <p>In-coming and out-going correspondence</p> <p>Internal memoranda</p> <p>Resolutions and decrees</p> <p>President's Schedule</p> <p>Messenger system for information sharing</p> <p>Read-only access to technical data bases</p> <p>Other</p> <p>Other</p> | <p>Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i></p> <p>"</p> <p>"</p> <p>Scheduling Program</p> <p>(1) Electronic Mail <i>Pegasus Unlimited License</i></p> <p>(5) LAN Communications <i>PC Anywhere</i></p> <p>(5) Database Manager <i>Fox-Pro for LAN</i></p> <p>(1) Presentation Graphics <i>Harvard Graphics</i></p> <p>(5) Utilities <i>Nortons</i></p> | <p>(5) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, , VGA, MONITOR, Spanish KB, UPS</p> <p>(2) Scalable font cartridges</p> <p>(2) 4MB RAM upgrades (both for use with IBM printers from <i>Actas</i> Department)</p> <p>Plain Paper Fax <i>Hewlett Packard Jet Fax</i></p> |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|--|---|---|---|
| SECRETARY GENERAL/DEPUTY SECRETARY GENERAL'S OFFICE | Document Processing | (7) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i> | (7) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, , VGA, MONITOR, Spanish KB, UPS |
| | SG/DSG Schedules | Scheduling Program | |
| | Bill Tracking/ Status | (7) Database Manager <i>Fox-Pro for LAN</i> | (3) High workload, dual bin, Laser Printers <i>HPLJIISI, Postscript, 4MB RAM, LAN option</i> |
| | Legislator and Alternate attendance records and reports | " " | Plain Paper Fax <i>Hewlett Packard Jet Fax</i> |
| | Annotated Indexes | " " | |
| | Messenger system for information sharing | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications <i>PC Anywhere</i> | |
| Other | (1) Presentation Graphics <i>Harvard Graphics</i> | | |
| Other | (7) Utilities <i>Nortons</i> | | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|------------------|---|---|---|
| LEGAL DEPARTMENT | Document Processing | (6) Wordprocessing | (2) High workload, dual bin, Laser Printers |
| | Bill Drafting | <i>WordPerfect 5.1, Spanish (network version)</i> | <i>HPLJISI, Postscript, 4MB RAM, LAN option</i> |
| | Committee Report System/Archive | Text-Retrieval Software | (1) Optical Scanning Device |
| | Legislation Archive | <i>Folio Views</i> | <i>Kurzweil Discover 7320</i> |
| | Legal and Technical Studies System/Archive | " " | Plain Paper Fax |
| | Judicial Documents Archive | " " | <i>Hewlett Packard Jet Fax</i> |
| | Contract Index | " " | (6) 40 MB HDD upgrades |
| | Messenger system for information sharing | (1) Database Manager | (6) 2 MB RAM upgrades |
| | Other | <i>Fox-Pro for LAN</i> | |
| | Other | Electronic Mail | |
| | Other | <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications | |
| | Other | <i>PC Anywhere</i> | |
| | Other | (1) Document Conversion | |
| | Other | <i>WANG WFlink</i> | |
| | Other | (6) Utilities | |
| | Other | <i>Nortons</i> | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|-------------|--|--|---|
| THE PLENARY | <p>Drafting and enrollment of floor amendments</p> <p>Revision of the Agenda</p> <p>Counting and recording votes</p> <p>Transfer documents for storage and dissemination (Messenger system)</p> <p>Other</p> | <p>(2) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i></p> <p>" "</p> <p>(2) Database Manager <i>Fox-Pro for LAN</i></p> <p>Electronic Mail <i>Pegasus Unlimited License</i></p> <p>LAN Communications <i>PC Anywhere</i></p> <p>(2) Utilities <i>Nortons</i></p> | <p>(2) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, , VGA, MONITOR, Spanish KB, UPS</p> <p>(1) High workload, dual bin, Laser Printer <i>HPLJIIISI, Postscript, 4MB RAM, LAN option</i></p> <p>(1) Photocopier</p> |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTCMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|----------------------------------|---|--|---|
| ACTAS DEPARTMENT | Document Processing | (10) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i> | (10) 2MB RAM upgrades for existing microcomputers |
| | Transcriptions | " " | (2) High workload, dual bin, Laser Printers <i>HPLJIISI, Postscript, 4MB RAM, LAN option</i> |
| | Session Reports | " " | |
| | Committee Calendar | Scheduling Program | |
| | Index of audio tapes | (2) Database Manager <i>Fox-Pro for LAN</i> | |
| | Messenger system for information sharing | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications <i>PC Anywhere</i> | |
| (10) Utilities <i>Nortons</i> | | | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|-------------------------------------|--|--|--|
| PRESS & PUBLIC RELATIONS DEPARTMENT | <p>Document processing</p> <p>Archive of Press Releases and Reports</p> <p>Registry of Accredited journalists</p> <p>Boletín Informativo</p> <p>Messenger system for information sharing</p> <p>Other</p> <p>Video coverage (proposed)</p> | <p>(4) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i></p> <p>" "</p> <p>(1) Database Manager <i>Fox-Pro for LAN</i></p> <p>(1) Desktop Publishing <i>Pagemaker</i></p> <p>Electronic Mail <i>Pegasus Unlimited License</i></p> <p>LAN Communications <i>PC Anywhere</i></p> <p>(4) Utilities <i>Nortons</i></p> <p>N/A</p> | <p>(4) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS</p> <p>(1) High workload, dual bin, Laser Printer <i>HPLJISI, Postscript, 4MB RAM, LAN option</i></p> <p>(1) 3/4 inch, professional video camera, (1) 3/4 inch video player</p> |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|------------------|--|--|---|
| BUDGET COMMITTEE | Document Processing | <i>(3) Wordprocessing WordPerfect 5.1, Spanish (network version)</i> | (3) NETWORK CARDS (3) 2MB RAM upgrades |
| | Index of Line Item Transfers | <i>(3) Database Manager Fox-Pro for LAN</i> | |
| | Index of Amendments | | |
| | Analysis of Government Payrolls | <i>(3) Spreadsheet Quattro-Pro LAN</i> | |
| | Analysis of Semiannual Budget Reports from government agencies | " " | |
| | Committee hearing calendar | | |
| | Messenger system for information sharing | <i>(1) Scheduling Program Electronic Mail Pegasus Unlimited License</i> | |
| | Other | <i>LAN Communications PC Anywhere</i> | |
| Other | <i>(1) Presentation Graphics Harvard Graphics (3) Utilities Nortons</i> | | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|--|---|---|---|
| FINANCIAL & ADMINISTRATIVE DIRECTORATE | Document Processing | (2) <i>Wordprocessing WordPerfect 5.1, Spanish (network version)</i> | (2) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS |
| | Annual Work Plan | " " | |
| | Inventory of Legislators' Property | (2) Database Manager <i>Fox-Pro for LAN</i> | (1) High workload, dual bin, Laser Printer <i>HPLJIISI. Postscript, 4MB RAM, LAN option</i> |
| | Analysis of Audit Reports | (2) Spreadsheet <i>Quattro-Pro LAN</i> | |
| | Annual Budget & Amendments | " " | (1) Form-feeding dot matrix Printer <i>Epson LQ-1079</i> |
| | Review of purchase order/payment vouchers | " " | |
| | Messenger system for information sharing | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications <i>PC Anywhere</i> | |
| | Other | (1) Presentation Graphics <i>Harvard Graphics</i> (2) Utilities <i>Nortons</i> | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|--------------------------------|---|--|---|
| PERSONNEL & PAYROLL DEPARTMENT | Document Processing | (4) <i>Wordprocessing WordPerfect 5.1, Spanish (network version)</i> | (2) 40 MB HDD, (2) 2MB RAM upgrades for existing equipment |
| | Employee attendance reports | (2) Database Manager <i>Fox-Pro for LAN</i> | (2) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS |
| | Personnel Database | " " | |
| | ID Index | " " | |
| | Payrolls | (2) Payroll Software | (2) Form-feeding dot matrix Printers <i>Epson LQ-1079</i> |
| | Messenger system for information sharing | (1) Check-Generating Software | |
| | Other | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | LAN Communications <i>PC Anywhere</i> | | |
| | | (4) Utilities <i>Nortons</i> | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|-----------------------|---|---|---|
| ACCOUNTING DEPARTMENT | Document Processing | (2) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i> | (1) 40 MB HDD, (1) 2MB RAM upgrades for existing equipment |
| | Fund Account Ledgers | (2) Spreadsheet <i>Quattro-Pro LAN</i> | (1) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS |
| | Daily Account Balance Report | " " | (1) Form-feeding dot matrix Printer <i>Epson LQ-1079</i> |
| | Year-end Fund Account Reconciliations | " " | |
| | Monthly Analysis of Telephone Usage | " " | |
| | Check Generation | (1) Check-Generating Software | |
| | Messenger system for information sharing | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications <i>PC Anywhere</i> (2) Utilities <i>Nortons</i> | |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|-------------------|---|---|--|
| BUDGET DEPARTMENT | <p>Document Processing</p> <p>Monthly and Semiannual Reconciliations by Cost Center</p> <p>Cash flow Analysis Development of Budget</p> <p>Messenger System for Information Sharing</p> <p>Other</p> <p>Other</p> | <p>(1) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i></p> <p>(1) Spreadsheet <i>Quattro-Pro LAN</i></p> <p>" "</p> <p>Electronic Mail <i>Pegasus Unlimited License</i></p> <p>LAN Communications <i>PC Anywhere</i></p> <p>(1) Form-Generating Software</p> <p>(1) Utilities <i>Nortons</i></p> | <p>(1) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS</p> |

| DEPARTMENT | INFORMATION SYSTEMS & FUNCTIONS TO BE AUTOMATED | RECOMMENDED SOFTWARE (QTY) TYPE/BRAND | RECOMMENDED HARDWARE (QTY) DESCRIPTION |
|------------------|---|---|---|
| AUDIT DEPARTMENT | Document Processing | (1) Wordprocessing <i>WordPerfect 5.1, Spanish (network version)</i> | (1) 80386SX, 20 MHz, 4 MB RAM, 40MB HDD, Dual Diskette Drive, VGA, MONITOR, Spanish KB, UPS |
| | Financial Audit | (1) Spreadsheet <i>Quattro-Pro LAN</i> | |
| | Inventories | (2) Database Manager <i>Fox-Pro for LAN</i> | |
| | Index of Audit Reports | " " | |
| | Messenger system for information sharing | Electronic Mail <i>Pegasus Unlimited License</i> | |
| | Other | LAN Communications <i>PC Anywhere</i> (1) Utilities <i>Nortons</i> | |

V. Existing and Proposed System Configuration

In 1991, the Legislative Assembly installed a Local Area Network microcomputer data processing system. The system design was undertaken with substantial assistance from the Controller General's information management staff. The Assembly placed the bulk of these automation resources in the *Actas* Department where they have had a dramatic, positive impact on the labor-intensive clerical work of preparing transcripts and session reports. Single microcomputers participating on the LAN were distributed to other areas (see description below). The Assembly's decision to invest the majority of these limited resources in a critical but clerical area was an admirable and foresighted decision.

A. EXISTING LOCAL AREA NETWORK

The configuration of the existing Local Area Network is described below. Please refer to section II above for descriptions of current uses of this equipment.

★ One (1) Epson 386/25 File Server with a 90 megabyte hard disk and 2 megabytes of memory running Novell 286 Operating System version 2.15c (THEORETICAL 100 USER SUPPORT).

★ Fourteen (14) 80286 microcomputers with 1 megabyte of memory with 5¼" floppy diskettes (connected to the Novell LAN). Ten (10) workstations are located in the *Actas* Department, 1 in the Secretary General's Office, 1 in Personnel & Payroll, and 1 in the Accounting Department.

★ As is described in section II(A)(3) above, six (6) additional microcomputers (80286 microprocessors functioning at 12 megahertz, with 2 megabytes of memory, Ethernet Cards, and one (1) 90 megabyte hard disk drive) are presently being procured and are slated to be placed in the Legal Department. It is expected that these units will be integrated into the existing Novell network.

★ One (1) VIPER 60 megabyte tape unit for backups and archiving.

★ Two (2) IBM 4 pages per minute laser printers located in the *Actas* Department, serve the entire network's users, not just the *Actas* department. One (1) Cannon 132 column dot matrix printer for spreadsheet printing is also attached to the LAN.

B. INITIAL ASSESSMENT OF NOVELL NETWORK

On the whole, the Novell local area network is operating well and rendering substantial increases in productivity for participating areas of the Assembly. The Consortium technical team made an initial assessment of its design and operations. Our observations follow.

★ The memory on the Network CPU (server) is not sufficient to properly handle the necessary speed for current, much less further expansion of users. As more users are added and file storage and application complexity increases, this will become critical.

★ The hard disk storage capacity of 90 Megabytes is insufficient to handle the total volume of data identified in this report.

★ A maintenance agreement for the Server, workstations and printers should be obtained. This equipment was purchased from Sonitel, but the 1 year warranty has recently expired.

★ The operating system is Novell, version 2.15. While powerful, it has been purposely obsoleted by Novell's latest version, 3.1. This version is vastly improved, especially

in the area of technical support. It requires a much lower level of sophistication to install, modify, and maintain. Another benefit of the improved network software is improved connectivity to other LAN's and communications configurations.

★Backup procedures for both the data and the operating system in version 2.15 are difficult and time consuming if properly performed. We were told that full backups of stored data are implemented every three months between sessions to clear space on the 90 megabyte network disk. Incremental backups of Wordperfect documents are made weekly. There have been isolated incidents of single file restorations, but with no assurance that operating system or full data restorals would work, as it hasn't been tested. (Keep in mind that this system is 1 year old, so it has gone through only three or four backup cycles.) In any case, the capacity of the tape unit is not sufficient to contain a full system backup.

★The two persons functioning as joint systems managers (José Luis Urriola and Annette Hernández de Mirabal) are bright and willing but inexperienced in management and maintenance of information systems and local area networks. This is not to say they are doing a bad job. They took a full week of Novell training, but could benefit from extended network operation training. There are gaps in their training in important areas such as security. Mr. Urriola, a computer science undergraduate student, is not yet a fully operational programmer at this stage, but would be a good one with further training and experience.

★Backed-up data is not stored off-site to safeguard it against physical damage to the immediate environment (fire, etc.). It does no good to have copies of your information if they are damaged or lost at the same time as your system.

★Security and user needs/rights/access level need definition and implementation. At present, only the supervisors have passwords; everyone else has access to all word processing directories. This will become critical as other departments inputting sensitive data, such as the Legal Department or the Budget Office, go on-line.

★The system has suffered at least one incident of computer virus contamination. Virus protection procedures need specification, implementation, and enforcement. This has become a real threat in the last two years, especially in Latin America where widespread pirating of software increases the chances of someone bringing a virus into the Assembly's system on a diskette from outside.

★Indexing and cross referencing procedures of the documents produced by the *Actas* and Legal Department need to be defined. It was not clear if a master index of the documents produced after legislative sessions has been undertaken.

C. SOFTWARE IN USE

The Legislative Assembly is presently using several elemental software programs to good effect in automating primarily clerical tasks. This report identifies a series of legislative and administrative information systems (see Section III, above) that will require more sophisticated software applications to automate (See also Section VII, "Recommended Software Development Assistance"). The software products currently used at the Assembly are listed in the table below by user departments.

| SOFTWARE | USER DEPARTMENTS | COMMENTS |
|------------------------------------|--|--|
| WordPerfect 5.1 | Secretary General <i>Actas</i> Department Personnel & Payroll | Wordprocessing, text management, tables |
| Lotus 1-2-3 | Budget Committee Accounting Office | Spreadsheet analysis |
| D-Base III, Clipper | Accounting Office | In-house data bases under development Inventory with depreciation analysis Purchase order tracking system. |
| DOS 3.3, Novell 286, version 2.15c | Secretary General <i>Actas</i> Department Personnel & Payroll Budget Committee Accounting Office | Operating systems |

Only WordPerfect is widely used. The Accounting Department is the primary user of Lotus. The Database managers are being used by José Luis Urriola in an effort to create databases for the Accounting Department which are not yet in functional operation.

D. RECOMMENDED SYSTEM EXPANSION & RECONFIGURATION

The Legislative Assembly recently relocated its financial and administrative departments to a building in the "Area Revertida." The building is approximately three blocks away, across a major highway, from the main Assembly building.

Two upgraded local area networks operating with intelligent workstations linked to file servers are recommended to automate the information systems and functions identified in this report. Two quality-name 80486 file servers, such as the IBM PS2 Model 95,

operating at 33 megahertz, with 16 megabytes of memory, dual floppy disk drives, key boards and color VGA monitors should be acquired to run a 100-user Novell Netware 3.11. The servers should each be equipped with a 1.3 gigabyte Micropolis Radion Drive and attendant SCSI interface connectors. In the event that this technology can not be supported in Panama, each server should be equipped with at least 600 megabyte hard disk drives to provide proper data and software storage capacity. The advantage of the Radion Drive, apart from its huge disk storage capacity, is that it automatically mirrors all data, providing the user with an absolutely transparent backup in the event of a sector or disk failure.

There does not appear to be a tunnel or other easy venue for connecting the financial and administrative departments to the main building. Therefore, depending on the availability of a "clean" telephone link, either a real-time or dial-up solution is recommended to connect the two proposed LANs from their remote locations. The present Epson-based LAN's server (currently in the *Actas* Department) should be reassigned to function as a workstation on the network. The servers should have Network Loadable Modules (NLM) for power monitoring to allow power interruption shutdown procedures to be handled without loss of data files in process.

As noted for each department in Section III above, existing workstations should be augmented with networked, intelligent 80386SX microcomputers, running at 20 megahertz, with 4 megabytes of memory, 40 megabyte hard disk drives, dual floppy diskette drives (1/4" and 3 1/2"), network cards, Video Graphics Array cards, color monitors, and Latin American Spanish Keyboards. The use of intelligent workstations considerably increases the system's computing power and its user's independence and flexibility. Hardware additions, including 40 megabyte hard disk drives and 2 megabyte memory chips are recommended for all existing microcomputers to upgrade them as fully intelligent workstations. Five-minute Uninterrupted Power Supply (UPS) units should be purchased for each and every new and existing microcomputer and server. A LAN-attached facsimile capability, such as the Plain Paper Hewlett Packard Jet Fax, is recommended.

Two types of Printers are recommended: high workload, dual bin, laser printers such as the Hewlett Packard LaserJet IIISI with 4 megabytes of memory with local area network and PostScript font and typeface options and form-feeding dot matrix printers such as the *Epson LQ-1079*. Laser printers have become standard for document production and the small added cost of memory upgrades and a PostScript font and typeface option is justified because of the numerous presentation documents produced by the Legislative Assembly. Form feeding dot matrix printers will allow the Assembly's Financial Departments to print spreadsheets, fill-in pre-printed forms as well as automate its check-cutting tasks.

As recommended above for the Legal Department, a high-quality digital scanner with Optical Character Recognition Software attached, capable of reading even deteriorating

text, should be procured. The Kurzweil Discover 7320 is recognized as a highly effective product for such applications. This equipment would allow text capture from typewritten or computer printed text. This scanner would be used to develop full text archiving of bills and other incoming materials not in machine-readable form in the Legal Department. This equipment could serve additionally to capture graphic images for use in publications.

An Asynchronous Communications Server (ACS) with a minimum of four phone lines should be included in the hardware configuration for purposes of modem communications into and out of the Assembly. This will allow file transfers to and from other Government of Panama agencies such as MIPPE and the Controller General, and allow remote access to authorized personnel.

A desk-top publishing capability is recommended for the Press and Public Relations Department. Such a capability could lead to machine-readable transfer of Assembly documents from the Secretary General's Office to the Official Gazette published by the Ministry of the Presidency (MOP).

VI. Recommended Software Development Assistance

The data base, text retrieval and spreadsheet software recommended in this report will require substantial, intensive technical assistance to facilitate the design, structuring and programming of individual applications. It is not unusual to hear the uninitiated legislator wishing to be able to "push a button" and get information instantaneously on-screen. Care has been taken to identify the Assembly's principal information systems and functions and recommend appropriate software to automate them. However, the development of these automated information systems may take, in some cases, years. The majority of the limited outside funding available for this project should be focused on procuring recommended software and hardware. A certain percentage of the funding, however, should be allocated to train the proposed and existing Automated Information Systems staff described in Section VIII below to provide in-house technical assistance for software development in the following areas:

1. SYSTEM SECURITY DESIGN AND APPLICATIONS

Tailored for each department

2. DATA BASE MANAGER SYSTEMS DESIGN AND APPLICATIONS

- a. Bill Status System (Secretary General's Office)
- b. Daily Agenda (President's Office)
- c. Roll Call Votes (Plenary)

- d. Indexes (Secretary General's Office, Legal Department, Public Relations Department, Budget Committee, Audit Department, Personnel & Payroll Department)
- e. Inventories (Secretary General's Office, *Actas* Department, Financial & Administrative Directorate)
- f. Personnel Data Base

3. TEXT RETRIEVAL DESIGN AND APPLICATIONS

Committee Reports, Bill Analyses, Bill Drafting (Legal Department)

4. ACCOUNTING & AUDITING APPLICATIONS

- a. Fund Account Ledgers (Accounting Office)
- b. Internal Budget & Reports (Budget Office)

5. PAYROLL DATA BASE

Staff, Members & *Dietas* (Personnel & Payroll)

Outside technical assistance from the Controller General and MIPPE should be contemplated by the Assembly for 4(a),(b) and 5(a) above. In the case of the Bill Status and Text Retrieval systems at 2(a) and 3(a), it is recommended that outside technical assistance be provided under the Other Legislative Techniques and Technologies component of the Consortium's bilateral AID-financed project.

VII. Recommended User Training

Based on the proposed design of the overall automated Legislative Information System (LIS), and its hardware, software and applications components, the managers and users of the LIS will need both specific and general training and continuing education. General training will target the system's intended users and focus on familiarization with hardware, such as keyboard layout and printer operation, and off-the-shelf software, such as Wordprocessing or spreadsheet programs. This general training should be purchased from the vendor. This general user training can and should commence prior to system installation at the vendor's training facility. The end users of the various system components should receive ongoing and refresher training in-house from the systems staff. This will depend in part on their specific area of assignment and duties. Establishment of "user groups" for sharing of knowledge and experiences is recommended. The Assembly's leadership should support and encourage this ongoing training to insure maximum utilization of the LIS.

VIII. System Design

A. System lay-out on/off site

The Consortium will commission a study using local computer technicians to develop a diagram of the physical layout of the system and to estimate the cost of installing network cabling and, if necessary, repeaters. This study will also include an assessment and recommendations on real-time versus dial-up interface between the two proposed LANs. An electrician will also be hired to assess the Assembly buildings' electrical circuits and make upgrade recommendations (if any).

B. Integration of proposed systems into existing and pending Assembly-procured LAN

A phased time schedule for this will be developed, based on the Assembly's priorities after reviewing this technical study and its recommendations.

IX. AUTOMATED INFORMATION SYSTEMS DEPARTMENT PERSONNEL REQUIREMENTS

It is strongly recommended that the Legislative Assembly create an Automated Information Systems Department. The configuration of this department is outlined below. The Assembly's existing joint systems managers, Jose Luis Urriola and Annette Hernández de Mirabal (resumes are located at Attachment 4) should be integrated into this department within the suggested framework.

The systems management and training requirements of implementing and maintaining a viable Automated Information Systems division in the Assembly should consist of the following:

- A. (1) LIS Director (Systems Manager)
- B. (1) Assistant Director (Systems Analyst)
- C. (2) Programmer/Analysts

This group should be able to, with proper resource allocation (including salary level adequate to recruit and keep qualified people), support the operation and maintenance of Information Systems for the Assembly. The entire staff, including the director and assistant director, should be "hands-on" in systems work, not just detached "managers."

Many components must be put together over time to effect this. Of prime importance should be making the positions as permanent as possible to preserve continuity. The Director could report to the Secretary General's Office or the Financial & Administrative Directorate, but would have to work intimately with all management and key systems users.

LIS Director

The LIS director ideally would have a combination of Systems experience in a legislative environment - probably non-existent in Panama. Failing that, the person should be experienced in:

1. Novell Netware operations and management;
2. Micro computer operations;
3. Systems analysis and design;
4. Programming, probably in X-base (D-base and/or its clones).

This combination of skills should be available locally. Previous experience in the Panamanian Government would clearly be a positive qualification.

The following Network Analyst/Manager Classification was developed by Florida International University at the Legislative Assembly's request to help in a candidate search for a qualified, full time Information Systems Director.

Managerial/Administrative Responsibilities:

Responsible to the Secretary General of the Assembly.

Responsible for managing the Assembly's information systems and for formulating and recommending MIS policies and procedures to effectively administer the Assembly's various administrative offices and functional needs.

Responsible for interpreting and implementing pertinent administrative rules and policies and for recommending system improvements.

Assesses, designs, develops, and coordinates the implementation of additional information systems components. Further, initiates reviews, surveys, or studies of MIS practices and procedures as needed or anticipated.

From an MIS perspective, serves as liaison with other State entities (Supreme Court, Controller General, etc.) to coordinate and enhance connectivity and the exchange of information.

Operational Responsibilities:

Monitors the function of all networks and stand-alone work-stations, printers, and other peripherals.

Develops and implements procedures for maintenance and repair of computer and ancillary equipment.

Develops and maintains all documentation on operations and systems procedures.

Provides user training and technical support in network, hardware, and software use.

Investigates and resolves problems concerning networks, stand-alone workstations, and related peripherals.

Knowledge, skills, and abilities:

Knowledge of LAN systems, especially Novell 386 LAN's operations and supervision. Prefer candidate with Novell Netware Certification.

Ability to install, test, debug and customize network interface modules.

Ability to communicate technical data processing information effectively to end-users.

Ability to write, code, test, and debug PC-based programs in one or more high-level language and at least one database language.

Ability to interpret end-user requests/problems and conceptualize and translate these into cogent systems solutions.

Expertise with PC-based application packages in word processing, spreadsheets, database management, system utilities, and network utilities.

Ability to fluidly operate in various work roles, i.e., technician, systems analyst, programmer, manager, and instructor.

Assistant Director

Same as the above, with somewhat less experience in some of the areas but still well experienced in 3 of the 4 enumerated director requirements and capable/willing to increase the skill levels as time allows.

Programmer/Analysts

These persons should be experienced in data processing, probably best in some combination of database programming, spreadsheet usage, Wordprocessing expertise, exposure to networks, and the ability to perform user training in those areas.

X. Financing

A. Project Financing

Project financing is contemplated for seven areas:

1. Software
2. Hardware
3. Other equipment
4. Installation costs (technical support)
5. Specialized training for Automated Information Systems Department staff
6. General training for system users
7. Short-term technical assistance

It should be noted that funding for intensive technical assistance is not contemplated under this project. Two person-weeks of outside technical assistance by one LAN-expert and one legislative practitioner will be implemented after the system has been installed and users and the Information System Department managers have received general and technical training. This short-term technical assistance will serve to help smooth the transition to the new systems and provide guidance in the initial design of the advanced software applications described in Section V above.

B. Legislative Assembly Responsibilities

INFRASTRUCTURE REQUIREMENTS FOR LIS OPERATION AND MAINTENANCE

The implementation, operation and maintenance of the LIS will require a commitment to install proper infrastructure components. The cost of these improvements must be borne by the Assembly, but are mandatory to the establishment and proper functioning of the system. They include but are not limited to:

Humanware

The Assembly will be responsible for payroll and all other costs involved in recruiting and retention of quality personnel. This signifies a commitment to the goals of the project. Advancement opportunities should hopefully be sufficient to keep the average tenure of a trained person to 5 years.

Cabling and Power

Installation of quality network cabling and power outlets and maintenance of those components is mandatory.

Communications Lines

Any communications lines such as phone or direct or microwave components must be supported and maintained by exterior agencies of the government, such as INTEL.

Hardware Maintenance

The Assembly should procure a contract for per-call, on-site repairs of malfunctioning hardware components. Preventative maintenance of network servers should be performed no less than twice yearly by a quality contractor. Microcomputer workstation and printer maintenance could probably be executed in-house with periodic cleaning and on-call repair for unit failure or malfunction. An inventory of spare parts such as floppy disk drives and monitors should keep most units from being out of operation for unreasonable periods of time.

Environment

The location of file servers should be kept out of publicly accessible areas. This is critical because space for operations is limited. These areas must be kept clean and ventilated, and should not include spaces likely to generate excessive heat. To a lesser degree, the same is true for printers and PC workstations. Proper lighting and ergonomics (proper chairs, desks, etc.) are important but often ignored.

Supplies

This should be an assumption, but is often shorted in resource allocations. This includes acquisition of laser printer toner, tapes, diskettes and paper.

XI. Procurement Options (Project Financed Portions Only)

The recommended software and hardware will be purchased through Florida International University in order to guarantee the lowest possible prices on the market. There are, however, several issues which need to be considered:

- A. **In-Country Product Support:** It is recommended that hardware be purchased from a major international computer company with well established local presence, such as IBM, on the understanding that it will install the equipment and provide "one-stop" support for the selected hardware and software products. Where possible, local licenses should be purchased for software products. The Legislative Assembly will have to assume responsibility for negotiating and financing maintenance agreements once product warranties expire.
- B. **Security of Shipment:** Equipment should be shipped C.I.F. Panama City. The Legislative Assembly should facilitate appropriate security measures at the port of entry and in transit to the installation site.
- C. **Import Tariff:** If import taxes are levied on incoming equipment, it could potentially offset gains realized by purchasing items in the US and shipping them to Panama. The Legislative Assembly has informed us that it will not be able to process duty-free

entry of these goods. Therefore, USAID/Executive Office assistance is requested to process a *franquicia* for duty-free entrance of commodities.

- D. **System Installation:** This should be provided by the major vendor selected as noted above, if necessary, at additional cost. A Consortium/FIU Automated Information Systems specialist should supervise system installation on site.

XII. Proposed Timeframe for Implementation

| ACTION | MONTH▶ | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
|--|--------|----|----|----|----|----|----|----|----|----|----|----|
| Review and Approval of Technical Recommendations | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| System Lay-out/Electrical Circuit Study | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Hire & Place Automated Information Systems Director | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Advanced Network & Applications Training for New Director and Current Managers | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| General User Training | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Site Preparation | | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Installation | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ |
| Short-term Technical Assistance/Applications Development | | | | | | | | ■ | ■ | ■ | ■ | ■ |

XIII. Appendices

APPENDIX A: Component Table and Illustrative Pricing

| Category | Item Description | Quan. | Unit Cost | Total | Vendor |
|--------------------------|-----------------------------------|-------|-----------|------------------|------------------------|
| Server (80486) | IBM PS 2/95 486SX | 2 | \$6,237 | \$12,474 | Caber Systems |
| External Drive | Metropolis Radion 1.3GB | 2 | \$7,297 | \$14,594 | |
| Drive Interface | SCSI connectors | 2 | \$375 | \$750 | |
| Node PC's (80386SX) | IBM PS/2 57SX | 25 | \$2,320 | \$58,000 | Caber Systems |
| Node LAN Cards | NE/2C Ethernet Kit with/Cable | 28 | \$277 | \$7,756 | Caber Systems |
| Server LAN Cards | NE/2-32 W/Cable | 2 | \$595 | \$1,190 | Caber Systems |
| Ram Upgrades | 2MB RAM | 26 | \$100 | \$2,600 | |
| HDD Upgrades | 40MB HDD | 9 | \$229 | \$2,061 | |
| Lan Interface Kit | Novell Power Chute | 3 | \$77 | \$231 | Caber Systems |
| Dot Matrix Printer | Epson LQ-1079 | 4 | \$359 | \$1,436 | USA/Flex |
| Laser Printer | HP LJIII-SI 4MB RAM, PS, LAN Opt. | 10 | \$4,026 | \$40,260 | National Data Products |
| Server UPS | Tripp-Lite BC 750 | 3 | \$439 | \$1,317 | Midwest Micro |
| Node UPS | Tripp-Lite BC 500 | 40 | \$261 | \$10,440 | Caber Systems |
| Tape Backup | Everex-250MB | 3 | \$259 | \$777 | Micro Computer |
| Plain Paper FAX | Hewlett Packard Jet FAX | 3 | \$1,045 | \$3,135 | Nat. Data Prod. |
| | Lan Attachment | 3 | \$595 | \$1,785 | Extended Systems |
| Telecomm Hardware | Prometheus | 4 | \$400 | \$1,600 | JDR Micro Devices |
| OCR Scanner | Kurzweil Discover 7320 | 1 | \$7,590 | \$7,590 | Syst. Automation |
| Photocopier | Xerox 5034 | 1 | \$9,600 | \$9,600 | |
| Subtotal Hardware | | | | \$177,596 | |

APPENDIX B: Software Component Table and Illustrative Pricing

| Category | Item Description | Quant. | Unit Cost | Total | Vendor |
|-----------------------|--|--------|-----------|-----------|-------------------------|
| LAN Operating System | Netware V3.11 100 Users | 1 | \$4,233 | \$4,233 | Novell |
| Word Processing | WordPerfect 5.1 Server (Spanish) | 2 | \$355 | \$710 | Dustin Software |
| | Additional User Licenses (20 each) | 3 | \$7,506 | \$22,518 | WordPerfect Corporation |
| Shell | WordPerfect Office 3.0 (Spanish) 5 Users | 10 | \$595 | \$5,950 | WordPerfect Corporation |
| Database | Fox-Pro (unlimited license) | 1 | \$789 | \$789 | Comp/USA |
| Spreadsheet | Quattro-Pro LAN Pac 5 Users | 1 | \$1,190 | \$1,190 | Borland |
| Lexical DBMS | ZYIndex Plus LAN & Sp. Version | 30 | \$145 | \$4,350 | ZY Labs, INC. |
| Text Retrieval | Folio-Views | 6 | \$500 | \$3,000 | |
| Presentation Graphics | Harvard Graphics | 4 | \$400 | \$1,600 | Comp/USA |
| Workstation Telecomm | PC Anywhere | 1 | \$359 | \$359 | Comp/USA |
| Telecomm Software | Modem Assist | 3 | \$495 | \$1,485 | Black Box |
| LAN/Utility Hardware | LAN Analyzer Station | 1 | \$5,202 | \$5,202 | Caber Systems |
| Disk Utilities | Norton Utilities 6.0 | 50 | \$120 | \$6,000 | Dustin Software |
| Document Conversion | Wang WFLink | 1 | \$219 | \$219 | Wang Labs |
| Subtotal Software | | | | \$57,605 | |
| Subtotal Hardware | | | | \$177,596 | |
| Training | | | | \$10,000 | |
| Installation | | | | \$10,000 | |
| Short T.A. | | | | \$7,000 | |
| Total | | | | \$252,219 | |

APPENDIX C: Outside Institutions

The Consortium has identified several outside institutions with which the Legislative Assembly works on a daily basis. The Consortium team visited these institutions to learn about their automation efforts and their working relationships with the Legislative Assembly. Below are brief descriptions of these institutions and observations on their relationships to the Legislative Assembly. Each of these institutions is included in USAID/Panama's scope of assistance. In some cases, AID/W/IRM has prepared several comprehensive technical evaluations and recommendations for the implementation of automated information systems in these institutions. Every effort has been made in this report to incorporate technical recommendations from these concurrent and complementary USAID-financed efforts. Where possible, the recommendations in this report seek the maximum level of standardization with other Government of Panama agencies.

1. The Supreme Court

On Thursday, January 30, 1992, the Consortium technical team visited the Supreme Court. This meeting took place in two phases. The team first met with the President and several magistrates of the Supreme Court as well as their technical staff. Legislative Assembly personnel, including the Secretary General, participated at the Consortium's request. This meeting served to inform the Supreme Court that the Legislative Assembly was planning to automate its information system needs and that we, as the technical team, were interested in understanding the technical aspects of the Supreme Court's automation efforts so as to take these into account in designing the Assembly's automated Information Systems. The team learned that the Supreme Court's modernization effort was aimed at alleviating the saturation of the Panamanian justice system. In 1990, for example, 40,000 cases were filed. AID sponsored the initiation of automation at the Supreme Court. The Supreme Court has established an Information Systems Department and has sent teams to Mexico, Spain and Costa Rica for site visits. Although available resources are limited, the Supreme Court hopes to acquire fifty-five CPUs to automate priority areas in Panama City and Colon.

The team met separately with the Supreme Court Technical Staff. This meeting revealed that the judiciary is in the early stages of developing a comprehensive jurisprudence and case tracking system. The Supreme court computer technical staff, José Carlos García S. and Daniel O. Meana M., under the direction of legal scholar Edgardo A. Villalobos A., have developed a sophisticated database using Clipper.

Although the eventual automation of jurisprudence may be of some interest to the Legislative Assembly, the Supreme Court and the Legislative Assembly have a common interest in the automation of the Index of Laws at the University of Panama's Law School. The Supreme Court and the University of Panama have signed a protocol to facilitate the Supreme Court's access to the Law School's database in exchange for assistance to help automate this key information system.

The Supreme Court and the Legislative Assembly both expressed interest in collaborating on information sharing and information systems development.

2. The Law School of the University of Panama

On January 30, 1992, the Consortium team held two meetings with the dean of the University of Panama's Law School and the technical staff who maintain the Law School's manual index of laws and are developing plans to automate this key information system. Currently, AID/W/IRM has developed a plan to automate the Law Index database. While a complete manual history of the country's laws, as published in the Official Gazettes is available, it is not currently in machine-readable form.

The Law School discussed its plans to expand infrastructure during 1992, focusing especially on its Legal Research Center. This Center operates the only cross-referenced index of Panamanian legislation as amended in the country. The Research Center is staffed by five attorneys. Two persons staff a telephone inquiry station that receives inquiries from the Government of Panama, private attorneys, and interest groups. The Legislative Assembly has drafted a protocol with the University, similar to the existing agreement with the Supreme Court, which has not yet been ratified. The dean of the Law School indicated that he supports efforts for joint cooperation with the Legislative Assembly, the Courts and other users.

The Legislative Assembly's Legal Department has a limited bill-drafting capability that is largely dependent on the Law Index at the Law School's Legal Research Center. This database is an invaluable resource for the Legal Department in preparing the legal opinions that must accompany all bills when submitted to committee for first reading. The Legislative Assembly is not only a primary user of the Law School's Center for Legal Studies, it is, by constitutional mandate, the only branch of government empowered to take the Center for Legal Studies's project to its logical conclusion: the development of unified, cross-referenced and codified statutes.

Currently, the codification of Law into chapters and volumes is done by private attorneys in a spontaneous effort to infuse some measure of consistency in the application of the law. However, Panamanian Law continues to be expanded and amended without the benefit of a systematic effort to incorporate the cumulative, uncoordinated changes made by the legislature over the years. Developing statutes is a critical but long-term, complex and politically sensitive process in which the legislature must play a substantive role. It is highly recommended that the Legislative Assembly and the University of Panama conclude the cooperative protocol that has been developed to allow both institutions to collaborate in this mutually important information system.

3. The Controller General of the Republic

On January 31, 1992 the Consortium team met with the Controller General's Information Systems Director, Lic. Javier J. Solís Díaz. As with all outside meetings, a representative from the Legislative Assembly accompanied the Consortium team. The Controller General's Information Systems Department is an extremely important resource for the Legislative Assembly. There are several areas of this report, especially the Administrative Information Functions sections, in which the Controller's technical assistance will be needed. Please note that several of the recommended software solutions are intended to conform to the standards that the Controller General is working to establish for all Government of Panama Agencies.

The meeting with the Controller General's Office had three purposes:

- 1) To inform the Controller General's office of the AID-funded information system automation project and the Consortium team's effort to design and implement this system;
- 2) To gather information on the Controller's own computer resources and automation modernization plans; and,
- 3) To gather information on the Controller's government-wide policies on computerization.

With regard to point 1, Lic. Javier J. Solís asked who would pay for the Assembly's computer equipment. We responded that this would be financed under the AID-funded project. Once the Assembly's financial responsibilities under this project have been delineated, it would be advisable for these to be coordinated with the Controller to insure, before implementation begins, that there will not be any problems.

With regard to point 2, Lic. Solís said the Controller had a seventy-person information systems staff. We also were told that the Controller currently possesses the following automated information systems:

An IBM 5381 B13 Mainframe computer with 24 MB of RAM, 9GB of data storage connected to 60 local terminals and 85 remote terminals. The Mainframe runs the following applications:

- a) *Accounting*: Mantis
- b) *Database Management*: Supra
- c) *Statistical Analysis*: Cents (U.S. Census Bureau program)

In addition, 30 microcomputers are linked to the Mainframe, running the following applications:

- a) *Accounting*: Lotus 123 and Quattro
- b) *Database Management*: D-base

The Controller has two independent Local Area Networks donated in 1987 by the United Nations to support the 1990 Census currently operating:

- a) Eight (8) 80286 nodes operating on two (2) 80386/300MB HDD servers in a Novell environment;
- b) 5-node Macintosh LAN running desktop publishing applications.

Lic. Solís said that the Controller had undertaken a study of its own computer systems and detected the following problems:

- 1) Users were not backing-up data;
- 2) The systems were infected with viruses;
- 3) There was no standardization, such as the concurrent use of Lotus and Quattro products.

This study made several concrete recommendations, including:

- 1) Standardize applications software to include:

- a) *Wordprocessing*: WordPerfect 5.1
- b) *Spreadsheet*: Quattro Pro
- c) *Data base management*: X-base or Clipper
- d) *Presentation graphics*: Harvard Graphics

- 2) Institute preventive maintenance, including keeping spare parts on hand;
- 3) Maintain an ongoing training program for users in software applications and upgrades;
- 4) Network LANs to mainframe environment.

4. The State Budget and Planning Ministry (MIPPE)

On January 31, 1992 the Consortium team visited MIPPE. This meeting was intended to introduce the Assembly's automation plans to MIPPE. The team met briefly with the director of MIPPE's information systems office and talked to the technical staff. The team found a high degree of receptivity at MIPPE to coordinating information systems to allow for data exchanges. MIPPE is currently using the following equipment and software applications:

- 1) Xenix operating system
- 2) Lotus 123

MIPPE is using a very old Altos minicomputer to run the Xenix operating system and Lotus applications, but plans to upgrade to microcomputers. MIPPE is using WordPerfect and Foxbase on their PC's and seem to have written most of their applications on the Altos system in Cobol. MIPPE also has a remote terminal connected to the Contrólora de la República, primarily for inquiries to the Controller's budget system.

MIPPE provides analysis and guidance to the Legislative Assembly in developing its internal budget. The Assembly's Personnel Department has also received assistance from MIPPE to standardize its personnel policies and systems with Government of Panama Agencies.