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**Text and Document Handling Study**

Submitted to:

The Agency for International Development  
Information Resources Management Division

Contract No.: AOT-0000-C-00-312600

April 7, 1994

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A Diversified Small Business Professional and  
Technical Services Organization

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**The Agency for International Development  
Information Resources Management Division**

**Text and Document Handling Study**

**Contract No.: AOT-0000-C-00-312600  
COTR: Wayne Van Vechten**

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**KRA Corporation**

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# Chapter 1

## USAID Text/Image Information Management Study

### 1.0 Introduction

### 1.1 Study Purpose

This document is the final report of a study intended to identify and explore issues relating to text and image information within the United States Agency of International Development (USAID or the Agency). The study includes the following:

- Examining and defining the Agency's current text and image information environment. (Section 2.0, USAID Text/Image Information Environment)
- Identifying an information management vision set forth in the Agency's Information Systems Plan (ISP) and the text and image information implications arising from this vision and current Agency organizational changes. (Section 3.0, Vision)
- Comparing identified information types and tools within the Agency's information environment with this vision and its implications to identify current patterns which, if continued, will hinder attaining the vision. (Section 4.0, Analysis)
- Recommending changes to coordinate and realign current text and image information management practice to better attain the ISP vision. (Section 5.0, Recommendations)

### 1.2 Requesting Customer/Organization

This study was undertaken on behalf of USAID's Office of Information Resources Management (M/IRM). M/IRM is responsible for information management/technology matters, as defined in the Paperwork Reduction Act. Because of the study's cross-cutting nature, active input to and feedback on the study has been solicited from USAID's Records Management Branch (FA/AS/ISS/RM), which has formal responsibility for managing the Agency's records management program as defined in the FIRMR, and from the Center for Development Information and Evaluation (PPC/CDIE/DI). PPC/CDIE/DI's "institutional memory and clearinghouse" activity is closely tied to the records management program, since it handles many of the same documents.

### 1.3 Background

In 1992, the United States Agency for International Development conducted an indepth analysis of its information management and technology policies, practices, and procedures. This study, the Information Systems Plan (ISP), was led by M/IRMI and was the first step in a multiyear effort to upgrade all information systems in USAID using the information engineering methodology. The ISP examined USAID's basic business functions and how information is used to support these functions.

Among its many findings, the ISP concluded the following:

- USAID is not a traditional Government "data mill" like the Internal Revenue Service or the Social Security Administration. Rather, it is a project management organization.
- USAID has not developed extensive information resources management (IRM) systems to support its primary business, the work of planning and managing development projects.
- The Agency's automated systems to date have concentrated on numeric or structured data, as opposed to textual information. Yet this textual information is critical to an Agency that relies as heavily on ideas as it does on numbers. While significant effort to date has focused on managing information at the data systems record level, scant attention has been paid to the much larger issue of dealing with existing paper documents, documents in electronic format, and records in other media (video tape, film, slides, software, etc.)
- Increasingly sophisticated tools are becoming available that do address USAID's core project management business. These new tools increasingly offer solutions to USAID's business needs, particularly if they can be effectively integrated with financial and other support systems.
- Although numerous attempts have been made to develop specific text and project management applications, these efforts to date have been uncoordinated, have used outdated technologies, and have created tremendous redundancies. Neither USAID Washington (USAID/W) or the overseas Missions have effectively implemented CASE<sup>2</sup> tools, data administration, relational database management systems, or other modern tools.
- USAID's textual and image information management systems, as they are now evolving, are thus uncoordinated, do not take advantage of the most recent technologies, and have no hope of being effectively integrated.

## 1.4 Scope

The ISP proposed followup "Business Area Analyses (BAAs)" in eight functional areas (Core Accounting, Workforce Management, Procurement Management, Property Management, Communications Management, Guidance Management, Annual Budgeting, and Operational Management). The ISP also proposed that further study be conducted in several cross-functional areas, cutting across several business areas defined under a Special Projects Initiative. This study focuses on one of the ISP's recommended Special Project Initiatives, the cross-functional Text/Image Management and Retrieval area. The study addresses the cross-cutting topic of records management in general and text and image management in particular.

## 1.5 Summary of Findings and Recommendations

USAID depends on textual documents to an unusually high degree. Project papers, white papers, correspondence, analyses, and similar unstructured, text-based documents fill the Agency's files and dominate Agency "knowledge worker" efforts. A small percentage of this text information, mainly historic documents and local information at specific Missions, is currently stored as full-text microfiche or digital images.

This text information is of several major types:

**External Information Resources**—Text and images coming into USAID from outside sources.

**Internal Information Resources**—Text and images generated within USAID. These internal information resources are further divided into two major groupings:

- **Internal "Finished" Documents**—Organized and filed text and images representing completed studies, reports, memos, abstracts, etc. "Finished" documents represent the Agency's business, document that business, and provide input to the Agency's recorded institutional memory.
- **Internal "Live" Information**—Text and images in the process of being added to or becoming finished documents, but currently acting as "live" document drafts, mark-up comments, work group notes, E-Mail exchanges, etc.

Over the years, PPC/CDIE has developed extensive information tools, procedures, and specialists dedicated to obtaining, organizing, analyzing, and disseminating external information resources and internal "finished" documents concerned with Development Information (DI). Basic awareness of and access to these types of information is now mainly provided through information specialist "intermediary" actions. The systems developed to manage this information include bibliographic databases, abstract journals and database entries, CD-ROMs, and an older collection of approximately 80,000 full-text documents images on microfiche. *The Agency's overall procedures and systems to manage external and internal "finished" documents are in place and are working, but many are based on older technology which is becoming increasingly isolated from the Agency's now-established standards. Almost all "pilots" and local efforts to manage this information are being developed in an uncoordinated, isolated manner. Agencywide standards to determine the need for system creation or change, and criteria to measure pilot projects against, do not exist.*

Internal "live" information is by far the largest amount of text information throughout the agency. It is also becoming the most important type of information, as the Agency reengineers its core operations processes to stress collaborative participation with clients and counterparts, empower field staff to make quick decisions, and increase field collaboration with USAID/W in a teamwork mode to achieve results. An estimated majority of USAID staff and contractor time is now spent in collaborative effort, generating, sharing, and working with large amounts of "live" information. And yet, during the processes by which collaborative ideas evolve and both external resources and internal "live" information are combined into finished documents, *there are currently few information tools used to support the collaborative process, few information tools designed to specifically support this process, and no procedural guidelines to streamline and standardize it throughout USAID.*

Given this situation, this study's recommendations to change these conditions and better align USAID's information management environment to attain the ISP's future vision include the following:

- Coordinating PPC/CDIE, M/IRM, and M/AS/ISS/RM efforts, at minimum by establishing a coordinating group that meets regularly to discuss information management directions, policies, common needs, etc., and at a maximum by merging M/AS/ISS/RM into M/IRM to synthesize between these two ever more closely related organizations.
- Establishing Agencywide text and image information management policies, procedures, standards, guidelines, pilot project criteria, and an "standard tool kit" through these coordinated efforts.
- Applying "lessons learned" from pilot projects which are dealing with various aspects of "live" information management. In this regard, investigating the broad application of LotusNotes/BeyondMail on a priority basis.
- Continuing to use established systems and procedures to manage external information resources and internal "finished" documents, but shifting these efforts' focus to encourage more direct user-information interface, develop full-text document storage and retrieval capabilities, evolve information specialist roles to emphasize user training and supplemental support, and decrease "intermediary" actions.

## Chapter 2

### USAID Text/Image Information Environment

#### 2.0 USAID Text/Image Information Environment

As an organization, USAID is dependent on textual documents to an unusually high degree. As the ISP stated, USAID is as much an "idea" factory as it is a data factory. Large amounts of structured data, such as procurement transactions and accounting figures, are generated and flow throughout the Agency. But to a much greater extent, project papers, white papers, correspondence, analyses, and similar unstructured, text-based documents fill the Agency's files and dominate Agency knowledge workers' efforts. For example, approximately 10,000 USAID-generated and funded development experience reports are received and reviewed each year by PPC/CDIE's Development Information (DI) staff, and over 100,000 program-funded USAID development experience publications, newsletters, reports, acquisitions lists, and CD-ROM publications are distributed. Yet DI information represents only a subset of one type of textual/image information flowing into and throughout the Agency.

This chapter identifies and briefly describes a number of text and image information types, tools, and pilot projects which together make up USAID's textual and image information "environment."

#### 2.1 Information Types

This section briefly describes different types of textual and imaging information within USAID. Specific information types are organized into one of several major categories:

**External Information Resources**—Text and images coming into USAID from outside sources.

**Internal Information Resources**—Text and images generated within USAID. These internal information resources are further divided into two major groupings:

- **Internal "Finished" Documents** - Organized and filed text and images representing completed studies, reports, memos, abstracts, etc. "Finished" documents represent the Agency's business, document that business and provide input to the Agency's recorded institutional memory.
- **Internal "Live" Information** - Text and images in the process of being added to or becoming finished documents, but currently acting as "live" document drafts, markup comments, work group notes, E-mail exchanges, etc.

Figure 2.1-1 places these types of information resources within a general USAID information flow model. The Information tools through which these information types pass are identified and described in paragraph 2.2 below.

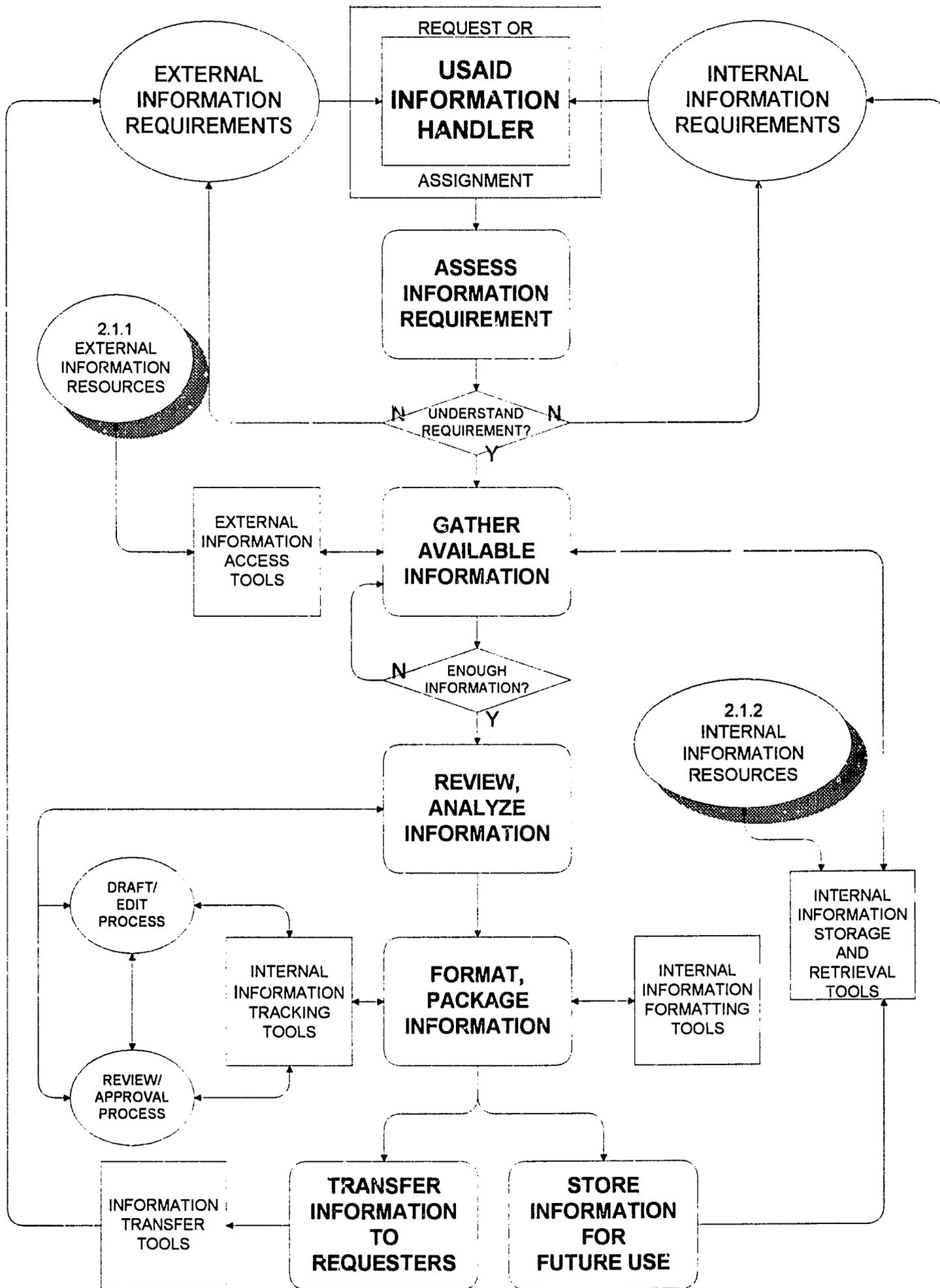


FIGURE 2.1-1 - USAID INFORMATION TYPES

## **2.1.1 External Information Resources**

### **2.1.1.1 PPC/CDIE "Intermediary" External Data Base and Document Services**

PPC/CDIE's Office of Development Information (DI) provides "intermediary" access to external data bases through traditional library and clearinghouse services. Trained DI staff work with USAID users to define information requirements, select appropriate databases that may meet these requirements, establish contact with the chosen databases, conduct searches on them, and extract bibliographic citations and abstracts from them meeting the established search criteria. These database "hits" are reviewed with the Agency users. If they meet the user's information needs, the DI staff provides followup services to obtain the cited documents. If they do not meet the requirements, the database search process is expanded or narrowed accordingly. External databases tapped in this way include the MEDLARS databases of health literature, Dun and Bradstreet for company information, NEXIS for news, and the Dialog family of databases covering agriculture, natural resources, trade and investment, economics, industry, and education.

In addition, DI maintains exchange agreements with major donors to obtain project and program documents and taps a vast network of outside experts in international donor organizations, private voluntary and nongovernmental organizations, academic institutions and associations.

PPC/CDIE's Research and Reference Service (R&RS) is staffed with trained information managers and analysts. These "intermediaries" actively procure and use external information resources in their research, analysis and synthesis of research results.

### **2.1.1.2 Foreign Assistance Act (FAA)**

The FAA is USAID's basic legislative authority; it is a paper document, approximately 4 inches thick, and is maintained in Legislative Affairs (LEG). It contains laws, regulations, and Foreign Affairs legislative documents, including bills and committee reports.

LEG is concerned that only one person in the Office thoroughly understands the FAA. When this person retires, serious problems will arise when trying to find FAA information. Therefore, LEG is interested in exploring electronic, searchable options to FAA use especially if LEXIS, NEXIS, E-forms or other electronic versions of the FAA exist. Because the FAA is currently being rewritten by Congress, pursuing these questions is best put on hold for the time being.

### **2.1.1.3 INTERNET Data Bases**

The Agency's INTERNET node, now being established by M/IRM, will allow USAID employees to obtain direct, on-line access to a vast network of external database resources. This INTERNET access will establish a direct link between USAID staff and external information resources. It is probable, however, that those within USAID learning to use

this direct access will have a continued need for "intermediary" assistance. Trained INTERNET searchers from PPC/CDIE can help teach these workers how to best use INTERNET's many options and how to streamline search techniques. These intermediaries will also continue to conduct INTERNET searches, analyze the search "hits," and provide research results to the requesting staff members.

#### **2.1.1.4 Press Clipping Summary**

USAID's Public Affairs Office prepares and circulates a press clipping summary in hardcopy format to various Agency managers and interested staff. Summary entries are gathered from a worldwide selection of newspapers received each day. PPC/CDIE feels that the Foreign Broadcast Information Service (FBIS) could play a role in helping supply this type of external information.

#### **2.1.1.5 Wire Stories (AM & PM Versions)**

Public Affairs also prepares AM and PM wire story summaries and circulates these paper summaries throughout the Agency. Again, PPC/CDIE feels FBIS has a role to play here.

### **2.1.2 Internal Information Resources**

USAID's internal information resources are created by the Agency to support a wide variety of operational and administrative functions. Internally created textual and image information is organized and stored in many different electronic and hardcopy ways, as described in paragraph 2.2.2 below.

#### **2.1.2.1 Internal "Finished" Documents**

Almost all USAID internal textual and image information identified and reviewed during this study falls within the category of "finished" documents, and almost all the internal information access, storage and retrieval, and transfer tools discussed in section 2.2 are focused on obtaining, organizing, and transmitting this type of information.

PPC/CDIE's traditional library and clearinghouse operations have evolved to capture, organize, and provide access to finished documents. In USAID Handbook 18, PPC/CDIE has provided extensive listings of these finished document types, divided into nine "Development Experience Document" categories. These categories include the following:

- Policy Development and Policy Directives
- Program and Project Development Studies, Surveys, and Analyses
- Program Descriptions, Justifications, and Reviews
- Project Design and Authorization Documents
- Program and Project Evaluation, Performance, and Indicator Reports

- AID-Supported Reports
- AID Organizational, Functional, or Sectoral Management Studies
- Nonprint Information Products
- Contractor and Grantee Reports

During the focus group interviews conducted for this study, some of these types of finished documents were discussed. The following table summarizes the focus groups' comments:

Finished Document Type	Focus Group	Comments
Abstracts	PPC/CDIE	<p>Abstracts developed by CDIE are indexed according to the CDIE thesaurus.</p> <p>There has been a shift in recent years from creating abstracts to using already existing abstracts (with some added editing).</p>
Briefing Papers	PPC/CDIE	<p>Briefing papers contain numbers, tables, graphs, and very little text. Text is used to explain this data.</p>
Congressional Correspondence (CC)	Legislative Affairs (LEG)	<p>Approximately 10,000 pieces per year from Congress, addressed to individuals, the Administrator, LEG, Executive Secretariat (ES), etc.</p> <p>Mostly to Procurement, HRDM &amp; NIS. Congress is particularly interested in looking at any new programs.</p> <p>CC is supposed to go through LEG first, and then through ES, but this does not always happen in practice.</p> <p>Individual responses are prepared for each CC. E-mail is used to send documents to the General Council, Policy &amp; Program Coordination, and Budget. Paper comments, usually in the form of margin notes, are returned.</p> <p>90% passes through LEG for final approval and signature, except if the Administrator's signature is required.</p>

Finished Document Type	Focus Group	Comments
Congressional Notifications (CN)	LEG	<p>1,000 items a year, stored in WordPerfect Macros and provided to Congress at least 15 days before scheduled obligations. 1-2 pages in length, providing project summaries and describing new projects and changes in existing projects.</p> <p>Produced by statutory requirement, required for every obligation and funding change. CNs represent the <i>intent</i> to obligate.</p> <p>dBase is used to organize and track essential notification information.</p> <p>Individually produced CNs are very frustrating to produce. They used to be produced in tables, making the process much easier.</p> <p>Program offices keep CN copies in "official" files.</p>
Country Profiles	LEG	Feels they contain sensitive information and therefore should not be provided via INTERNET or E-mail.
	R&D	Health profiles, country assessments, country profiles are produced.
Daily Reports to the Administrator	LEG	5-10 pages/day, placed in the Executive File Access System (EFAS) for USAID/W availability, and E-mailed to 35-40 overseas Missions.
Handbooks	Cairo	<p>Handbooks are out of date by the time they are received.</p> <p>Need Handbook revision in existence when certain decisions were made, i.e., if decision was made 5 years ago, need to look at policy then. Need easy access to historical records and past decisions.</p>
	HRDM	Responsible for 10 Handbooks. Very difficult to keep Handbooks updated. Currently 30% behind.

Finished Document Type	Focus Group	Comments
Newsletters	R&D	<p>Many newsletters are produced and transferred, by both electronic and paper channels. Paper still predominates.</p> <p>Newsletters are organized by subject and/or locale—environment, etc. Newsletters meet specialized information needs.</p>
Personnel Records	Africa Bureau	<p>9 filing cabinets in the Management office full of hardcopy personnel files, contractor files, leave records, and SFS records.</p> <p>No guidelines on how to handle this information.</p>
PILs	Dominican Republic	<p>PIL life cycle—Project officer drafts, prints out, sends to supervisor for approval. Supervisor makes changes using his/her computer, prints out another copy and forwards for signature. Once signed, someone physically distributes document and gives it to the file custodian. File custodian enters in the Magellan system</p> <p>Although they feel they could simplify this process by using E-mail, so far they have not done so.</p>

Finished Document Type	Focus Group	Comments
Project Papers/Files	Cairo	<p>300 active projects. Papers for each include project implementation plans, budgets, trip reports, assessments, contracts, subcontracts, amendments.</p> <p>Project paper Final Reports are stored in Magellan files and as paper files. Project papers are transferred via fax, cable and E-Mail. EXONET is used to send them to other missions.</p> <p>USAID/W often requests duplicate electronic and hardcopy media transmissions.</p> <p>Project papers are prepared on WordPerfect. 90% of Cairo staff have 486 computers on their desks.</p> <p>Project papers are kept on site for 3 years, then shipped to USAID/W for storage. No microfilming, scanning or imaging is performed.</p>

### 2.1.2.2 Internal "Live" Information

There is a highly collaborative aspect of work at USAID. Ad hoc working groups form around issues, exchange numerous drafts and large amounts of information and, through this process, produce textual and image information in the form of memos, final reports, meeting minutes, policy papers, etc. The information stemming from this collaborative process becomes the "finished" documents flowing into the internal information storage and retrieval tools discussed in paragraph 2.2 below.

Internal "Live" information is any piece of data, textual or image information passing through the collaborative process, going into the evolving "mix," and on its way to becoming a piece of a finished document. During this collaborative process, "live" information exchanges throughout USAID now include draft memos exchanged by E-mail, circulated draft reports, papers sent out for comment, working files on personal computers, etc. These information exchanges are informal and use existing interoffice "sneaker nets," routing envelopes, disk exchanges, E-mail channels, official cable and pouch exchanges, phone conversations, etc.

This situation will be more fully explored in this report's analysis section; it is key to understanding USAID's current information culture and growing frustrations. For now, it is important to note that an estimated majority of USAID staff and contractor time is spent in these collaborative efforts. And yet, during the processes by which collaborative ideas evolve and both external resources and internal "live" information are combined into finished documents, *there are few information tools used to support the collaborative process, few information tools designed to specifically support this process, and no procedural guidelines to streamline and standardize it throughout USAID.*

## 2.2 Information Tools

The automated and manual tools identified throughout USAID/W and the overseas Missions during this study's focus group interviews and background document research are described in this section. These tools have been categorized into one of five generic tool groupings. Figure 2.2-1 places these five tool groupings within an overall USAID information handling flow." These information tool groupings include the following:

**External Information Access Tools**—Tools which provide USAID access to external information sources.

**Internal Information Storage and Retrieval Tools**—Tools used within USAID to capture, store, organize, and provide a means to search and retrieve various types of textual and image information.

**Internal Information Formatting Tools**—Tools used within USAID to prepare textual information and format it into structured information.

**Internal Information Tracking Tools**—Tools used within USAID to track documents (hardcopy and electronic) through various draft-edit and review-approval processes.

**Information Transfer Tools**—Tools used to transfer USAID information to internal and external users.

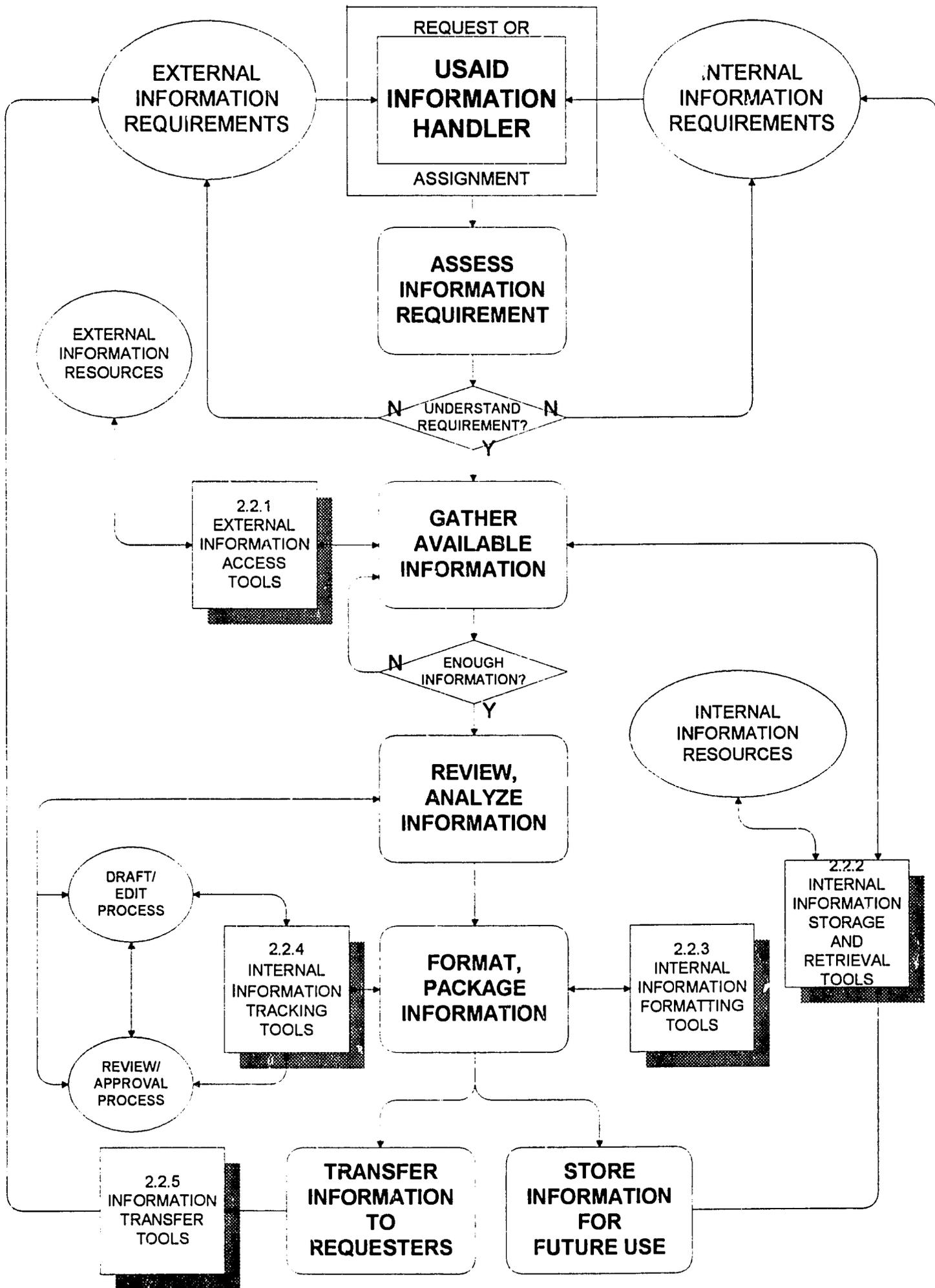


FIGURE 2.2-1 USAID INFORMATION TOOLS

## **2.2.1 External Information Access Tools**

Both automated and manual (human) tools that provide USAID access to external information sources are identified in this section.

### **2.2.1.1 PPC/CDIE Development Information (DI)**

Within PPC/CDIE, the DI and R&RS staffs access hundreds of commercially funded bibliographic databases covering topics of interest to the Agency. These databases include the MEDLARS databases of health literature, Dun and Bradstreet for company information, NEXIS for news, and the Dialog family of databases covering agriculture, natural resources, trade and investment, economics, industry, and education. DI researchers access many specialized databases of donor experience, including the World Bank, the International Labor Organizations, and the International Development Research Centre in Canada.

PPC/CDIE's R&RS staff uses the many exchange agreements that DI has established with other major donors to obtain project and program documents which give the Agency a clearer picture of development activity worldwide and add to the pool of development lessons learned. In addition, the R&RS staff taps a vast network of outside experts on development issues. Contracts include experts in international donor organizations; private, voluntary, and nongovernmental organizations; academic institutions; and associations.

Access to these external information resources are provided to USAID staff in traditional library and clearinghouse ways: PPC/CDIE/DI employees act as intermediaries between the USAID information requester and the external information resources. Automated tools are utilized in this overall process (assistance with defining information needs leads to choosing and tapping appropriate external databases, etc.). Overall, the human "intermediary" factor underlies PPC/CDIE's role as an external information access tool. This is working well, but places great workload demands on this staff. As INTERNET access is established throughout the Agency, PPC/CDIE's intermediaries may be able to free time for other important projects by taking an active role as INTERNET trainers and, thus, helping USAID staff find their own on-line external information resources.

### **2.2.1.2 Foreign Broadcast Information Service (FBIS)**

PPC/CDIE has recently established dial-in access to this external information resource. As new as this access is, significant use has already been noted. PPC/CDIE feels FBIS can help provide some of the external information resources currently being supplied in hardcopy form through the press clipping summary and wire story services.

### **2.2.1.3 LEGISLATE**

LEGISLATE is a Washington *Post* on-line news service; USAID's Legislative Branch (LEG) has established an access link to it. LEG has found that the information within LEGISLATE is not very useful, because it does not provide the needed coverage. LEG does use some of the accessed information but must edit this information before it can be applied.

This experience should be considered when reviewing the other external information sources PPC/CDIE uses. Not all these external sources are easy or cheap to use, and not all contain enough useful information to justify their use. Basic criteria for use should be ease of access and "navigation," frequency of a search parameter redefinition, usefulness of information, and amount of preparation the information requires.

## **2.2.2 Internal Information Storage and Retrieval Tools**

This section identifies tools used within USAID to capture, store, organize, and provide a means to search and retrieve various types of textual and image information.

### **2.2.2.1 AID File Access System (AFAS)**

USAID's AFAS is a Magellan-based collection of individual, interconnected electronic files (Magellan is discussed in paragraph 2.2.2.10 below). The AFAS was designed with three underlying requirements in mind:

- AFAS should be an open, transparent system
- AFAS will contain only short files, 3-4 pages in length (because Magellan works best with small documents)
- Documents in AFAS must be unclassified and nonprocurement-sensitive

AFAS is designed to include components at three levels: Executive File Access System (EFAS - discussed in paragraph 2.2.2.1.5 below), bureau systems, and mission systems. Only the EIS and a few bureau systems (Africa Bureau's AFMIS, Latin America and the Caribbean's LACIS, and R&D's RADIAS, also discussed in more detail below) are currently in operational use. The few mission level systems currently being developed do not have direct interface to the USAID/W systems and instead receive periodic disk file updates. The ultimate intent is to use AFAS to link USAID/W and the overseas Missions and to link USAID/W and the Hill.

AFAS is oriented to assisting working-level staff. Information selected for inclusion in the bureau-level components is intended to support these bureaus' specific information requirements. Indirect benefits are provided to senior management (through EFAS extracts and direct, ready access) and staff in other bureaus who require information outside their primary areas. Bureaus which have developed AFAS components have assigned individual staff members to be responsible for each component file. These files are categorized in a series of directories, and hierarchical menu systems are provided to

vector the user to desired files. Only AFAS file creators have permission to change their files. Other users are granted read-only access. These users may print out entire files and may select portions of files for transfer to a working, off-line document, but these modified documents may not then be posted back to the AFAS to replace the "official" file.

AFAS and its component level files represent the most comprehensive internally developed Agency text handling operation to date. Its acceptance and development are linked to the senior-level support that Magellan has received and a significant level of staff commitment at the Latin America/Caribbean, Africa, and R&D Bureaus.

#### **2.2.2.1.1 Latin America and Caribbean Information System (LACIS)**

LACIS was the first AFAS bureau-level component. It was developed by the Latin America and Caribbean Bureau in approximately 9 months and is now used to store and provide access to short textual documents of particular interest to the Bureau's staff.

#### **2.2.2.1.2 African Management Information System (AFRMIS)**

AFRMIS is the Africa Bureau's AFAS bureau-level component. It provides a standard format for the Bureau's *current* (vice historical) information and an organizational method to satisfy the Bureau's needs for an efficient way to access this information. A separate, limited access menu provides access to sensitive personnel and budget information and a means to check and compare this budget data with other FA sources to identify discrepancies. More general access information files contain readily available information used to prepare briefing papers for senior management. A "Hot Topics" menu provides access to information on each Bureau country. As with AFAS policy in general, AFRMIS files are read-only and can be modified only by those who create specific filed documents.

#### **2.2.2.1.3 R&D Information Access System (RADIAS)**

RADIAS is the R&D Branch's Magellan-based, AFAS Bureau-level component; it was developed by a working group. Drawing on lessons learned from the LACIS experience, the group was able to design, develop, and implement RADIAS within 6 months.

RADIAS provides on-line access to a small portion (11 megabytes) of R&D's textual files. What is within RADIAS is considered to be well organized. RADIAS is used intensively by a small number of R&D staff and is used extensively by a large number.

#### **2.2.2.1.4 Technical Assistance and Services Network (TASNET)**

TASNET is being created by R&D as a future AFAS component. It will be an electronic catalog of service contracts and will concentrate on mission-to-mission communications. TASNET is Clipper based, includes a resident database for logging inquiries, and provides key word access to stored information.

### **2.2.2.1.5 Executive File Access Service (EFAS)**

This AFAS component draws information from the individual bureau systems and summarizes this information for senior level review. Documents produced by LEG, including Congressional Notifications, Analyses of Legislation, and Congressional Correspondence, are placed in the EIS for access by all USAID/W. The EFAS is not designed to be accessible by the Hill, however. Considerable staff, time, and money would have to be expended to modify the system to accommodate Hill access.

### **2.2.2.1.6 Magellan**

Magellan is the Lotus product upon which the AFAS components are based; it is designed for document management and file browsing. Magellan is DOS-based, is no longer supported by Lotus, does not work in a Windows environment, and has limited search and text storage capabilities. However, USAID has had some success in modifying Magellan to perform more complex functions and is now using it as the most widely applied application for text management. The AFAS and its derivative bureau-level components, AFRMIS, LACIS, and RADIAS, are all based on Magellan.

Magellan allows one to view a list of files side by side with the actual contents of each file. Short documents (3-4 pages) work best; large documents are very difficult to manage. Thus, Magellan applications center on organizing and locating brief project information, USAID General Notices, memos, etc.

Magellan is the most widely used electronic filing and retrieval application within USAID:

- Approximately 80% of the R&D Bureau is now using some form of Magellan as the official means for electronically filing and sharing project documents. New documents for both new and old projects are kept in electronic form once they have been approved. Magellan's R&D application (RADIAS) was developed and tested in one office for several months and then implemented in other offices.
- CDIE uses Magellan to meet the need for a tool to help locate specific items among the abundance of information "dumped into their laps."
- The Cairo Mission uses Magellan to handle project documentation, USAID General Notices, meeting notices, and some audit data. Cairo notes that Magellan only stores past information (final copies of documents) and cannot store current information or information regarding projects in progress. They feel that using Magellan to capture and control all Cairo text documents would entail too much effort and too much disk space.
- A Dominican Republic pilot project, discussed in paragraph 2.3 below has made heavier use of Magellan by scanning every external document into it.

The success Magellan has achieved throughout USAID appears to be highly dependent on the energy and commitment senior management and staff members have applied to it through "participatory" development process.

## **2.2.2.2 CDIE- and RM-related Information Management Tools**

### **2.2.2.2.1 Development Information System (DIS)**

Within PPC/CDIE/DI, the Development Information Services Clearinghouse (DISC) is responsible for the Agency's DIS. DIS is an on-line bibliographic database operating in a MINISIS environment and containing citations to 82,000 USAID documents and information on 10,500 USAID programs, projects, and activities. The DISC also acquires other nonprint materials such as audiovisual materials (films, videos, etc.) and software programs and databases utilizing Agency standard software (Oracle 7, Lotus, Word Perfect).

DIS bibliographic citations and abstracts are now being paralleled on the CD-ROM (CD-DIS) products. The CDIE Thesaurus used to search for DIS records is also being placed on the CD-ROM, in an effort to help users gain familiarity with this indexing system and apply it to their DIS search requests or direct CD-ROM search efforts. Access to the DIS itself and to text and images cited in its bibliographic records is currently provided only via DI staff intermediaries. DIS itself is not available on-line on the USAID/W LAN Network. CD-DIS, which represents DIS in CD-ROM format, has been available on-line for over two years, through the CDIE Banyan LAN. CD-DIS now has over 350 subscribers. PPC/CDIE's overall plan is contingent on LAN server installation. Once the servers are installed, PPC/CDIE plans to make CD-DIS accessible throughout USAID/W.

DISC has recently begun acquiring *electronic documents* (i.e., electronic forms of reports and other documents that would otherwise be received in hardcopy form). Currently, only electronic documents produced entirely in WordPerfect 5.1 are processed, although it is envisioned that this capability will expand to include documents produced in dBase, Lotus, and other software programs. DISC also prepares and provides access to various on-line database services, including the following:

- The DIS PROJECTS Database, containing descriptions of over 8,500 USAID projects based on USAID project design documents or other primary sources of information. Each project description includes a project abstract, log frame, subject descriptors, and indication of project status. Project status information is updated by downloading information from the Agency's budget systems.
- The DIS DOCUMENT Database, providing bibliographic citations and abstracts of over 74,000 USAID development experience documents, as reported in the project, program, policy, and research documents produced and sponsored by the Agency. Both project/program documents and technical/research/policy documents are acquired and processed into the database.

- The DIS INVENTORY Database, containing brief bibliographic citations for over 38,000 selected older Agency documents of historical interest (circa 1950-1989). These documents are retained in off-site storage and are retrievable upon request.
- The DIS Audiovisual Database (AVDS), a central inventory containing over 600 references to Agency mixed media resources, such as audio tapes, videotapes, photo transparencies, sound recordings, filmstrips, and assorted computer software programs. Audiovisual materials are generally not available for dissemination. Audiovisual materials located in other USAID facilities, Missions, and USAID/W offices are subject to the policies established by those entities.
- The Development Evaluation Inventory (DEI) Database, containing selected evaluation documents from the DIS DOCUMENT Database, reformatted and submitted for inclusion in the DAC system.

#### **2.2.2.2 MicroDIS**

MicroDIS is a trilingual (English, Spanish, French) library automation software package developed by PPC/CDIE/DI to help USAID Missions organize and maintain their local development information resources and facilitate information exchange. General interest in MicroDIS led DI to extend distribution to AID-supported projects and to other development-related information centers. MicroDIS operated on any IBM PC or equivalent. It provides an automated library management system for creating, maintaining, and searching a local catalog and for managing acquisitions and circulation functions within a small information center. MicroDIS features pre-defined database structures, menu-based options, standardized data entry and retrieval screens, and optional on-line HELP messages. It is designed to be flexible, enabling information centers to use their own standards for local data entry and to choose those MicroDIS modules and features which are appropriate to their needs.

#### **2.2.2.3 MINISIS**

MINISIS (original version) is the database management system under which the DIS bibliographic database has been developed. The original MINISIS operated only within the Hewlett-Packard (HP) computer environment on which DIS has been established. A new version (MINISIS Version H) is now being tested to run in an MS-DOS environment.

The MINISIS system, developed and maintained by the International Development Research Centre (Canada), has proven to be a valuable resource for more than 400 organizations in over 55 countries. A multilingual system, the MINISIS software has allowed developing-country organizations to manage their information activities in their local language and alphabet.

In the past, MINISIS was used to automate information management systems within a number of development assistance organizations, including USAID, the World Bank, the

Islamic Development Bank, the Japan International Cooperation Agency, and several United Nations specialized agencies. Because of its exclusive HP operating environment, however, some organizations, including the World Bank, are considering moving away from MINISIS to other systems which will operate in an IBM environment. MINISIS Version H, designed to run in MS-DOS, may prevent this exodus. Because the original MINISIS system is now showing its age, especially in the areas of transportability and user interface, Version H is now under development. Version H has the potential to move beyond a classic bibliographic database management system and to venture into new fields of information processing such as the storage, of sound and images, storage and retrieval of data on CD-ROM, computer-assisted training, and machine-assisted translation.

#### **2.2.2.2.4 AID Project Document Micrographics System (APDMS)**

APDMS was a standardized project created in 1983 to convert vital project documents to microfiche. More than 250,000 documents, representing more than 4,600,000 pages, were converted into 80,000 microfiche since 1983. Under RM direction, documents from USAID/W, the overseas Missions, clearinghouses, file clearing operations, contractors, boards, and commissions were passed through a records management process and microfiched. After almost 10 years of operation, APDMS came under close review in light of growing Agency budgetary limitations. The project has now been totally discontinued.

#### **2.2.2.2.5 Compact Disks With Read-Only Memory (CD-ROM)**

Since the 1970s, the Development Information Services Clearinghouse (DISC) has been abstracting approximately 30% of all final documents prepared under USAID funding and placing these abstracts in the DIS PROJECT and DOCUMENT data bases. These abstracts are prepared to support researchers, publications, information dissemination and transfer (i.e., via CD-ROM and E-mail) and evaluation studies.

DISC has recently developed a quarterly, cumulative CD-ROM product containing these complete DIS PROJECT and DOCUMENT databases, new abstracts, and full text of selected USAID reports and publications (including the Agency's *Congressional Presentation* and over 150 project evaluations). This CD-ROM version of the DIS is called CD-DIS. Each new abstract, abstracted report's index, and the *AID Thesaurus*, an indexing tool used to apply controlled vocabulary to each database entry, is included on the CD-DIS quarterly updates. This CD-ROM product is available to USAID/W and Missions free of charge and is sold for \$140.00/year (four issues) to outside organizations. The product is currently provided to over 350 subscribers.

These CD-ROM disks are searchable by two alternate methods, using a ROMWARE search driver. DIC information specialists, who have concentrated on using CD-DIS for over two years, are not encountering any problems with these search methods. Some outside users, however, have commented that neither search method is very efficient, and often the same search conducted using both methods will reveal variations in the number of "hits" found. This perhaps indicates the need for increased training, as more noninformation specialists interface directly with various information access tools.

As a temporary approach, USAID handbooks have recently been placed on CD-ROM and are being distributed on the same CD-ROM disks which hold the CD-DIS products. In September 1993, in part to implement this USAID handbook distribution on CD-ROM, M/IRM purchased one special CD-ROM server for each USAID/W building (two for the new State Building). Because USAID's large number of users need simultaneous access to a fairly large number of CD-ROM titles, these servers allow expansion for up to 14 CD-ROM drives. They will be linked through the Wide Area Network (WAN). These central servers are intended to house CD-ROMs of broad interest and use across the Agency, including the Handbooks, CD-DIS products, and externally produced CD-ROMs. In addition, stand-alone CD-ROM readers will continue to be recommended for information that is pertinent only to specific limited work groups.

USAID staff use other CD-ROM products from external sources, including the Department of State *Foreign Affairs Manual*, and the *Federal Acquisitions Regulations*. M/IRM is helping users obtain these CD-ROM free of charge and is financing subscriptions which are for corporate use and which are installed on the central CD-ROM servers. For individual work group subscriptions, the requesting Bureau or Office will be responsible for funding the subscription. M/IRM will attempt to help Bureaus "piggy-back" on previously established CD-ROM subscriptions when possible.

### **2.2.2.3 Extend-a-File**

The Africa Bureau has experimented with Extend-a-File, a software package linked to WordPerfect. Extend-a-File prompts the user on how to store, delete, and archive WordPerfect files. By tagging files for storage, deletion, and archiving, it provides a "tickler" approach to file management.

The Bureau found Extend-a-File's records management coding scheme difficult to understand and not conducive to easy file access. Significant discipline and culture change were required to use the software. The project is now at a standstill, due to problems encountered in the latest software version.

However, RM reports that it encourages Extend-a-File usage because it moves the user away from dependence on any particular software and provides better use of the Agency's established WordPerfect standard word processing package. It provides a means to locally organize and manage the numerous WordPerfect files which currently reside on PCs throughout the Agency.

### **2.2.2.4 Hardcopy (Paper) Files**

Hardcopy files remain the most prevalent "tool," or formal storage media, by which textual and imaging information is stored within USAID. Records Management Branch (RM) estimates cite 3,500 filing cabinets within USAID/W, storing approximately 2 million hardcopy documents. These inventories files contain 70% of the agency's official records.

Hardcopy files are maintained by the organizational unit that has custody of them. Filing coordination and training are provided by RM, which is also responsible for interpreting and establishing policy for records for liaison with Federal organizations with records responsibilities (such as the General Services Administration the National Institute for Standards and Technology, the Office of Management and Budget, and the National Archives and Records Administration), for hardcopy disposition and for archival functions.

Hardcopy files are maintained at the overseas Missions and regional sites. The Africa Bureau has established a policy for centralizing project files at the bureau level, while other bureaus follow a more decentralized approach.

Hardcopy documents are filed by more than one group within USAID, using different filing/indexing schemes. Generally, these schemes have developed because they fill the access needs of the group and are not difficult to achieve. These schemes have evolved within the construct of paper as a primary information storage media, with access by physical retrieval. Anecdotal information suggests that there is considerable duplication of filed documents both at USAID/W and at the Missions and even between organizational elements operating within a directing Bureau.

#### **2.2.2.5 Oracle 7**

Two years ago, Oracle 7 was chosen as USAID's standard database management system. Some Oracle databases now exist (in procurement, for example, for summarizing accounting data), and the first BAA (Procurement Systems) is now developing a complex data model from which Oracle 7 data tables will be derived.

### **2.2.3 Internal Information Formatting Tools**

This section describes tools used within USAID to prepare textual information or to format it into structured information.

#### **2.2.3.1 Forms**

USAID employs approximately 360 different forms by which information is structured. The reader is referred to a companion study, the *USAID Forms Management Study*, for an in-depth analysis of these forms and their changing nature within USAID.

#### **2.2.3.2 Records Management Data Base Program (Labels)**

The Africa Bureau has been given an records management data base program by USAID Records Management (M/AS/ISS/RM). The Program uses keywords assigned to paper documents to print labels for file folders. The Africa Bureau has not yet used the program and feels one must be very familiar with USAID keywords, as presented in the Handbook, in order to use this hardcopy document filing/formatting tool properly.

### **2.2.3.3 WordPerfect**

WordPerfect has been selected as USAID's standard word processing package. WordPerfect use is almost universal within USAID/W and is in place at most overseas Missions, except for a few remaining locations with older Wang VS word processing equipment. WordPerfect version 5.1 is generally installed throughout the Agency. Version 5.2 for Windows is being installed this year as Agency LANs are upgraded for Windows.

In 1991, instructions on using WordPerfect to manage files by using the Document Summary Screen feature were circulated. This feature allows storage, search and retrieval of saved WordPerfect files, within the WordPerfect environment. The Extend-a-File software package, used and now discontinued by the Africa Bureau, is one example of a WordPerfect third-party add-on tried by the Agency. Other WordPerfect macros include subsets of forms which are narrative in orientation.

### **2.2.4 Internal Information Tracking Tools**

This section describes tools used within USAID to track documents (hardcopy and electronic) through various draft/edit and review/approval processes.

#### **2.2.4.1 Correspondence Tracking System (CTS)**

USAID's Office of the Executive Secretariat (ES) relies on the CTS to record and maintain a status tracking record of individual correspondence actions (and thus, indirectly, the documents on which these actions are performed). A study now being conducted by M/IRM (*Executive Secretariat: Executive Issue and Correspondence Management*) closely analyzed the CTS. The current draft report from this study notes that:

"...the CTS is not available to anyone outside of ES, except via hard copy reports. The limited scope of this system was established when the system was originally developed as a compromise required to either get a system in place, or have no system at all. The result of this decision is that each organization processing these actions must maintain its own tracking/status system. These vary from simple manual "in/out" logs, to automated systems. In every case the recording of the status is an added workload to the actual processing of the action. Further, since each is independent, the individual systems only record status within that organization -- the status is not passed to, or made available for those systems operating by other organizations." (Draft 3.0, dated 01 March 1993, pp. 3-4)

#### **2.2.4.2 DOCTRAX**

DOCTRAX is a Clipper-based document tracking system approved by the National Archives and Records Administration (NARA) for use as an audit trail. It establishes a routing track for each document entered into it.

The Dominican Republic Mission is using DOCTRAX to track all documents that move from one office to another.

### **2.2.4.3 OSCAR**

The USAID's Security Office within the IG has been using Wang's imaging system, with its inherent document tracking capabilities, for several years. This system ("OSCAR") is used in the security clearance process. All incoming documentation related to clearances is scanned into the system. Once scanned in, the system provides to each document a level of assignment/routing within the office. The system is "closed" in that it is only used by a local group of individuals at approximately 10 workstations. It is not accessible to anyone outside the Security Office and does not integrate with the Agency's E-mail. The system is used to process approximately 1,800 clearances each year and contains historical records for over 8,000 cases. The technology is several generations old (it relies on a Wang VS-5000), but with the addition of a CD-ROM jukebox and other enhancements, it is serving the office very well. The system was acquired on a "turn-key" basis for approximately \$250,000.

## **2.2.5 Information Transfer Tools**

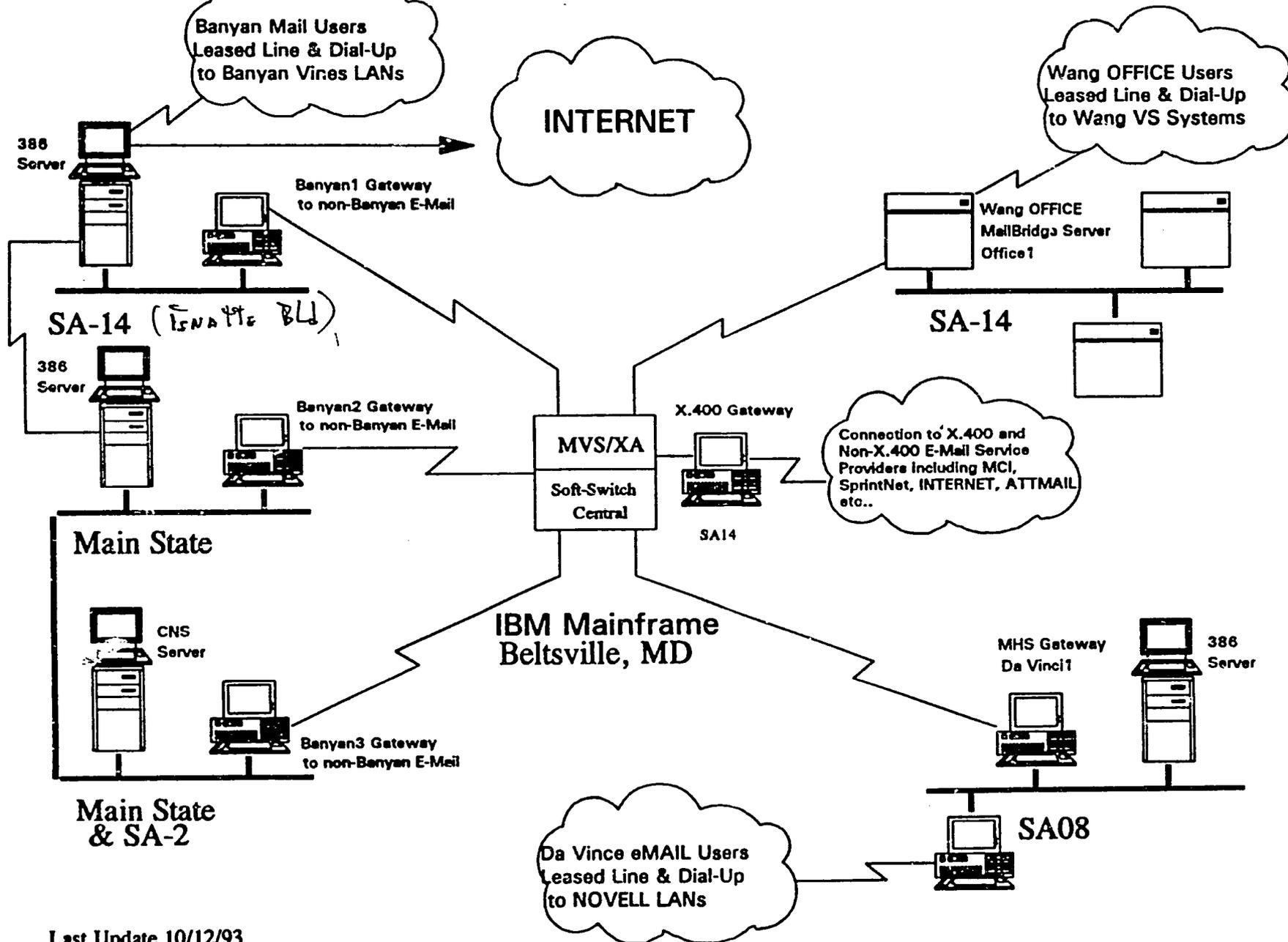
This section describes tools used to transfer USAID information to internal and external users.

### **2.2.5.1 A.I.D. Electronic Mail Network (AIDNET)**

AIDNET is the USAID network by which E-mail connectivity has been established among USAID/W and Mission locations. Connectivity services have so far been provided to over 9,000 USAID users.

Figure 2.2.5.1-1 is an overview schematic of the AIDNET architecture. Key elements of this architecture include Banyan, MHS and X.400 gateways, Banyan Vines LANs, 386 servers, and (to a minor extent) Wang Office MailBridge Servers. The IBM Mainframe in Beltsville, Maryland, is the AIDNET MVS/XA soft-switch central computer. INTERNET, Banyan Mail, LapMail, V-bridge and Wang Office links are all incorporated within the network.

# A.I.D. Electronic Mail Network



Last Update 10/12/93

### **2.2.5.2 BeyondMail**

The R&D focus group noted that USAID has recently purchased BeyondMail as a tool for implementing electronic signature authority. But BeyondMail, which is sold in a Banyan Vines edition and which has recently augmented its capabilities to interface with Lotus Notes, also offers much more potential for managing USAID's "live" information resources.

BeyondMail is a robust PC E-Mail package that allows end user programming. Mail administrators and end users alike can instruct this mail program to deal with or initiate communications to and from coworkers, automatically. BeyondMail includes features for creating, storing, and replying to messages. Memo, Phone Message, Request, Meeting, Customer Support and Transmittal Memo forms are included in the standard offering.

The Windows version takes full advantage of the Windows 3.1 environment. It includes drag-and-drop, Object Linking and Embedding (OLE), and Dynamic Data Exchange (DDE). DDE support is provided in both client and server models. DDE is accessible through BeyondRules, BeyondMail's end user programming language. Programmable DDE enables users to extend BeyondMail capabilities into Windows spreadsheets, databases, and word processors.

BeyondMail has recently been bought by Banyan, and as a result of this merger, it will become more tightly integrated with Banyan products. It has also been integrated tightly with Lotus Notes. Lotus Notes has been provided with full access to BeyondMail's advanced capabilities. BeyondMail for Notes can be used to filter Notes mail and databases. By completing profile forms indicating which databases, topics, key words, authors, etc., are of interest to them, users automatically receive in their BeyondMail mailbox all Notes documents that match their requested profiles. Users benefit by eliminating time spent grazing through the vast amount of documents residing in multiple Notes databases to locate items of relevance.

### **2.2.5.3 Bulletin Boards**

USAID has recently begun posting General Notices electronically, via networked bulletin boards. There is great potential to cut down on E-mail duplication by sending one Notice out for bulletin board access, rather than sending 3,000 or more E-mail copies of that same Notice.

### **2.2.5.4 Cables/Telegrams—Automated Message Analysis and Distribution System (AMADS) and Remote Automated Reproduction and Collation System (REARCS)**

Currently, most official office-to-office messages from or to overseas posts are sent by cable or pouch. Cable (also known as "telegram") traffic is rigidly controlled on both the originating and receiving ends. Cables are reviewed and approved prior to transmission and are logged and routed according to specific procedures upon receipt, thus creating a fully documented audit trail.

USAID is heavily dependent on the Department of State's telecommunication system for this daily business conduct: approximately 1300 incoming cables a day are received, about two thirds of which are processed by the Agency's AMADS. AMADS is the hardware/software component that reads incoming cables and assigns them for distribution, based on "profiles" that identify recipients based on key words in the text.

AMADS is linked to the REARCS, a technology which supports the sorting and printing functions associated with cable distribution. Currently, incoming cables are printed and distributed to bins for the addressees and, subsequently, delivered by hand.

In addition to the office that needs to respond to a given cable, as many as 20 other USAID addressees may be copied for informational purposes. The current Communications Center procedures for routing, printing, and distributing these cables are labor and paper intensive, and relatively inefficient. The hardware and software used by the Communications Center is vintage 1975 technology. Recognizing the need to change this situation, M/IRM has received funding for the one-time capital costs of replacing the outdated equipment and software.

#### **2.2.5.5 E-Mail**

E-mail has become a way of life throughout the Agency. Tens of thousands of E-mail transmissions *per day* are transmitted worldwide, among over 9,000 users and 100 Mission connections. Mission staff report considerable success in using E-mail as a tool for effectively communicating across time zones. In the past, such cross-zone communication represented a major impediment to dialog between USAID/W and the overseas Missions.

E-mail messages are composed a native Banyan Vines E-mail facility which has very limited text handling features. These messages, having evolved like E-mail itself in a culture which stresses informal, point-to-point, individual communications, are currently being exchanged throughout USAID with no controls or procedures for approval, logging, etc. A 100 message mailbox storage limit (200 for CDIE) has been imposed on USAID employees, and many employees are responding by printing out their E-mail traffic for filing as paper copy.

M/IRM, PPC/CDIE, R&D and other offices are now asking basic questions about how E-mail should be filed, routed, processed, destroyed, and retained. The recent court decision which subjects E-mail to Freedom of Information Act requests has added to the growing concern over these issues.

#### **2.2.5.6 Faxes**

Faxes are a relatively new USAID information transfer tool, but are slowly replacing hard copy transfers. The Cairo Mission has compiled statistics that indicate rapid fax growth from 1989 to 1991 (from 842 to 1,966 incoming faxes and from 525 to 1,583 outgoing faxes, respectively). They now estimate approximately 50 outgoing and 60 incoming faxes are received *each day*. Cairo has also noted that up to 50% more time is required to receive and print out the incoming faxes with elaborate graphic content (company logos, etc.) that are received. Like E-mail, fax traffic throughout the Agency is being

in an unstructured, point-to-point fashion with no overall standards or guidance.

### **2.2.5.7 INTERNET**

INTERNET is a worldwide network of computer networks. It is comprised of thousands of separately administered networks, with many thousands of individual users. Membership is heavily concentrated in universities and Government organizations, but is also rapidly encompassing all types of organizations and individual users. Described as "the world's largest functioning anarchy," INTERNET thus provides access to a wide range of external information resources throughout the world.

Within the Agency, through a connection recently established by M/IRM, INTERNET will provide to potential for the following:

- E-mail access to external organizations, i.e., through file transfers
- Access to external databases
- An access path by which the external world can tap into selected AID data through a separate, secure channel
- An alternate communication path between USAID/W and the field.

## **2.3 Information Pilot Projects**

### **2.3.1 Dominican Republic Project Files Improvement Initiative**

From October 1992 through December 1993, USAID's Dominican Republic Mission (USAID/DR), through its Files Committee and Files Custodian Support Team, conducted a pilot project to improve the Mission's project filing system. The project's focus was on inventoried Mission project files totaling nearly 300 cubic feet, or 146 file cabinet drawers, and an additional 96 binders. It was estimated that copying time to maintain these hardcopy files equated to approximately 6.5 hours daily, or roughly \$50,000 dollars of effort per year.

The project's purpose was to establish an improved project filing system that was accessible, complete, easy-to-use, and in conformity with regulatory requirements while minimizing redundancy and cost. The plan to attain this purpose included the following:

- Decentralizing official project files to the USAID/DR technical offices from the Communications and Records Section (C&R), where they had been maintained (in order to yield significant savings by eliminating the technical offices' need to maintain files which duplicated the official project files held in C&R)
- Using the LAN computer network to track new project documentation from initial receipt or creation through filing and allowing all LAN users

access to electronic versions of USAID/DR-generated project documents (to obviate the need for staff offices to establish their own duplicate file systems).

During the pilot's first phase, a file management program was developed using Magellan software and called the Electronic Filing System (EFS). During phase two, a pilot test was conducted in the Policy and Democratic Initiatives Office (PDI), where both the official physical project files and the electronic project files were to be maintained, used, and monitored. Finally, after successfully operating the new project files system in PDI, the system would be implemented throughout USAID/DR. Because several implementation issues arose, including delays in the installation of the DOCTRAX document tracking system as an EFS component, the pilot test was not expanded throughout USAID/DR until September 1993.

In August 1993, representatives from the USAID's Office of Records Management (MFA/AS/ISS/R&M) and the National Archives and Records Administration (NARA) traveled to USAID/DR to review the pilot project firsthand. A related NARA report on the EFS' ability to implement NARA's "Functional Requirements Covering the Information Life-Cycle to Meet Records Management and Archival Needs" (Draft, April 1992) has been issued in draft form. This draft report was based on USAID/DR's accomplishments and their conformance to NARA requirements and standards.

Overall, NARA found that the EFS pilot system "does a remarkable job of implementing..." the functional requirements. For their part, USAID/RM and USAID/DR estimate that the system has cut daily hardcopy duplication and filing time from 6.5 hours a day to under 30 minutes and, therefore, is resulting in an estimated saving of approximately \$47,300 per year.

Some important EFS features are noted as follows:

- Documents are not stored in EFS until they are in their final, or "official," form.
- Every user has read, copy, and print access to all documents thus stored in EFS. Only the File Custodian for a particular office or the System Manager has the ability to modify a document, file a document in a particular subdirectory, or remove a document from the EFS.
- The EFS uses the directory and subdirectory structures of DOS to establish an electronic filing structure which mimics the hierarchy of the Mission structure and the existing paper-based filing system. In a DOS-based computer, naming documents is limited to a maximum of 11 characters, or actually to 8 user-selected characters once the DOS name is attached as the last three characters. Working within these limitations, USAID/DR has now implemented naming conventions for final versions of all documents and has issued these conventions formally as a Missionwide procedure. The Mission is now developing a system for naming versions of a document as it moves from first draft to final document.

- NARA notes that the system, as it now exists, has great potential to produce multiple working copies of a document with the same name as a document is moved from one user to another. When a new user acquires a document and makes changes to it, he or she adds a number to the version of the document received. Without knowing how many previous iterations the document has been through, the new user may assign a number to the version they received that has already been used in an earlier iteration. NARA recommends that RM recognize and address this potential problem.

Most importantly from M/IRM's viewpoint, *the Magellan system on which EFS is based has become an unsupported, DOS-based system.* The Agency is rapidly moving toward a standard Windows operating environment, in which Magellan's DOS-based system will become less and less functional. The NARA draft report notes that the EFP, as a system developed through process reengineering, may be incorporated into an information strategic plan (ISP). ISPs, which traditionally fall under M/IRM office purview, are "the foundation of corporate MIS functions. Connecting the various information elements together through sophisticated data architecture has been one method for MIS managers to ensure software and hardware integration within the communications network." The report concluded that the prototype project should be investigated for incorporation into the Agency's ISP. However, it is hard to imagine how a prototype based on an outdated, unsupported DOS-based system can hope to be integrated into the ISP, which stressed the Agency's evolution to Windows-based standards.

The USAID/DR pilot project is an important effort to tackle a recognized text information management problem. It deals text sharing, document duplication, and other issues identified and discussed in this study's Analysis chapter. As such, important lessons can be learned from the pilot. But the technology on which the pilot is based does not hold promise for more general application. Magellan, on which the EFS is based, should therefore be seen only as an interim systems approach in the evolution from fully hardcopy-based files to fully electronically based, networked "paperless office" concepts. The real value EFS brings to USAID is the philosophy on which it was based and the lessons learned that can be applied when recreating this Magellan-based approach on newer-generation technologies.

### **2.3.2 M/IRM's Lotus Notes Projects**

From January 1992 through September 1992, M/IRM created, tested, and implemented an Electronic Budget Allowance (EBA) System as the Agency's first Lotus Notes-based system. Fully using this system since June 1992, all operating expense budget allowances routed between FA/B and FM/FC have been electronic. In FY 93, over \$380 million in allowances were routed, tracked, and approved using Lotus Notes.

Based on the success of the FY93 EBA pilot project, the two main offices involved—FM/FC and FA/BUDSD—requested the system be revised for Notes 3.0 and extended to more bureaus. FM/FC named NIS and POL bureaus as interested in using the Notes EBA. FA/BUD noted that regional offices (AFR, ASIA, LAC, NE) were also interested in the system. FM/FC and FA/B also outlined some of their requirements for

implementing the FY94 EBA version. These requirements include the following:

- Taking advantage of Notes 3.0 features to simplify forms processing and routing.
- Generating more data automatically.
- Adding additional fields on form and new views of data.

The next Notes application developed was for the SWAT team. The SWAT team took advantage of the power of Notes to make PTS work tracking and reporting more useful and efficient. These working applications have been used to introduce Notes to potential clients and to continue testing Notes capabilities. The SWAT team has developed and implemented the following Notes applications:

**SWAT Work Tracking System**—Developed to enter work requests, including any E-mail correspondence, into a central database that tracks work by function, assignment, etc. This allows management to see what assignments are open and assess staff workloads. Managers can also assign work to staff and store E-mail correspondence concerning the work request. Staff use the system to keep track of their work, for monthly reporting, and to alert managers to resources required to complete an assignment. Before this system was in place, managers had to walk around to get an informal count of all completed projects for management reports.

**Monthly SWAT Team Report**—One document to which staff can add their sections for the monthly report. Before Notes, a manager had to collect E-mail attachments and import them into a word processing document for formatting into one report. With Notes, the report is complete once all members have added their sections. In addition, all monthly reports are available in one spot for everyone to read.

**Macro Installation/Customization**—The SWAT Team's macro development staff has used Notes to record over 500 installations and customizations of WordPerfect macros since January 1993. Using this Notes application, macro staff now have one record of all installations and customizations for reference and reporting purposes.

**Macro Documentation Library**—The SWAT Team's macro development staff uses the documentation library to store user guides for macros and other information concerning macros. A central, on-line resource guide to macros for developers, end users, and systems administrators is thus created.

**PTS Request Tracking System**—This Notes application tracks and reports requests for technical support for M/IRM/CIS/PTS. Before Notes, requests for technical support ("blue sheets") were recorded on a paper form and the number of site visits for each analyst and other management information was compiled by hand. With Notes, all monthly reporting is accomplished automatically through customized views of requested data. Tech Support Analysts can also set up private views showing only their requests or other information. Notes also supports ad hoc data base searches, so that, for example, all requests that concerned WordPerfect during a particular period of time can be rapidly

located and reviewed. Since May 1993, this system has tracked over 2000 requests for technical support.

**Notes Project Tracking**—This Notes application keeps track of Notes installations, training and application use. It provides one place to see the status of all Notes work.

**Notes Presentation and Reporting Templates**—The Groupware Analyst set up Notes Presentation and Reporting templates for use as needed. The Notes End User Forum and many other demos were presented using a Notes Presentation Database, and the initial Notes report and followup progress reports were prepared using a report template permitting multiauthor collaboration.

*These SWAT Team Notes applications indicate the many ways in which Notes is directly applicable to the Agency's need to organize and manage text documents and provide a means to enhance collaborative efforts.*

### **2.3.3 New Delhi's Imaging and INTERNET Pilots**

USAID/EXO/IM India has independently implemented pilots in imaging technology and INTEPNET. They recently sent out a summary of their effort over EXONET to all Agency EXOs.

**Imaging Technology Pilot Applications**—India has used imaging technology (Banyan Vines network, Windows 3.1, Open/Image Windows Cabinet, Pegasus Disk Technologies' Optical Filing System, a document scanner, and Trellis Redirector Software) to make the daily mission reading file (100-120 pages incoming and 40-80 pages outgoing) available to 130 users at the same time the Director sees it. In the past, multiple copies of the reading file were photocopied and circulated throughout offices, moving from desk to desk. This took so long that time-sensitive actions often went past action dates. All incoming and outgoing traffic is now scanned by an operator during the day, and at the end of the day, the scanned images are archived to the LAN for mission user accessibility the following day.

India next expanded the Reading File approach to create an electronic project filing system. As a pilot sample, they selected a project which met some basic criteria: it was mid-course, had a manageable volume of files, and had interested project officer and backstop officers. An electronic filing system was created, and the historical files were scanned. As a result 3,000 images in about 30 files for the project were electronically filed. Each time a new document related to the particular project is entered into the reading file, an additional image is sent to the secretary responsible and is filed in the imaging project file electronically.

India intends to develop the Mission's work flow process to use the reading file's images.

**INTERNET Pilot Applications**—India is compiling a directory of information resources and institutions associated with their external contacts and major areas of program focus. To make access to this directory simple, they have integrated the INTERNET directory with the Banyan directory so that users can access the data bases and institutions through

the F2 directory assistance. This allows users to directly pick up addresses of persons having INTERNET ID numbers, rather than typing out the complete address including the gateway and server names, etc. It also enables users to share their INTERNET addresses. Prior to these efforts, the users stored INTERNET addresses in their personal address books, which were not shared and were proving inefficient to maintain.

This process of adding INTERNET addresses to the Banyan directory assistance F2 is accomplished by managing STDA Inclusion Parameters. The pattern for the inclusion parameter is as follows:

LABEL: label name text  
DESC: description of the text name  
ADDR: the complete address pattern.

The name includes the INTERNET address preceded by the SMTP gateway name installed in M/IRM. Later, the inclusions file is added to the STDA service database, and the inclusions are sent as part of the downloaded database whenever an STDA satellite service requests a download. This allows India to perform the inclusions at one server, and the changes are reflected through the download service.

## Chapter 3

### Vision

#### 3.1 ISP Vision

Throughout 1992, USAID's Office of Information Resources Management (M/IRM) conducted a comprehensive study of the Agency's use of information management and technology. Known as the Information Systems Plan (ISP), this study examined USAID's basic business functions and how information is used to support these functions.

The solutions proposed in the ISP's various sections constitute a future "vision" for information management systems in USAID. Taken directly from the ISP (Volume I, Report to Management, pages vi-vii), USAID's information management vision includes the following elements:

- All Agency employees will have access to the information necessary to do their work at their desktop workstation (to the extent technically feasible), including both numeric and text (documents) data.
- "Access" includes friendly tools for ad hoc queries, rather than relying on predefined report programs.
- Senior managers will systematically be provided with up-to-date summary information in an easy to digest form for monitoring, decision making, and external reporting.
- All Agency personnel will be served by reliable and secure communications links between A.I.D./Washington and Missions, and among Missions, for both voice and text.
- To the extent feasible and appropriate in light of security and privacy concerns, interchange of data between A.I.D. and its contractors, other donors, other USG agencies, other outside groups, and the general public will be in electronic form.
- The design of a new suite of integrated corporate systems for the Agency will include the following features:
  - The business transactions of the Agency will take place electronically, with data entered only once, at the point of origin.
  - Electronic approvals of transactions will be provided in most systems.
  - Information essential for records management and audit purposes will be captured and preserved automatically.
  - All Agency-developed corporate systems will conform to a standard "look and feel" in terms of screen layout, use of function keys, etc. This use of

- a "Common User Interface (CUI)" will reduce training requirements and make it easy for staff to adapt to new automated systems.
- Similar functions will be performed on the same standardized software, regardless of organization or location.
  - Systems will be designed to provide an appropriate degree of flexibility, instead of building duplicative systems to satisfy the particular desires of individual users.
  - Standard data definitions and data structures will be developed and enforced across all systems and organizations, in order to facilitate sharing of data.
- Training and documentation will be designed to maximize every employee's awareness of all available information that can help them do their job.
  - Training, documentation, and support will be provided at a level sufficient to ensure that all employees can do their jobs comfortably using automated tools.
  - The Agency will have an effective global planning process which encompasses all IRM functions and which supports the Agency Business Plan.
  - The Agency's information architecture will accommodate the rapid strategic and tactical changes of the Agency, in response to the pursuit of US. interests and A.I.D. goals.
  - The Agency's information architecture will accommodate the rapid strategic and tactical changes of the Agency, in response to the pursuit of US. interests and A.I.D. goals.
  - The Agency's IRM program will meet all Federal legislative and regulatory requirements.

This ISP vision is the context in which this text/image information study has been conducted.

### **3.2 Text/Image Information Vision**

Table 3.2-1 is a matrix listing each ISP vision element, and extrapolating text/image information implications from these elements. Together, these text/image implications represent a more specific "vision" for future text/image information management.

**Table 3.2-1  
ISP Vision and Text/Image Information Implications**

<b>ISP Vision Summary (ISP page vi-vii)</b>	<b>Text/Image Information Implications/Vision</b>
<p>All Agency employees will have access to the information necessary to do their work at their desktop workstation (to the extent technically feasible), including both numeric and text (documents) data.</p>	<p>Agencywide network linkages.</p> <p>Need for centralized electronic data repositories, standardized search and retrieval techniques.</p> <p>Ready access to EIS-type information and other documents now handled through AFAS (Magellan). Evolution of stand-alone systems into Windows-based standardized environment.</p> <p>Need for electronic document policies and procedures.</p> <p>Evolution of "intermediaries" role to train and support direct user-information interface.</p> <p>Evolving role for intermediaries as trainers and supplemental aid providers.</p> <p>Improved information delivery systems, including</p> <ul style="list-style-type: none"> <li>- direct access to electronic documents</li> <li>- access to remaining paper files</li> <li>- document requests via automated methods.</li> </ul>
<p>"Access" includes friendly tools for ad hoc queries, rather than relying on predefined report programs.</p>	<p>Augmentation of structured and "final" information resources with "live" information resources.</p> <p>Fuller text storage and access, less emphasis on bibliographic citations, abstracts, and vectoring to stored documents.</p> <p>Universal access mechanisms, which address:</p> <ul style="list-style-type: none"> <li>- static and nonstatic documents.</li> <li>- current and archival documents</li> <li>- Washington and field requirements</li> <li>- abstracts and full text needs.</li> </ul> <p>Common User Interface (CUI) extended to common search/access tools.</p> <p>More structured methods for text and document handling, including:</p> <p style="padding-left: 40px;">standard vocabulary/nomenclature for documents reflecting overlapping CDIE thesaurus approach and records schedules classifications.</p>

ISP Vision Summary (ISP page vi-vii)	Text/Imate Information Implications/Vision
	<ul style="list-style-type: none"> <li>- author-driven classifications.</li> <li>- Version control, including authentication of official documents, change control and electronic approvals.</li> <li>- common technologies shared across structured and unstructured information.</li> </ul>
<p>Senior managers will systematically be provided with up-to-date summary information in an easy to digest form for monitoring, decision making and external reporting.</p>	<p>Network access to related information resources in "live," finished, and structured forms, where ever they are organized and stored.</p> <p>Information organization and storage standards Agencywide.</p> <p>Information extraction, formatting and synthesis tools and procedures for tapping into "live" information/work in progress streams.</p>
<p>All Agency personnel will be served by reliable and secure communications links between A.I.D./Washington and Missions and among Missions, for both voice and text.</p>	<p>Increasing emphasis of Electronic information transfer vice hardcopy preparation, storage and retrieval.</p> <p>EDI.</p> <p>Data/File security.</p>
<p>To the extent feasible and appropriate in light of security and privacy concerns, interchange of data between A.I.D. and its contractors, other donors, other USG agencies, other outside groups, and the general public will be in electronic form.</p>	<p>Electronic signature authority.</p> <p>EDI.</p> <p>Data/File security.</p> <p>Access for external customers, including:</p> <ul style="list-style-type: none"> <li>- CD-ROM full text publishing</li> <li>- Internet access of full-text records.</li> </ul>
<p>The design of a new suite of integrated corporate systems for the Agency will include the following features:</p>	
<p>-- The business transactions of the Agency will take place electronically, with data entered only once, at the point of origin.</p>	<p>Reduced duplication of effort, duplicate file creation and storage.</p> <p>Collaborative document creation and revision.</p> <p>Document Change and Version Control procedures.</p>
<p>-- Electronic approvals of transactions will be provided in most systems.</p>	<p>Electronic signature authority.</p>

ISP Vision Summary (ISP page vi-vii)	Text/Imate Information Implications/Vision
<p>-- Information essential for records management and audit purposes will be captured and preserved automatically.</p>	<p>Reduced dependence on data capture, abstracting, traditional library and clearinghouse operations.</p> <p>Disposition Management (retiring/archiving/disposing)</p> <p>Electronic document inventory of both electronic and paper stored documents.</p>
<p>-- All Agency-developed corporate systems will conform to a standard "look and feel" in terms of screen layout, use of function keys, etc. This use of a "Common User Interface (CUI)" will reduce training requirements and make it easy for staff to adapt to new automated systems.</p>	<p>Established standards for hardware, software, network components.</p> <p>Movement away from DOS to Windows environment</p> <p>Training role for intermediaries.</p> <p>Text access tools that conform to CUI.</p> <p>Standardized access to various external text data bases (i.e., Internet, CD-ROM, etc.)</p>
<p>-- Similar functions will be performed on the same standardized software, regardless of organization or location.</p>	<p>Standardized software, Agencywide enforcement.</p> <p>Evolution away from DOS-based and non-IBM-based systems to Windows/IBM environment.</p> <p>Shared software, networked applications..</p>
<p>-- Systems will be designed to provide an appropriate degree of flexibility, instead of building duplicative systems to satisfy the particular desires of individual users.</p>	<p>User needs definition and extrapolation into Agencywide requirements.</p> <p>Flexible generic tool development, roll-out, accessibility and training.</p> <p>Enhanced coordination of text/document handling between M/IRM, PPC/CDIE, M/AS/ISS/RM</p>
<p>-- Standard data definitions and data structures will be developed and enforced across all systems and organizations, in order to facilitate sharing of data.</p>	<p>"Live" information focus.</p> <p>Stress on collaborative efforts.</p> <p>Reduction of duplicate efforts/files.</p> <p>Standardized tools, techniques, search and retrieval languages.</p>
<p>Training and documentation will be designed to maximize every employee's awareness of all available information that can help them do their job.</p>	<p>On-line Help screens, access menus.</p> <p>Transparent database and file switching, entry, access.</p> <p>Network Help Desk.</p>

ISP Vision Summary (ISP page vi-vii)	Text/Image Information Implications/Vision
Training, documentation, and support will be provided at a level sufficient to ensure that all employees can do their jobs comfortably using automated tools.	<p>Tailored training.</p> <p>Training focus on "learning to fish," by training users to search for information by themselves, instead of acting as "intermediary" every time.</p> <p>Evolved intermediary role.</p> <p>On-line "help" menus and indices.</p>

### 3.3 Organizational Vision

As identified in the ISP, USAID's text and image information management cuts across all Agency organizational divisions. Various aspects of Agency information management currently fall with M/IRM, PPC/CDIE and M/AS/ISS/RM purview, often with some gray areas of overlap. This is especially true because M/IRM is now evolving from straight technical concerns to a broader information resources management orientation and M/AS/ISS/RM is moving into the world of electronic information management and storage.

Organizationally, therefore, the ISP and Text/Image "Visions" must evolve within a parallel vision of how USAID's management, project, and administrative organizations will interact in the future. Major points of an "organizational vision," based on current and proposed changes and the text/image information implications arising from these changes are presented in Table 3.3-1

**Table 3.3-1  
Organizational Changes/Vision and Text/Image Implications**

<b>Organizational Changes/Vision</b>	<b>Text/Image Information Implications</b>
<p>Emphasis on results, i.e., measurable impacts and program progress.</p>	<p>Shift to hard structured data as opposed to lengthy narrative evaluations.</p> <p>Continued need to assess and share information, but less emphasis on writing eloquent textual project defenses.</p>
<p>Strong stress on participation, working collaboratively with clients and counterparts to involve them in development and thereby produce sustainable results.</p>	<p>Greater premium on timely information sharing, including country strategic plans, project design documents, work plans, etc.</p> <p>Increased collaborative efforts this information sharing implies.</p> <p>Increased demand for electronic means of text sharing with other intermediaries (i.e., INTERNET and other channels).</p>
<p>Streamlined core procedures, Intensive Reengineering Team (IRT) efforts to reengineer core operations process.</p>	<p>Potentially substantial <i>decrease</i> in documentation needed for USAID projects. Many IRT recommendations, if implemented, will eliminate the need to develop, copy, process, and access PIDs, PAIPs, PPs, PILs, PIRs, NPDs, NADs, and other internal "finished" documents.</p>
<p>De-emphasis on the SOP's complex rules for every conceivable contingency, and the related need to write waivers.</p>	<p>Reduced text documents concerning waivers and program justifications/defenses.</p>
<p>Empowerment of field staff to make fast decisions, reduction of need to write eloquent program documents and wait for USAID/W review and approval.</p>	<p>Decreased text output, increased collaborative efforts to draft SOWs, work plans and other field-project oriented documents.</p>
<p>Field collaboration with USAID/W in a teamwork mode to achieve results. Agency experts participating simultaneously on several projects worldwide. USAID/W expert access to project plans, assessments, etc. on a close to real-time basis (at least overnight).</p>	<p>Collaborative work by staff in remote locations to draft required text documents (SOWs, etc.) and share these documents with other locations and USAID/W.</p>

<b>Organizational Changes/Vision</b>	<b>Text/Image Information Implications</b>
Procurement BAA focus on information components and creation/management of structured information modules and elements.	<p>Handling of traditionally word processed text in a more structured manner, i.e., structured requirements vice free-text SOWs and RFPs.</p> <p>Strategic objectives capture in structured data bases so they can be related to and reused in other documents that relate to these objectives.</p>
Growing emphasis on Customer Satisfaction Surveys.	<p>More structured data procurement via surveys.</p> <p>Need to summarize and share survey findings on a timely basis throughout the Agency.</p>

## Chapter 4

### Analysis

#### 4.1 Text/Image Information Collection, Access, and Dissemination Issues

##### 4.1.1 Collection

##### 4.1.1.1 Discussion

As currently practiced in the Agency, text and image information collection procedures and systems are geared toward obtaining the following:

- *External information* through formal, "intermediary" channels, either through PPC/CDIE for the entire Agency, or through specific offices such as LEG for inter-office use.
- *Internal, "finished" documents.* PPC/CDIE/DI's clearinghouse efforts are also designed to capture, organize and provide access to *internal "finished" documents.*

Handbook 21 (Records Management) establishes extensive rules for identifying, organizing, packing, and shipping "finished" documents for processing into organized, historic document collections. Once these documents have been processed into existing bibliographic data bases, users are vectored to them via DIS on-line bibliographic records, and receive initial information from them in the form of abstracts prepared or obtained for each document. These abstracts are available both on-line and as an entry in organized hardcopy abstract compilations. This approach is focused on selected document categories, and the DI collection is thus a valuable, but by no means complete, set of available USAID "finished" documents.

These are traditional information collection practices. They evolved during a time of hardcopy document focus and early-generation database philosophies. In place for many years, they are now firmly established throughout the Agency. Extensive policies and procedures cover every aspect of their operation.

Users in the field are expressing overall satisfaction, but also some growing frustration with this retrieval service approach. Several information management problems arising from USAID's current text and image information collection practices are indicated, as follows:

- **Central repository use appears to be declining.** Increasing staff cuts are greatly affecting the flow of documents into PPC/CDIE/DI. Some users are finding that their information requests to the PPC/CDIE/DI central repository are taking longer than expected to fill or are being filled with poor quality blowback copies of the original documents. Project papers are

not being submitted to the system as often as previously, although a decline in the number of funded USAID projects may account for this.

- **The loss of an internal information collection channel has helped to create an information "collection" problem.** Although the APDMS microfiche project was not widely liked during its 10-year practice (users commented on the effort it took to locally prepare and package documents for shipment to the microfiching center), it did provide a formal means to periodically and officially dispose of many locally-prepared text and image documents. In essence, APDMS was one way to cut down the requirement and tendency for locally collecting text and image information, and the resulting need to manage these collections locally. Now that the APDMS project is over, these files (short memos, draft issue papers, etc.) are again "collecting" at the Missions and within some USAID/W offices. Eventually, many historical documents are shipped to NARA for final disposition, in accordance with established Records Management disposition schedules. But meanwhile, many are piling up locally. Thus various Agency components are being forced back to managing their day-to-day memos, meeting minutes, policy papers and other internal files *in isolation*. As budgets are reduced and staff workloads increase, this situation is creating both growing frustration and local initiative.
- **Locally evolving approaches to managing information collections are limited at best.** Locally developed electronic tools are chipping away at this information "collection" problem, but not everywhere, and not enough, *and not in an organized, structured way that can benefit the Agency as a whole*. Specific Magellan-based AFAS bureau-level components (AFRMIS, LACIS, RADIAS) are electronically managing some of this information and making it accessible to a wider audience. But these local systems do not address archiving requirements for official records. So far, these components have been adopted at only a few Missions and offices. Even at these few locations, Magellan's document size limitations, coupled with staff work loads, do not allow comprehensive, scheduled local document collection and electronic organization.
- **Widespread E-mail use is adding to the problem.** Via E-mail, thousands of messages and short textual documents, which would previously have been prepared and transmitted as hardcopy documents or cables, are flowing throughout the Agency. Theoretically, these electronic documents, by replacing a large number of hardcopy documents, should therefore be reducing the information collection problem. In reality, local information collections continue to grow. The reasons stem from current E-mail policies and E-mail user practice as follows:
  - To conserve network servers, a current upper limit of 100 messages is set for any individual's E-mail "box," or electronic file. In practice, this has led E-mail users to print off copies of their messages in excess of the 100 message limit. These hardcopy messages are collecting in personal and office files. In extreme cases, some users are printing off and retaining *all* their E-Mail messages, in addition to electronically maintaining 100 at all times in their mailboxes.

- Washington often requests both hardcopy printout and electronic information copies from the field, thus duplicating electronic records into multiple hardcopy documents.

Thus E-mail, a completely electronic media, has introduced new elements of hardcopy document creation, duplication, and local filing into the Agency. Importantly, however, E-mail is also taking an active role in collecting and exchanging a type of information not addressed by the Agency's traditional practices and their focus on collecting "finished" external and internal documents. Given the Agency's growing emphasis on interdisciplinary, cross-organizational, ad hoc projects, "live" information will continue to grow. Although it has introduced several problems, E-mail has also created an informal way to collect and electronically exchange short memos, notes, draft documents, and other "live" information among Agency collaborators.

#### **4.1.1.2 Conclusions**

Collecting and centrally managing hardcopy documents continues to underlie USAID's information "culture," but this culture is experiencing symptoms of change.

E-mail has rapidly ushered in an active network of electronic text exchange and has created an informal means to handle "live" documents. But E-mail use to date is uncontrolled and continues to operate within a larger context of the Agency's hardcopy document orientation.

This hardcopy orientation, remaining in place while the central repository has lost staff and the APDMS project has been discontinued, is creating a growing local information management problem. Local efforts to cope with this problem are being hampered by increasing staff workload and current information tool limitations.

To address these problems, any recommendations must therefore focus on their underlying cause—the perpetuation of hardcopy requirements and mindsets within a rapidly changing electronic information environment. Hardcopy document management will continue to be a part of USAID's information culture for years to come. It is now time, however, to shift information collection focus away from hardcopy requirements and toward electronic document collection, organization, transfer and application.

#### **4.1.2 Dissemination**

##### **4.1.2.1 Discussion**

The traditionally based procedures and systems currently collecting external information resources and internal "finished" documents were also developed to disseminate these types of information to both Agency and external users.

These procedures and systems are disseminating awareness of external and internal "finished" documents through bibliographic data and abstracted summaries. The electronically stored indexes and abstracts in the DIS central repository are not available through the network, however, but only through a few dedicated terminals or through intermediary support. These channels are vectoring users to the actual "finished" document, located in hardcopy, microfiche or CD-ROM files, and providing most USAID/W users with requested documents within 24 hours. However, some users are

waiting longer for actual document delivery and, at times, receiving poor-quality blowbacks from the storage media.

Several potential problems, similar to those noted for information collection, are indicated as follows:

- **USAID's information dissemination procedures and systems are not geared to "live" internal text and images.** As with collection, the dissemination procedures are geared to external information and internal "finished" documents:

Locally developed project documentation is disseminated at the Missions' discretion. Little, if any, dissemination of project documentation is now taking place between the Missions and the Bureau. (Africa Bureau)

Much of this project documentation is "live": it is continually added to and changed during a project's lifetime. USAID's increasing emphasis on managing for results will change the nature of past project documentation, refocusing effort on less elaborate "finished" documentation and increasing collaborative "live" information.

- **External requirements force USAID to continue hardcopy document dissemination, even if these documents exist electronically.** Reports disseminated to the Hill must be delivered in hardcopy form. LEG indicates that Congress is not as technologically advanced as USAID and that only the Senate prefers a diskette *in addition to* the hardcopy reports disseminated. (This example of an *externally* imposed hardcopy requirement provides one reason for the hardcopy focus continuing to be perpetuated throughout the Agency. Sometimes there is no choice.)
- **E-mail and Internet are helping, but not fully solving, the problem.** Modern electronic information transfer channels are helping to disseminate text information to users outside the Agency. Where these technological links are not in place, however, as throughout the overseas Mission community, paper copies continue to be disseminated. Even where the links are in place, hardcopy still flows. As noted in Collection, USAID/W's requests for hardcopy printouts in addition to electronic copy helps perpetuate this situation.
- **Plans to disseminate Agency information on-line to the public and the Hill via Internet are being questioned.** Traditionally, internal information dissemination to external users has been handled by intermediaries: information specialists and managers trained to provide requested information. Now growing network links are providing a means to link external users directly with this information, although as yet there has not been significant external demand for electronic access to USAID documents. As an overall policy, therefore, plans are going forward to provide Agency "finished" documents on-line to a broader external audience. The Agency's Health information is slated for release in this

way. A "Gopher" search and retrieval approach is planned to provide awareness of and direct access to this information in the future. But reservations are being voiced about these plans. So far, the reservations center on particular types of internal "finished" information, rather than the dissemination policy as a whole. For example, LEG strongly feels the sensitive information and analyses contained in country assessments should *not* be opened to external access.

#### **4.1.2.2 Conclusions**

As with text and image information Collection, the Agency's current information dissemination systems and procedures evolved during, and are now helping to perpetuate, a hardcopy-based information culture. The systems and procedures are not dealing with growing amounts of increasingly important "live" information. Better means must be found to disseminate information internally, especially to and throughout the field. In addition, the issue of information content sensitivity has been introduced in light of future plans to cut back on "intermediary" actions by disseminating some Agency text and image information directly to Congress and the public.

#### **4.1.3 Electronic Data Interchange (EDI)**

##### **4.1.3.1 Discussion**

A formal Electronic Data Interchange (EDI) system involves direct electronic document exchange between two or more participating parties. It is most often used to exchange structured, formatted data. Both parties agree to EDI forms, standards and schedules to ensure the data passing back and forth is rapid and error-free. Federal Information Processing Standards (FIPS), which will govern the development and acquisition of EDI information resources, are now being developed. NIST is involved in this development (FIPS Pub 161). OMB Circular A-130 supports the use of EDI as an electronic information collection method.

EDI as a potential problem-solving technology was not discussed by any focus group. This may be due to these groups' focus on text and image information, as opposed to structured data. But where this type of structured data is heavily used, such as within USAID's Financial Management (FM) Office, EDI has become a "hot topic." New managers are taking a hard look at the way vouchers flow throughout the Agency, and are recommending a move towards EDI.

EDI does hold some potential for managing structured text obtained from external sources, and for formatting internal text for dissemination. Federal Agencies, including the Food and Drug Administration and the Energy Information Administration, have experimented with modified EDI in the form of electronic submissions. These Agencies collect large amounts of structured data and text from external sources. To efficiently collect these external information resources, the Agencies have established procedures and formats for submitting electronic versions of the documents on diskettes.

This is a very basic approach, but its simplicity belies its ability to streamline the data and text acquisition and dissemination process and cut back on hardcopy filing and maintenance problems.

#### **4.1.3.2 Conclusions**

EDI is not a current problem so much as it is a limited area of potential for Agency text and image management. EDI's nature, however, makes it a more appropriate information management tool for *structured* data, rather than for textual documents. If, as discussed in the organizational vision section, current changes bring about a greater emphasis on more structured data and a reduction on free text writing, EDI will become a more viable option within USAID's textual information environment.

#### **4.1.4 Electronic Signature Authority**

##### **4.1.4.1 Discussion**

Unlike EDI, the concept of Electronic Signature Authority was *often* brought up during the focus group discussions. Some focus groups saw it as a desirable feature, and one able to reduce current text and image information problems:

- Especially with performance appraisals, electronic signatures for approval and clearances will reduce or eliminate paper buildup. Hardcopies of these documents are now being filed in many offices. This goes beyond electronic signatures and involves the image of the "finished" document versus the files which were used to create the document. (PPC/CDIE)
- Electronic signatures are needed. IRM has bought, but not yet received, Beyond Mail to go with the Banyon Vines E-mail. Beyond Mail includes an electronic signature capability. (R&D)

Others focus groups, however, expressed concerns or doubted if electronic signature authority could ever be accepted in USAID:

- How can an electronic document, such as a voucher or contract, be verified for authenticity? Our concerns are with people trying to doctor documents; there have been some instances of this (Cairo).
- The use and growth of paper forms is being forced on us because OPM does not presently accept electronic signatures. OPM requirements for original signatures is the biggest problem in developing electronic form systems. (HRDM)
- We do not believe electronic signatures will be easily accepted, either internally or externally. (LEG - OM? Circular A-130, mentioned in an EDI context, addresses problems related to electronic signatures and the legal admissibility of electronic records.)

The Dominican Republic Mission has had direct experience with electronic signatures. The Mission scans locally developed WordPerfect documents into Magellan. Documents with signatures are added to the system as images that show the signature. But only the first page of these imaged documents can be read in Magellan. This is proving unsatisfactory, because the full document needs to be readable electronically. The Mission has also found users are uncomfortable with electronic signatures. These users seek the reassurance obtained by seeing an actual signature on a document.

#### **4.1.4.2 Conclusions**

Electronic Signature Authority, applied to a structured subset of USAID's text and image information (such as FM vouchers, or internal documents which do not involve legal questions), would do much to streamline operations and reduce duplication. NIST is currently developing public key-based Digital Signature Standard (DSS) which may be applicable downstream.

However, the main conclusion to be drawn from this range of comments is (as the Dominican Republic focus group noted) that procedures and guidelines will have to be developed, if Electronic Signature Authority is to be implemented in the future. Electronic Signature Authority is desirable and desired, but its successful introduction within the Agency would require a real "culture change."

#### **4.1.5 Security**

##### **4.1.5.1 Discussion**

A Security concern was presented in the Electronic Signature Authority discussion:

- How can an electronic document, such as a voucher or contract, be verified for authenticity? Our concerns are with people trying to doctor documents; there have been some instances of this (Cairo).

Concerning procurement information, however, R&D indicates that electronic security may not be problem:

- Procurement information is not to be shared. Although much of this data is put on the LAN, a "firewall" has been built around it. About 400 R&D computers are on the LAN, divided among 200 direct hires and 200 contractors. Procurement information does get out, but this has always happened. The *hardcopy* is what leaks. (R&D)

Procurement information and the "firewall" protection it has motivated is the lesser of two levels of document security now in force throughout the Agency. The higher level involves formal "classified" documents. These documents are put on diskette only, never on-line. These diskettes are marked to indicate their classified content and handled appropriately. Again, R&D reports no problems have been encountered with this formal document security procedure.

#### **4.1.5.2 Conclusions**

Within the traditional information management environment now in place, the basic electronic information security that does exist appears to be working well. Concerns over electronic security, perhaps unfounded, center around the need to protect sensitive financial and legal data, rather than general text and images.

However, information security will raise increasingly important issues as the Agency moves toward an electronically based information environment, as internal Agency documents are provided on-line for public access, and as the "intermediary" Information Specialist filter is replaced with direct Agency information user - information resource interface. Initial planning for technological innovation and future "vision" implementation must recognize this fact, and deal with it early on.

Security issues to be addressed will include the following:

- Protecting "sensitive" documents prepared in regular word processing systems, such as RFPs or personnel evaluations.
- Preventing tampering with approved electronic decision documents after the fact.
- Protecting policy documents that would cause embarrassment if leaked, e.g., candid political assessments in country profiles.
- Providing external access to appropriate text documents to outsiders, while preventing outside access to other parts of USAID's network and files (i.e., the firewall concept).

## **4.2 Text/Image Information Organization & Management Issues**

### **4.2.1 Version Control**

#### **4.2.1.1 Discussion**

The need for version control policies and systems which manage "live" information through various document changes was a recurring theme throughout the focus group discussions. Various comments identified are as follows:

- The need to determine frequency and method of updating information. (Africa Bureau)
- The need for Agency offices to designate someone to be responsible for updating the "system," and the need to designate a specific update schedule. (R&D)
- The need for help after a first draft has been generated. Frequently, multiple copies circulate, and no one knows what the latest version is. The

draft process needs to be controlled, and sequencing needs to be established on who receives what and when. (R&D)

- The need to have updates in one document reflected in other documents. Primarily from Lotus to WordPerfect. (R&D)

The Dominican Republic has established local conventions to manage these document change and version control issues:

- Once a final "official" document is electronically stored at the Mission, changes to it are only allowed by the person or people who produced that document.
- To simplify stored file management, the Mission is beginning to use a naming convention with a 3-character extension. The unwritten rule is that if someone changes a document, they must first rename the earlier version "NAME.001," before they make changes to it and must save modified document versions as "NAME.002." This provides a one-step back audit trail, but does not require all document versions to be retained and sequentially named.

#### **4.2.1.2 Conclusions**

As indicated by the Collection and Dissemination analyses, the amount of "live" information throughout USAID is growing and will continue to grow as collaborative, ad hoc, interdisciplinary and Washington/Mission teamwork approaches to project management become the Agency's primary focus. The need to change documents is directly related to the nature of this "live" text and image information.

"Live" information is in the process of becoming, or being incorporated into, "finished" documents; it is information, often being assembled and worked on in a collaborative way, which is moving through various drafting, editing, reviewing and approval processes. As such, it is continually undergoing changes and potentially exists in a number of draft versions. This tendency to create and retain multiple versions of draft documents can create major problems if it is not countered by consistent document change policies and by systems designed to enhance collaborative effort by managing "live" information.

But current USAID information collection and dissemination policies and systems are not designed to manage "live" information. Both the external and internal documents these systems and procedures collect and disseminate are "finished," and can therefore be frozen in storage media and summarized through bibliographic entries and abstracts. Only through the informal, ad hoc use of E-mail is "live" information being passed throughout the Agency.

The basic conclusion regarding "live" Document Change is, therefore, that controlling policies and supporting systems simply do not exist Agencywide. The need for these policies and systems has been recognized and is being addressed on a local level. Assistance to these local efforts, in the form of overall policies and improved systems, must be developed.

## **4.2.2 Duplication**

### **4.2.2.1 Discussion**

The Collection and Dissemination discussions identified several reasons why text and image document duplication is growing within the Agency:

- The 100 message limit placed on personal E-mail boxes is causing some staff to print out all their messages, even those retained in electronic format within the mail box.
- USAID/W's requests for both electronic and hardcopy documents is forcing Missions to duplicate documents.
- Congress requires hardcopy documents, even if these documents are stored electronically within the Agency.

These examples indicate that both external and internal requirements, as well as basic human tendencies, are perpetuating text and image document duplication throughout the Agency.

As indicated in the preliminary report, document duplication springs from the very nature of USAID's current organization and information "culture." The report noted that USAID distributed operations encourage document duplication. A tendency exists to maintain multiple copies of documents, especially since sharing these documents or the information within them is difficult.

This decentralized organization also encourages document proliferation: staff retain copies of items that they might otherwise dispose of, because they are not sure whether these items exist elsewhere or because they are not readily accessible. For example, project case files are usually retained at the Mission or regional offices. In order to guarantee timely response to senior management and external requests, however, the Africa Bureau decided to also duplicate them for retention at USAID/W, within country desk officer files.

Many comments about document duplication came out during the focus group meetings:

- Several Mission offices hold the same information. For example, the Training and Project Offices retain the same information concerning personnel training. This is considered a plus, particularly if one office loses a document. (Cairo)
- Hardcopy of Magellan documents are kept as backup. (Cairo)
- There is a great deal of repetition in information sent out electronically, including faxes, E-mail and cables. (Cairo)

- Correspondence control is a problem. Eight copies of each cable received are made and distributed to various offices for filing. (HRDM)
- Three copies of SF-182 Forms are processed and sent to vendors. (HRDM)
- Some people save their E-mail messages electronically and print out copies for their files. (LEG)
- There is extensive duplication of electronic and paper files. Project development officers believe it is essential that they have individual reference to information. For each country, there may be 30 to 40 files, including backup material. (Abidjan)

However, there are a few bright spots in this document duplication picture. Again, it is the local Missions who are leading the way:

- In the past, multiple copies of project documents were housed in two separate buildings at one Mission. Since implementing Magellan as an official means for filing and sharing project documents, Project Officers have become responsible for their project files. Now the files are located close to the user. (Dominican Republic)
- There has been a noted decrease in the number of documents retained between January 1993 and September 1993. One reason is that the Mission got rid of duplicate work files by sending official files to the technical offices. An estimated saving of \$1,000 to \$5,000 dollars per year on document copy costs has thus been realized. (Dominican Republic)

#### **4.2.2.2 Conclusions**

Overall, current Agency policy, internal practice, external information dissemination requirements, low levels of text sharing, and inefficient information access across a widely decentralized organization are all contributing to USAID text and image document duplication. Local attempts to reduce document duplication are meeting with limited success, but cannot hope to fully overcome the current Agencywide information culture and the demands for document duplication this culture has created.

#### **4.2.3 Indexing**

##### **4.2.3.1 Discussion**

Several indexing schemes (also know as *controlled vocabularies* or *thesauri*) are currently operating within the Agency. The most comprehensive is the CDIE Thesaurus, a comprehensive, cross-referenced listing of over 5,000 keywords used to index documents included in the A.I.D. Development Information System (DIS). Approximately 80,000 hardcopy and microfiched "finished" internal documents to date have been entered into DIS using the Thesaurus. These documents include the following:

- Audit reports
- Conference proceedings

- Evaluations
- Feasibility studies
- Housing Guaranty Program documentation
- Loan papers
- Memoranda
- Project design documents
- Research studies
- Sector assessments
- Technical reports
- Theses and dissertations
- Title XII projects
- Working papers.

The CDIE Thesaurus is multidisciplinary, covering subjects in agriculture, communications, culture, demography, economics, education, energy, government and law, health, housing, industry, labor, management, natural resources, science and technology, sociology and psychology, trade, and transportation. The keywords within it have been drawn both from specific USAID concepts and from the UNESCO Thesaurus, OECD Macrothesaurus, DIS Thesaurus, RandD Keyword List, A.I.D. Special Concern Codes, the A.I.D.-modified Library of Congress Subject Headings, the FAO AGROVOC Thesaurus, the UNBIS Thesaurus and the SPINES Thesaurus.

The CDIE Thesaurus is thus a very comprehensive effort to establish assignable indexing terms to all concepts contained with internal Agency "finished" documents, and thus provide numerous search paths to these document's bibliographic and abstracted records within the DIS. It is used extensively by PPC/CDIE/DI's R&RS information specialists to index and search documents coming into the DIS. Even though it is also distributed in hardcopy and on CD-ROM with extensive usage guidance, however, not many besides these specialists are using it to assign keywords to documents:

- We don't use CDIE's system for our AFRMIS information. The Thesaurus is hard to use. You need to know the Thesaurus to determine keywords. People do not use the Thesaurus consistently to handle documents and information. (Africa Bureau)

AFRMIS and the other Magellan-based AFAS databases (LACIS and RADIAS) employ their own, locally developed indexing keywords. These schemes are not as complex as the CDIE Thesaurus, nor are they evolving in any controlled or coordinated way. Some feel Magellan itself presents information search and retrieval problems:

- It is difficult to text search Magellan. There is too much interface in the way. (LEG)

Overall, however, there appears to be an acceptance that some type of indexing system is needed in the current information environment. As HRDM said:

- The need for easy access to historical records and past decisions requires some kind of indexing system. This is particularly important for those who write policy and provide policy-related advice.

Even in light of this general acceptance, however, the Agency's changing focus may cause problems for the CDIE Thesaurus. The Thesaurus and the DIS it supports evolved in a time before relational databases, full-text search and retrieval systems, and "holistic" information concepts were fully developed. Information in the Agency is now taking on a multidimensional aspect. Dozens of organizations, many countries, and many projects are interrelated. To support the Agency's growing interdisciplinary, collaborative project future, and the "live" text it generates, text information must be organized to establish linkages over both country and *conceptual* boundaries. The CDIE Thesaurus, based on a flexible but still basically hierarchical structure and focused to process "finished" documents, may not be the most appropriate tool to meet these rapidly changing requirements.

#### **4.2.3.2 Conclusions**

The CDIE Thesaurus will continue to be an important information-organizing resource. It is the basic tool by which these information "intermediaries" help vector Agency users to stored DIS information. It also provides a guideline for helping users search for this information. However, although MINISIS is fully relational, the somewhat hierarchical CDIE Thesaurus may have difficulty organizing rapidly growing cross-discipline text and image information. In addition, its basic orientation remains focused on "finished" documents.

The ad hoc indexing "systems" growing up around Magellan-based AFAS data bases are working in a limited, local capacity. However, Magellan limitations are already frustrating some users.

New technologies, such as fully relational databases and full text search and retrieval systems, are now entering into the Agency's information "culture." Oracle 7, for example, has become the Agency's standard data base, and the BAAs now underway are focused on Oracle 7 applications. These technologies present a way to evolve away from the labor-intensive, highly structured indexing systems of the past, and the bibliographic databases and abstracting services these indexing systems support.

*Although the CDIE Thesaurus and the DIS database structure it supports will continue to be vital tools for managing and providing access to the Agency's "finished" documents, attention must now also be turned toward establishing information policies and tools to access "live" information resources and move toward a full text storage and retrieval environment.*

#### **4.2.4 Text Sharing**

##### **4.2.4.1 Discussion**

Informally, text sharing has always been a part of some USAID operations. Now aided by electronic information transfer channels, collaborative effort and informal text sharing is a growing trend, especially among a region's Missions:

- Fifty percent of our US. direct hires in Cairo previously worked at other regional Missions. As issues and questions arise, these direct hires often communicate electronically with their former colleagues for advice. (Cairo)
- Our data needs are specific to an active research effort and tend to be time-dependent. Four to six weeks are available to develop planning data before a field visit. This data is shared among three Africa locations. Three to four text/document exchanges are often required in the same day. (Abidjan)

There are, however, certain human and organizational tendencies which act counter to these collaborative text sharing activities:

- There is little project information transmission (to other regional Missions and with USAID/W). Thus, no lessons are learned and the potential exists for duplicate effort. (Africa Bureau)
- Users are proprietary about work in progress, and are reluctant to share information on active projects. (Cairo)

CDIE feels these anticollaborative tendencies are universal throughout the Government:

- Government Agencies are competitive rather than cooperative. Each wants access to the information sources of all other Agencies. However, cost factors are involved. Agencies must purchase information from other Agencies and from commercial data bases. This can get expensive. (PPC/CDIE)

Despite these tendencies, several focus groups noted current efforts and personal desires to technically promote electronic text sharing:

- Abidjan REDSO is beginning to establish an electronic library of studies underway in other missions, so that key documents and references may be compiled and shared with other area development efforts. We prefer on-line regional data bases to CD-ROM imaging disks. (Abidjan)
- There needs to be subject area bulletin boards for both internal and external use. (R&D)

The Abidjan REDSO provided the focus group's most comprehensive "vision" of text sharing, and focused this vision directly on sharing "live" documents:

- The need is for real-time electronic sharing of working technical project data. PPC/CDIE should function as an information gatekeeper for active project studies, travel reports and related research efforts, making this information available in a few days so that other missions may access this text for reference data that would be spatially and geographically defined, not just numerically or subject referenced. Project Development Officers could work with PPC/CDIE to develop a global addressing and file access

requirements summary. The need here is an intensive, user-friendly search capability. We do not believe the MINISIS would help directly in this regard. (Abidjan)

#### **4.2.4.2 Conclusions**

Text sharing in the past has been an informal way of life for some USAID operations, something to be actively resisted by others. E-mail and the locally developing AFAS data bases are making electronic information sharing easier for brief text and "live" documents. Abidjan's comprehensive "vision" focuses directly on the need to make sharing this "live" text easier, but maintains the mindset that PPC/CDIE's "intermediary" organization must have a role in preparing this text for general electronic availability within "a few days" after central receipt. This is a valid, important, and continuing role for PPC/CDIE. The newer text sharing technologies, however, can also be used to gradually evolve away from this "intermediary" and centralized text processing and dissemination orientation. Combined with an evolved intermediary role as instructor and supplemental support provider, these tools can allow those USAID users who choose to become information proficient to interface directly with internal and external information resources, and collaboratively work these resources, through interactive "live" process, into "finished" documents.

#### **4.2.5 Tracking**

##### **4.2.5.1 Discussion**

There are a few information tracking tools being used to track documents within different offices, but none which track documents across the Agency's complex drafting, editing, review, and approval processes. This is recognized by users, who express some frustration at various aspects of this overall lack of ability to track information:

- Eight copies of each cable received are prepared and passed through several "In" boxes before (even one copy) reaches the person to whom the action is assigned. It is difficult to track actions once the secretary distributes these copies. There are over 10,000 items of controlled correspondence a year. Our most significant text processing need is correspondence control. (HRDM)

A current IRM study of the Agency's Executive Secretariat (ES) Executive Issue and Correspondence Tracking System (CTS) notes that, although tracking systems exist, they are oriented to interoffice tracking and do not link up between offices:

- The CTS is used by ES to record and maintain status on each individual correspondence action. This tracking system is not available to anyone outside ES, except via hard copy reports. Therefore, virtually each Agency organization processing these actions maintain their own tracking/status systems. These systems vary from simple manual "in/out" logs to automated systems. In every case, the recording of the status is an added workload to the actual processing of the action. Further, since each is

independent, the individual systems only record status within that organization; the status is not passed to, or made available via, those systems operated by other organizations. (ES Study Interim Report Draft 1.0, 6 Feb 1994, p. 3).

An important aspect of this problem was previously discussed under Document Change:

- Multiple copies of documents circulate. No one knows what the latest version is. We need help in controlling this process, sequencing who receives what and when. We need to have updates of one document reflected in another. Especially Lotus to WordPerfect (spreadsheet changes linked to text document drafts). (R&D)

To counter this general lack of tracking ability, the Dominican Republic Mission has implemented a document tracking system (DOCTRAX) based on Clipper. The system is used to electronically route text information around the Mission. These WordPerfect documents are routed using a control based on a version number suffix added to the word processing-assigned name.

#### **4.2.5.2 Conclusions**

The Agency's many document drafting, editing, review and approval processes are not currently balanced by an Agencywide ability to track documents through these processes. Local tracking efforts are isolated and not mutually supportive. Even though these local efforts are electronically based, they rely on older technology (WANG, Magellan). At the same time, these efforts have been developed to track documents which remain essentially *paper*-based. The newer tracking technologies now available and the Agency's evolution away from paper to an electronic information environment can therefore radically alter the current "mix" in which document tracking problems have developed.

### **4.3 Text/Image Information Policy and Organizational Issues**

#### **4.3.1 Policy and Standards**

##### **4.3.1.1 Discussion**

The need for new or revised USAID information management policies and standards was brought up repeatedly by each focus group. This need underlies each conceptual area discussed in this study section. The focus group participants realize they are living in a time of transition. They feel the Agency's past text and image information practices must evolve accordingly, under a better sense of direction from the top.

Focus group comments regarding policy change covered a wide range of concerns:

- Is all the information being created by the Agency relevant to our core responsibilities? Information being created may not be essential. USAID management must both control and verify the information being created. (PPC/CDIE)

- When the Agency doors are open (i.e., when greater access is provided to the Agency's internal information via Internet, etc.), discrepancies, when they surface, must be acknowledged and resolved cooperatively. Rather than the Cold War mentality of hiding discrepancies, USAID should be proactive, rather than reactive, when confronted with conflict. (R&D)
- There is a need to change personnel and record keeping policy. Policy changes should focus on improving efficiency. (HRDM)
- There is a need to decide how to structure the Internet interface and select what should be available on it. (R&D)
- USAID's technical goal should be making E-mail files accessible across the Agency. You can cut down \$30 million a year on hardcopy support services by increasing electronic media. But no electronic guidelines are available for E-mail archival functions, although the volume of activity is intense. An average filing clerk supports six to seven people, and files over 140 cable documents each day. Only paper forms of text and documents are filed. The organization should be able to archive electronically to disk. (Abidjan)
- Agency guidance must be developed that addresses the size, retention, filing structure and deletion of E-mail messages. Not all this text can be saved, nor is it all worth saving. (M/AS/ISS/RM)
- The goal of our Magellan project was to design a system users will prefer to use over paper. If electronic signatures become available in the future, procedures and guidelines will need to be developed. (Dominican Republic)
- There needs to be guidance on how people should manage resources obtained from Internet. IRM should prepare and issue such guidance. Other issues IRM should address include what to retain, what to archive, what to keep on-line, how to organize the files, what tools can be used to manage the (electronic) information, and what access will be provided to people other than the receiver. (PPC/CDIE)
- There needs to be either revised job descriptions or an additional job classification which is broader and encompasses information management requirements. The relationship of this person to IRM needs to be defined. (PPC/CDIE)

Some Agency standards (WordPerfect, Windows, Oracle 7) have been established, and the BAAs are factoring these standards into their investigations and recommendations. Curiously, however, the few comments on standards from the focus groups indicated a general lack of awareness about the standards and their potential impact. Rather, these focus group comments regarding standards were more concerned with high level standardization levels, "visions" of the future and local information management efforts evolving in a nonstandardized environment:

- It is essential to consider the development of Agency standards to handle images, text, and spreadsheets as an integrated package as the Agency moves toward implementation of an expanded electronics media program. We recognize there is no standard software available today that will accomplish this, but there is a need for one. The Agency must anticipate and promote (such software's) operational availability. (M/AS/ISS/RM)
- RMO is working with NARA to arrive at standards that address electronic media. The concern for a standard format is considered critical to agreements with NARA. M/AS/ISS/RM is working in a joint effort with NARA to develop a government prototype standard electronic filing system. OMB is very interested in this effort and has designated the pilot test with the Agency's mission in Santo Domingo as one of the dozen "Projects to Improve Government Performance through Better Management."

#### **4.3.1.2 Conclusions**

The bottom line is that USAID has taken a free-form, ad hoc, "bottom-up" approach to developing and adopting new text and image document handling technologies. This may be related to the Agency's decentralized, globally dispersed operations, time-lag between newly available technologies and established information management "mindsets," etc. Whatever the reasons, the result is that the Agency is now experiencing the effects of this practice: uncoordinated, albeit somewhat successful, local effort combined with a growing awareness from the "bottom" that policy and standards are needed from the "top."

Of these local efforts, Magellan's limitations, Lotus' decision to no longer support Magellan, and the Agency's movement to a Windows standard and away from Magellan's DOS operating environment indicate that the Dominican Republic's Magellan project cannot serve as a model for developing a standardized approach to controlling large volumes of official text within a Mission. Yet the philosophy behind the project (to "design a system people will prefer to use over paper") is totally valid in the Agency's evolving electronic information culture. This philosophy can help guide the development and application of the Agency's chosen standard software packages and newer technologies as they become available.

#### **4.3.2 Information Specialists**

##### **4.3.2.1 Discussion**

PPC/CDIE's R&RS staff are information specialist "intermediaries" trained to acquire and organize external and internal "finished" USAID text and image information resources and to help Agency users locate and obtain these resources. Outside this traditional library and clearinghouse function, Information Specialists do not exist in name, but do exist in function:

- The head secretaries act as file custodians and are responsible for managing project files. They place the final versions of documents in the Magellan

system. They have read and copy access, but not modify access.  
(Dominican Republic)

This use of secretaries as information managers and shifting support staff and professional staff work patterns have led some to consider the secretary an untapped Information Specialist resource:

- The (information management) technology is growing more complex and requires an additional layer of person able to further refine and monitor information. Secretaries, retrained and reengineered, may be the resource. Professionals have taken over secretary responsibilities (E-mail, voice mail, etc.). Secretarial functions are being eliminated and will continue to decrease. (PPC/CDIE)
- Senior staff do most of their own work. Support staff have been reduced, and those remaining primarily answer phones and requests. (LEG)
- Answering requests received via Internet will be a problem due to support staff reductions. (The Agency) must re-engineer staff and redesign outreach. (R&D)

Some experiments with on-site "Information Specialists" support staff are now underway:

- Twenty five percent of requests for information come from universities. The R&D University Center/Group has one person designated to respond to these requests. A pilot project is now underway - there have been two new hires to help on information sharing. (R&D)

If secretaries or other on-site support staff are to assume Information Specialist roles, however, it is recognized that job categories and inter-Agency relationships will need to be modified:

- There needs to be either revised job descriptions or an additional job classification which is broader and encompasses information management functions. The relationship of such a person to IRM needs to be defined. IRM provides some help, but is not part of the unit. The actual process of information management needs to be performed by someone on-site as a part of the unit. IRM should provide guidance, tools and training, and should also assist in determining the qualifications and duties of these individuals. (PPC/CDIE)

#### **4.3.2.2 Conclusions**

These Agency recommendations for a reengineered support staff role to support on-site professionals assume a continuation of the traditional "intermediary" philosophy of information management. Within this information culture, secretaries or other support staff may have a valid "reengineered" role, at least as an interim solution. *It is certain, however, that many current users will continue to prefer assistance with their information needs.*

In a time of shrinking budgets and staff reductions, it is probable that the current trend of professional staff assuming more and more previously "secretarial" actions will continue. Newer information management and transmission technologies such as E-mail are making this possible. If it is assumed that these technological changes will continue to improve and also assumed that lower staff levels will be a future way of Agency life, then perpetuating the "intermediary" Information Specialist role, even by "reengineering" underutilized secretaries, is too narrow a focus. In the long run, it will be more profitable to focus on future technologies and their potential to turn as many Agency employees as possible into his or her own "Information Specialist." Full-text search and retrieval systems, electronic filing, on-line help screens and menus, advanced systems training, etc., these directions are more in keeping with the ISP's vision of direct information availability via each employee's desktop workstation

### **4.3.3 Training**

#### **4.3.3.1 Discussion**

The focus groups brought up several training concerns and requirements:

- The staff need computer ability. Ninety percent of the staff have a computer on their desktop. Faster computers (486s) would help the users become comfortable and familiar with the technologies. The age (of these computers) and the amount of training (the staff have received) are two factors that limit user acceptance. (Cairo)
- People on Review Boards must fly into USAID/W, review the (hardcopy) folders, and meet to discuss these reviews. This is costly and time consuming. If the process becomes electronic, paper volume will be reduced, and the amount of TDY time and money will be reduced. This electronic review process will require training, however. (HRDM)
- Answering requests via Internet will be a problem, due to support staff reductions. We need to reengineer staff, and outreach needs to be redesigned. (R&D)
- Training for new WordPerfect and Lotus software versions is a small problem. (R&D)
- The few secretaries available are swamped by the increasing pace (of E-mail blow-back production and filing) and not able to keep up with the work flow. Training is needed to increase the use of electronic media. Technology is not the concern. The missing strategy is training. (Abidjan)
- People are used to acquiring things on paper and being sent things on paper. They will require training in the use of (electronic) bulletin boards. They may need to receive notes or advisories from those bulletin boards, and alerts (that the board's contents) have been updated and should be accessed for current data. (PPC/CDIE)

#### **4.3.3.2 Conclusions**

In the past, larger Agency staffs and operating budgets, combined with a focus on local problems, allowed the gradual development of country and subject matter "expertise." This expertise was supported by an extensive system of information specialist "intermediaries," trained to provide required text and image documents.

Staff and budget reductions, an Agencywide refocusing on global projects, and new information management technologies which allow direct user-information interface are now changing this past mode of operation. We have seen how local information collections are growing and how local efforts are attempting to deal with information management problems.

Within this context, Abidjan's feeling that "Technology is not the concern...The missing strategy is training." provides an important insight: As with policy and standards, training is an underlying theme in each of this Analysis section's conceptual areas. Any introduction of a new technology, policy, standards or philosophy will entail some form of Agency employee training. How well this training is organized within the context of the evolving USAID "information culture" will determine how well each newly introduced information management tool and procedure can be integrated into the ISP's overall "vision."

## Chapter 5

### Recommendations

Although the following recommendations cover a wide spectrum of text/image information management issues, they all stem from the same motivation: *to introduce incremental, measurable change in USAID's text/image information environment, as that environment evolves toward the ISP's vision of an electronically based, networked, full-text, directly accessible information future.*

#### 5.1 Text/Image Information Collection, Access and Dissemination Recommendations

##### 5.1.1 Establish E-mail policies and procedures which encourage continued use within an overall Agency framework. Extend E-mail to include Mission linkages via INTERNET or AIDNET, as applicable.

In a very short time, the 9,000 Agency employees connected to one another through AIDNET have come to depend on the communicating freedom E-mail provides.

E-mail has thus become a basic way of life throughout the Agency. However, E-mail growth to date has been unrestricted. The only "rule" in place is a recommended 100 message limit on E-mail messages filed in personal mailboxes. This rule arose based on the need to prevent AIDNET server saturation. In no other way is current Agency E-mail use being controlled.

Basic questions must therefore be addressed, and policies put in place to regulate future E-mail use and ensure the system continues to function efficiently. These questions include:

- What are and are not appropriate E-mail uses?
- How can E-mail be routed more efficiently among multiple users? What alternatives, such as the Bulletin Board General Notices now being used, can be substituted for duplicate E-mail message traffic to multiple users?
- How can E-mail messages be filed electronically, off-line, to prevent the paper-copy approach now clogging personal files?
- How can these electronic files be organized for retrieval and access?
- What E-mail message destruction and retention policies should be enforced?
- How will the Agency respond organizationally to the recent Freedom of Information Act ruling concerning E-mail messages?

### **5.1.2 Increase direct INTERNET access (thereby reducing central external information resource procurement over time). Provide INTERNET use training and support.**

INTERNET is now being used to tap into external information resources, but only by a few Agency staff. PPC/CDIE's DI and R&RS intermediaries are the Agency's primary INTERNET users, as they seek information to answer USAID staff and contractor queries. This situation will continue into the future, because most Agency staff do not have the time or inclination to learn to use INTERNET directly. But these employees, and new Agency hires, have the opportunity to use INTERNET directly and easily, if they choose to do so.

*Increased direct INTERNET use will free PPC/CDIE intermediary time to focus on other priorities, and will establish one basis for the ISP's vision of the independent, self-sufficient knowledge worker. The Agency's staff should therefore be encouraged and helped to increase their direct INTERNET usage. Aspect of this encouragement include:*

- INTERNET orientation for all new Agency employees.
- Hands-on training by knowledgeable intermediaries, upon request and in scheduled training seminars and workshops.
- INTERNET newsletters and E-Mail alerts to provide information on new data base access, data base protocols, and "helpful hints."
- An INTERNET "hot line" help desk to provide on-call assistance.
- Continued expansion of INTERNET connectivity to the field, either through AIDNET to INTERNET or through dial-up links (CompuServe, etc.), where AIDNET is not available.

### **5.1.3 Establish Agencywide standards and guidelines for Image capture and storage.**

India's pilot imaging project was self-initiated. It was developed to meet a local requirement and based on an assembly of local components. Although the Agency should encourage individual efforts to solve information problems, it is dangerous to allow Imaging efforts, which involve large technological/budget commitments, to evolve in isolation, without established guidance and standards. The following comments are provided to help the Agency develop such standards and guidelines for Image capture and storage.

Imaging, as an electronic means of storing pictures of pieces of paper, is analogous to paper files and microfilm, but is by far the most expensive of these three approaches. In the past, the Agency discontinued the APDiMS microfiche project because it was too expensive. Yet paper storage is even more expensive, and imaging is the most expensive option of all.

Imaging is most widely and successfully used by organizations which receive extremely large volumes of paper from the public and where a more efficient access channel (i.e., electronic) is not feasible or cannot be mandated. Thus, big imaging users include the insurance companies and the IRS. In most cases, however, *imaging as a pure filing media is prohibitively expensive.*

In the India pilot (for which no cost-benefit data has been seen), routing daily hardcopy folders serially and concurrently to a number of offices was proving inefficient and delaying action item responses. Imaging can be most cost-effectively used in cases like this, when it is one component of a "work flow" automation effort. It is especially useful where multiple people need access to the same document at the same time, and where there is concern about losing pieces of paper. However, *it is estimated that approximately 90% of USAID's current text information resides in electronic WordPerfect files. Many of the recommendations in this study deal with managing this text information as an electronically stored resource. Imaging, with its emphasis on recording information stored on paper, should not be considered above other, more direct means to capture, organize, and provide access to these electronic text files.*

For USAID to consider imaging at all, there must first be a determination if truly large volumes of paper coming into the agency from outside cannot reasonably be expected to be shifted to electronic form. Such paper might include the following:

- Congressional and public correspondence
- Resumes (SF-171s) from outside job applicants
- Contract files, which are currently "compound documents" with multiple signature pages
- Vouchers

However, there are indications that the Agency is moving away from paper, in some of these cases, to digital contract files now being designed in the Procurement BAA, and to EDI for vouchers.

Next, the Agency should look at whether these documents need extensive routing throughout the Agency or require long-term filing. Retaining resumes after six months or a year, for example, does not make much sense in light of rapidly shifting job requirements and a highly mobile job force.

Network capacity must also be considered. Electronically, image files are extremely "bulky." USAID/W plans to move into a single, new building in 1996 and is planning adequate network capacity to be economically built into this new location. However, the issue for the field is more problematic; establishing network capacity to move large image files to 100 third world countries where telecommunications is constrained and expensive is probably not feasible. Indeed, IRM/TCO has stated it does not even want to move large text files in ASCII format in any volume.

Historic file access be considered. As text files, PPC/CDIE has an enormous library of "lessons learned." This is a knowledge base that needs to be shared with the Agency for years to come. The knowledge base is currently in the form of computerized indexes and abstracts linked to full-text microfiche documents. Since these documents have already

been converted to an image format (microfiche), it makes no economic or practical sense to consider converting them all into something else. Rather, the Agency must look at ways to make individual microfiched documents more widely available:

- The most direct approach would be to prepare and distribute subset microfiche libraries (copies or original microfiche are very cheap to produce, compared with the original microfiche creation expense). This approach must take into account the need for local microfiche readers, however.
- Missions with greater DIS search capacity (either directly through AIDNET or INTERNET, or via CD-DIS products) could submit their search "hits" to CDIE, which, in turn, can scan and convert selected document fiche to electronic form and send these files back to the Missions. Over time, this approach will indicate where the demand for older microfiched documents lies and will help CDIE prioritize selected fiche for conversion. According to Pareto's law, within a few years perhaps 20% of the microfiched documents will have been converted to more accessible formats, but this 20% will satisfy 80% of all requests.

Any chosen imaging approach and the technology this approach involves must integrate with the Agency's now-established standards, such as the Windows operating environment and WordPerfect word processing software. In other words, these imaging approaches must be consistent with the Agency's evolving technology infrastructure.

*In summary, imaging does not represent a viable, economical alternative for USAID in most cases. A focus on the management of electronic text files will produce much greater results. In those few cases where imaging may prove practical (limited work flow improvement options or one means to address a subset of the microfiched historic documents), the Agency should only allow these imaging applications to be developed under Agencywide guidelines and standards.*

**5.1.4 Provide direct DIS access and training. Continue to use DIS and APDMS to provide access to the estimated 250,000 historic documents now stored as microfiched images. Move DIS into the MS-DOS based environment. Replace DIS' bibliographic-oriented approach as electronic full-text capabilities are chosen, tested, proven, and rolled out.**

Although it is a bibliographic database, and the current MINISIS system on which it is based is a technology isolated from the Agency's growing IBM/Windows environment standards, the DIS continues to provide the only organized access to over 250,000 historic Agency text documents stored on microfiche. MINISIS must therefore be preserved to provide continued access to these documents. MINISIS Version H, now being tested in an MS-DOS version, offers some hope of bringing MINISIS more into the USAID automation mainstream.

At the same time, USAID should start immediately to move away from DIS' bibliographic/abstracting approach, which in the past was PPC/CDIE's only option for

managing large masses of "finished" documents, and toward full-text document capture in electronic format. *It is critical at this time that PPC/CDIE begin this shift, by focusing a greater percentage of time, effort, and money pilot projects designed to test potential DIS technological and procedural replacements. As one initial way to rechannel PPC/CDIE intermediary effort towards these future changes, direct DIS access should be established as an on-line AIDNET option, and training in DIS search and retrieval should be provided to interested Agency staff.*

Because the transition from "live" information to "finished" documents is a continuum, any future system focused on managing the Agency's "live" information resources must also address the needs now being supported by DIS' "finished" document approaches. The ideal future information search and retrieval system will identify the relationship between relevant "live" and "finished" documents, and will provide access to these information resources where ever they reside and however they are stored.

**5.1.5 Consider using the National Technical Information Service (NTIS) as the Agency's future repository for historically important text documents.**

The Technical Preeminence Act of 1992 and its Department of Commerce Implementing Regulations issued 01 February 1994 require Agencies to submit documents in various formats to NTIS. It also gives NTIS the authority to actively identify and request documents from Agencies that do not reply. NTIS is the one Government organization equipped to receive, organize, provide access to, and supply copies of technical information produced by field Agencies. NTIS disseminates technical documents on a mass, nationwide and worldwide scale. As such, USAID should consider how NTIS can be used to increase Agency text document availability and reduce the need to continue internal processing, storage, and retrieval of this information. DISC, which currently provides technical input to NTIS, should explore this option.

This recommendation in no way frees USAID from its responsibilities to provide permanent, historically valuable documents to the National Archives (NARA). Instead, it describes a channel for moving some Agency document dissemination to an existing center. This would permit DIS to focus attention on collecting current Agency information in any format, and in working with IRM to develop and implement text management programs Agencywide. Because NTIS will charge to technically process USAID information, the cost benefits of using NTIS as a dissemination vehicle must be balanced against the need to free DISC information specialist time to concentrate on these other priorities.

## **5.2 Text/Image Information Organization and Management Recommendations**

### **5.2.1 Ensure future information management pilot projects have defined goals and measurement criteria. Focus initial pilots on system and procedural innovations to manage "live" information.**

A basic criticism leveled against many past information management "pilot" projects is that they did not include criteria upon which their results could be measured, nor were they structured to provide measured progress assessments against these criteria and previously determined "status quo" time, effort and cost baselines. The pilot projects which arise based on this study's recommendations and followup effort must incorporate these controlling and quantifiable aspects if they are to truly prove the worth and applicability of the systems or reengineered procedures being assessed. Criteria upon which future pilots are based should include, as a minimum:

- A clear statement of the pilot's goals
- A summary of the current problem to be addressed
- Established criteria for measuring results
- A quantified baseline of current time, money and effort against which the pilot's success can be measured
- A schedule for progress review, as the pilot proceeds

A detailed information management plan should be developed for each proposed pilot. This plan should specify the following:

- What kind of information will be collected by the system or managed by the process.
- Why this information must be collected or managed to support the Agency.
- How the collected and managed information will be used.
- What will become of this information once it has been applied.

### **5.2.2 Apply lessons learned from Dominican Republic pilot to develop Agencywide version control procedures and file naming conventions.**

The Dominican Republic pilot included the Agency's first real attempt to grapple with the issues of electronic file version control and file naming conventions. As such, the pilot should be reviewed and its "lessons learned" applied to the development of Agencywide procedures and rules for these issues. RM and IRM should work together to conduct this review and apply the "lessons learned" within the Agency's evolving technological infrastructure.

### **5.2.3 Explore "Extend-a-File"-like document management applications which are designed to organize and manage the Agency's WordPerfect text documents files.**

M/AS/ISS/RM's desire to continue the Extend-a-File approach to organizing WordPerfect files does provide a basic approach to helping manage the estimated 90% of all Agency electronic text documents now in WordPerfect format. These WordPerfect files represent an unmanaged asset, and Extend-a-File provides a basic level of file management to this asset.

However, some user resistance to Extend-a-File has been encountered, and Extend-a-File itself is a very limited application. Other options should therefore be explored including the following:

- WordPerfect 6.0 has a "Quick Index" feature which allows the user to specify what collection of documents should be indexed, and what index subdivisions should be established. Quick Index then produces these indexes, based on full text, first page or document summary content.
- Newer off-the-shelf applications, such as *Golden RETRIEVER* or *SHERLOCK*, address the same need to file, search for, and retrieve similar WordPerfect files, and also provide much more flexible file naming and organizing capabilities.
- *SoftSolutions*, which has recently been purchased by WordPerfect, is a comprehensive file management package able to work across LANs and WANs, and handle a wide variety of electronic record types (text, graphics, video, voice, and spreadsheets).
- PC Magazine (June 29, 1993) rated *PC DOCS* as its overall choice among the document management software reviewed (*Keyfile Workgroup Edition*, *Mezzanine with ViewZ*, *PC DOCS*, and *SoftSolutions* for DOS and for Windows).

USAID should investigate these and other alternatives to Extend-a-File. At a minimum, these investigations should measure each application package's ability to organize and provide easy access to WordPerfect files within an individual PC, organize, provide easy access to and allow remote access to WordPerfect files located among a work group's PCs, and provide the ability to mark files for local purging and transport to archival files.

### **5.2.4 Continue to post General Notices over electronic bulletin boards, and increase bulletin board use in other ways, to reduce electronic document duplication. Evolve towards a "master copy" mindset in this area.**

Current plans and tests to post the Agency's General Notices over electronic bulletin boards should be encouraged and accelerated. Posting one electronic copy to a bulletin board and providing general access to this "master copy" replaces the current trend to send thousands of electronic copies of these notices over E-Mail channels. This will do much

to relieve growing E-Mail saturation and server burden. Other types of text information should also be explored for bulletin board posting in this way, to help evolve toward a "master copy" mindset throughout the Agency. RM should address how electronic "master copies" can also be "official" and "archival" copies and what their ultimate disposition schedules and procedures should be.

#### **5.2.5 Use Lotus Notes and BeyondMail to increase collaborative text generation and further the "master copy" mindset.**

The success the SWAT Team has experienced in applying Lotus Notes applications shows the potential Notes has for meeting many different text management and collaboration requirements. Current LotusNotes applications within the Agency are reducing hardcopy duplication and instituting a "master copy" mindset among users.

Notes will be accepted most readily and be of most use in other Agency areas if it is closely integrated with electronic mail, and thus with the natural flow of USAID office communications. Work flow applications can be set up to route forms and various action items through Notes mail, with work status updated in a central tracking database available to an entire workgroup. Using the Beyond Notes Connection in conjunction with BeyondMail, so that staff can access Notes database documents from within BeyondMail, represents a powerful option. Recently a Notes-Vines gateway product has become available, and the company producing this product has offered the Agency a beta copy of a Notes-Vines directory synchronization product.

A key value of the LotusNotes/BeyondMail linkage is found in the ability to create E-mail "agents" that filter LotusNotes databases based on the user's search criteria (provided via BeyondMail's Coordinator product.) This ability extends LotusNotes use to those individuals serviced only by BeyondMail. The combination provides a potential for managing text and images via LotusNotes, and the means for a wide array of users to interact collaboratively on "live" documents.

*Because the LotusNotes-BeyondMail combination offers so many "live" information management and collaboration capabilities and because it is fully compatible with the Agency's standard Windows operating environment and in-place BanyanVines, it should be fully explored and implemented on a priority basis. The IRM analysis effort to improve Executive Correspondence record keeping and handling would be an excellent pilot project to begin this implementation.*

#### **5.2.6 Develop and apply Data Element Dictionary concepts in the design and implementation of all future text-based information management systems.**

Newly developing text retrieval software and data element dictionary concepts offer USAID new approaches to indexing textual information and permitting rapid access to this information. USAID should develop and apply data element dictionary concepts which draw on CDIE Thesaurus and Magellan-based system indexing approaches and the lessons learned from them. This will permit the Agency to evolve away from traditional indexing systems towards a system-controlled and author-driven vocabulary.

An Agencywide integrated Data Element Dictionary will provide a locator for USAID information contained in its systems, will facilitate disposition decisions on electronic records, and will provide a common access to official records maintained in the Agency or transferred to NARA.

### **5.2.7 Monitor full-text/Artificial Intelligence (AI) information storage, search and retrieval systems as a long-term means to augment the requirement for traditional thesauri and document indexing systems.**

The combination of full-text document storage and AI search and retrieval is evolving, but Agency explorations into this area indicate that the technology is "not there yet." Because this technology could eventually provide a major means to move away from traditional thesauri and document indexing systems and the huge time and money investments these systems demand, it should continue to be explored as the Agency pursues other, more immediate text management strategies. At a minimum, the annual DARPA competitions should be monitored, and more effort should be placed on gaining awareness of advances in this area (via newsletter and magazine subscriptions, conference attendance, etc.).

## **5.3 Text/Image Information Policy and Organizational Recommendations**

### **5.3.1 Merge M/AS/ISS/RM's organization and functions into M/IRM.**

Over the past several months, USAID/W has carried out a number of "Rightsizing" initiatives. These initiatives were aimed at providing a quick assessment of each Office, to determine if improvements in staffing, functional alignment, "flatness," of the organization, etc., could be realized. During a "Rightsizing" analysis performed for M/IRM, organizational issues were raised as to the potential for consolidating M/IRM, M/AS/ISS/RM and PPC/CDIE. A few recommendations were made for consolidating some PPC/CDIE computer operational functions into M/IRM, but for the most part this effort did not result in any major cross-office realignment.

In light of this study's findings, the realignment of M/IRM and M/AS/ISS/RM should be reconsidered. M/AS/ISS/RM is becoming increasingly electronic in its orientation, and it is imperative that this orientation be consistent with overall M/IRM program direction. M/IRM is becoming increasingly oriented to information management issues, of which records management is a major component. The pilot efforts being conducted in isolation by M/RM are producing valuable lessons learned but are also focusing on limited and increasingly unsupported information management technologies. M/IRM's ISP and pilot projects are evolving a standard set of information management tools, which are not building in M/AS/ISS/RM requirements.

For these reasons, it is recommended that the M/AS/ISS/RM organization be merged into M/IRM. Management's Administrative Services area, under which M/AS/ISS/RM now resides, is too general a function to allow the synergy such a merger will create. Under the proposed plan, both functions will remain within the Agency's Management organization. The consolidated organization created by this recommendation is consistent with the organizational structure now found in other Federal Agencies, including Agriculture, Commerce, Interior, and Transportation.

### **5.3.2 Formally investigate, discuss, identify and document coordinated M/IRM, PPC/CDIE and M/AS/ISS/RM roles and responsibilities which will support emerging text/image information management changes.**

USAID's program and administrative offices have numerous information requirements which will be better met through the application of new technologies. At the same time, the Agency must operate within a context of Federal regulations for records management and information systems. The Clinton Administration has placed additional requirements on Agencies for the dissemination of Government information to the general public.

A successfully evolved text/image information environment will require the active participation of numerous program and administrative offices within USAID. M/IRM, PPC/CDIE and M/AS/ISS/RM have experience in collecting, processing, and disseminating USAID information in hardcopy and in the ongoing transition from paper to electronic media. This experience offers valuable lessons learned which should be incorporated into M/IRM's overall text management strategy.

Since M/IRM, PPC/CDIE and M/AS/ISS/RM are all currently players in USAID's text information arena, it is essential that their efforts be closely coordinated to avoid duplication and wasted resources. *Whether the recommendation to merge M/AS/ISS/RM into M/IRM is implemented or not, it is important to immediately begin an open discussion of the issues and establish interoffice cooperation in meeting USAID staff and external information requirements. It is therefore recommended that M/IRM, PPC/CDIE and M/AS/ISS/RM establish a coordinating group that meets regularly to discuss directions, policies, common needs, etc.* Additional organizations may be brought into this group, including Global, and perhaps representatives for the ongoing AFAS efforts. The group's key goal should be to establish collaboration between these organizations and their functions related to electronic management of text and images.

It is anticipated that at some point in time, the group may need to assess current organizational structures to determine if there are more optimal arrangements that are acceptable to management. This may result in functional realignment and shared responsibilities, which bodes well in the current resource-limited environment.

### **5.3.3 Develop a comprehensive set of information management-related policies and guidelines that incorporate the Agency's direction for handling text and images.**

Most of the ISP's focus to date and the efforts by M/IRM in carrying out BAAs, have been associated with managing formatted data. However, as this study stresses, the most pervasive form of information handled by the Agency is nonstructured textual information. This textual information is prepared on word processing equipment by virtually every USAID employee, and is communicated via E-mail, Fax, or Cable.

There are virtually no policies relative to handling this textual information, beyond those reflected as a subset of existing information systems and those provided as part of the Federal Government and Agencywide Records Management directives. For the most part these latter directives deal only with hard copy documents and official records.

As a focus of the proposed PPC/CDIE, M/IRM and M/AS/ISS/RM collaborative effort, a comprehensive set of textual and image information management-related policies and guidelines should be developed. These policies and guidelines should address such issues as text and image:

- Ownership
- Stewardship
- Collaborative development
- Electronic Authorization
- Electronic commerce (including EDI)
- Appropriate imaging technology applications

#### **5.3.4 Establish an Agencywide "standard tool kit" for managing text and images.**

At USAID, the technologies and systems/applications applied to text and images to date have predominately been focused on assisting in document creation, editing and communication. There is a virtual absence of any technology to assist in managing text and images once they have been created and are still "live," under revision or are "final" and accessed for reference purposes. The only real exceptions to this current lack of information management tools are some pilot efforts making use of information technologies such as Extend-a-File, Lotus Magellan and Lotus Notes. For the most part, the only Agencywide tool available for managing text and images is an operating system-level file name and the operating system-level capability to store word processed files in multiple directories and subdirectories. These are simply not adequate tools for managing the Agency's text and image information.

To develop an overall approach to text and image management, in which specific tools can be tested and implemented, USAID must first determine the functional requirements for managing this text and image information and for managing other information "objects" as well. These functional requirements must take into account the following:

- The current USAID technology infrastructure
- Any potential impact of recommendations coming from the current BAAs and systems development efforts
- Changes underway in the way USAID business is conducted
- The need for external information delivery and access
- Full-text storage and retrieval requirements

The derived functional requirements should take a cross-cutting view of the Agency, such that a common set of technical solutions (a "standard tool kit") can be developed and applied to meet as many USAID information management requirements as possible. The lessons learned from pilot efforts to date must be built into any final recommendations and solutions.

Some level of urgency should be given to establishing this Agencywide philosophy and approach. Considerable benefit to the Agency's operational effectiveness and efficiency, especially in the areas of reduced duplication of effort and increased information accessibility, can be realized once this approach and the "tool kit" are implemented.

### **5.3.5 Enhance cross-organizational ability to establish ad hoc, informal working groups to address text and image management issues, design pilot projects, and measure success.**

Based on the text and image information policies, guidelines and tools developed from PPC/CDIE, M/IRM and M/AS/ISS/RM coordinated efforts, ad hoc working groups should be formed to work on specific issues. The Agency should strive for flexibility in allowing these groups to form and operate, within the structure of specific pilot project guidelines.

### **5.3.6 Redefine the role of PPC/CDIE Information Specialists in light of the changing information environment, organizational changes, and the ISP Vision.**

USAID staff will not become self-sufficient information experts overnight, and many will prefer to have "intermediaries" locate and research information for them. There will always be an important role for the Agency's information specialists. As technological advances and philosophical changes refocus the Agency's information environment, however, these specialists' roles will shift to a more supportive, pro-active role as information "navigators" and trainers. They will apply their skills to help users make better use of the future's networked information assets. Personnel experts should work with PPC/CDIE, M/IRM and M/AS/ISS/RM in collaborative effort to explore these information specialists' changing roles, and recommend augmented career paths and job descriptions accordingly. PPC/CDIE's Scope of Work should reflect agreed-upon approaches to these evolving career paths. Specific areas of investigation should include the following:

- Official information specialist job descriptions
- Correlation between official job descriptions and actual tasks
- Trends in task evolution (away from job descriptions, etc.?)
- Division and percentage of time spent on current tasks
- Proposed information infrastructure changes and their projected impact on information specialist roles and priorities
- Technological, environmental and personnel changes required to realign information specialist roles to Agency organizational and information environment changes

# Attachment 1

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