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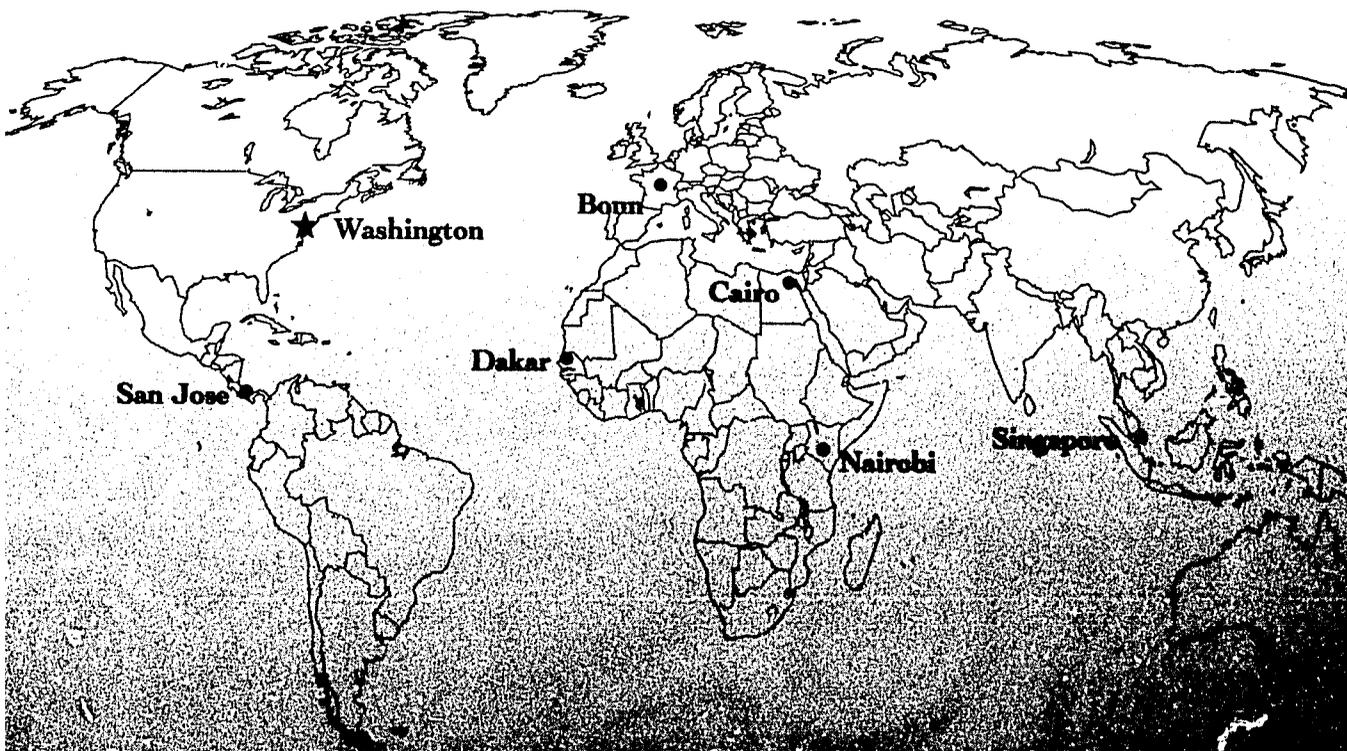
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Programs and Systems Audits

AUDIT OF THE
QUALITY OF MACS DATA
AT
USAID/MALAWI

Report No. 9-612-95-007

February 21, 1995



U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT



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MEMORANDUM FOR DIRECTOR USAID/Malawi, Cynthia Rozell

FROM: *for* IG/A/PSA, Toby L. Jarman *Darryl T. Burtis*

SUBJECT: Audit of the Quality of MACS Data at USAID/Malawi
(Audit Report No. 9-612-95-007)

This memorandum is our report of the audit of the quality of Mission Accounting and Control System (MACS) data at USAID/Malawi. We considered your comments on the draft report and have included them as an appendix to this report (see Appendix II). Based on your comments and actions, we closed all recommendations upon issuing this report.

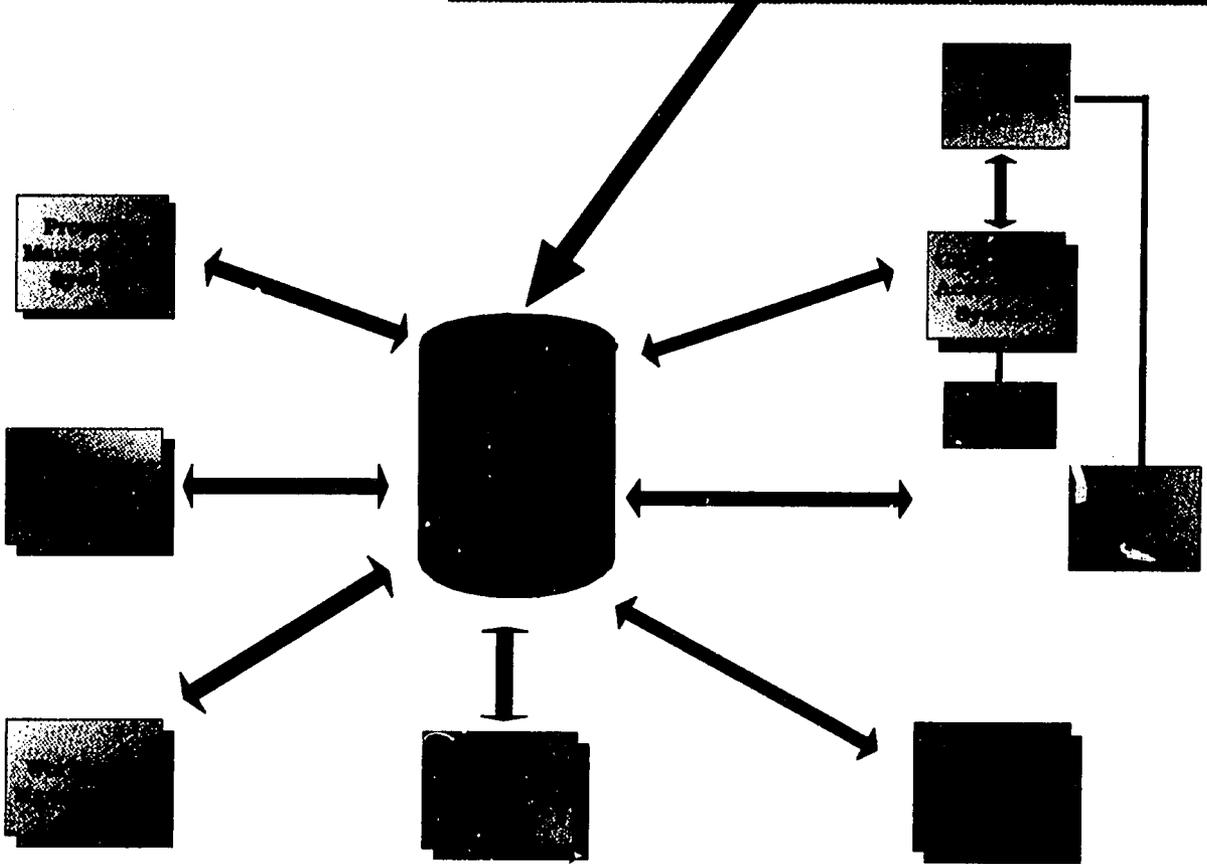
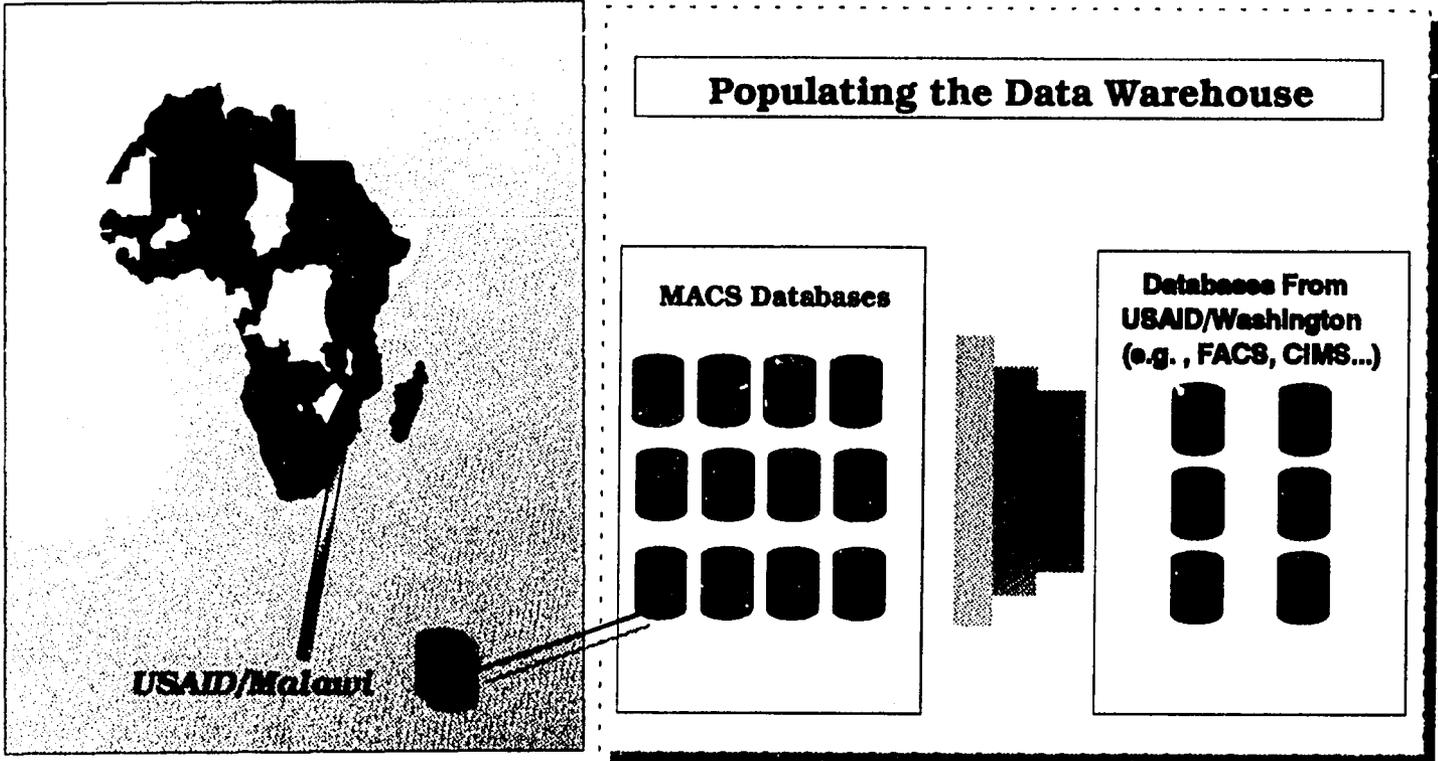
I appreciate the cooperation and courtesy extended to my staff during the audit.

Introduction

Realizing that USAID must operate with increasingly scarce funds, the Agency is undertaking a new and aggressive effort to change the way data and information are managed. Such an effort is critical to our future; in the modern workplace, be it business or government, a high-quality, reliable information system is no longer a luxury—it is a necessity.

To ensure that the data in the entire USAID system is of high quality—and therefore useful to managers concerned about project status and pipelines reports—the Office of Information Resources Management (IRM) is undertaking a major initiative. They are centralizing data collection and improving the management of information by creating a data warehouse (see page 2 and Appendix V), a repository for data from all Agency systems. One of the first steps in bringing data to this warehouse is the Project Information and Pipeline Evaluation (PIPE) initiative. The PIPE initiative is a joint IRM and Financial Management project that combines MACS data from the missions and financial data from USAID/Washington, allowing all Agency managers timely and comprehensive information on USAID projects worldwide.

Accordingly, for this system to succeed, the MACS data from all of the missions must be of the highest quality. Therefore, in support of IRM's work, the Office of Audit is conducting a series of audits designed to evaluate the quality of data in the MACS files which is central to the Agency's work. An important part of the effort is this audit of USAID/Malawi's data.



Data From USAID's Legacy Systems

Audit Objective

The audit was designed to answer the following question:

- Is the data in USAID/Malawi's Mission Accounting and Control System (MACS) accurate?

Audit Findings

USAID/Malawi's MACS data was substantially accurate in 32 of the 38 data elements reviewed; however, the other 6 data elements contained substantial errors.

RESULTS OF OUR REVIEW

MACS Files	Data Elements Reviewed	Elements With Substantial Errors *	Elements With No Substantial Errors *
Budget Allowance Transaction	3	0	3
Reservation/Obligation Transaction	4	0	4
Commitment Transaction	7	1	6
Disbursement Transaction	9	0	9
Advance Transaction	8	1	7
Project Information Master	7	4	3
Total	38	6	32

- Error rates of 5% or less were considered accurate for reporting purposes. Error rates for each of these elements can be found in Appendix III.

The substantial errors in the six data elements were caused by two different problems:

1. Project Information Master file not updated; and
2. inaccurate end dates.

Since USAID managers worldwide will rely on information in the Agency's data warehouse for making decisions on where and how to allocate scarce resources, it is critical that the data coming from each mission's MACS be accurate and complete. Therefore, the efforts of USAID/Malawi to ensure the integrity of data in MACS will contribute to the Agency's overall goal of providing accurate and timely information on all project activity worldwide in USAID.

**1. Project Information
File Not Updated**

General Accounting Office Internal Control Standards require all transactions to be documented by written evidence. In addition, the standard requires that documentation be available and easily accessible for examination.

MACS User's Guide procedures detail the need to:

- verify project information data elements; including the Agreement Date, Project Assistance Completion Date (PACD), Life of Project, and Host Country Contributions; when entering information into the system; and
- periodically review the data elements and adjust them as required.

We reviewed all 23 of the Mission's Project Information Master (PIM) records and tested seven data elements in each record. Four of the elements contained substantial errors as noted in the following table. Because the Project Information Master (PIM) file at USAID/Malawi contained 23 active projects, a data element with only two errors would be considered substantial.

PROJECT INFORMATION MASTER FILE		
MACS DATA ELEMENT	RECORDS	ERRORS
Project Assistance Completion Date	23	3
Agreement Date	23	4
Life of Project (Years)	23	5
Host Country Contribution	23	11

The project assistance completion date (PACD) indicates the expected date of last assistance to the project. The agreement date is the date of the grant agreement or contract. The life of the project indicates the length of the project in years. The host country contribution indicates the amount of the project funding contributed by the host country.

The errors in the four elements of the PIM file had several causes: (1) project changes were not being recorded, (2) no entry was made to the host country contribution element because the Mission has a separate system to monitor this activity via the project officer, (3) Mission staff were not sure of which date should be used for certain activities initiated by USAID/Washington, and (4) data entry errors. The Mission does not periodically review the PIM file to verify the accuracy of the data elements. If the project information files were reviewed many of the errors described above would have been detected and corrected.

The PIM file also contained 22 inactive projects which we did not review. These projects should be removed from the file; the term used to describe this action is to "archive". However, M/FM in Washington has requested that Missions temporarily cease and desist all archiving of closed MACS records (both operating expense and program accounting records) because of a problem in the MACS program. Consequently, we have not made a recommendation regarding these records. As a result of these errors, the MACS contains inaccurate information.

Recommendation No. 1: We recommend that the Director, USAID/Malawi:

- 1.1 correct the Project Information Master file to ensure the information is accurate; and**
- 1.2 develop a plan to periodically review the accuracy of information contained in the Project Information Master file.**

2. Inaccurate End Dates

Substantial error rates were identified in two of the end date data elements. The commitment end date of the Commitment Transaction file contained 10 errors (12.99%) and the accountability date of the Advance Transaction file contained 8 errors (10.67%).

The "commitment end date" identifies the expected date for the delivery of goods or the rendering of services. This date is used when making periodic reviews to determine if the amount should be deobligated. More precise commitment end dates would assist project officers in monitoring project activities and improve the usefulness of quarterly 1311 reviews. The "accountability date" specifies the date by which the advance is to be liquidated or repaid. This date is used when making analyses of past due amounts for liquidation or collection. Accountability dates determined in a consistent manner would improve the monitoring of outstanding advances.

These errors were due to the Financial Management Office inconsistently calculating the commitment end date. The Financial Management Office does have guidelines for making these estimates but they were not consistently followed.

Our analysis of the accountability date errors indicated that the reason for most of the errors was an inconsistent application of the policy of calculating the accountability date. Some dates were calculated as 30 days after the date the advance was made while the advance accountability date for other advances was the last day of the following month.

Recommendation No. 2: We recommend that the Director, USAID/Malawi, instruct financial management personnel to apply a consistent method of calculating the commitment end date in the Commitment file and the accountability date in the Advance Transaction file.

MANAGEMENT COMMENTS AND OUR EVALUATION

USAID/Malawi was very responsive to all our recommendations and took prompt action to improve the problem areas. The Mission made corrections to the Project Information Master file, established quarterly reviews of that file and issued written guidelines for calculating MACS data fields. Based on these actions, we closed all recommendations upon issuing this report. The complete text of the Mission's response to our draft report is Appendix II of this report.

SCOPE AND METHODOLOGY

Scope

The Office of Program and Systems Audits audited the quality of data maintained in MACS files of USAID/Malawi in accordance with generally accepted government auditing standards. Performed from November 21, 1994, through December 8, 1994, at USAID/Malawi, the audit reviewed six files and 38 data elements (21.4 and 5.0 percent respectively) from a universe of 28 MACS Transaction/Master files and 757 data elements. If the error rate was substantial on any of the data elements, we also evaluated the cause and made the appropriate recommendations.

Methodology

After consulting with financial management officials in Washington, D.C., we identified the MACS files and key data elements that we would review for each file. We analyzed fiscal year 1992, 1993 and 1994 data from six of the 28 MACS Transaction/Master files¹:

- Budget Allowance Transaction
- Reservation/Obligation Transaction
- Commitment Transaction
- Disbursement Transaction
- Advance Transaction
- Project Information Master

We selected a statistical sample for five of the data files that would provide a confidence level of 90% and a precision level of plus or minus four percent. We reviewed 100% of the records in the Project Information Master file.

¹ A complete listing of MACS Transaction/Master files can be found in Appendix IV.

For each data element reviewed (dollar amounts, dates, document numbers, etc.), we determined whether the data in MACS was supported by information from a source document(s). Based on the results of these determinations, we calculated error rates for each data element and assessed whether the error rate was substantial. An error rate of five percent or greater was considered substantial. Data elements with an error rate of less than 5% were considered accurate for reporting purposes. We statistically projected the number of errors in the MACS file. These projections indicate the total number of errors estimated for each data element based on the errors found in the statistical sample.

MANAGEMENT'S COMMENTS

To: Darryl Burris@IG.PSA@AIDW
Cc: Cynthia Rozell@DIR@LILONGWE
Bcc:
From: Mark Powdermaker@FMO@LILONGWE
Subject: re: Draft Audit Report
Date: Tuesday, February 7, 1995 9:16:59 EST
Attach:
Certify: Y

The following is this Mission's response to the Draft Audit Report:

Mission concurs in the report's recommendations and has taken the following actions:

Recommendation 1.1

Mission has corrected the PIM file to reflect accurate data. A corrected PIM file MACS printout was circulated and verified by all project officers. A copy of the printout was DHLed to IG/A/PSA on January 4, 1995.

Recommendation 1.2

Effective the quarter ending 3/31/95 Mission will review and update where necessary the PIM file at the end of every quarter in conjunction with the accrual process, semi-annually during the PIR reviews, and each time the financial management office receives documents that authorize changes to the file.

Recommendation 2

During the course of the audit, Mission received Financial Management Policy Directive No. FS/95/01 from M/FM/PPC which published guidelines for standardization of some of the specific MACS data fields. Accordingly, on December 12, 1994 the Controller issued written guidelines to interested staff on standardized calculations for all MACS data fields, such as:

- Start and end dates for obligations and commitments
- Advance accountability dates
- Project Assistance Completion Dates (PACD)
- Life of Project Dates (LOP)
- Project Terminal Disbursement Dates (PTDD)
- Project authorized amounts.

A copy of these guidelines was faxed to IG/A/PSA on December 12, 1994.

Mission considers all recommendations resolved and requests IG/A/PSA to close the three audit recommendations based on the above actions.

Regards and thanks for the quick response.

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**USAID/Malawi
MACS FILES AND ELEMENTS REVIEWED**

**APPENDIX III
Page 1 of 2**

<u>MACS FILES/ELEMENT</u>	<u>UNIVERSE</u>	<u>NUMBER IN SAMPLE</u>	<u>ERRORS IN SAMPLE</u>	<u>UNIVERSE ERROR RATE</u>	<u>PRECISION LEVEL</u>	<u>PROJECTED ERRORS IN UNIVERSE</u>
BUDGET ALLOWANCE TRANSACTION						
Budget Plan Code	264	61	0	0.00%		None
Transaction Amount	264	61	0	0.00%		None
Project Number	264	61	0	0.00%		None
RESERVATION/OBLIGATION TRANSACTION FILE						
Obligation Number	7,265	80	0	0.00%		None
Reservation Control Num.	7,265	80	0	0.00%		None
Budget Plan Code	7,265	80	0	0.00%		None
Transaction Amount	7,265	80	2	2.50%		*
COMMITMENT TRANSACTION FILE						
Commitment Document Num.	1,627	77	1	1.30%		*
Earmark Control Number	1,627	77	1	1.30%		*
Call Forward Date	1,627	77	1	1.30%		*
Transaction Amount (AID/W)	1,627	77	1	1.30%		*
Transaction Amt. (Mission)	1,627	77	1	1.30%		*
Commitment End Date	1,627	77	10	12.99%	+/-6.15%	212
Budget Plan Code	1,627	77	1	1.30%		*
DISBURSEMENT TRANSACTION FILE						
Obligation Document Num.	16,666	80	1	1.25%		*
Reservation Control Number	16,666	80	1	1.25%		*
Commitment Document Num.	16,666	80	0	0.00%		None
Earmark Control Number	16,666	80	0	0.00%		None
Transaction Type Code	16,666	80	1	1.25%		*
Budget Plan Code	16,666	80	1	1.25%		*
Disbursing Office Code	16,666	80	1	1.25%		*
Budget Allowance Amount	16,666	80	1	1.25%		*
Actual Disbursed Amount	16,666	80	1	1.25%		*
ADVANCE TRANSACTION FILE						
Advance Number	859	75	0	0.00%		None
Obligation Document Number	859	75	0	0.00%		None
Commitment Document Num.	589	75	0	0.00%		None
Project Number	859	75	0	0.00%		None
Advance Type	859	75	1	1.33%		*
Accountability Date	859	75	8	10.67%	+/-5.60%	92
Advance Transaction Amount	859	75	0	0.00%		None
Local Currency Amount	859	75	0	0.00%		None

Error rates of less than five percent were considered accurate for reporting purposes

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USAID/Malawi
MACS FILES AND ELEMENTS REVIEWED

<u>MACS FILES/ELEMENT</u>	<u>UNIVERSE</u>	<u>NUMBER IN SAMPLE</u>	<u>ERRORS IN SAMPLE</u>	<u>UNIVERSE ERROR RATE</u>	<u>PRECISION LEVEL</u>	<u>PROJECTED ERRORS IN UNIVERSE</u>
PROJECT INFORMATION MASTER FILE						
PACD	23	23	3	13.04%		3
Authorized Amount	23	23	1	4.35%		1
Agreement Date	23	23	4	17.39%		4
Terminal Disbursement Date	23	23	1	4.35%		1
Host Country Contribution	23	23	11	47.83%		11
Project Number	23	23	0	0.00%		None
Life of Project (In Years)	23	23	5	21.74%		5

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MACS TRANSACTION AND MASTER FILES NUMBER OF DATA ELEMENTS	
MACS FILE NAME	# OF ELEMENTS PER RECORD
Operating Expense Budget Master	10
Operating Expense Budget Transaction	12
Budget Allowance Master File	13
Budget Allowance Transaction File	12
Reservation Master File	17
Obligation Master File	37
Reservation/Obligation Transaction File	20
Project Information Master File	115
Project Information Transaction File	25
Condition Precedent Transaction File	96
Project Element Master File	13
Project Element Transaction File	12
Direct Reimbursement Authorization (DRA) Master File	16
Direct Reimbursement Authorization (DRA) Transaction File	17
Earmark Master File	20
Earmark Transaction File	19
Commitment Master File	41
Commitment Transaction File	25
Advance Master File	22
Advance Transaction File	30
Planned Expenditures Master File	13
Planned Expenditures Transaction File	15
Accrual Transaction File	18
Prepayment Amortization Transaction File	23
Disbursement Transaction File	28
Interface Disbursement/Advance File	36
Interface Disbursement/Advance Reject File	35
Prepayment Amortization File	17
Total 28 MACS FILES	757

USAID'S INFORMATION MANAGEMENT

This new USAID effort to establish a quality information system is described in the Agency's Information Systems Plan (ISP).¹ A primary goal of this plan is to have corporate data managed at the Agency level rather than "owned" by each individual office.

Using an information engineering methodology, models of the Agency's business processes and data requirements were created. These models were then broken into eight logical Business Areas. Each Business Area represents related functions within the Agency that share similar business processes and data needs. Each of these eight areas will be studied in depth, in a process called Business Area Analysis (BAA).

The Business Area Analysis (BAA) provides a greater level of detail on the functions in each area and provides a basis for designing system requirements. Each BAA 1) continues to model the data requirements and business functions, 2) includes this information in the Agency's electronic repository, and 3) reconciles the new models back to the Agency-wide models. This results in a high degree of standardization, stability, and reusability.

Currently three BAA's are being conducted—Core Accounting, Procurement, and Budgeting. The inter-dependencies of these three business areas are high and will require substantial sharing of data. Therefore, to facilitate the systems development work, IRM is planning a data warehouse that will allow movement to a data sharing environment.

Populating this data warehouse will begin with transferring MACS transaction level data into the warehouse. The Core Accounting BAA, which includes the AWACS project, needs a functioning warehouse to provide the most benefit to the Agency.

Smaller initiatives are under way to begin the transition to a corporate database. PIPE (Project Information and Pipeline Evaluation) currently brings in summary MACS and FACS data, to provide project status and pipeline information to Agency managers. In order to make sound decisions, it is important that managers using such information know the quality of the data being used.

¹ Information Systems Plan, Volume I: Report To Management, February 1993.