
AUDIT OF THE
QUALITY OF MACS DATA
AT
USAID/EL SALVADOR

Report No. 9-519-94-004
May 19, 1994

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J.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

May 19, 1994

MEMORANDUM FOR DIRECTOR USAID/El Salvador, Charles E. Costello

FROM: IG/A/PSA, Toby L. Jarman

SUBJECT: Audit of the Quality of MACS Data at USAID/El Salvador
(Audit Report No. 9-519-94-004)

This memorandum is our report of the audit of the quality of Mission Accounting and Control System (MACS) data at USAID/El Salvador. 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, Recommendations No. 1.1, 1.3, and 2 are considered closed upon issuance of this report. Recommendation No. 1.2 is considered resolved and can be closed when the planned action is completed.

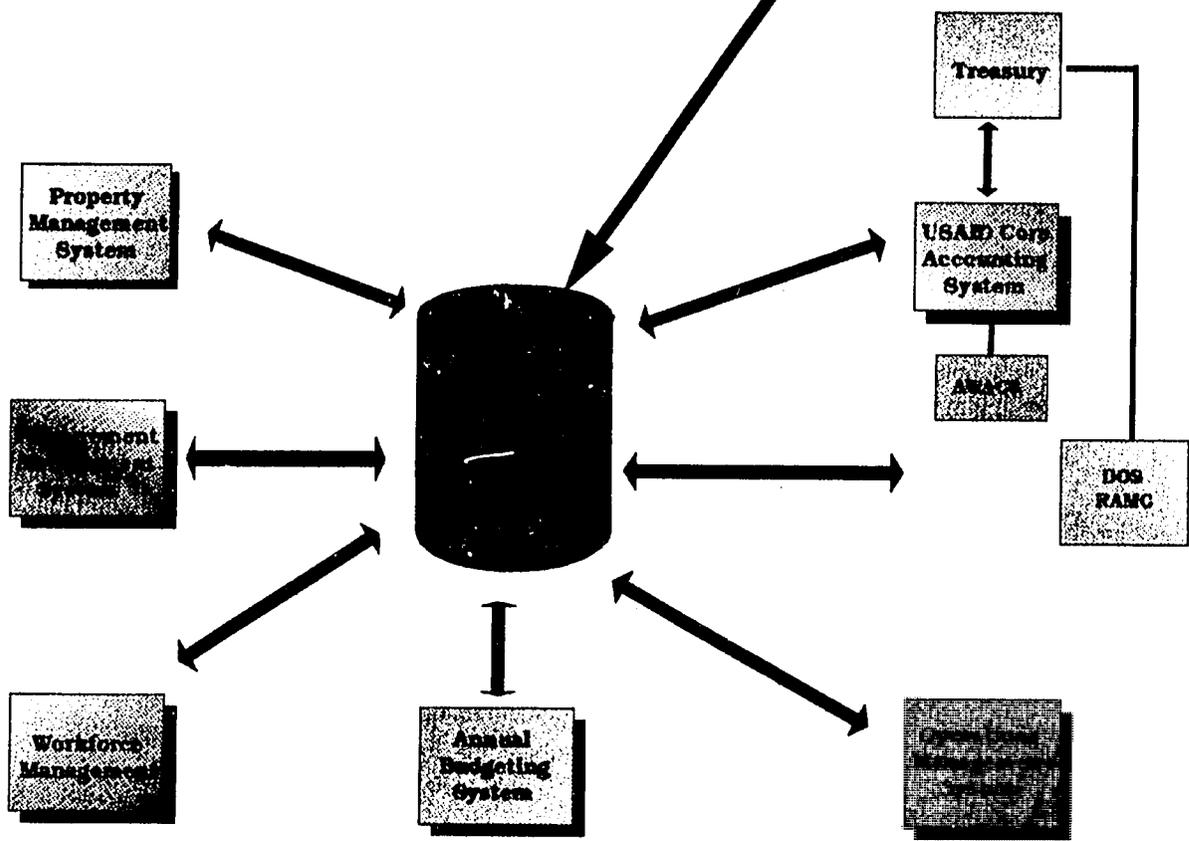
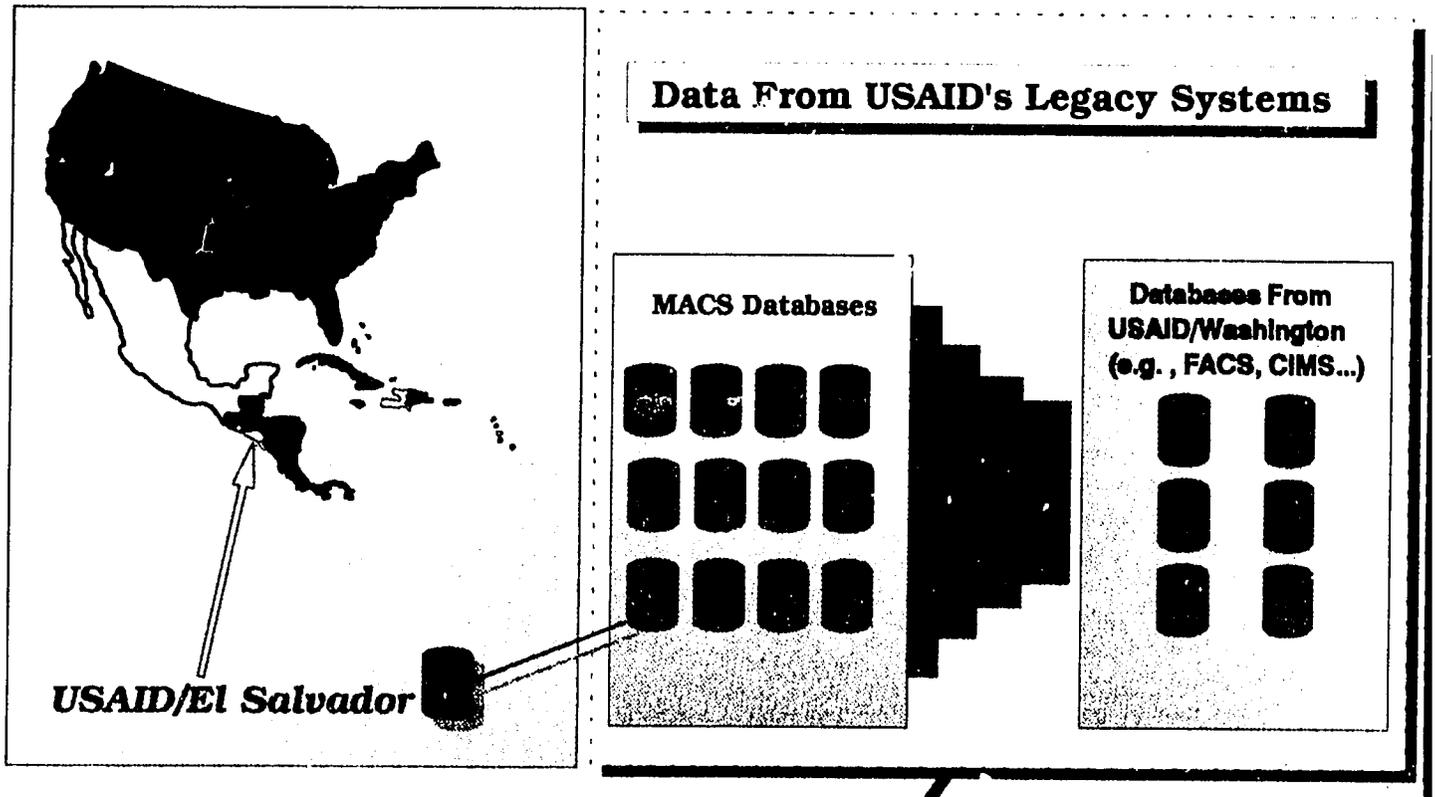
I appreciate the cooperation and courtesy extended to my staff during the audit.

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 Resource 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 PIPE (Project Information and Pipeline Evaluation) initiative. The PIPE initiative is a joint IRM and Financial Management project that will combine 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/El Salvador data.



**Populating the Data Warehouse
Future and Transitional Systems Schematic**

Audit Objective

The audit was designed to answer the following question:

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

Audit Findings

USAID/El Salvador's MACS data was accurate in 28 of the 34 data elements reviewed; however, the other 6 data elements contained significant errors.

RESULTS OF OUR REVIEW			
MACS Files	Data Elements Reviewed	Elements With Significant Errors	Elements With No Significant Errors *
Budget Allowance Transaction	3	0	3
Reservation/Obligation Transaction	4	0	4
Commitment Transaction	7	1	6
Disbursement Transaction	13	3	10
Project Information Master	7	2	5
Total	34	6	28

(* Error rates of less than 5% were considered accurate for reporting purposes. Error rates for each of these elements can be found in Appendix III.)

The six significant errors were caused by two different problems:

1. files not updated properly; and
2. payroll program posting errors.

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/El Salvador 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.

An analysis of each problem area and recommendations to correct the problems are discussed in detail below.

1. Files Not Updated Properly

Data in USAID/El Salvador's MACS was inaccurate because the information was not updated according to procedures established by MACS User's Guide (Release 18). These procedures detail the need to:

- verify data elements, including the Project Agreement Date, Life of Project, and Commitment End Dates, when entering information into the system;
- periodically review the data elements and adjust them as required (for Project Information).

Information in three data elements—Project Agreement Date, Life of Project, and Commitment End Date—were not always maintained accurately in USAID/El Salvador's MACS. We reviewed seven data elements in 65 records (100 percent) of the Project Information Master file (PIM) and eight data elements from a statistical sample of 80 transactions in the Commitment Transaction files (COT). The review found that two data elements in the PIM and one data element in the COT contained significant error rates as shown below.

SIGNIFICANT ERRORS			
DATA ELEMENT FILE NAME	NUMBER SAMPLED	ERRORS	ERROR RATE
Project Agreement Date (PIM)	65	10	15.38%
Life of Project (PIM)	65	22	33.85%
Commitment End Date (COT)	80	5	6.25%

(Error rates exceeding five percent were considered significant)

The information in these data elements was inaccurate because the Mission did not ensure the data was updated when new information was received and because periodic reviews for accuracy were not conducted.

Life of Project and Commitment End Date data elements were not updated when project/commitment end dates were changed. For example, the Life of Project is a calculated field which should show the number of years between the Project Agreement Date and the Project Assistance Completion Date (PACD). When a project is extended, the Life of Project needs to be recalculated. However, 33.85 percent of the Life of Project data elements reviewed were inaccurate.

The Mission's procedures did not ensure that all data elements were updated when changes were made to a project. Documents used to enter project information into MACS did not always contain all the necessary data. When revisions or corrections were received, accounting personnel did not always verify that the data in the MACS record was accurate. For example, it was often necessary to enter estimated project data in the Project Information Master file before a grant agreement was actually signed. Accounting personnel created a project record and assigned a project number to the proposed grant. These steps were necessary to allow the entry of budget and other accounting information into MACS for planned projects. However, once the project agreement was signed, accounting personnel did not always revise the information in MACS to correspond with the approved project/grant agreement.

In addition, information contained in the PIM file was not periodically reviewed for accuracy. For example, the agreement date should be the date the agreement was signed—which does not change. However, 26.03 percent of the project Agreement Dates in the MACS were incorrect. If the project information files had been periodically reviewed, it is likely that the errors described above would have been detected and corrected.

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

- 1.1 correct the errors found in Project Agreement Dates, Life of Project and Commitment End Date data elements identified in this report to ensure the information is accurate;**
- 1.2 train personnel in the proper method of updating information in the Project Information Master and Commitment Transaction files; and**
- 1.3 periodically review the data entered into the Project Information Master and Commitment Transaction files to ensure the data is accurate.**

2. Payroll Program Posting Errors

Since the Mission did not follow the data parameters established in the MACS User's Guide (Release 18), there were payroll program posting errors. If the payment is for a local cost (i.e., for goods and services procured in a cooperating country), the data element should contain a value of one (1); if the payment is not for a local cost, the data element should contain a value of zero (0). When payments are made in local currency, the amount paid should be entered—in the applicable local currency—in the Local Currency Disbursement Amount data element. When a value is **not** entered in either of these data elements, MACS automatically enters a default value of zero (0). Additionally, all payments are coded in the Federal Outlay Code to track the type of payment made. Payments made to recipients in a foreign country (i.e., not in the U.S.) should be coded as a four (4).

The Local Cost Code, Local Currency Disbursement, and Federal Outlay Code data elements of the Disbursement Transaction file contained inaccurate information. The Mission uses locally developed computer programs to post Foreign Service (FSN) payroll and health/life insurance transactions to MACS. We reviewed 161 transactions in the Disbursement Transaction file and found that the errors in these three data elements were related to postings by locally developed payroll programs and data entry errors (human error):

DISBURSEMENT TRANSACTION FILE			
MACS FILES	TOTAL ERRORS	PAYROLL PROGRAMS	MANUAL DATA ENTRY ERRORS
Local Cost Code	33	27	6
Federal Outlay Code	10	8	2
Local Currency Disbursement Amount	29	27	2
TOTALS	72	62	10

(Errors related to manual data entry were not significant)

The information in these data elements was inaccurate because the logic in the Mission's locally developed payroll programs did not place a value in the Local Cost Code or Local Currency Disbursement Amount when the FSN payroll transactions were posted to MACS. In addition, one payroll program did not post the correct Federal Outlay Code in MACS for FSN health/life insurance transactions. For example:

- The programs did not place a value in the Local Cost Code when FSN payrolls were posted—therefore, MACS entered the default value. When a FSN is paid, the Mission is purchasing a local service, so the transaction should be coded as a local cost.
- The programs placed the correct value in the Local Currency Disbursement Amount data element when the FSN was paid from a **Dollar Fund** Budget Account. However, the programs did not place a value in the Local Currency Disbursement Amount data element when an FSN was paid from a **Trust Fund** Budget Account. Therefore, MACS placed the default value in this data element.
- One program which posts FSN health/life insurance transactions to MACS also entered the incorrect Federal Outlay Code. Transactions made to the FSNs' health/life insurance company are payments to a recipient in a Foreign Country. However, the payroll program that posted these transactions to MACS, entered a value that coded the transactions as if they had been made to a recipient in the U.S.

As a result, the quality and usefulness of data on Local Cost, Local Currency, and Federal Outlays are questionable. Data transferred from MACS to the Agency Data Warehouse will not provide consistent information to the users at the Agency level.

Recommendation No. 2: We recommend that the Director, USAID/El Salvador, correct the payroll program to place the correct values in the Local Cost Code, Local Currency Disbursement Amount, and Federal Outlay Code data elements.

MANAGEMENT COMMENTS AND OUR EVALUATION

USAID/El Salvador agreed with the report's findings and recommendations. Their response to the draft report is included in its entirety in Appendix II of this report. Summaries of their response to applicable recommendations, actions proposed or taken, our comments on these actions, and any additional actions that are required to close resolved recommendations are presented below.

Recommendation No. 1.1 - that the Director, USAID/El Salvador, take action to correct the errors found in Project Agreement Dates, Life of Project and Commitment End Date data elements identified in this report to ensure the information is accurate. The Mission corrected the errors found in these three data elements during the course of the audit. Based on USAID/El Salvador's actions, Recommendation No. 1.1 is closed upon issuance of this report.

Recommendation No. 1.2 - that the Director, USAID/El Salvador, take action to train personnel in the proper method of updating information in the Project Information Master and Commitment Transaction files. The Mission will provide training for all accounting personnel in the proper methods for updating information in the Project Information Master and Commitment Transaction files during a training course which will be held in June-July 1994. Based on the Missions response, Recommendation No. 1.2 is considered resolved and can be closed when we receive documentation evidencing the above-noted training has taken place.

Recommendation No. 1.3 - that the Director, USAID/El Salvador, periodically review the data entered into the Project Information Master and Commitment Transaction files to ensure the data is accurate. The Mission provided documentation showing the Controller's Office has modified its procedures to include as part of the daily reconciliation a review of the Commitment End Dates. Additionally, accounting personnel have been instructed to review commitment end dates as well as all fields in the Project Information Master files twice a year. Based on USAID/El Salvador's response and actions taken, Recommendation No. 1.3 is closed upon issuance of this report.

Recommendation No. 2 - that the Director, USAID/El Salvador correct the payroll program to place the correct values in the Local Cost Code, Local Currency Disbursement Amount and Federal Outlay Code data elements. The Mission provided documentation showing the payroll program had been corrected. Based on the above USAID/El Salvador actions, Recommendation No. 2 is closed upon issuance of this report.

SCOPE AND METHODOLOGY

Scope

The Office of Audit audited the quality of data maintained in MACS files of USAID/El Salvador in accordance with generally accepted government auditing standards. Performed during the period from January 3, 1994, through February 14, 1994, at USAID/El Salvador, the audit reviewed five files and 34 data elements (17.9 and 4.5 percent respectively) from a universe of twenty-eight MACS Transaction/Master files and 757 data elements. If the error rate was significant 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 and 1993 data from five of the twenty-eight MACS Transaction/Master files¹:

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

We selected a statistical sample for four 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.

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 significant. An error rate of five percent or greater was considered significant. Data elements with an error rate of less than five percent 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.

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



AGENCY FOR INTERNATIONAL DEVELOPMENT
UNITED STATES OF AMERICA A. I. D. MISSION
TO EL SALVADOR
C/O AMERICAN EMBASSY
SAN SALVADOR, EL SALVADOR, C. A.

Date: April 12, 1994
From: John L. Lovaas, Acting Director, USAID/El Salvador
Subject: Request for Closure upon issuance three Recommendations of MACS Audit 1994
To: Toby L. Jarman, IG/A/PSA

Please find below USAID/El Salvador's response to subject draft audit report.

RECOMMENDATION No.1: We recommend that the Director, USAID/ El Salvador:

- 1.1 correct the errors found in Project Agreement Dates, Life of Project and Commitment End Date data elements identified in this report to ensure the information is accurate;
- 1.2 train personnel in the proper method of updating information in the Project Information Master and Commitment Transaction Files; and
- 1.3 periodically review the data entered into the Project Information Master and Commitment files to ensure the data is accurate.

ACTIONS TAKEN:

The errors found in the Project Agreement Dates, Life of Project And Commitment End Date were corrected as soon as they were surfaced by the audit. Reports evidencing that all fields had been corrected were provided to the auditors assigned to this audit at the time of the exit conference.

During June-July 1994 a training course will take place in San Salvador by Ray King, for all accounting and voucher personnel, on Accounting & Financial Reporting and Voucher Examination. As part of the course training will be provided to accounting personnel on how to update information in the Project Information Master and Commitment Transactions Files.

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The Controller's Office has modified its Internal Financial Management Order, to include as part of the daily reconciliation a review of the commitment end dates. Accounting personnel have been instructed that as part of the 1311 review process carried out twice a year, the commitment end dates must be reviewed as well. The accountants will also review all fields in the Project Information File twice a year when the information for the Semi Annual Reviews is being collected.

RECOMMENDATION No.2: We recommend that the Director, USAID/ El Salvador, correct the payroll program to place the correct values in the Local Cost Code, Local Currency Disbursement Amount, and Federal Outlay Code data elements.

ACTIONS TAKEN:

The Payroll program has been corrected. Auditors assigned to this audit were given a run of the corrected program which now has the correct values for the Local Cost Code, Local Currency Disbursement Amount and the Federal Outlay Code.

IG/PSA ACTION REQUESTED

If IG concurs with these actions, USAID/El Salvador requests the two Recommendations of subject report be closed upon issuance.

Drafted by: RBrito, CA: in draft

Cleared by: RMiller, MC: in draft

ALanier, ATO: in draft

RRyley, D/CONT: *RRyley*

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USAID/EI Salvador
MACS FILES AND ELEMENTS REVIEWED

<u>MACS FILES/ELEMENT</u>	<u>UNIVERSE</u>	<u>NUMBER IN SAMPLE</u>	<u>ERRORS IN SAMPLE</u>	<u>ERROR RATE</u>	<u>PROJECTED ERRORS IN UNIVERSE</u>
BUDGET ALLOWANCE TRANSACTION					
Budget Plan Code	546	71	0	0.00%	None
Transaction Amount	546	71	0	0.00%	None
Project Number	546	71	0	0.00%	None
RESERVATION/OBLIGATION TRANSACTION FILE					
Obligation Number	4,888	80	0	0.00%	None
Reservation Control Number	4,888	80	0	0.00%	None
Budget Plan Code	4,888	80	0	0.00%	None
Transaction Amount	4,888	80	0	0.00%	None
COMMITMENT TRANSACTION FILE					
Commitment Number	8,662	80	0	0.00%	None
Earmark Control Number	8,662	80	0	0.00%	None
Call Forward Date	8,662	80	0	0.00%	None
Training Months	8,662	80	0	0.00%	None
Transaction Amount (AID/W)	8,662	80	0	0.00%	None
Transaction Amount (Mission)	8,662	80	0	0.00%	None
Commitment End Date	8,662	80	5	6.25%	541
DISBURSEMENT TRANSACTION FILE					
Obligation Number	38,946	161	0	0.00%	None
Reservation Control Number	38,946	161	0	0.00%	None
Commitment Number	38,946	161	0	0.00%	None
Earmark Control Number	38,946	161	0	0.00%	None
Budget Plan Code	38,946	161	0	0.00%	None
Disbursing Code	38,946	161	0	0.00%	None
Local Cost Code	38,946	161	33	20.50%	7,984
Federal Outlay Code	38,946	161	10	6.21%	2,419
Local Current Disbursement Amt.	38,946	161	29	18.01%	7,014
Budget Allowance Disbursement	38,946	161	0	0.00%	None
Amortization Begin Date	38,946	161	2	1.24%	*
Amortization End Date	38,946	161	2	1.24%	*
Transaction Type	38,946	161	2	1.24%	*
PROJECT INFORMATION MASTER FILE					
PACD	65	65	1	1.54%	*
Authorized Amount	65	65	2	3.08%	*
Agreement Date	65	65	10	15.38%	10
Terminal Disbursement Date	65	65	3	4.62%	*
Host Country Contribution	65	65	1	1.54%	*
Project Number	65	65	0	0.00%	None
Life of Project (In Years)	65	65	22	33.85%	22

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

APPENDIX IV

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
Totals 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 significant 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.

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

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