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Audit of the  
Quality of MACS Data At USAID/Kenya

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Report No. 3-615-95-008  
March 17, 1995



REGIONAL INSPECTOR  
GENERAL

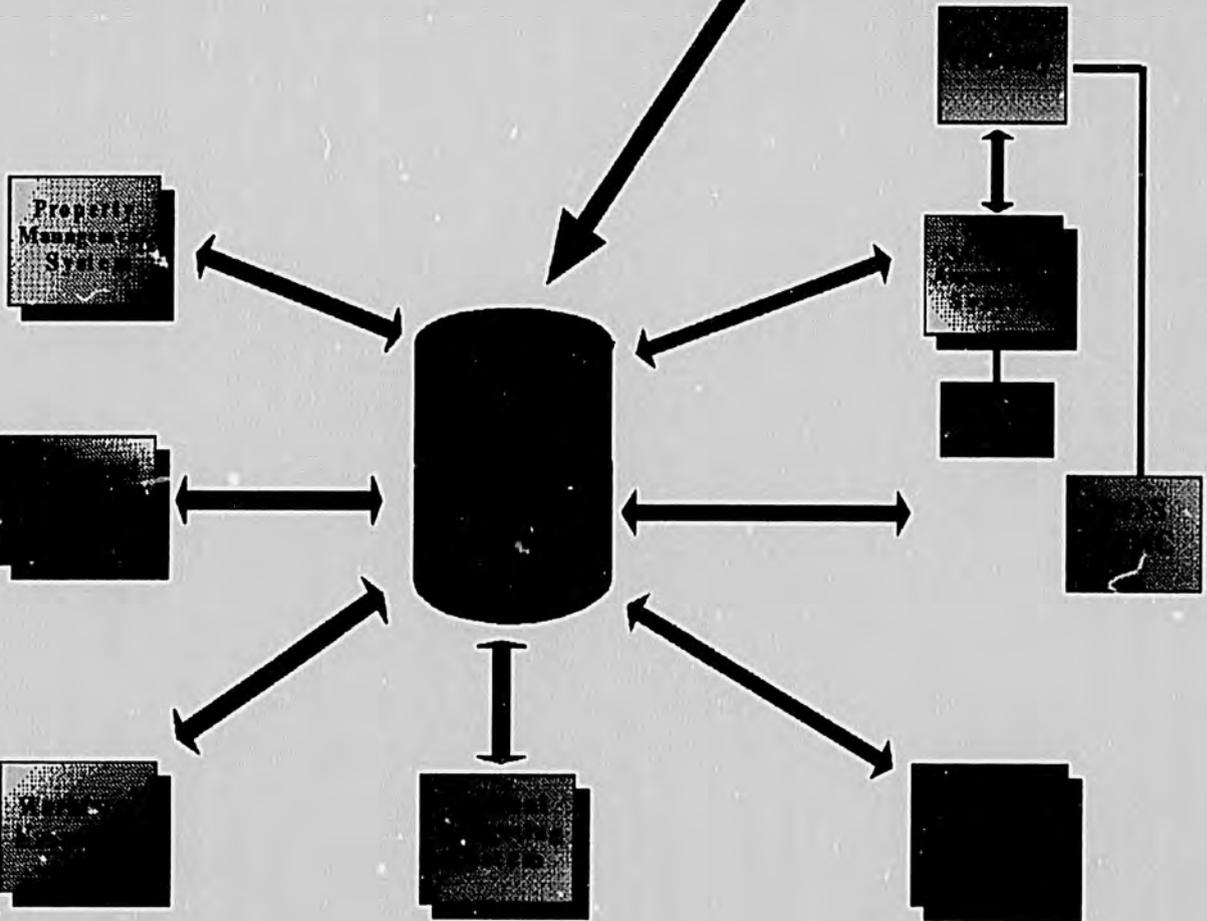
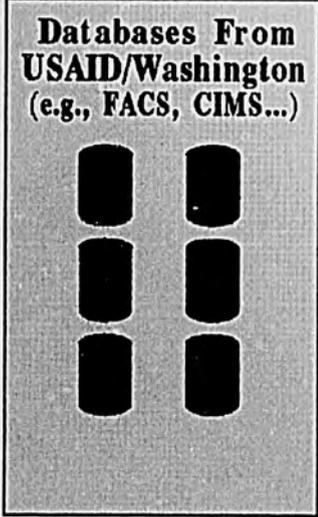
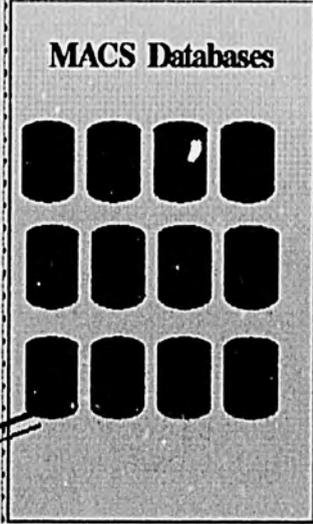
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

**Audit of the  
Quality of MACS Data At USAID/Kenya**

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## Populating the Data Warehouse



## Data From USAID's Legacy Systems



U.S. AGENCY FOR  
INTERNATIONAL  
DEVELOPMENT

March 17, 1995

## MEMORANDUM

*Regional  
Inspector General  
for Audit/Nairobi*

FOR: DIRECTOR USAID/Kenya, George Jones

FROM: RIG/A/N, Everette B. Orr *Everette B. Orr*

SUBJECT: Audit of the Quality of USAID/Kenya's MACS Data  
(Audit Report No. 3-615-95-008)

This memorandum is our report on the Audit of the Quality of Mission Accounting and Control System (MACS) Data at USAID/Kenya. We considered your comments on the draft report and have included them in their entirety as Appendix II to this report. Based on your comments, both of the recommendations are considered closed upon issuance.

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

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## 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 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 graphic on facing page 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. A joint IRM and Financial

Management project, the PIPE 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/Kenya.

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## **Audit Objective**

The audit was designed to answer the following question:

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

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## **Audit Findings**

USAID/Kenya's MACS data was accurate in 28 of the 39 data elements reviewed. However, the other 11 data elements contained significant errors.

The 11 significant errors were caused by 3 different problems:

- project files not maintained accurately;
- documentation not maintained to support transactions; and
- accounting personnel 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 RDO/C 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.

The table on the following page illustrates the various data elements which were found to be inaccurate at USAID/Kenya.

<b>RESULTS OF OUR REVIEW OF USAID/KENYA'S MACS DATA</b>			
<b>MACS Files</b>	<b>Data Elements Reviewed</b>	<b>Elements With Significant Errors</b>	<b>Elements With No Significant Errors *</b>
Budget Allowance Transaction	3	0	3
Reservation/Obligation Transaction	4	2	2
Commitment Transaction	7	1	6
Disbursement Transaction	10	1	9
Advance Transaction	8	1	7
Project Information Master	7	6	1
<b>Total</b>	<b>39</b>	<b>11</b>	<b>28</b>

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

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

**Project Files Not Maintained Accurately**

Project information in USAID/Kenya's MACS was inaccurate because the information was not entered and maintained according to procedures established by MACS User's Guide (Release 19). These procedures detail the need to:

- verify 17 data elements, including the Project Number, Agreement Date, Authorization Date, and Project Assistance Completion Date (PACD), when entering information into the system; and
- periodically review the data elements and adjust them as required.

We reviewed all of the Mission's 43 Project Information Master (PIM) records and tested 7 data elements in each record. Six of the seven elements contained significant errors, with error rates from 18.60 to 23.25 percent, as illustrated in the following table.

<b>PROJECT INFORMATION MASTER FILE</b>				
<b>MACS DATA ELEMENT</b>	<b>TOTAL RECORDS</b>	<b>SAMPLE RECORDS</b>	<b>SAMPLE ERRORS</b>	<b>ERROR RATE</b>
Project Assistance Completion Date	43	43	9	20.93%
Authorized Amount	43	43	8	18.60%
Agreement Date	43	43	10	23.25%
Terminal Disbursement Date	43	43	8	18.60%
Project Number	43	43	2	4.65%
Life of Project (In years)	43	43	9	20.93%
Host Country Contribution	43	43	8	18.60%

The Mission's procedures did not ensure 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 and the Mission did not have written policy to obtain the correct information. For example, estimate of Commitment End Dates were sometimes necessary because the originating document did not contain the date. However, no attempts were made to obtain the correct Commitment End Date because the Mission did not have a written policy to do so.

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, a date that does not change. However, 23.25 percent of the project agreement dates in the MACS were incorrect. If the project information files had been periodically reviewed, it is likely the errors described above would have been detected and corrected.

**Recommendation No. 1: We recommend the Director, USAID/Kenya:**

- 1.1 correct the Project Information Master file to ensure the information is accurate;
- 1.2 ensure the Project Information Master file data is updated according to FM Policy Directive FS/95/01, Issued November 11, 1994; and

**1.3 periodically review the data entered into the Project Information Master file to ensure the data is correct.**

**Documentation Supporting  
Entries in MACS Was Not Maintained**

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

Source documentation used for entering information in MACS was not always maintained at USAID/Kenya. Documentation to support 17 records in the Reservation/Obligation file was not maintained. Since documentation was not available to support the entries, we could not verify the records in the MACS.

The documents were not retained because the Mission's procedures did not ensure entries into MACS were supported by source documents. For example, our review of records in the Project Information Master file showed that document files did not contain documentation supporting estimated entries into required MACS fields (such as Agreement Dates). Fifteen transactions in our sample from the Reservation/Obligation Transaction file could not be supported because the local currency equivalent transaction amounts were not always documented by Mission staff doing the input into MACS.

**Recommendation No. 2:** We recommend the Director, USAID/Kenya, establish procedures necessary to ensure documentation is retained to support all transactions entered in the Mission Accounting and Control System.

**Commitment End Dates  
Not Entered Correctly**

The Commitment End Dates data elements of the Commitment Transaction File contained inaccuracies. We reviewed 78 MACS commitment transactions and found that 12 transactions (15.38 percent) contained incorrect or unsupported commitment end dates. These errors occurred for two different reasons: accounting personnel did not enter the correct commitment end dates and they did not document the rationale for estimating commitment end dates. Because the Mission has already taken actions to correct this problem, we are not making specific recommendations for this area.

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## Management Comments

USAID/Kenya agreed with the report's findings and recommendations. In commenting on our draft report, USAID/Kenya suggested that some errors occurred because of differences in the availability of documentation for unilateral and other "non-bilateral" projects versus bilateral projects. With regard to unilateral versus bilateral projects, we recognize there are operational differences between the two types of projects, but continue to believe that some type of supporting documentation should be maintained for entries into MACS. Based on USAID/Kenya's comments and actions taken during the audit, we consider both recommendations closed upon issuance of this report. Their response to the draft report is included in its entirety in Appendix II of this report.

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## APPENDICES

**SCOPE AND  
METHODOLOGY**

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**Scope**

The Office of the Regional Inspector General for Audit, Nairobi audited the quality of data maintained in MACS files of USAID/Kenya in accordance with generally accepted government auditing standards. The audit was performed from October 4 to November 15, 1994, and January 9 through February 7, 1995, at USAID/Kenya in Nairobi. We reviewed 6 files and 39 data elements from a universe of 28 MACS Transaction/Master files and 757 data elements (21.4 and 5.2 percent respectively). If the error rate was significant (5 percent or more) on any of the data elements, we determined the cause and made appropriate recommendations.

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**Methodology**

The Office of Audit consulted with Financial Management (FM) officials in Washington, D.C., and identified the MACS files and key data elements that would be reviewed for each file. At FM's request, we agreed to report any unsupported MACS transactions as errors in computing the error rates.

We analyzed USAID/Kenya MACS transactions for the period October 1, 1991, to September 30, 1994, from 6 of the 28 MACS Transaction/Master files<sup>1</sup>:

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

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

We selected a statistical sample for five of the data files that would provide a confidence level of 90 percent and a precision level of plus or minus 4 percent. We reviewed the entire universe of 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 source documents. Our determinations included identifying transactions with unsupported documentation as errors. Based on the results of these determinations, we calculated error rates for each data element and assessed whether the error rate was significant. Error rates of less than 5 percent were not considered significant. Data elements with an error rate equal to or less than 5 percent were considered accurate for reporting purposes. Except for the Project Information Master file, which was reviewed in its entirety, 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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UNITED STATES GOVERNMENT

## memorandum

DATE: 6 MAR 1996

REPLY TO  
ATTN OF: George Jones, Director, USAID/Kenya

SUBJECT: Audit of the Quality of USAID/Kenya's MACS Data

TO: Everett D. Orr, RIG/A/N



The USAID/Kenya Mission welcomed the opportunity to have a review of the quality of the MACS data and is pleased that the results confirm the basic integrity of the financial data. The mission has taken actions to modify/institute procedures to ensure the non-financial data is also accurately maintained. The mission appreciates the professionalism of the auditors involved and the courtesy extended in adjusting the audit schedule to accommodate the mission move to a new building.

Following are USAID/Kenya's comments:

Recommendations No. 1.1, 1.2, and 1.3

The Mission concurs with the recommendations. Errors on the active bilateral projects have been corrected and guidance has been sought from USAID/Washington as to the necessity to correct data on closed projects. In addition, the Mission will follow FM Policy Directive FS/95/01 in documenting unilateral and non bilateral projects and the Financial Analysis Division of the Controller's Office will periodically review all data to ensure its correctness. The Policy Directive forms the basis for the new Controller's Office procedures which have been issued. See attached copy.

The Mission does wish to note, however, that there would be no significant errors in the Project Information Master File if only USAID/Kenya bilateral projects were considered. The errors do not arise from a failure to maintain accurate project files, but from the fact that there is no document available to the mission that contains the relevant information on other types of projects which supports the entry. For example, PD&S, self-help activities and other non bilateral projects do not have project authorizations or project agreements which document the Project Authorization Date, the Project Start Date, the Project Assistance Completion Date, the Terminal Disbursement Date, the Life of Project, nor the Project Amount fields. Nor is this information available to the mission on centrally and regionally funded projects. Nevertheless, MACS requires that this data be entered.

This disconnect between the documentation required and the documentation available has been noted in previous MACS data audits carried out in other regions. In recognition of this, the Agency's Financial Management Office issued Policy Directive FS/95/01 on November 15, 1994 (after the start date of this audit), which supersedes

OPTIONAL FORM NO. 10  
(REV. 1-80)  
GSA FPMR (41 CFR) 101-11.6  
5010-114

existing guidance in the MACS User Guide. The Directive requires creation of a Memorandum to the Files when the mission does not have the documentation supporting the data which are entered into MACS.

We suggest a more balanced presentation would be to note that the errors arise because of the unilateral and non bilateral projects and that there would be no significant errors if only the bilateral data were considered.

#### Recommendation No. 2

The mission concurs with the recommendation, but suggests the narrative concerning the lack of documentation on Agreement Dates is more relevant to the discussion under recommendation one above. The errors in the Reservation/Obligation file related to upward/downward adjustments to operating expense entries and to failure to note the exchange rate used when converting shilling amounts to dollars for entry into the system. We determined by other methods that, in spite of the failure to maintain adequate documentation, the financial information in MACS is correct. However, to correct the problem, the 1989 guidance on the Review of Unliquidated Obligations has been circulated to all accountants to ensure adequate documentation is maintained and we are monitoring to ensure compliance.

In view of the steps taken by the Mission, I request that the recommendations be closed.

In addition to the actions taken above, the Controller's Office has again circulated the 1987 guidance on advances which will ensure consistency in determining accountability dates.

As noted in the draft, the mission has taken action to correct the problem of commitment end dates. However, the narrative should be altered to reflect that the requirement for data in this field under the AWACS system has not been determined rather than to say it will not be required after October 1, 1995. It is likely that such a date will be required, but unlikely that the Controller's Office will be responsible for entering it into the system. Procedures developed in the Controller's Office will be made available to other offices, if applicable, after October 1, 1995.

Attachment: a/s

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

MACS FILES/ELEMENT	UNIVERSE	NUMBER IN SAMPLE	ERRORS IN SAMPLE	ERROR RATE	PROJECTED ERRORS IN UNIVERSE
<b>BUDGET ALLOWANCE TRANSACTION</b>					
Budget Plan Code	329	65	0	0	None
Transaction Amount	329	65	0	0	None
Project Number	329	65	0	0	None
<b>RESERVATION/OBLIGATION TRANSACTION FILE</b>					
Obligation Number	13,837	80	2	2.50%	*
Reservation Control Number	13,837	80	4	5.00%	692
Budget Plan Code	13,837	80	1	1.25%	*
Transaction Amount	13,837	80	15	18.75%	2,594
<b>COMMITMENT TRANSACTION FILE</b>					
Commitment Number	2,497	78	1	1.28%	*
Earmark Control Number	2,497	78	2	2.56%	*
Call Forward Date	2,497	78	2	2.56%	*
Budget Plan Code	2,497	78	2	2.56%	*
Transaction Amount (AID/W)	2,497	78	1	1.28%	*
Transaction Amount (Mission)	2,497	78	2	2.56%	*
Commitment End Date	2,497	78	12	15.38%	384
<b>DISBURSEMENT TRANSACTION FILE</b>					
Obligation Number	26,906	81	4	4.94%	*
Reservation Control Number	26,906	81	3	3.70%	*
Commitment Number	26,906	81	0	0.00%	None
Earmark Control Number	26,906	81	1	1.24%	*
Budget Plan Code	26,906	81	6	7.41%	1,993
Disbursing Code	26,906	81	2	2.47%	*
Federal Outlay Code	26,906	81	1	1.24%	*
Local Currency Disbursement	26,906	81	3	3.70%	*
Budget Allowance	26,906	81	4	4.94%	*
Disbursement	26,906	81	4	4.94%	*
Transaction Type					

\*Error rates of less than 5 percent were considered accurate for reporting purposes

**USAID/KENYA**  
**MACS FILES AND ELEMENTS REVIEWED**  
(continued)

MACS FILES/ELEMENT	UNIVERSE	NUMBER IN SAMPLE	ERRORS IN SAMPLE	ERROR RATE	PROJECTED ERRORS IN UNIVERSE
<b>PROJECT INFORMATION MASTER</b>					
Agreement Date	43	43	10	23.25%	10
PACD	43	43	9	20.93%	9
Authorized Amount	43	43	8	18.60%	8
Terminal Disb. Date	43	43	8	18.60%	8
Host Country Contribution	43	43	8	18.60%	8
Project Number	43	43	2	4.65%	2
Life of Project (In Years)	43	43	9	20.93%	9
<b>ADVANCE TRANSACTION FILE</b>					
Advance Number	3,003	79	1	1.27%	*
Obligation Document Number	3,003	79	0	0.00%	None
Commitment Document	3,003	79	0	0.00%	None
Number	3,003	79	2	2.53%	*
Project Number	3,003	79	1	1.27%	*
Advance Type	3,003	79	15	18.98%	570
Accountability Date	3,003	79	0	0.00%	None
Advance Amount	3,003	79	0	0.00%	None
Local Currency Amount					

\*Error rates of less than 5 percent were considered accurate for reporting purposes

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
<b>Totals 28 MACS FILES</b>	<b>757</b>

## USAID'S INFORMATION MANAGEMENT

This new USAID effort to establish a quality information system is described in the Agency's Information Systems Plan (ISP Volume I: Report to Management, February 1993). 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.

**APPENDIX VI**

*Major Contributors to this Report*

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**Regional Inspector General  
for Audit, Nairobi, Kenya**

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Robb Parish, Audit Manager  
Marshall Henderson, Auditor-in-Charge  
Carlos Cabrera, Auditor  
James Rorie, Auditor  
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