



USAID
FROM THE AMERICAN PEOPLE

OFFICE OF INSPECTOR GENERAL

AUDIT OF CRITICAL ACTIVITIES FINANCED BY USAID REGIONAL DEVELOPMENT MISSION/ASIA'S U.S. INDIAN OCEAN TSUNAMI WARNING SYSTEM PROGRAM

AUDIT REPORT NO. 5-486-07-003-P
February 27, 2007

MANILA, PHILIPPINES



USAID
FROM THE AMERICAN PEOPLE

Office of Inspector General

February 27, 2007

MEMORANDUM

TO: USAID Regional Development Mission/Asia Director, Olivier Carduner

FROM: Regional Inspector General/Manila, Catherine M. Trujillo /s/

SUBJECT: Audit of Critical Activities Financed by USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program (Audit Report No.: 5-486-07-003-P)

This memorandum transmits our final report on the subject audit. In finalizing the report, we considered your comments to the draft report and included the comments in Appendix II.

This report contains two recommendations to improve USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program activities. Based on the information provided by the Mission in response to the draft report, we consider that final actions have been taken on both recommendations upon issuance of this report.

I want to thank you and your staff for the cooperation and courtesy extended to us during the audit.

CONTENTS

Summary of Results	1
Background	2
Audit Objective	3
Audit Findings	4
Did critical activities financed by USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program achieve intended results?	
Some Performance Indicators Did Not Achieve Their Targets	6
Reported Results Were Inadequately Supported.....	8
Evaluation of Management Comments	12
Appendix I – Scope and Methodology	13
Appendix II – Management Comments	15

SUMMARY OF RESULTS

The Regional Inspector General/Manila conducted this audit to determine whether critical activities financed by USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program achieved intended results. (See page 3.)

Critical activities under USAID Regional Development Mission/Asia's (RDM/Asia) U.S. Indian Ocean Tsunami Warning System (U.S. IOTWS) Program's performance management plan did not achieve intended results. Specifically, of the 11 performance indicators, one achieved its performance target, five did not achieve their performance targets, and five could not be evaluated because of lack of or inadequate documentation to support their reported accomplishments. (See page 4.)

The Mission cited several causes that were beyond their control behind the five indicators that did not meet their performance targets. For example, a U.S. government partner agency did not make its award to its implementing partner until June 2006, which put the implementing partner about nine months behind schedule. In addition, another U.S. government partner agency's buoy deployment schedules were significantly impacted by Hurricane Katrina that hit the agency's buoy center in Mississippi. (See pages 6-7.)

The audit also showed that reported progress data for five indicators were either unsupported or inadequately supported. This occurred because the Mission did not sufficiently manage and monitor the lead program integrator on collecting documentation supporting the reported results. (See pages 8-10.)

This report made two recommendations to help improve USAID Regional Development Mission/Asia's U.S. IOTWS activities. (See pages 8 and 10.) USAID Regional Development Mission/Asia agreed with both recommendations and took action on each of them. Based on our evaluation of USAID Regional Development Mission/Asia's written comments and supporting documentation, we consider that final actions have been taken on both recommendations upon issuance of this report.

USAID Regional Development Mission/Asia's comments (without attachments) are included as Appendix II to this report. (See page 15.)

BACKGROUND

In December 2004, a 9.3 magnitude earthquake struck off the coast of Sumatra, Indonesia, triggering a major tsunami that devastated many coastal areas of Asia and Africa. Almost 300,000 people in eight countries perished in a few hours, and over 1.5 million more lost their homes or livelihoods.

In response to this disaster, the international community, led by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization, joined together to develop a tsunami warning and mitigation system for the Indian Ocean.

As the U.S. government's direct contribution to the ongoing international effort, USAID Regional Development Mission/Asia (RDM/Asia) launched the U.S. Indian Ocean Tsunami Warning System (U.S. IOTWS) Program. Through this two-year, \$16.6 million program, scientists and experts from the United States are sharing their technical expertise, providing guidance and helping to build an early warning system within the Indian Ocean region so that governments and communities will be able to detect and prepare for tsunamis and other related coastal hazards. The program activities are located primarily in the countries most affected by the tsunami: Indonesia, India, the Maldives, Sri Lanka and Thailand.

The U.S. IOTWS Program is a collaborative effort involving several partners. In addition to USAID, other U.S. government agencies include the U.S. National Oceanic and Atmospheric Administration (NOAA), the U.S. Geological Survey (USGS), the U.S. Department of Agriculture/Forest Service (USDA/FS), and the U.S. Trade and Development Agency (USTDA). The program also has one nongovernmental partner: International Resources Group-Tetra Tech Joint Venture, which serves as the lead program integrator (LPI).

As shown in Table 1 on the next page, the U.S. IOTWS Program has seven program areas and each partner has specific roles and responsibilities. RDM/Asia provides overall management, coordination and administrative support. In this regard, RDM/Asia manages the LPI, but it does not manage the other U.S. government partners because they are independent agencies. Instead, it works with them according to the agreement it has with each of them.¹ The LPI provides technical leadership and broad coordination, as well as logistical, training, and administrative support in all program areas. The other U.S. government partners provide the expertise and technology transfer needed to help establish an early warning system. For example, the NOAA is applying its expertise to Program Area 4, including assisting to develop an Indian Ocean Tsunami Resilient Communities Program. Additionally, it is providing technology such as sea-level gauges, buoys and other related tsunami-detection systems.

¹ USAID has a 632(a) agreement with the USTDA and 632(b) agreements with its other U.S. government partners. Under a 632(a) agreement (Memorandum of Understanding), USAID transfers all programmatic and accountability functions to the recipient agency. In contrast, the terms of a 632(b) agreement (Inter-agency Agreement) require the recipient agency to provide USAID with performance and/or financial information on a regular basis.

Table 1: Summary of Responsibilities of U.S. IOTWS Program Partners by Program Area

Program Area	USAID/LPI	NOAA	USGS	USDA/FS	USTDA
1. Technical support to the IOC	●	●	○		
2. Regional hazard detection, observation, and forecast systems	○	●	●		●
3. National dissemination and communication of warnings	●	●	●	●	●
4. Local preparedness and mitigation	●	●	○	○	○
5. Regional exchanges, training, and information resources	●	○	●	○	○
6. Overarching program coordination support, administration, and outreach	●	○	○	○	
7. Small grants program	●	○	○	○	

Major Role: ● Supporting Role: ○

The two-year U.S. IOTWS Program itself will not produce a complete tsunami warning system; it will take the international effort several years to build a complete system. The U.S. IOTWS Program, however, will contribute significantly to that overall effort.

As of September 30, 2006, RDM/Asia's total obligations and disbursements for the U.S. IOTWS Program were approximately \$14.1 million and \$3.4 million, respectively.

AUDIT OBJECTIVE

The Regional Inspector General/Manila added this audit to its fiscal year 2006 audit plan to answer the following question:

- Did critical activities financed by USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program achieve intended results?

Appendix I contains a discussion of the audit's scope and methodology.

AUDIT FINDINGS

Did critical activities financed by USAID Regional Development Mission/Asia's U.S. Indian Ocean Tsunami Warning System Program achieve intended results?

Critical activities under USAID Regional Development Mission/Asia's (RDM/Asia) U.S. Indian Ocean Tsunami Warning System (U.S. IOTWS) Program did not achieve intended results as measured by performance indicators. Specifically, of the 11 performance indicators, one achieved its performance target, five did not achieve their performance targets, and five could not be evaluated because of the lack of or inadequate documentation to support their reported accomplishments.

To its credit RDM/Asia established and was implementing a complex U.S. IOTWS Program, involving several independent U.S. government partner agencies working in five countries. To track the program's progress, RDM/Asia also established and was implementing a monitoring system that included:

- Designating a cognizant technical officer, who reported to the director of RDM/Asia's Regional Environment Office, to oversee the program.
- Engaging the services of a contractor, called the lead program integrator (LPI), to coordinate the U.S. government partner agencies' efforts towards achieving the program's intended results.
- Requiring U.S. government partner agencies and the LPI to prepare and submit monthly technical progress reports as well as financial reports.
- Holding periodic meetings with all its partners.
- Conducting workshops where achievements and best practices were shared with other partners.
- Conducting field visits to program sites and documenting them with trip reports.
- Communicating daily with all its partners via e-mail and telephone to discuss issues.

As Table 2 on the next page shows, however, 5 of 11 U.S. IOTWS Program performance indicators did not achieve their performance targets for the period from August 1, 2005 through September 30, 2006. The one performance indicator that met its performance target pertained to the completion and acceptance of a draft and final conceptual design for an Indian Ocean early warning system. The conceptual design served as a regional baseline to guide the development of national warning systems. Lastly, we could not evaluate the reported results of five other performance indicators because they were unsupported or inadequately supported.

Table 2: Status of the U.S. IOTWS Program as of September 30, 2006

Performance Indicators	Target	Reported Results	Results Verified by OIG	Target Met?²
1.1: Conceptual design for early warning system design accepted.	2	2	2	Yes
1.2: Protocols, agreements, and products developed by ICG/IOTWS member nations to ensure interoperability of the regional IOTWS system.	10	5	Inadequately supported	Not determined
2.1: Regional-level tsunami detection and communication system components (core stations) installed, deployed, or upgraded.	10	4	4	No
2.2: National- and local-level tsunami detection system components integrated into the IOTWS and operated in accordance with IOTWS standards and criteria.	10	5	5	No
3.1: Tsunami/all hazards warning dissemination and disaster management system components designed, developed, or improved at the national level.	20	17	Inadequately supported	Not determined
3.2: Number of communities included in national alert systems / Estimated total population in those communities.	400 / 200,000	294 / 147,000	Inadequately supported	Not determined
3.3: Number of government agencies (central government / municipalities) that received technical support	15 / 30	70 / 42	Not supported	Not determined
4.1: Number of communities trained in disaster preparedness.	500	187	187	No
4.2: Coastal communities initiating activities that support coastal community resilience.	20	2	2	No
4.3: Kilometers of coastline under improved, sustainable environmental management.	50	0	0	No
5.1: US\$ leverage through private sector, nongovernmental organizations, donor, and public sector resources in support of the development of an end-to-end IOTWS. (In millions.)	\$24.9	\$4.4	Inadequately supported	Not determined

² “Inadequately supported” is used for cases where the reported amount was less than the planned performance target and the reported amount could not be verified. “Not supported” is used for cases where the reported amount was greater than the planned performance target and the reported amount could not be verified.

The following sections discuss the performance indicators that did not achieve their planned results and those whose reported results could not be substantiated.

Some Performance Indicators Did Not Achieve Their Targets

Summary: The U.S. IOTWS Program's performance management plan (PMP) included 11 performance indicators with set performance targets to indicate how the program is performing. However, five of these performance indicators fell short of meeting their performance targets. The cognizant technical officer cited causes that were beyond the control of the Mission. As a result, in fiscal year 2006, the U.S. IOTWS Program was not as effective as planned in helping advance the IOTWS.

USAID's Automated Directives System (ADS) 203.3 defines the contents of a complete PMP. Aside from defining the performance indicators, the PMP should include a calendar of performance management tasks with illustrative timeline for conducting them. Typical performance management tasks at the operating unit level include collecting performance indicator data, reviewing partner reports, and assessing data quality. Also, the PMP should provide targeted values that can optimistically but realistically be achieved within the stated timeframe and with the available resources. Furthermore, the PMP should specify the source of the data and the method for data collection. Data collection method should be specific enough in explaining how raw data are collected, analyzed for meaning, and reported. Furthermore, data collection should be consistent and comparable over time, and any changes should be documented in the PMP. It should also describe the data quality assessment procedures that will be used to verify and validate the measured values of actual performance of all the performance information.

Additionally, USAID's TIPS No. 7 states that "operating units should consider developing plans for data analysis, reporting, and review efforts as part of the PMP process. This will help keep the performance monitoring system on track and ensure performance data informs decision-making."

The U.S. IOTWS Program's performance management plan included 11 performance indicators with set performance targets to indicate how the program is performing. The performance indicators are used to observe the progress of the activities and to measure actual results compared to expected results. Performance targets are the specific, planned level of result to be achieved within a defined timeframe.

Based on our review of Mission documents, 5 of the 11 indicators in the program's PMP did not meet their performance targets in fiscal year 2006. The following discusses some of the indicators that did not meet their performance targets.

Indicator 2.1 – Tsunami detection and communication system components include seismometers, geodetic instruments, tide gauges, buoys, and global telecommunications system upgrades identified as core stations. The performance target for this indicator was to install, deploy, or upgrade ten tsunami detection and communication system components

at the regional level. The Mission reported progress data of four components installed, deployed, or upgraded. The U.S. National Oceanic and Atmospheric Administration (NOAA) and the U.S. Geological Survey (USGS) were responsible for the achievement of this indicator. According to the cognizant technical officer's (CTO) explanation, USGS did not make its award to Caltech, its implementing partner, until June 2006. This late award, in turn, also put Caltech about nine months behind the program schedule. As to NOAA, he said that NOAA's deployment schedules were significantly delayed as a result of the impacts of Hurricane Katrina that hit NOAA's buoy center in Mississippi.

Indicator 2.2 – This indicator measures the number of functioning core stations (e.g., seismometers, geodetic instruments, tide gauges, etc.) integrated and contributing to an overall end-to-end tsunami early warning system. The performance target was for the program team to have installed, deployed, or upgraded ten national-level and local-level tsunami detection and communication system components into the IOTWS and operated in accordance with IOTWS standards and criteria. The Mission reported that five components were integrated into the system. Similar to indicator 2.1, USGS and NOAA were also responsible for the achievement of this indicator. And, the CTO cited the same reasons for both U.S. government partner agencies' not meeting the performance target for this indicator, that is, USGS was late in issuing its award to its implementing partner and NOAA's deployment schedules were affected by Hurricane Katrina.

Indicator 4.1 – By making citizens more aware of emergency procedures, the impact of disaster can be mitigated and thus training in disaster preparedness is aimed at government officials, nongovernmental organizations, and local leaders who represent or reach communities. For the September 30, 2006, target of 500 communities, the Mission tallied 187 communities based on different workshop training. The CTO said that the delayed implementation of the coastal community resilience (CCR) program caused this indicator to miss its performance target. He explained that the CCR program is intended to be the primary vehicle for reporting under this indicator. But, he added that the CCR program involves a very new conceptual approach; hence, more time is required for disaster preparedness training in resilience than originally planned for a tsunami resilient communities program. Accordingly, the CTO said, the delay was a very deliberate decision made in order to improve the approach and expand the impact of the CCR over what had been originally planned.

As discussed above, the causes behind the performance indicators not meeting their targets were beyond the Mission's control. As a result, the U.S. IOTWS Program was not as effective as planned in helping advance end-to-end tsunami warning capabilities in the five focus countries in fiscal year 2006.

In response to the issue regarding the indicators that did not meet their performance targets, the CTO said that he plans to revise the PMP by updating performance targets based on one-year results reported in the U.S. IOTWS Program's annual progress report. He will also set individual targets for each U.S. government partner agency on a periodic basis, that is, semi-annually or quarterly. Additionally, he will involve the entire team to conduct extensive update/clarification of terms and provisions of all PMP indicators, definitions, data sources, etc. Furthermore, he will require them to document with full explanation changes made to the PMP. Nonetheless, we are making the following recommendation to ensure that the Mission includes a timeline to achieve planned performance targets on schedule.

Recommendation No. 1: We recommend that USAID Regional Development Mission/Asia develop and implement a plan that includes a timeline and steps needed to achieve planned performance targets on schedule.

Reported Results Were Inadequately Supported

Summary: According to USAID guidance, performance data should be accurate and reliable and missions should take steps to ensure that submitted data is adequately supported. For 5 of 11 performance indicators (45 percent), however, the reported results were unsupported or inadequately supported. This occurred because RDM/Asia did not sufficiently manage and monitor the LPI on collecting documentation supporting the reported results. As a result, RDM/Asia could not readily determine if program activities were fully achieving intended results, and it could make programmatic or funding decisions based on erroneous performance data.

To permit USAID staff to manage for results and produce credible reporting, USAID's ADS 203.3.5.1 requires performance data to be precise and reliable. ADS 203.3.5.2 requires missions to perform effective data quality assessments and take steps to ensure that submitted data are of reasonable quality and adequately supported. USAID TIPS Number 12 emphasizes the importance of documentation, stating that proper documentation is a process that facilitates the maintenance of quality performance indicators and data. Such documentation should provide an opportunity for independent checks concerning the quality of the performance measurement system. ADS 203.3.5.3.c states that if a mission contracts a specific organization to collect data, the mission should ensure that the organization has the technical capacity to collect data of appropriate quality as evidenced by source documents that are maintained and readily available.

RDM/Asia's contract with the LPI required the LPI to (1) develop a performance monitoring plan in accordance with the ADS; (2) provide all performance monitoring and reporting for the overall U.S. IOTWS Program on a regular and ad hoc basis, consistent with USAID performance and monitoring requirements; and (3) prepare semiannual progress reports as part of its performance monitoring responsibilities.

Of the 11 performance indicators listed in Table 2 (see page 5), the LPI did not have sufficient documentation to support their reported results for five of the indicators. Table 3 on the following page shows the degree to which each of the five performance indicators was unsupported.

Table 3: Review of Reported Results by Performance Indicator

Performance Indicator	Reported Results	Verified by OIG	Percent Unsupported
1.2	5	4	20%
3.1	17	11	35%
3.2	294 / 147,000	0	100%
3.3	70 / 42	0	100%
5.1	\$4.4 million	0	100%

For these five indicators, the LPI either did not have documentation or it collected from U.S. government partner agencies insufficient documentation such as e-mails that provided only numerical results, unsigned memoranda without letterheads, and unsigned spreadsheets with no indication of which partner provided the data and no identification of the sources from which the data was extracted. Some specific examples of the lack of documentation or insufficient documentation follow:

For indicator 3.1, the Mission reported progress data of 17 tsunami warning dissemination components such as enabling policies to ensure that national disaster management organizations possess authority and resources for decision making and response; communication systems; warning dissemination and disaster response processes and protocols; and training programs and drills on disaster management among other things. However, Mission records only supported 11 components consisting of national disaster management policies and training programs on disaster management. The remaining Mission records were mostly insufficient documentation in the form of draft versions of national disaster management policies; training agendas; unsigned documents with no letterheads; and e-mails.

For indicator 3.2, we could not verify that 294 communities with an estimated population of 147,000 persons were included in national alert systems due to insufficient documentation. The Mission submitted an e-mail from an official of the national disaster warning center in Thailand explaining the methodology used in calculating the reported progress data. However, there was no evidence to support the number of warning towers that was used in the methodology.

For indicator 3.3, the Mission reported that 70 central governments and 42 municipalities received technical support that made them capable in early warning system and disaster preparedness through the U.S. IOTWS Program. This reported progress data exceeded the indicator's performance target of 15 central governments and 30 municipalities. However, we could not determine the accuracy of the data due to lack of evidence. The Mission submitted a document listing the names of representatives from various central government agencies and municipalities that purportedly received technical support. But, no further evidence was submitted to maintain that technical support was actually provided or that the government representatives actually received them.

The reported results that were unsupported or inadequately supported occurred because the Mission did not sufficiently manage and monitor the LPI on collecting documentation supporting the reported results. For example, the Mission did not explain clearly what needed to be collected for each indicator. Furthermore, the Mission did not ensure that

the LPI and the U.S. government partner agencies knew exactly what data to collect and report. The Mission in close coordination with the LPI should have clearly defined and established exactly what the LPI and the U.S. government partner agencies needed to collect and maintain to support progress for each indicator. Further, the Mission did not ensure that the LPI was validating the performance data collected from the U.S. government partner agencies. The ADS states that the description of data collection should be operationally specific enough to enable an objective observer to understand how the raw data are collected, analyzed for meaning, and reported. Additionally, data quality assessments should be performed and procedures that will be used to verify and validate the progress data should be described.

According to the cognizant technical officer, the Mission instructed all U.S. government partner agencies and the LPI on USAID reporting requirements, timetable, and PMP framework during meetings held in September 2005 and January 2006. In regard to what data was needed to be collected, he explained that both the LPI and the U.S. government partner agencies directly contributed to developing the planned performance targets themselves; hence, no additional steps were taken to clarify what should be reported. Further, the CTO said that the reporting process itself for the U.S. IOTWS Program is extraordinarily complex, involving not only multiple program partners (e.g., U.S. government agencies and the lead program integrator), but various units within each U.S. agency as well as subcontractors and sub-grantees. Thus, he added, data gathering, quality control, and reporting become significant undertakings. He said that, unfortunately, while data quality assessments had been performed on other RDM/Asia Regional Environment Office programs, assessments were not similarly conducted on its tsunami programs, including the U.S. IOTWS Program.

The LPI stated that the two workshops on the subject of monitoring and evaluation that the Mission conducted did not go into the details of collecting and reporting on results in accordance with USAID reporting requirements. Nevertheless, the LPI said that general materials on the monitoring and evaluation systems and procedures under USAID were made available to and generally known by persons in the LPI office. Additionally, the LPI said that the Mission did not ensure that the LPI knew exactly what to collect and report in explicit terms. Regarding data quality assessments, the LPI explained that USAID did not ever raise a question that verification of all results was needed and/or what such verification would entail during the development of the PMP, the integrated work plan or the semiannual or annual reports.

As a consequence, RDM/Asia could not readily determine if the program activities were achieving intended results. Furthermore, the Mission could make programmatic or funding decisions based on erroneous data.

Since the Mission did not sufficiently manage and monitor the LPI on the collection of data supporting the reported results, and the cognizant technical officer said that the reporting process itself for the U.S. IOTWS Program is extraordinarily complex, there is even more reason for the Mission to review and ensure that the LPI will start collecting quality data, adequately supporting them with sufficient documentation, and maintaining a file for the documents. Therefore, we are making the following recommendation:

Recommendation No. 2: We recommend that USAID Regional Development Mission/Asia develop and implement a plan that will require the cognizant technical officer for the U.S. Indian Ocean Tsunami Warning System Program to

provide technical direction to International Resources Group-Tetra Tech Joint Venture in regularly validating the quality of data, including supporting documentation for the data, and to maintain the supporting documentation and make them readily available.

EVALUATION OF MANAGEMENT COMMENTS

In its response to our draft report, USAID Regional Development Mission/Asia agreed with both recommendations.

In response to the first recommendation the Mission described the actions taken to date towards implementing its updated integrated program work plan and performance measurement plan.

In response to the second recommendation, the Mission provided its plan of corrective action for assisting both the lead program integrator and its agency partners to improve on the reporting and the quality of the data supporting program results.

Based on our review of the Mission's comments, detailed actions, and supporting documents, we determined that final actions have been taken on both recommendations.

SCOPE AND METHODOLOGY

Scope

The Regional Inspector General/Manila conducted this audit in accordance with generally accepted government auditing standards to determine whether critical activities financed by USAID Regional Development Mission/Asia's (RDM/Asia) U.S. Indian Ocean Tsunami Warning System (U.S. IOTWS) Program achieved intended results.

The audit covered the U.S. IOTWS Program's intended results from August 1, 2005, to September 30, 2006. As of that date, RDM/Asia had recorded obligations of about \$14.1 million and disbursements of about \$3.4 million for the U.S. IOTWS Program. The audit fieldwork was conducted from October 16 to November 2, 2006, at the Bangkok, Thailand offices of the Mission and the lead program integrator (LPI), International Resources Group-Tetra Tech Joint Venture.

In planning and conducting the audit, we reviewed and assessed the significant internal controls used by RDM/Asia to ensure that the U.S. IOTWS Program activities were achieving intended results. The assessment included controls related to whether the Mission (1) conducted and documented site visits to evaluate progress and monitor quality; (2) reviewed progress and monitoring reports submitted by the LPI and the other U.S. government agencies participating in the program; (3) prepared and implemented a performance management plan with performance targets and milestone events; and (4) maintained accurate financial records for the program. We also reviewed the Mission's Federal Managers' Financial Integrity Act report for fiscal year 2006 for any issues related to the audit objective. Since the U.S. IOTWS Program is a new program, there were no prior audit findings and recommendations to review.

Our audit focused on the intended results for the U.S. IOTWS Program's five major areas: (1) technical support to the Intergovernmental Oceanographic Commission; (2) regional hazard detection, observation, and forecast systems; (3) national dissemination and communication of warnings; (4) local preparedness and mitigation; and (5) regional exchanges, training, and information resources. We reviewed all 11 performance indicators used by RDM/Asia to measure whether intended results were being achieved. The scope of this audit was limited to the progress data contained in the draft fiscal year 2006 U.S. IOTWS Program's annual progress report because at the time of audit the final report was not complete.

Methodology

To answer the audit objective, we interviewed officials and staff from RDM/Asia and the LPI. In addition, we reviewed documentary evidence to validate the accuracy of the U.S. IOTWS Program's progress data reported in the Mission's draft fiscal year 2006 annual progress report.³ For example, we traced reported results to supporting documentation prepared by the LPI or collected by the LPI from the participating U.S. government

³ The draft fiscal year 2006 annual progress report included results achieved from August 1, 2005 to September 30, 2006.

agencies. Furthermore, we reviewed work plans prepared by RDM/Asia as well as those submitted by the LPI. Additionally, we verified the accuracy of the program's financial records maintained by the Mission by tracing the reported summary of obligations and expenditures to the details recorded in the Mission's financial systems.

In answering the audit objective, we used the following materiality thresholds:

- If at least 90 percent of the intended results were achieved, we would answer the audit objective positively.
- If at least 70 percent, but less than 90 percent of the intended results were achieved, we would answer the audit objective positively, but with a qualification.
- If less than 70 percent of the intended results were achieved, we would answer the audit objective negatively.

MANAGEMENT COMMENTS



21 February 2007

MEMORANDUM

TO: Regional Inspector General/Manila, Catherine M. Trujillo

FROM: USAID Regional Development Mission/Asia Acting Mission Director, Richard Whelden /s/

SUBJECT: **Mission Response to Audit of USAID RDM/A's U.S. Indian Ocean Tsunami Warning System (IOTWS) Program**

Thank you for the opportunity to respond to the draft Audit Report regarding USAID RDM/A's US IOTWS Program.

The stated objective of the audit was to determine whether RDM/A's US IOTWS Program achieved intended results. The audit found that 9 out of 11 performance indicators did not achieve their targets as of September 30, 2006, and that results were inadequately supported. RDM/A fully accepts these findings, and has taken steps to address concerns with the program's reporting systems as addressed below in response to the two audit recommendations.

RDM/A appreciates RIG's acknowledgement of the unique conditions under which this program is operating. By the time of the audit, the US IOTWS Program's Performance Management Plan (PMP) no longer accurately reflected realistic performance indicators or targets. While a couple of planned activities had been unexpectedly delayed in the first year, from the start the US IOTWS Program faced the challenge of preparing its planning and performance management documentation without full knowledge of the specific needs (or "demand") by national or regional counterparts for warning system components or for technical support. Critical decisions for developing the overall IOTWS are made through a complex, evolving dialogue led by the Intergovernmental Coordination Group for the IOTWS (ICG/IOTWS), a regional body made up of the 27 Indian Ocean states and involving numerous donors and other organizations.⁴ In coordination with the ICG/IOTWS, the first comprehensive country-level assessments of

⁴ The ICG/IOTWS was established under the auspices of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). While the United States is a member of the IOC, it is an observer of the ICG/IOTWS.

tsunami warning system needs were not completed until December 2005, four months after the US program began. Only then could international planning and coordination truly begin to determine how the countries and donors would address system requirements. Some response actions began soon afterwards, while only recently have other requirements been fully articulated.

The US IOTWS Program adopted an “adaptive management” approach to cope directly with these external uncertainties, and planned to periodically adjust the work plan (and appendices including the PMP) as pragmatically and efficiently as possible. The adaptive management approach was articulated in the original program Concept Paper (April 2005), Program Description (June 2005), and Work Plan (Section 2.5, March 2006 version). The program team had originally planned to update the Work Plan as often as semi-annually. The first, most appropriate time to update the Work Plan and PMP was deemed to be immediately following completion of the first Annual Report (December 2006), in particular to consider the effectiveness of performance measures and targets in the PMP following the first year of implementation. Given the intention to complete the program by September 2007, this will likely be the only update to the Work Plan.

Despite prevailing uncertainties in the international context, the US Government has remained among the most active and effective contributors to developing the IOTWS. US Program activities and achievements are among the only bilateral actions reflected in the ICG/IOTWS Implementation Plan, published in August 2006. As of September 30, 2006, the US IOTWS Program’s initial accomplishments included the following:

- Adoption of a draft and refined conceptual design of the overall IOTWS;
- Continuous 24x7 monitoring and notification of tsunamis to Indian Ocean countries by the US’s Pacific Tsunami Warning Center (PTWC);
- Training for over 500 experts, including 112 government agencies, in tsunami warning systems and operations, seismology, tsunami field research, tsunami rapid alert systems, disaster management, incident command systems, community resilience to disasters, and related fields;
- Critical upgrades to 4 sea-level detection stations in Indonesia, Sri Lanka, and the Maldives, and their integration into international networks;
- Integration of 1 seismic station to international monitoring networks; and
- Linking nearly 300 communities to national alert systems.

The US IOTWS Program has also made important progress in several areas since September 2006. For instance, the Program successfully deployed the first fully operational deep-ocean tsunami detection buoy. To date, this remains the only deep-ocean station to be providing real-time data on international networks.

RDM/A’s response to the two recommendations follows below:

Recommendation No. 1: We recommend that USAID Regional Development Mission/Asia develop and implement a plan that includes a timeline and steps needed to achieve planned performance targets on schedule.

RDM/A agrees with Recommendation No. 1, and intends to apply the recently updated Integrated Program Work Plan and Performance Management Plan (PMP) as the key management tools, or “plan,” for achieving performance targets on schedule. Through a process beginning in December 2006, IRG-TetraTech Joint Venture, which serves as

the Lead Program Integrator (LPI), completed and submitted updates to both documents to the CTO on February 10, 2007. The steps needed for achieving planned performance targets on schedule were articulated by each responsible program partner during the Work Plan revision process, and changes are now reflected in the current version of the Work Plan. The Work Plan lists specific activities and anticipated deliverable dates, in connection, where applicable, to specific performance indicators and targets. The Work Plan, PMP, and a new monthly reporting template will be forwarded to RIG under separate cover.

Recommendation No. 2: We recommend that USAID Regional Development Mission/Asia develop and implement a plan that will require the cognizant technical officer for the U.S. Indian Ocean Tsunami Warning System Program to provide technical direction to International Resources Group-Tetra Tech Joint Venture in regularly validating the quality of data, including supporting documentation for the data, and to maintain the supporting documentation and make them readily available.

RDM/A agrees with Recommendation No. 2, and has already adopted and implemented a plan to address this recommendation based on a number of corrective actions RDM/A identified and discussed with the RIG audit team during the audit in October 2006. RDM/A's plan, including each action and its completion status, is summarized in Attachment 1.

As an important step in addressing this recommendation, RDM/A plans to conduct a Data Quality Assessment (DQA) following the completion of all other corrective actions. The DQA will ensure IRG-TetraTech's ability to regularly validate the quality of data, including supporting documentation for the data, and to maintain the supporting documentation and make such documentation readily available.

Attachment 1 – RDM/A Plan for IRG-TetraTech to Implement Corrective Actions

Action	Status
<p>Instruct IRG-TetraTech JV to Implement Corrective Actions</p>	<p>Completed. Based on a number of concerns raised during the audit in October 2006, RDM/A prepared as a list of corrective actions for the LPI to immediately undertake in order to improve its ability to gather, validate, track, and maintain performance data and documentation. These corrective actions were outlined in a letter dated November 15, 2006 from Carey A. Gordon, RDM/A's Regional Contracting Officer, to Asif Shaik, Program Manager of IRG-TetraTech JV and President of IRG. That letter instructed IRG-TetraTech JV to undertake the corrective actions immediately under the technical direction of the CTO, following a proposed timetable.</p> <p>IRG-TetraTech JV responded positively to that letter on December 6, 2006, stating its commitment to undertake an aggressive set of initiatives that would address these concerns.</p>
<p>Request USG Agency Partners to Cooperate with IRG-TetraTech in Implementing Corrective Actions</p>	<p>Completed. RDM/A issued letters dated November 29, 2006 from Acting Mission Director Richard Whelden to each of the USG partner agencies, including NOAA, USGS, USDA/FS, and USTDA. Those letters requested the agencies' full cooperation with the process to address the corrective actions RDM/A had outlined in the timetable provided to IRG-TetraTech.</p> <p>Each agency responded positively to Acting Mission Director Whelden's requests, three of which submitted letters or emails to that effect. The fourth agency, NOAA, agreed verbally to support these actions.</p>
<p>Update staffing plan to strengthen performance management capacity</p>	<p>Completed. The CTO requested a revised staffing plan and budget and conducted several meetings with the Chief of Party to address IRG-TetraTech's ability to meet all performance management requirements and supporting related tasks. IRG-TetraTech provided these to the CTO on Nov. 17, 2006.</p> <p>In response to RDM/A's request, on Jan. 24, 2007 IRG-TetraTech deployed a full-time M&E Specialist to be stationed at the program office in Bangkok for the duration of the program.</p> <p>In addition, a new Program Integration/Coordination Specialist, who will assist in several related areas, is scheduled to deploy to Bangkok on Feb. 20, 2007.</p>
<p>Mobilize short-term technical staff to initiate improvements to reporting process, and revisions to work plan and PMP</p>	<p>Completed. In response to the initial letter to Asif Shaik, IRG-TetraTech mobilized three program technical staff to Bangkok to provide immediate short-term assistance to complete the Annual Report FY2006 and to initiate revisions to the Integrated Program Work Plan and the Performance Management Plan. These staff conducted their assignments in Bangkok during the period of Dec. 4 to Dec. 14.</p>

Explain discrepancies between program management documents and reports	Completed. IRG-TetraTech submitted a memorandum to the CTO on Dec. 8, 2006 documenting discrepancies between March 2006 Integrated Work Plan/PMP, June 2006 Semi-Annual Report, and FY2006 Annual Report. The CTO approved the memorandum in an email dated Dec. 15, 2006.
Update source documentation tracking system	Completed. IRG-TetraTech adopted new procedures for source documentation coding and filing Nov. 15, 2006, and submitted recommendations for source documentation tracking in a report to the CTO on Dec. 13, 2006. A final report on reporting and documentation tracking procedures was submitted on Feb 11, 2007.
Complete Annual Report FY2006	Completed. Following extensive revision and input from USG partners, IRG-TetraTech submitted final FY2006 Annual Report to CTO on Dec. 31, 2006. The final Annual Report included explanations of results not achieved against original performance targets, and planned revisions to Work Plan and PMP. All performance data is backed by complete source documentation on file with IRG-TetraTech.
Revise program PMP	Completed. As planned following completion of the first Annual Report, IRG-TetraTech submitted a draft revised PMP to the CTO on Feb 2, 2007. Based on projected targets collected from the USG agency partners, IRG-TetraTech submitted the final PMP to the CTO on Feb 11, 2007. The updated PMP includes a stronger clarification/rationalization of indicators and two narrative sections describing performance measure and procedures for collecting, validating, and reporting data. Updated targets were completed in close coordination with the Work Plan revision process.
Revise Integrated Program Work Plan	Completed. As planned following completion of the first Annual Report, IRG-TetraTech has conducted a complete update of the program Work Plan. IRG-TetraTech followed a systematic approach that would reflect updated activities of all program partners while also identifying performance targets to be included in the revised PMP. The CTO received the initial revision of the Work Plan on Dec. 20, 2006, and the final Work Plan on Feb 11, 2007.
Revise monthly technical reporting format	Completed. In coordination with the revised PMP and Work Plan, RDM/A requested and IRG-TetraTech completed new monthly reporting templates for each program partner that allow for tracking and reporting monthly and quarterly performance targets, results, and source documentation directly in line with the Work Plan schedule. US agency signatures are now required when submitting technical reports. The CTO received a draft monthly technical reporting format from IRG-TetraTech on Dec. 13, 2006, and the final revised reporting format on Feb 11, 2007.
PMP Data Quality Assessment	Scheduled. In line with completion of the new PMP, RDM/A is scheduled to conduct a Data Quality Assessment of the US IOTWS Program at the Lead Program Integrator's office (IRG-TetraTech) o/a Mar 14, 2007.

U.S. Agency for International Development
Office of Inspector General
1300 Pennsylvania Ave, NW
Washington, DC 20523
Tel: (202) 712-1150
Fax: (202) 216-3047
www.usaid.gov/oig