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U.S. Contribution to the
**Indian Ocean
Tsunami Warning
System**

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DEPARTMENT OF AGRICULTURE

U.S. TRADE AND DEVELOPMENT AGENCY

**US INDIAN OCEAN TSUNAMI WARNING SYSTEM PROGRAM**

# REVIEW OF LESSONS LEARNED

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Integrated Water and Coastal Resources Management IQC
International Resources Group – Tetra Tech Joint Venture

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# ACRONYMS

| | |
|---|---|
| ADPC | Asian Disaster Preparedness Center |
| AIT | Asian Institute of Technology |
| BAKORNAS | National Disaster Management Coordinating Board of Indonesia |
| BPPT | Agency for Assessment and Application of Technology, Indonesia |
| BMG | Meteorological and Geophysical Agency, Indonesia |
| CCR | Coastal Community Resilience |
| CONOPS | Concept of Operations |
| DART | Deep-ocean Assessment and Reporting of Tsunamis |
| GTS | Global Telecommunication Systems |
| IFRC | International Federation of the Red Cross |
| ICG | Intergovernmental Coordination Group |
| ICS | Incident Command System |
| IOC | Intergovernmental Oceanographic Commission |
| IOTWS | Indian Ocean Tsunami Warning and Mitigation System, or Indian Ocean Tsunami Warning System |
| ITB | Technological Institute of Bandung |
| ITTI | International Tsunami Training Institute |
| JMA | Japan Meteorological Agency |
| NGO | Non-governmental organization |
| NOAA | National Oceanic and Atmospheric Administration |
| OMB | US Office of Management and Budget |
| PI | Program Integrator |
| PMP | Performance Management Plan |
| PTWC | Pacific Tsunami Warning Center |
| PTWS | Pacific Tsunami Warning and Mitigation System |
| RANET | RAdio and InterNET for the Communication of Hydro-Meteorological and Climate Related Information |
| RDMA | USAID Regional Development Mission for Asia |
| RFTOP | Request for Task Order Proposals |
| RTWC | Regional Tsunami Warning Center |
| SOP | Standard Operating Procedure |
| TARNS | Tsunami Alert Rapid Notification System |
| TEWS | Tsunami Early Warning System |
| UNDP | United Nations Development Program |
| UNESCAP | United Nations Economic and Social Commission for Asia Pacific |
| UNESCO | United Nations Educational, Scientific, and Cultural Organization |
| UNISDR | United Nations International Strategy for Disaster Reduction |
| USAID | US Agency for International Development |

| | |
|---|---|
| USFS | US Forest Service |
| USG | US government |
| USGS | US Geological Survey |
| USTDA | US Trade and Development Agency |
| WG | Working Group |
| WMO | World Meteorological Organization |

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# EXECUTIVE SUMMARY

This Review of Lessons Learned is based on a study conducted at the end of the US Indian Ocean Tsunami Warning System (IOTWS) Program. The purpose of the Review is to capture key lessons that could assist future large-scale, complex international assistance initiatives in developing countries responding to large-scale disasters. The methodology for conducting the study included a review of Program documents and interviews with more than 60 partners and colleagues involved in the development of the IOTWS. The Review findings were roughly divided into four sections: program inception, program design, management and administration, and program implementation. This summary highlights key findings from each section.

The end-to-end design of the US IOTWS Program provided a unifying vision and context for much of the discussion with country counterparts and the formulation of strategic activities. The compressed timeframe for the program (two and one-half years) encouraged the partners to achieve quick results but at some cost to sustainability and coordination. Nonetheless, a comprehensive work plan with a "rolling design" provided structure with flexibility, and lessons learned from similar past programs, such as the response to Hurricane Mitch in 1998, contributed to the program's success.

The US IOTWS Program proved to be an effective model for large-scale, complex US government (USG) disaster programming. Establishing common program planning frameworks, such as a work plan and a performance management, plan helped achieve a balance between centralized program management and the flexibility needed by different agencies to implement activities according to their needs. As a large regional program, an in-country presence was very important to maintain momentum and ensure effective coordination. The designated Program Integrator with a permanent coordination role provided critical continuity, administrative and logistical support, and facilitated communication among partners.

Effective coordination systems, including a Program Coordination Group, provided essential integration, coherence, and capacity critical in allowing the multi-agency regional programming initiative to succeed. Flexible resource-sharing mechanisms, such as a centralized exchange budget, enhanced the overall quality of programming by ensuring multiple perspectives and sources of information were involved in the programming process. Regular communication was essential with donors, partners, and stakeholders throughout the Indian Ocean region. In addition, the Program website served as the central forum for disseminating and archiving Program-related materials.

The US IOTWS Program equipped itself with various implementation approaches and mechanisms to provide assistance and support capacity development. The combination of approaches was considered balanced and included direct provision and improvement of technology and equipment; research, assessments, pilot programs, the development of guides, trainings, workshops and study tours; a Small Grants Program; and more general technical assistance and coordination. To a large extent, sustainability strategies were incorporated and implemented from the beginning of the program, and this approach led to most activities being carried forward in some meaningful way beyond the program end date. Government buy-in, ownership, and institutionalization of activities were seen as key elements to long-term success.

# 1. INTRODUCTION

## 1.1 PURPOSE OF THE REVIEW

USAID encourages Lessons Learned reviews as a good general practice for its activities and programs. An end-of-program Lessons Learned Review was incorporated into initial planning of the US IOTWS Program and as the Program approached closeout, a review strategy was developed and implemented. Also worth noting is that the US IOTWS Program's rolling design and adaptive management approach provided an ongoing process of learning and modification within the program as new information was collected, experience captured, and activities were modified in a process of continued improvement. This flexible management approach was not only critical to the program's ultimate success, but itself is an example of an ongoing "lessons learned" process.

The US IOTWS Program objective of providing strategic support to the development of an integrated, end-to-end Indian Ocean tsunami warning system that is operational at the regional, national, and local levels within a multi-hazard framework is both exceptional and technically complex. Accordingly, the authors recognize that focusing on the more technical aspects of the program's lessons learned would have limited relevance to other programs. Despite the uniqueness of the program, the multiple partners involved in developing and implementing the US IOTWS Program recognize that many of the program's experiences would be extremely relevant to any future multi-agency foreign assistance development efforts. In addition, the partners recognize the utility of the Program's lessons learned beyond the USG and to the broader international community who are both recipients and providers of large-scale assistance. As a result, this Lessons Learned review was developed to address two primary objectives:

- To provide USG funding and policy decision makers with a synthesis of lessons learned under the US IOTWS Program to inform future large-scale, multi-agency programming in developing countries requiring rapid response; and

- To provide US IOTWS Program partners and members of the development community with a synthesis of lessons learned under the US IOTWS Program to inform ongoing and future relevant programs.

## 1.2 METHODOLOGY AND STRUCTURE OF THE REVIEW

The Lessons Learned Review team included Peter Collier, Chief of Party of the US IOTWS Lead Program Integrator, and Nives Mattich, Senior Monitoring and Evaluation Specialist. The timeframe for the review spanned October 2007 to January 2008 and data collection including semi-structured interviews with key US IOTWS Program staff and partners and a review of selected written and other materials. The interview protocol and short form of questions in Annex 2 lists the basic questions that were posed to all interviewees in addition to a more comprehensive list of probing questions to explore specific topics as they arose in greater depth. In total, more than 60 people were interviewed and are listed in Annex 3. Those interviewed were assured their comments would remain anonymous, or if quoted and attributed, their permission requested.

As data was collected, materials were reviewed and subjected to a content analysis to identify recurring themes, key observations, and unexpected issues raised—or expected issues not raised. This Lessons Learned Review is not an evaluation of the program, which would have required a different methodology and allocation of resources, nor is it a comprehensive or all encompassing capture of the hundreds of good practices identified and acted upon during the course of the program. Instead it is an effort to capture key macro-level lessons that would benefit the development and implementation of future relevant, large-scale programs. Any potential biases introduced by reviewers with in-depth familiarity with the program were considered offset by the advantages brought in understanding the context and issues involved.

# 2. US IOTWS PROGRAM BACKGROUND

The devastation of the December 26, 2004, Indian Ocean tsunami, which left more than 230,000 people dead and countless more injured and missing, brought an unprecedented international response as the world grappled with the scale of the disaster. Initial response focused on recovery and rehabilitation in an effort to assist survivors, help communities get back on their feet, and reestablish livelihoods. Even during this initial response phase, however, it was apparent that a longer-term effort would be required to address the development of warning, mitigation, and response mechanisms to ensure that such devastating loss of life would not be repeated in the event of future tsunamis.

The scope of the challenge to those familiar with developing and sustaining a tsunami warning system was daunting. Even after more than 40 years developing the Pacific tsunami warning system, the structure is still considered a work in progress and requires constant effort to be sustained. The fundamental problems with creating a region-wide tsunami warning system rest on the need for not only individual countries to develop the internal capacity to recognize tsunami threats, issue warnings in time, and ensure citizens and communities are prepared and know how to respond, but also to ensure that the information can be shared *across* countries. In addition, unlike hurricanes or forest fires, which are often regularly occurring events, tsunamis are considered low frequency but potentially high-impact events. Developing and sustaining a system for an event that may not occur for another 50 or 100 years can be a particular challenge in developing countries where limited resources and competing challenges often favor attention for more immediate needs.

In early 2005 the US Congress passed an Emergency Supplemental budget address the humanitarian response and reconstruction needs following the tsunami disaster of December 2004, including provisions to support the development of tsunami warning system capabilities in the Indian Ocean. In coordination with the US Department of State, the US Agency for International Development (USAID) took the lead in reaching out to agencies with relevant technical disaster management and tsunami warning and response expertise and hosted a series of meetings to determine priorities and a strategic approach. Included in discussions were National Oceanographic and Atmospheric Administration (NOAA), US Department of Agriculture/Forest Service (USFS), the US Geological Survey (USGS), and the US Trade and Development Agency (USTDA).

USAID quickly crafted and put forth a concept paper proposing a coordinated and integrated multiagency program framework. The concept paper provided the basis for strategic dialogue between the agencies that led to a meeting held May 2-3, 2005, in Bangkok with representatives from USAID Regional Development Mission for Asia (RDMA), USAID/Washington, NOAA, USGS, and USFS. Based on discussions at that meeting, the USG team developed a strategic approach through which USAID would provide overall leadership for the Program and USG agencies together would address a range of targeted USG program interventions across the tsunami warning system "end-to-end." From the outcomes of the meeting, including a detailed list of proposed interventions, USAID/RDMA requested the three technical agencies to submit concept summaries of proposed program activities, which USAID/RDMA integrated to produce a comprehensive Program Description for the US IOTWS Program. The Program Description

formed the basis for all Scopes of Work used in establishing the contract for the Lead Program Integrator and the Inter-Agency Agreements (IAAs) with each technical agency.

During the May 2005 meeting, USAID proposed using a Lead Program Integrator (subsequently shortened to Program Integrator, or PI), that, because of the program's complexity, would provide critical coordination and integration functions across the multiple program elements and in support of the entire USG agency team. Given the urgency in completing all procurement actions and initiating program activities to respond to the challenge of establishing tsunami warning capabilities, USAID/RDMA issued a competitive Request for Task Order Proposals (RFTOP) under the Integrated Water and Coastal Resources Management Indefinite Quantity Contract (Water IQC), and initiated an accelerated competitive procurement and evaluation process. In less than six week after the RFTOP was issued, USAID/RDMA awarded the Task Order on August 3, 2005, to the International Resources Group–Tetra Tech Joint Venture (IRG-Tetra Tech JV). The Asian Disaster Preparedness Center, University of Rhode Island, and Delft later joined the PI as subcontractors.

USAID/RDMA negotiated 632(b) IAAs with each of the agencies and completed awards with NOAA, USGS, and USFS during September 2005. The agreement with USFS was executed as a modification to a pre-existing IAA based in USAID's Bureau for Economic Growth, Agriculture, and Trade (EGAT) in Washington. In the case of USTDA, $2.5 million was allocated through a 632(a) funding transfer.

Consistent with Congress's emergency supplemental budget, the $16.6 million program was designed to span two years and focus on the five countries in the Indian Ocean that had sustained the most damage, namely India, Indonesia, Maldives, Sri Lanka, and Thailand. The US contribution was designed to support the IOC of the United Nation Education, Scientific, and Cultural Organization (UNESCO), which provides overall leadership to the international community for the development of the IOTWS. Because an operational Indian Ocean-wide system required extensive support integrating capacities required at the regional, national, and local levels, the program concluded that taking a full "end-to-end" approach was most essential. Agencies would address gaps and provide assistance according to their competencies, which involved providing equipment support, technical assistance, trainings, and exchanges. A total of $1 million and $750,000 were set aside in the IRG-Tetra Tech JV task order, respectively, to support training, exchanges, and a knowledge sharing platform (e.g., website) as well as for a Small Grants Program that would complement and catalyze ongoing program activities.

As the US IOTWS Program was officially launched in August 2005, the team began by focusing on establishing initial contact with regional and national counterparts through a series of scoping visits within Thailand and to Indonesia, Sri Lanka, and India (and several months later, the Maldives), verifying working assumptions developed in initial planning stages, identifying baselines, and developing the Integrated Program Work Plan, Performance Management Plan (PMP), and Communications Plan. With contributions from USGS and USAID, NOAA assisted the IOC at its very earliest planning stages by preparing and submitting a Conceptual Design for the IOTWS to the first meeting of the Intergovernmental Coordination Group for the IOTWS (ICG/IOTWS-I), which convened in Perth in August 2005. In addition, the PI provided direct support to the IOC's National Assessment process by helping to prepare the complete, final report for all 16 countries. USG partners and the PI also began implementing training programs, addressing equipment needs, providing technical assistance, and issuing grants, and held a second coordination workshop in January 2006. A July 17, 2006, earthquake off the coast of Sumatra, Indonesia generating a small tsunami and killing approximately 600 people reinforced the urgency of building up IOTWS capabilities.

The Program's second year saw an accelerated pace of implementation after baselines had been established, national priorities were further clarified, and key partnerships were developed. The Program underwent a program audit of the USAID Regional Inspector General (RIG) from October through November 2006 to evaluate results achieved and verified against targets set. Limitations identified in source documentation and records keeping by the auditors were addressed by the US IOTWS Program Team through revision of the Integrated Work Plan and PMP—activities that were scheduled for the start of the second year in any case—as well as through the development of enhanced and more rigorous technical results reporting and verification systems. In February 2007, the Program held a Workshop in Washington, DC, to review progress and priorities for the remainder of the program and beyond, and specifically sustainability, handover and exit strategies.

As the program approached closeout, attention focused increasingly on ensuring the consolidation of investments made and the sustainability of key initiatives. US IOTWS Program assistance to the Government of Thailand for its Andaman Wave exercise, the largest of its kind to date, succeeded in testing the Thai system and identifying opportunities for improvement, but overall demonstrated significant progress and capability for tsunami warnings, On September 12, 2007, the coast of Sumatra was struck by another earthquake, measuring 8.4 on the Richter scale, which put Indian Ocean countries on alert and resulted in a small tsunami that reached the Sumatran shores. The event was a critical benchmark of progress that provided extensive evidence that critical tsunami warning capabilities were indeed in place—a remarkable international achievement showing what the right combination of political will and resources could accomplish in less than three short years. US IOTWS Program activities in Indonesia, Sri Lanka, Thailand, and the Maldives provided important contributions to those successes.

All IAAs and the task order with IRG-Tetra Tech JV were scheduled to end on September 30, 2007. NOAA, USGS, and IRG-Tetra Tech JV were given a six-month, no-cost extension moving the completion date to March 31, 2008, and USGS was given a three-month, no-cost extension with an end date of December 31, 2007. These extensions were granted to allow for the completion of a limited number of program activities that required additional time (beyond the program's control) and to allow for administrative and financial closeout. A Transition Workshop ho-hosted with UNESCO/IOC in December 2007 brought US IOTWS Program partners together to focus on sustainability and the institutionalization of results achieved. The workshop allowed the US IOTWS Program to present handover plans and agreements for key Program activities to national and international partners, communicate ongoing assistance planned by USG partners, and work with partners to identify ongoing priorities to feed into IOC and national planning processes.

Although a formal evaluation of the US IOTWS Program was not planned or conducted, multiple indicators point to its success. All program targets were met or exceeded within the program timeframe, Indian Ocean partners have been near universal in their praise and appreciation for the USG contributions, and proof of a functioning IOTWS based on the September 12, 2007, events provide evidence of the value of the USG's contributions. The next section provides information on the key lessons learned during the program.

# 3. FINDINGS – LESSONS LEARNED

Many of the lessons presented in this review follow from three central findings. The first is that the US IOTWS Program has been a singular success and achieved far more than most thought possible, particularly given the short program timeframe of two years and relatively modest budget to provide strategic support to the enormous and complex international undertaking of establishing of an end-to-end Indian Ocean tsunami warning system. The second is that this success was, to a considerable extent, the result of the Program's integrated design, structure, and organization which were utilized, by a committed, well-coordinated Program Team. The third is that, like many international assistance initiatives designed to provide technical support and strengthen institutional capacity, the issue of ensuring sustainable outcomes remains a challenge.

## 3.1 PROGRAM INCEPTION

The development of the US IOTWS Program and the allocation of its funding emerged through a series of discussions and meetings among USG stakeholders in early 2005 that initially included the US Department of State, USAID, and NOAA. The agencies gathered in anticipation of the emergency supplemental to address tsunami recovery and reconstruction. The supplemental demonstrated the USG's commitment and support to strengthen the Indian Ocean region's capacity to prevent the catastrophic loss of life in the event of future tsunamis. The Agencies engaged in intense discussions on the most appropriate means to program the funding most effectively to address the near absence of adequate warning and communications systems across the region and a myriad of related challenges. Additional agencies soon brought into the discussions included USGS, USFS, and USTDA, recognizing the institutional expertise and capabilities they could provide and the division of funding became a key topic of discussion.

During the course of discussions, several factors played a key role in shaping the Program. The identification of appropriate agencies with experience relevant to tsunami warning and mitigation goals was a logical and critical first step in matching skills to needs. USAID's extensive development experience and regional presence would prove a key component in facilitating partnerships and creating an approach that would be integrated and relevant to the dynamics of working with multiple and individual countries alike. NOAA brought unparalleled tsunami experience from the Pacific Ocean in addition to extensive oceanographic and atmospheric technical expertise. USFS disaster management response systems and training programs developed over decades have been assisting countries globally to address natural disaster crises. USGS's longstanding work in the region and technical expertise in seismology would provide a key piece in addressing earthquake detection and mitigation elements. USTDA's grants programs have long supported partner countries in addressing critical needs by sponsoring technical assistance relationships with US-based public and private-sector institutions.

More importantly, USAID's early show of initiative to bring together USG partners to develop program priorities and approaches made it possible for these agencies to reach and maintain consensus on the best way to proceed. This consensus-building process proved critical to securing agency buy-in and establishing the collaborative relationships that would set the tone for the Program.

*Learning from the Response to Hurricane Mitch*

Key actors in developing the US contribution to the IOTWS recognized experience and lessons learned from the USG response to another large-scale disaster, Hurricane Mitch, would contribute significantly to the planning process. Many believed the response to Hurricane Mitch, which similarly involved an array of USG agencies providing assistance, suffered from a lack of integration and coordination of efforts, which in turn resulted in poor planning, inefficiencies, redundancies, gaps and wasted resources. As one USG official stated, "A lot of people had worked on Mitch and didn't want that to happen again."

- **Lesson Learned**: Involving professionals with experience supporting past USG disaster response program made it possible to incorporate lessons learned into the program design and overcome previous challenges and difficulties, such as ineffective coordination and integration across agencies.

- **Lesson Learned**: USAID efforts as lead agency to consult, negotiate, and reach consensus with the other technical agencies paid off in terms of establishing good will, mutual respect, effective partnerships, and a team approach, and ultimately to achieving program objectives.

- **Lesson Learned**: Matching the technical skills and experience of the agencies involved to the projected needs of the region was important to ensuring a quick start, appropriate targeting, and the timely implementation of activities.

## 3.2  PROGRAM DESIGN

As summarized in the preceding section, the process through which the US IOTWS Program emerged helped lay the groundwork for Program design, including its organizational structure, coordination mechanisms, and operating principles, as well as the scope, scale, and objectives. Accordingly, the program designed addressed the need for an integrated, coordinated approach, a lead agency working collaboratively in partnership with the other implementing agencies, and the alignment of agency expertise with regional needs. The extensive scope and scale defined for the Program, while contributing to some of the program's challenges, including sustainability, also lent a useful and motivating sense of urgency, coherence, and focus to the Program.

The decision proved extremely effective to integrate multiple implementing agencies as partners within a unified program structure, managed by one lead agency with the support of a PI contractor. This organizational structure made it possible to develop and employ several key coordination mechanisms that ensured interagency planning, communication, collaboration and evaluation which were, at the same time flexible, enough to preserve the autonomy needed for agencies to do their work. Among these mechanisms included the following:

- IAAs, through which arrangements between USAID and the respective technical agencies were negotiated and approved;
- An Integrated Program Work Plan and a Performance Management Plan (PMP), both of which were updated and revised at the beginning of the second year;
- A Program Coordination Group (PCG) consisting of agency team leaders and the PI, who conducted biweekly conference calls and communicated regularly to discuss and agree upon program plans, issues, and activities;
- Periodic Program Coordination meetings and workshops; and
- A variety of program reporting systems, including monthly technical and financial reports and semiannual and annual performance management reports.

*Program Management under Interagency Agreements (IAAs)*

Once it was agreed to launch a single, unified program with overall management assigned to USAID, USAID/RDMA developed individual IAAs with NOAA, USFS, and USGS respectively. Each IAA included an agreed-upon scope of work (SOW) based on seven identified program areas, and a budget. Agencies were obligated to provide progress and financial reports to USAID on a regular basis,, participate in program meetings and conference calls, and coordinate on technical aspects of their respective activities.

Overall, the coordination framework under the leadership of a single agency with multi-country presence in the region provided a reliable model for developing team identity and cooperative approach, allowed for synergy among activities, helped maximize resources, and provided national and international partners with a unified and coherent face to the USG's IOTWS response. A respectful understanding of the strengths brought by the agencies and the obligations under the program framework helped ensure that productive relationships were maintained despite the program's ambitious goals and the pressures it created.

With respect to this framework, however, USAID and the PI anticipated several challenges in assisting program partners to: effectively coordinate the many ongoing, and overlapping, activities of the USG program team; update one another on technical progress of their own experts and their country counterparts; and submit regular monthly and semiannual reporting on program performance. Coordination occurred to a large extent through the biweekly PCG conference calls, informal communications channels, submissions of weekly and monthly stories for RDMA's and the Program's newsletters, respectively; and through monthly and semiannual reporting processes. While USAID required more rigorous reporting and active participation by those agencies funded through direct IAAs, in some cases, it could not demand the same level of engagement with USTDA or its grantees. While regular engagement was nevertheless possible, and USTDA participated in most PCG calls and submitted monthly reports in the latter half of the program, some respondents during the lessons learned review suggested that the separate funding structure reduced the overall levels of synergy, collaboration, and knowledge-sharing that might otherwise have been possible.

The creation of an Integrated US IOTWS Program Work Plan and one program-wide Performance Management Plan was a cumbersome and arduous process but, nonetheless, provided the entire Program Team with a common framework to review and compare respective approaches, activities, and inputs, develop areas for collaboration, avoid redundancy, and ensure appropriate linkages across activities. While each agency had the responsibility and autonomy to complete its activities and inputs largely as it deemed appropriate, they did so within the agreed context of the program work plan and PMP and in frequent consultation with USAID and the PCG. As one USAID official noted, "I think it was the right balance of providing flexibility and autonomy to each of the agencies because they were working in the scope of the work plan."

- **Lesson Learned:** Efforts to integrate large and complex multi-agency efforts, such as the USG's contribution to developing an IOTWS, can maximize effectiveness and efficiencies if an appropriate agency is assigned overall management and coordination responsibilities but works collaboratively together in partnership with all implementing agencies as part of one Program Team.

- **Lesson Learned:** Establishing common program planning frameworks such as a work plan, performance management plan and reporting system, while potentially arduous processes, can help achieve an appropriate balance between centralized program

management and the flexible autonomy considered optimal for different agencies to implement according to their own principles, methods, and institutional cultures.

### *The Program Integrator*

Out of the overall Program budget of $16.6 million, USAID reserved $6.2 million for the services of a contactor to assist with administrative, logistical, technical, and overall integrative and coordination support for the Program. USAID traditionally works through contractors and grantees to implement programs while providing technical management and direction throughout the life of the program. USAID issued an RFTOP for a US IOTWS Program Lead PI under USAID's Water IQC, and on August 3, 2005, awarded a task order contract to IRG-Tetra Tech JV. The PI's task was to provide overarching program coordination in all seven program areas, administrative support, program outreach, and other targeted technical assistance, particularly in areas not supported by USG agency partners. This included the following:

- USG Agency coordination and support;
- Coordination with the international and donor community;
- Rapid response on-the-ground coordination;
- Liaison and implementation support for activities through in-country presence;
- Technical assistance across activity areas;
- Management and logistical support in conducting exchanges, trainings, workshops and conferences;
- Program performance management and reporting;
- Communications and outreach;
- Development and management of the Small Grants Program; and
- Other cross-cutting support.

The PI head office was located in Bangkok with satellite offices in Colombo, Sri Lanka, and Jakarta, Indonesia, providing in-country presence for three of the five program target countries. Each satellite office was staffed with a Country Coordinator and in the case of Indonesia, an additional Administrative/Logistical Assistant. With insufficient resources for permanent representatives in the field, USG IAA partner staff divided time between their home offices in the United States and travel to the region. The permanent presence of the PI offices and staff provided a constant open channel for real-time communication, on-the-ground coordination, and information exchange enabling USG partners to monitor, adjust, troubleshoot, and provide other inputs more rapidly and effectively. Country Coordinators were also recognized by country counterparts as a primary source of information about the US IOTWS Program. In addition, the PI structure facilitated communication between USG partners, national and local counterparts, and the international community and through its permanent presence helped USAID provide a unifying face for the Program.

Initially, some USG partners were critical of the allocation of substantial funds to a private contractor, believing the funds could be better used if provided directly to the agencies themselves. However, this view soon gave way to universal recognition and appreciation of the critical role the PI played in the Program's success through its management machinery, administrative and coordination capacity, and on-the-ground presence.

- **Lesson Learned:** A PI with a permanent coordination role including on-the-ground presence can provide critical program continuity and coherence, management, administrative and logistical support, and country context; it can facilitate real-time

communication between program partners; and it can respond rapidly to changing conditions and needs.

## Adaptive Management and Rolling Design

Although USG partners rapidly developed a framework for US Indian Ocean assistance determining priorities, program areas, and a strategic approach, the Program Team also recognized that many variables were unknown and would become apparent only after actual on-the-ground engagement began. For example, no comprehensive assessment or baseline of Indian Ocean countries warning and disaster management capacities existed at the time the program was launched (making this one of the first activities of the US IOTWS Program). The Program knew that it could move forward with its initial design but understood this would need to be adjusted as assumptions were tested, national capacities and needs established, and an understanding of the contributions, plans, and approaches of national and international community counterparts became clearer.

Accordingly, program design documents and the Integrated Program Work Plan incorporated an "adaptive management" approach to preserve some flexibility to adjust the scale and nature of activities, depending on changing circumstances at the international and national levels and incorporating new information. Thus, the Program would employ a "rolling design" in program implementation to provide flexibility in meeting the needs of partner countries and the region, such that activities described in the work plan would be augmented or updated semi-annually as new information was obtained from scoping missions, assessments, and other sources of information.

On the one hand, feedback from the Program Team and other partners reinforced the notion that the rolling design approach was an important program design element. The IOTWS environment and priorities often changed rapidly because of external factors such as the September 2006 coup d'état in Thailand, which significantly changed the political landscape and disrupted the Thai government's capacity to consolidate gains it had made. On the other hand, many external program partners suggested not only that the Program work plan and design were extremely comprehensive, detailed, and precise, but that the Program nevertheless achieved everything in its work plan and more or less on time. As one Review respondent from the region noted, "The US IOTWS Program was very well structured with tangible and concrete targets rather than vague objectives," and as more than one regional partner stated, "The US IOTWS Program design was perfect." Such praise was almost always followed by the word "but" and statements about the Program timeframe being too short. As a final testament to its value, after having reviewed the initial draft integrated work plan in January 2006, the acting director of the ICG/IOTWS Secretariat in Perth declared that the ICG should develop something similar for the 28-country IOTWS overall. (In fact, the IOC ultimately hired Tetra Tech, Inc., to prepare the IOTWS Implementation Plan, published in December 2006.)

One risk of employing adaptive management and rolling design approaches is that they can lead to conflict with expectations set early in the program when indictors and targets are set in the Performance Management Plan (PMP), the program document which governs the definition and schedule through which targets are set to measure progress. USAID requires that programs measure performance against baselines and benchmarks within a management plan, which is developed early in the program. Because information in the beginning of a program is often incomplete and many assumptions untested, the PMP serves as a starting point and estimate of what can be achieved. Although USAID expects PMPs to be revised and modified during the course of a program, particularly following the initial implementation year and often annually

afterwards, initial targets often become anchored and take on a life of their own. This is further exacerbated by the quantitative nature of USAID's PMP and achievement tracking framework. Numbers can take on a meaning and significance of their own, divorced from context. Some USG partners felt that they were criticized unfairly at the end of the first year of programming for not achieving projected targets that were based on a different reality from the beginning of the program—one that the rolling design was created to address. These criticisms, they felt, were exacerbated by the findings of the USAID RIG audit completed in October 2006. All partners felt that the program's true progress was not reflected in PMP results that unduly anchored expectations and were difficult to counter.

- **Lesson Learned:** Adaptive management and rolling design are prudent and responsible programming principals particularly where needs are emerging, the context is fluid and key variables are unknown. However, they can at best temper and not replace the work planning process. Also, USAID's Performance Management Plan system and the quantitative nature of measuring results present a challenge in terms of how progress achieved can be measured if targets and benchmarks set at the start of a program are later adjusted to reflect changed priorities or circumstances.

### *Program Scope, Scale, and Timeframe*

The Program scope, scale, and timeframe were determined relatively early in design process. These included the $16.6 million budget, the two-year timeframe and focus on five target countries outlined through the Congressional appropriation, the objective of providing strategic support to the IOC while coordinating with numerous other UN agencies and bilateral donors, and the end-to-end scope of the Program that would provide interventions at the regional, national, and local levels. There was ultimately no consensus among Review respondents about the wisdom of these decisions collectively. However, there was a general conclusion that, while the Program completed all of its planned activities and exceeded its targets, these decisions collectively led to a program design that did not adequately provide the time and resources to guarantee that achievements could be fully institutionalized and sustained by the recipient countries, institutions, and communities after the Program closed. Few, if any, programs can make this guarantee, yet this capacity development challenge was an issue that respondents were invited to consider and that they all took seriously.

One argument offered was that program objectives and activities should be designed to fit the funding and timeframe provided, in this case as stipulated the US Congress. Because the timeframe and funding were mandated by the US Congress and by extension the Office of Management and Budget (OMB) and USAID/Washington before the Program was designed, it was the Program team's responsibility to design objectives and activities that could be achieved within those parameters. Seeking to exceed the time limitations could, in turn, lead to potentially unrealistic expectations and lingering concerns about sustainability. As one respondent from a regional Asian institution noted, after an initial review of the Program documents it seemed there were "[t]oo many partners in too short a time with too many program levels, areas and activities to fully achieve all the intended outcomes—you would need four years even at the pace at which you implemented the program." One experienced USG official new to the region and just gaining familiarity with the Program commented that "$16.6 million across five countries in two years—that is very stretched and thin, so there is the question of what can be expected."

The dominant view, however, was that the end-to-end design was appropriate, important, and necessary, particularly to help articulate and communicate an understanding of what such a

system actually is and how its respective components work together and operate, and that a warning system that is not end-to-end is no warning system at all. "The most important thing about the US IOTWS Program," stated on counterpart, "was that it didn't stop at the level of national disaster warning centers but went all the way down to the last mile and the community level."

Instead, it was argued that it was the short two-year timeframe that appeared to make little sense to respondents for a program intended to provide strategic support toward developing the IOTWS: "Setting up this kind of a system you don't do in two years," insisted one UN official. "To attempt a program focusing on tsunami warning system capacity building in just two years doesn't make sense." And again later, "Why are you ending the program now, it is obviously not enough time to address these tasks appropriately. DART Buoy maintenance is a case in point: without an ongoing relationship, this will not work… It is a big mistake to stop your program, and especially for a country like this which requires an extended process of engagement." That official's assessment of the Program was otherwise quite positive overall, noting that "The Program's approach to balancing research, training, and capacity development with other interventions and activities was appropriate and extremely effective."

Other Review respondents provided similarly conflicted assessments, praising the quality of the program's work while expressing frustration at the limited timeframe: "Given the complexity of developing the IOTWS as well as that of the US IOTWS Program [itself], it is frankly naïve to think you could achieve a serious degree of impact." Such a program must not only be designed to complete activities in its own work plan but, he suggested, provide technical support and capacity development to the countries it is supporting, and these countries move and respond to events and situations at the pace which they are able. "On the other hand," continued the respondent, "the quality of the work I saw was actually extremely high and your program achieved far more than could have been expected."

Conversely, one of the conclusions drawn from the Hurricane Mitch experience was that open-ended or flexible assistance timeframes without the pressure and urgency imposed by a strict timeline can lead to implementation delays. A shorter, two-year limitation is now a frequent stipulation of Congressional funding for disaster-related or other priority programs to ensure that timely progress is achieved. Agencies not typically accustomed to such emergency response activities and used to working with longer program periods are particularly vulnerable to implementation delays. In the assessment of several among the Program Team, the timeframe was considered adequate to achieving the program objectives, and the compressed timeframe indeed motivated partners to achieve results quickly. Given that, it was suggested that it might then have been optimal if the initial design had included provisions for optional extension years. Several among the Program Team were convinced that even at relatively modest funding levels, the Program could have undertaken activities that capitalized on investments made, relationships developed, and the good will generated to ensure consolidation of gains and promote greater sustainability.

Nonetheless, the decisions to include within the Program Team a regional partner, such as Asian Disaster Preparedness Center (ADPC), to sustain the work of the Program as well as to frame the Program within the context of providing strategic support to the broader IOC-led process both served to ensure smooth transitions and handover strategies as the Program approached completion. As a result, many of the key initiatives are indeed being continued, taken over, and sustained by program partners.

- **Lesson Learned:** Short program timeframes can encourage the sense of urgency needed for rapid implementation and progress. However, they may not coincide with the pace at which change can realistically take place on the ground, particularly involving institutional transformations such as establishing new government agencies or absorbing and applying new and complex technologies. One possible result is that some achievements will remain promising but tenuous and their sustainability in question. A program design that incorporates the possibility of optional extension years after the initial program period might assist in planning for and ensuring sustainability.

- **Lesson Learned:** Including regional or local implementing program partners that can maintain key program activities is an important handover strategy for enhancing sustainability. Designing program activities and objectives to support a broader initiative can also help ensure results can be "rolled up" and contribute toward efforts that will continue beyond the life of the program.

- **Lesson Learned:** The "end-to-end" program design—or decision to contribute at every level of the IOTWS and approach the problem holistically—proved critical in giving coherence to the undertaking and helped stakeholders advance their understanding of the IOTWS and how the parts of the system needed to fit together to operate effectively.

## 3.3 MANAGEMENT AND ADMINISTRATION

In general, the US IOTWS Program was considered well-run both in terms of overall USAID management—which IAA partners viewed as conscientious, diplomatic, and fair—as well as in terms of the support and coordination role played by the PI. Both struggled to an extent with issues of staff capacity and human resources given the size and complexity of the Program. In the case of the PI, this deficiency was effectively overcome in the second year of the Program, in large part to ensure that the PI was able to address issues brought to light following the RIG program audit. The most significant shortcoming in the management and administration of the Program was arguably the monitoring and evaluation system and more specifically the procedures for tracking, verifying, and reporting on program results achieved as defined in the Program's PMP. The Program was achieving a great deal and largely as scheduled in its work plan, but according to the program auditors, it was inadequately tracking and validating the evidence of these achievements. These findings led to an immediate and protracted series of corrective actions in which the PI and Program generally developed a set of results reporting and source documentation verification systems that would rigorously ensure the Program tracked, reported, and verified its targets.

### Program Integrator Management, Staff, and Resources

The PI was managed by the IRG-Tetra Tech JV, which in turn included on its team several subcontracted partners such as ADPC and the University of Rhode Island. From the outset, the PI was able to rapidly support the Program in facilitation of its initial development and work planning activities, including the Program website and some assessment projects early in the Program. In contrast, its Bangkok and field office structure was arguably slow in becoming fully operational. Complications associated with the process for office registration exacerbated the start-up and operational challenges faced by the PI, in part in connection with unclear application of the USAID/RDMA bilateral agreement with the Government of Thailand.

When the PI did become fully operational, it proved effective in providing logistical, administrative, coordination, and technical support to USAID and all of the Program's implementing agencies. Particularly important were the country coordinator offices, which ensured a permanent in-country presence that provided critical information and context, both for the Program Team as well as country counterparts, and on-the-ground support. The findings of the program audit allowed the PI to increase its capacity and scope in the second year of the Program, which in turn made it possible for the PI to establish and maintain the management systems needed for the Program to coordinate an increasingly accelerated rate of program implementation. Earlier efforts by IRG-Tetra Tech JV to address issues and particularly the need for developing adequate management systems through the short-term temporary duty (TDY) travel to the region proved ineffective. It was only when the PI office was able to recruit additional full-time professionals that such management systems could be developed and maintained.

While both Tetra Tech and IRG brought considerable expertise and resources to the Program, the joint venture arrangement itself was not always the most efficient structure in terms of administration, financial management, or responding and interacting with USAID or its own PI partners. The arrangement through which IRG home office personnel in DC served as the point of contact with the USAID/RDMA Regional Office of Procurement in Bangkok was viewed as particularly inefficient, at least by IRG-Tetra Tech JV staff in Bangkok. More effective would have been for the key contracts management to be covered by an IRG person based full time in Bangkok. Management of some of the subcontracts was similarly less efficient as a result of this structure. As one administrator with a subcontractor noted, "It was sometimes difficult to deal with the US IOTWS PI Office in Bangkok and then have the IRG DC office come back to us on the same issue," resulting in redundancy if not contradiction or confusion. Such difficulties, frequent bottlenecks, and delays could have been largely overcome if the PI possessed a complete range of staff resources to form a fully operational Program Office in Bangkok.

- **Lesson Learned:** Assigning the right personnel and resources needed to do the job can help ensure appropriate management and administrative systems are established and prevent problems before they occur.

- **Lesson Learned:** Checks and balances are important, but consolidating management and administration functions such that those responsible are adequately connected, integrated, and informed of the context, issues, and exigencies of the program are more important. Home office functions may be best reserved for planning, backstopping, and management oversight.

### Program Coordination

Effective program coordination was considered a strength of the Program, allowing it to maximize opportunities for collaboration and synergy and to avoid confusion, redundancy, and the duplication of efforts. The Program's complexity, including the extensive array of implementing partners, made coordination all the more important. USAID's insistence on serving as the lead coordinating agency with the support of a well-resourced PI function was all the more well considered as a result.

The PCG and its regular conference call and communication structure was one highly effective mechanism which ensured a necessary level of coherence and organization, particularly to the benefits of the USG agency partners. As one USAID official noted, "When I think of coordination, I think of the PI. I thought its performance in that area was outstanding and believe me, we don't say that often. And part of that was insisting on the overall integrator role."

Perspectives on the ground in program countries echoed this perspective: "Coordination for this program has been excellent: I send an email with a question or problem and get answers in seconds. Our difficulties are taken seriously and the program helps us find a solution to the problem we are facing," said one Sri Lankan Government official. The quality of the PI's in-country coordination was rated extremely high and invaluable for both program implementers and the country counterparts, in large part due to the caliber and dedication of the country coordinators themselves. In the countries where coordinators were not in place, program impact was measurably reduced.

Despite the noted strengths in program coordination, several among the Program Team acknowledged areas and activities where coordination could have been better, particularly in a few cases where multiple agencies were pursuing parallel objectives in which technically integration of activities might have occurred. While impractical due to logistical and scheduling challenges, the only way these initiatives probably could have been effectively integrated would have been to bring technical experts from the respective agencies together regularly for adequate periods of time to allow for direct collaboration and communication.

Another area in which effective coordination was viewed as a challenge was that between USAID/RDMA and USAID bilateral missions. Although Missions in Indonesia, India, and Sri Lanka were all involved in the original program development and design process to establish buy-in and participation from the beginning, staff turnover in some missions disrupted coordination and the US IOTWS Program team faced challenges in building new relationships. At a minimum, more sustained and constant contact between the RDMA and the bilateral Missions to keep one another informed and as involved as possible could prove useful.

- **Lesson Learned:** Effective coordination systems, including a Program Coordination Group, PI, Country Coordinators, and coordination workshops can provide essential integration, coherence, and capacity critical to successful multi-agency regional programming initiatives. While such mechanisms require the dedication of considerable time, energy, and resources, it is effort well spent if the coordination is systematic and sustained.

### Program Integrator Exchange Budget

Among the program management mechanisms that proved extremely useful was the PI Exchange Budget, a cost-sharing fund of approximately $1 million dollars through which the PI could provide matching support to activities planned by the IAA partners.

Through this mechanism, the PI would often cover and manage procurement for on-the-ground expenses such as printing costs, activity venues, travel tickets, and arrangements, customs and shipping issues, and so forth. In numerous cases, the PI was able to step in at the last minute and cover costs when a USG agency encountered bureaucratic blockages with its own procurement systems, providing an "emergency back-up system" of sorts. The exchange budget also proved to be an inherent coordination mechanism for strengthening program integration; by having activities funded in part by one agency and in part by the PI, which in turn reported continuously to USAID/RDMA, all were compelled to coordinate. This in turn resulted in more extensive communication, planning, and consideration of factors that one party alone might not have otherwise had sufficient information or context to think through. The result was frequently that programming was considerably better informed and thought out, including consideration of in-country perspectives and national or local processes.

- **Lesson Learned:** Flexible resource-sharing mechanisms such as the exchange budget, which require US- and field-based program partners to coordinate planning and implementation, can enhance the overall quality of programming by ensuring multiple perspectives and information sources are incorporated into the programming process.

### *TraiNet and the USAID Visas Compliance System*

Conversely, one program management system that was, by every account, highly problematic, inefficient, and a significant drain on the time and resources of numerous personnel was TraiNet and the USAID Visa Compliance System, through which all participants attending USAID-funded training activities in the United States had to be processed. USAID developed the system to comply with the Immigration and Naturalization Service (INS) Student and Exchange Visitor Information System (SEVIS). SEVIS was created under the USA PATRIOT Act to reengineer the issuance of F, M, and J visas and to monitor information regarding the entry and exit of exchange visitors to and from the United States.

US IOTWS Program Team members and partners involved in the TraiNet process and procedures were unanimous in criticizing the system's lack of clarity and transparency, and its complexity. Program personnel assigned responsibilities initiating, verifying, and attempting to track steps in the process lacked adequate training in the system's extensive requirements; it remains questionable whether providing adequate training to all those involved would have been possible or realistic.

Compounding the problem for the US IOTWS Program was that it was a regional program managed by RDMA in Bangkok; however, US Embassies and USAID Missions in program countries were also involved in processing visas through TraiNet for training participants from respective countries. The result was frequent confusion regarding roles and responsibilities among the different missions for completing the tasks and procedures required.

- **Lesson Learned:** Conducting training activities outside the United States and in the program countries helps avoid the challenges associated with the requirement to obtain visas for training participants to travel to the United States.

- **Lesson Learned:** USG-funded programs cannot provide training in the Untied States to certain classes of individuals from restricted countries. Before proceeding, program implementers should obtain guidance and clearance from the program agency's legal counsel regarding these restrictions, particularly where training participants may include members of a country's police and armed services.

### *Reporting, Public Information, Communication and Outreach*

Most credited the US IOTWS Program with strong performance in terms of reporting, communication, information sharing, and public outreach, and the reason for this was generally attributed to the Program having the resources, capacity, and a plan to address these issues. As one partner from a regional organization noted, "US IOTWS Program information sharing was extremely good—because you had people dedicated to providing that information, and you also had information sharing as part of your program." Likewise, a USAID official stated, "I think that was a strength of the program. And that definitely would not have happened if we had not had a contractor with dedicated responsibilities in that area." A senior UN official agreed: "I think you've done very well at that. The newsletter is a very good way to send information. In terms of sharing information and a PR approach, you've done a very good job. You've no doubt got

some good people behind you doing that. We don't have the people to produce these things. I'm hoping to have our first newsletter out next month."

The capacity to produce frequent, timely, and well-crafted information and communication products requires the dedication of significant resources and expertise, and in this case, USAID has certain branding, stylistic, and organizational expectations. Not all partner institutions involved in the program were familiar with these requirements, or had the necessary skills and experience to do so, creating additional demands on the PI.

In contrast to the remarks above, several respondents felt the Program could have done more in terms of sharing information about its activities and achievements, perhaps indicating limitations in distribution mechanisms. One of the country coordinators thought, "The US IOTWS Program did not highlight its big contributions enough; people often didn't know what we were contributing." And a program grantee suggested that, "The US IOTWS Program is already a perfect program, so what was needed was more information about it." Others felt that it would have been helpful if communications materials offered more analytical information presenting the broader picture and explaining the how the Program and its component activities fit together to support development of the overall IOTWS. One program partner suggested that, "People know about pieces of the program (i.e., TARNS, CCR, etc.) but not always the whole program or big picture. One perception is that the US IOTWS Program is running its program and the IOC is running its program and they are parallel but not integrated."

This challenge, however, might be considered inherent to any undertaking as exceptionally complex as working at regional, national, and local levels across five countries. Given the considerable success of and appreciation for the end-to-end graphic that the PI initially created for the Program and that was subsequently used by several other organizations including the IOC, it may have proven fruitful if the Program had provided additional explanations as to how all the component parts and processes of end-to-end tsunami warning systems interconnect to operate effectively. The *Tsunami Warning Center Reference Guide* produced by and published at the conclusion of the Program was an important step in this direction (and was indeed the first document of its kind ever developed), although it specifically targeted warning center technical professionals.

- **Lesson Learned:** Preparing and using a Communications Plan is highly important where public information, communication, and outreach are necessary for program success, along with the resources and professionals necessary to produce and distribute these materials.

- **Lesson Learned:** Once a system to produce information resources and materials is established, distribution lists and distribution channels should be periodically reviewed and updated to ensure all targets partners receive them.

- **Lesson Learned:** In the case of the IOTWS, understanding how all the different activities, programs and platforms of all the governments, donors, and organizations contributed toward an operational IOTWS remained difficult for many. As a result, it was extremely helpful whenever Program event coordinators took the time to provide this information and explain their specific contributions in a broader context.

### Monitoring and Evaluation

As noted above, the RIG program audit found that the US IOTWS Program was unable to adequately track, verify, and report on progress or problems achieving program results during

the first implementation year. These findings resulted in a thorough effort in which the Program developed extensive systems and procedures to ensure that all program results could be tracked, verified, and reported monthly. This process was ultimately quite successful but also very resource intensive. The obvious lesson is to ensure from the outset that monitoring and evaluation systems, including data/source documentation, verification, and reporting, are sufficiently rigorous and effectively captured in the program's PMP.

Despite these findings, it might also be argued that in the case of the US IOTWS Program, there was a specific inherent data collection challenge: without results of the RIG program audit, it would have been difficult for USAID or the PI to persuade other USG agencies to report and verify their results regularly and rigorously. On the basis of responses from most USG agencies, none had monitoring and evaluation or performance management systems similar to or as rigorous as USAID, if at all. It can thus be argued that the audit had an important motivating impact for the Program Team to develop more unified, coherent, and comprehensive tracking systems.

Conversely, several respondents made the argument that USAID's performance management requirements overly emphasize measurable program indicator targets (e.g., number of people trained), which can distort and distract program efforts from deeper issues of the technical quality, efficacy, and impact of program activities.

- **Lesson Learned:** It is important to develop and maintain Monitoring and Evaluation systems that are sufficiently rigorous to track, verify, and report program results and that are effectively captured in the program's PMP, particularly in preparation for a program audit. Doing so can avoid a difficult corrective actions process later.

- **Lesson Learned:** For USAID programs of sufficient scope, scale, and complexity, it is advisable to assign a dedicated Monitoring & Evaluations Specialist with USAID experience.

## 3.4  PROGRAM IMPLEMENTATION:

The combination of an effective program design with a dedicated and well-coordinated Program Team contributed substantially to the Program's successful implementation. In addition, the US IOTWS Program equipped itself with a variety of implementation approaches and mechanisms through which it was able to provide assistance. These included the direct provision and improvement of technology and equipment; research, assessments, pilot programs, the development of guides, trainings, workshops and study tours; a Small Grants Program; and general technical assistance and coordination support.

*Technology Transfer and Equipment*

Providing technology and equipment, including tsunameters such as DART stations, installing and integrating seismic stations, sea level stations, RANET, and upgrading global telecommunications systems were generally quite well received, much of which could arguably be provided by few other countries. Some respondents, particularly those with a USAID and/or development background believed these contributions did not effectively address the most important downstream, community preparedness issues. However, others saw the combination of upstream technology and downstream community preparedness as an exceptional strength of an end-to-end program, which brought together professionals with different expertise and perspectives who might otherwise have remained disconnected, not fully realizing the issues and

challenges faced by the other. In several cases where initial training support was inadequate for recipient country institutions and personnel to operate and maintain the equipment, the Program team subsequently developed and conducted additional trainings (further attesting to the importance of the adaptive management approach).

It could be argued that, in some cases, particularly for institutions receiving new technology that suffer from frequent staff turnover, that additional training was needed. As one senior government official noted, "We just got two days' training on RANET. We need follow-up training." The issue of sustainability and continued maintenance is also critical to the Program's technology transfer initiatives.

- **Lesson Learned:** Technology transfer can provide significant contributions but may require more training than anticipated for fully effective operation and maintenance. Similarly, more time and effort should be dedicated to planning and ensuring the sustainability of maintaining the technology, particularly including the funds needed to do so.

### Training, Workshops, Research, Assessments, Pilot Programs, and Technical Guides

The US IOTWS Program conducted a wide range of training programs, workshops, study tours, research projects, institutional and capacity assessment, and pilot programs and developed a multitude of training materials, modules and technical guides. Most of these were rated highly by respondents as effective, useful, and well organized, most of the time. While it is often difficult to get more critical assessments of what did not work from those who participated, the Review team was able to distill a number of important programming principles and lessons learned.

Institutional and capacity assessments are more likely to be well received and incorporated in the country's institutional planning if they are designed and conducted in collaboration with the institutions involved. It may seem to the assessment team that this is precisely what they have done, but if this process was not extensive and repeated enough at multiple levels within the institution, and if any of the results could be interpreted as critical, there is the possibility the the assessed institution will have difficulty accepting the results without considerable sensitivity.

Some of the more effective and readily implemented training programs were those based on existing training programs that adapted previously tested training modules and materials, and that were part of a larger system with a proven record of success. The Incident Command System (ICS) training was one such program that had these advantages. This expertise was even more appreciated when training matched the theoretical with the practical: "Knowledgeable people came and presented each ICS component well, including how it works in the US. Then we went to the US to see the operations centers. So we first got the theoretical knowledge and training and then were able to see the practical reality. Having both sides was extremely effective." Other training activities that were considered particularly successful addressed highly technical and innovative research, but they were able to ensure the right participants with the necessary background and skills attended. The ComMIT trainings are an example of this.

As a result of the compressed program timeframe, more challenging training initiatives combined pilot programs with training that used materials, guides, and subject matter that were themselves being developed and tested as part of the activities. For example, Coastal Community Resilience (CCR) and Concept of Operations (CONOPS) frameworks and guides were developed during the course of these respective activities and finalized and distributed in the final months. The training activities, particularly in the case of CCR, were effectively used, and contributed to the on-the-ground research, testing, and development processes in the field.

However, their development involved an intensive process, and the final training products were available only at the completion of the Program. As one trainer noted, "A lot of time and effort were spent developing the framework, and not as much was spent using it . . . but then this is not something that could really be done in two years."

A cost-benefit analysis should be conducted for activities in programs with short timeframes. Both the CCR and TWC (CONOPS) Guides were highly valued products, but they could have been more effectively rolled out and used if the Program had another year of programming after their publication and distribution. A third pilot program, the International Tsunami Training Institute (ITTI), was highly effective and valued as acknowledged by participants and observers alike, and it is considered among the Program's critical sustainability legacies.

Some Review respondents took a more critical perspective toward the general impact and efficacy of training as a whole, by the USG and other donor organizations alike. As one UN partner asked, "Workshops have an impact on the people trained, but do they have an impact on the system?" As if answering this question, another respondent said of international organizations in general, "We trained people not organizations. We need to train organizations."

There are frequent challenges when identifying and selecting the most appropriate participants to attend trainings and workshops, and there are subsequent challenges for those trained in applying the knowledge and skills gained within the institutions where they work. "After the tsunami," commented one grantee, "there were all these heads of organizations who received all sorts of trainings, but then did nothing with those trainings. There was no follow up plan or program." Others commented how heads and senior officials of disaster management agencies in countries receiving assistance spend so much of their time outside their country attending trainings, workshops, and conferences sponsored by the international community (up to half), that they had inadequate time to focus on their actual daily work and responsibilities.

### What Worked

The US IOTWS Program Team grappled with these issues in the process of designing and implementing technical assistance activities and workshops. One common innovation was to work more closely with those individuals in key disaster management organizations to design, plan, implement, and follow up the technical assistance activities together as a team and to provide these activities in sustained series, each building on the outcomes of the last, rather than providing discrete or single-activity offerings. The Review responses from country counterparts receiving technical assistance confirmed that this approach was not only the most helpful, effective, and appreciated from their perspective, but the further implementers were able to take this approach, the more sustainable the outcome.

This lesson suggests considering the basis on which technical assistance offerings are designed: the knowledge and experience of the technical experts providing the assistance or the institutional context, issues and challenges facing those receiving the assistance. Assistance needs to be designed on the basis of both expertise and need; however, effectively balancing and matching the two often requires considerable time and effort.

Respondents addressed this issue differently. "The capacity of Indonesian organizations to absorb international assistance is an issue," said one senior government official, "What we really need is sustained and continuous assistance rather than intermittent assistance." The US IOTWS Program generally attempted this but in varying degrees. One program partner from another international organization contrasted two US IOTWS Program activities as follows:

You introduced that initiative here and it didn't fit into the ongoing processes here, so the outcome remains questionable—versus the standard operating procedures (SOP) process, which was designed, integrated, based, and built on the actual process already existing in the country, and it targeted filling an actual existing gap because there were no local SOPs, so it was both a challenge and an opportunity—an opportunity to influence and contribute to an important process, and it also had a real impact because the support was ongoing and continuous so it helped sustain that process. And in that process a lot of effort was needed just coming to a mutual understanding of SOPs.

A similar point was made about a Program activity implemented in Thailand: "If the activity team had studied what Thailand already had in place before moving forward, a lot of work and effort could have been avoided." The difficulty in learning and applying this general lesson is that it takes a far greater commitment in terms of time, energy, and resources. In a third case, a UN official noted that a US IOTWS Program exchange was an effective approach because it supported and infused technical assistance into an Indonesian process to address the issues and gaps rather than externally designed and inserted without adequate understanding how technical assistance would contribute to ongoing plans and efforts underway in the country.

Other respondents offered simple suggestions for improving the effectiveness of technical assistance activities: "For all training and workshops, all organizers, presenters, facilitators and translators should sit together with enough time beforehand and go through all the information carefully, not just the agenda, but to review the material and concepts in respective contexts and then their translations, since the concepts and contexts are not the same in different countries and languages."

There is also a clear sustainability argument for providing technical assistance through more sustained engagement and partnership. As one senior Indonesian government official noted, "Yes, the partnership approach is very important, and with bilateral agreements we can go to the Ministry of Finance and get support within our own government."

- **Lesson Learned:** Technical assistance and capacity development support that is sustained and provided over extended periods of time is far more effective than short, periodic trips or single, stand-alone activities. Sustained engagement allows for better planning, implementation, and follow-up as well as relationship building and understanding of the context, issues, challenges, and capacities that exist in the institutions and countries receiving the assistance.

### Small Grants Program

Through the US IOTWS Small Grants Program, the PI approved and managed a total 17 small grants with a collective budget originally of $750,000, later reduced to approximately $700,000 as a result of a small number of grant cancellations. Grants ranged from $14,000 to $94,000 with the average around $40,000. The Small Grants Program was designed to catalyze and replicate pilot activities that would contribute to community-based disaster mitigation, preparedness, and response, and thus complement the overall end-to-end early warning system with downstream, sustainable projects.

The Review findings suggest that the Small Grants Program was generally considered well run and conscientiously managed, for which grantees naturally expressed appreciation and gratitude. However, respondents made interesting points about the rigors of USAID Grants regulations and requirements generally and the strict adherence to these within the US IOTWS Program. "USAID regulations and requirements were too much for a young organization like us,"

suggested one local non-governmental organization (NGO) director, although it should be noted the organization ultimately proved extremely successful implementing and completing the grant. Another grantee stated the "reporting requirements were pretty complicated and difficult for our staff to do in English, a barrier for local NGOs." Some grantees suggested ways this difficulty could have been reduced. For example, "There could have been greater consultation with grantees during the first four months of the grants."

Another grantee agreed, "Some of the reporting requirements were pretty amazing," and that "it would have been really helpful if there were a clear, step-by-step guideline of USAID grant requirements—we got it sometimes one step at a time, and it would increase transparency and efficiency."

Despite these responses, several grantees readily acknowledged that the insistence on complying with USAID's difficult regulations was ultimately beneficial to their organizations and were an effective form of capacity development support. "We have all become quite professional as a result of these requirements, and we now use these as best practices. But it was difficult, so it would be optimal if we had a clear and easy-to-follow guideline from the start." What appears to have made this approach fruitful was the capacity and readiness of the PI's Small Grants managers, financial and technical, to respond to queries and provide feedback and assistance as grantees struggled to comply with grant requirements. The willingness of Program management to consider and make occasional, well-justified exceptions was also appreciated: "The understanding and willingness to accommodate delays and the need to extend the grant was not only much appreciated, but we believe helped us produce a truly higher quality product."

A broader review of the Small Grants Program suggests that designing, launching, implementing, and completing such a program well within the boundaries of the US IOTWS Program's two-year timeframe imposed limitations and constraints on the types of projects and activities that could be successfully completed. It took the Program months to design the Small Grants Program, several months more to launch it and receive applications. As a result, grantees were generally left with under a year in which to learn and comply with grant regulations, and to implement, complete, and report on all activities. In cases where the grant project matched the timeframe and there were few delays, this worked fine. In other cases where the grant activities were perhaps too ambitious either for the timeframe or funding provided, there were more challenges and difficulties in completing all project activities. Fortunately, the Small Grants Program was designed to anticipate possible delays, so enough time was reserved to address and resolve any outstanding problems or issues following the formal completion of the grants program.

Other key questions relating to the Small Grants Program included the extent to which the grants "rolled up" and contributed to the work of the broader US IOTWS Program, and whether the Program was able to coordinate, collaborate, and achieve synergies between grant activities and the other Program activities. A number of grants did contribute directly to Program indicators, including the number of people trained in disaster preparedness. In terms of coordination and collaboration, the answer is that in some cases it was useful, particularly in the case of the CCR program. However, such instances were generally limited because, with the exception of CCR and one research grant, the Small Grants Program was not designed to provide direct support to other US IOTWS Program initiatives. They were rather designed to complete their own projects as defined in their Grant Agreements. Repeated efforts to identify points for potential collaboration often ended without useful results because grantees and other

program activity implementers were operating with different project frameworks, schedules, and work plans for which they were responsible.

One suggestion for an alternative model for a Small Grants Program would be to reserve funds for use in the second half of the Program, or after the Program had concluded, and to define it instead as a Sustainability Grants Program.  The objective of such a program would be to strengthen the handover process and help partners consolidate the gains made during the Program period.

- **Lesson Learned:** USAID grants regulations can be extremely difficult for new and small organizations to comply with, particularly when there are language difficulties. However, if they are applied within a capacity development framework and grant administrators are able to work patiently with the grantees, the outcomes for the grantee's own professional capacity can be considerable.

- **Lesson Learned:** Given strict time limitations, some of the most effectively implemented grants are those based on a previous program or process that was tried and tested, rather than a pilot process in which the initiative ends at the point where lessons are learned but without time or opportunity to apply them.

# 4. CONCLUSION

The US IOTWS Program provides a successful program model, particularly for a large and complex multi-agency initiative. Key elements of the model include: a program inception and design process that incorporated lessons learned from previous disaster responses; an inclusive and consensus-based approach to program planning that ensured team building, commitment and collaboration across Program agencies; and effective mechanisms for interagency program coordination.

Equally important was the Program's capacity to balance and integrate opposing programming principals and approaches. In terms of organizational structure, the decision to integrate US agency efforts within one program under the management of a single coordinating agency proved critical to Program success. However, this centralized structure was tempered by the relative autonomy reserved for respective agencies to implement according to their own systems, principals, and expert judgment. The centralized management design was also balanced by the Program's consensus and team-based approach to planning and decision making.

Similarly, the insistence on comprehensive, detailed, and consolidated work and performance management planning processes was balanced by an equal insistence on the principals of adaptive management and a rolling design that ensured adequate flexibility to adjust and further develop program activities on the basis of knowledge acquired, changing circumstances, and the evolving nature of the IOTWS. In coordinating and conducting Program activities in countries throughout the region, technical assistance was frequently provided by USG experts based in the United States. However, their efforts and expertise were often supported by and paired with in-country and regional Program Team members, both Asian and American, knowledgeable about in-country and regional contexts.

Finally, the US IOTWS Program Team believed in the need for an accelerated and compressed program timeframe to provide assistance and achieve results quickly, but it also insisted on an end-to-end design and the sustainability of Program achievements. Commitment to these opposing principles led to a certain tension or pressure, and certainly a perception among Program counterparts that the Program should have continued longer. Nonetheless, imposing a short timeframe for implementation arguably led the Program to achieve more in two years than it would have otherwise. Moreover, the Program was viewed as motivating many of its counterparts to address challenges and seize opportunities more quickly. With a six-month extension to ensure completion of some planned activities that were unexpectedly delayed, the Program was able to effectively hand over and sustain activities and results—a measured approach that balanced competing priorities and demands, and ultimately contributed to the Program's success.

# ANNEXES

A1.  LESSONS LEARNED REVIEW Scope of work
A2.  Interview protocol and Questionnaires
A3.  List of key informants and contact information
A4.  List of Documents and materials reviewed

# ANNEX 1: LESSONS LEARNED REVIEW SCOPE OF WORK

**Date:** August 03, 2007

*Summary*

The US IOTWS Program Integrator seeks approval from USAID to travel to US IOTWS program partner countries for the purpose of undertaking key informants interviews as part of a lessons learned exercise. The exercise is expected to result in a report to be shared with the international community addressing the challenges and good practices relevant to implementing a regional program. This report will be a sub-section of a larger lessons learned and best practices report that will also include USG relevant topics to programming such as contracting mechanisms, funding issues, administrative challenges, reporting requirements, etc. which may or may not be relevant/distributed to a broader audience.

*Objectives*

The objectives of the lessons learned review of the US IOTWS Program including the following:

- Identify lessons learned and good practices specific to regional programming including technical and administrative aspects;
- Identify lessons learned and good practices specific to USG foreign assistance programming including technical and administrative aspects; and
- Develop a report of lessons learned and good practices for distribution and inclusion in USAID's Development Experience Clearinghouse.

*Description of Activities*

- Design a research plan and methodology including development of a timeline and work plan for the survey; development and refinement of a key informant interview questionnaire; identification and selection of key informants; and collection and analysis of data.

- Undertake a desk review of US IOTWS Program generated documents to identify challenges and achievements as presented through reporting.

- Undertake a desk review of non-US IOTWS Program generated documents developed by partners as a result of the Program or that refer to it.

- Undertake a review of media references to the US IOTWS Program.

- Undertake key information interviews with US IOTWS Program implementing agency partners including USAID RDM/A, NOAA, USFS, USGS, USTDA, and the Program Integrator team including IRG, Tetra Tech, ADPC and URI. A cross-section of technical and administrative personnel will be interviewed to elicit information that will both feed into the report as well as assist in the refinement of the interview questionnaire.

- Undertake key informant interviews with other US IOTWS Program stakeholders including: US State Department; USAID Mission country counterparts; Governmental and Non Governmental Organizations partners from the international community (IOC/ICG; UNDP, UNOCHA, IFRC, CARE, etc.); national and sub-national disaster management counterparts; grantees; and beneficiary communities. A cross-section of technical and administrative personnel will be interviewed to elicit information that will both feed into the report as well as assist in the refinement of the interview questionnaire.

- Provide periodic progress report to USAID as requested.

- Prepare a draft report outlining findings to be submitted to US IOTWS Program team for review.

- Prepare a final report to be submitted to USAID US IOTWS Program CTO.

- Distribute report and present findings as requested.

### Timeframe

Activities are to be completed by December 31, 2007, report to follow.

### Research Team

Nives Mattich, Monitoring and Evaluation Specialist, US IOTWS Program Integrator
Peter F. Collier, Chief of Party, US IOTWS Program Integrator

### Associated Cost

Travel and lodging: India (one day); Maldives (one day); Sri Lanka (two days); Indonesia (two days). Staff time to arrange logistics and undertake SOW activities.

### Deliverables

Periodic updates provided to USAID US IOTWS Program CTO as requested.

Draft and Final Lessons Learned Report, Expected length 15–20 pages excluding Annexes.

### Challenges and Limitations

Bias from both the researcher and the interviewees is expected to influence findings to some degree. The researchers who employees under the Program and interviewees benefiting from it are both vested in the US IOTWS Program's success and therefore more likely to focus on positive outcomes and downplay challenges. However, the advantages of having researchers with an in-depth familiarity of the program undertaking the survey are considered to significantly outweigh the disadvantages bias may present. The background knowledge and deep understanding of the programmatic and administrative issues the PI researchers bring to the survey will assist in developing a report that is both more substantive and useful than one developed by someone unfamiliar with the program. In addition, the researchers recognizing the bias potential will be able to develop counter-measures to limit prejudice in selecting interview format, developing interview question phrasing, and identifying interviewees.

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# ANNEX 2: INTERVIEW PROTOCOL AND QUESTIONNAIRES

*Interview Protocol*

I. Introduction of interviewers (relation to the US IOTWS Program and brief technical background)

II. Purpose and background of Lessons Learned exercise
    A. Explanation of Lessons Learned purpose
        i. Lessons Learned is NOT an evaluation exercise
        ii. Purpose is to inform ongoing and future programs with regional and complex technical aspects
        iii. The final product will be presented at the Transition Workshop, included n the AID final report, submitted to the DEC, and included on the US IOTWS Program website which will be hosted by ADPC

    B. Description of Lessons Learned exercise framework
        i. Part I: Technical/ programmatic aspects of the program from the end-to-end system, regional programming, and complex programming perspective
        Audience: IOTWS partners in the region and anyone implementing a complex technical or regional program
        ii. Part II: Management/administrative aspects of the program
        Audience: Primarily USG focused but relevant inputs from all interviewees welcome

    C. Review of interview format and interviewee rights
        i. Semi-structured—Interviewees will be forwarded questions in advance of the interview but outside of a number of background and general questions that everyone will be asked, the interviewee will be requested to highlight issues they think are most relevant or important. Probing and follow up questions will be put forward based on the direction the interview takes.
        ii. Interviewees right to decline answer—Interviewees have a right to decline answering questions they do not wish to or to end the interview when they wish.
        iii. Interviewee right to pose interviewer questions at any time—Interviewees should feel free to ask clarifying or other questions whenever they wish during the interview.

III. Interview
    A. Questions posed to interviewee
    B. Questions fielded from interviewee
    C. Additional explanation or background of US IOTWS Program provided to interviewee if necessary

D. Anything else the interviewee would like to add or think forgotten to ask

IV. Closing
    A. Permission to quote interviewee
    B. Request if interviewee available for follow up questions if necessary
    C. Inform that interviewee will be provided a final copy of the report
    D. Thank you


## Questionnaire: Part I – Programming and Technical Implementation

### Interview information

Date & time:                                        Location:

Name:                                               Agency:

Position:

Duration in this position:


### General

- What do you know about the US IOTWS Program?

- How/when did you come to work with the US IOTWS Program?

- What activities have you undertaken with/ as a result of the US IOTWS Program?

- Who has (have) been your primary counterparts?

- What have you and your organization gained from working with US IOTWS Program?

- What have been the main challenges working with the US IOTWS Program?

- Do you think that the program addressed critical needs? Which?

- Do you think the program missed or should have been addressing other needs? Which and why?

- What would you recommend for future regional programs or programs similar to US IOTWS?


### Coordination

- How would you describe coordination between US IOTWS Program partners and your agency?

- With other national agencies in your country?

- With other international organizations in your country?

- With other national and international organizations in the region?

- Were there any particular challenges working with the various counterparts within the US IOTWS Program (i.e. USAID vs. the PI vs. US Inter-Agency counterparts, etc.)?

- To what extent were pre-existing relationships (with individuals or agencies) important in implementing the US IOTWS Program?
- To what extent did an in-country presence (or not) facilitate the program goals?

### *Program scope and design*

- Was the program's conceptual design of a regional end-to-end system appropriate?
- Were there any particular challenges associated with a regional approach from your perspective?
- Were there any particular challenges associated with an end-to-end approach from your perspective?
- Should the program have emphasized some other type of assistance/ engagement to achieve its regional end-to-end goals?
- Should the program have focused more attention/ resources to a particular part of the end-to-end system (i.e. regional, national, or local)?
- Were there any particular challenges to working with regional, national or local counterparts?
- Was there sufficient funding and other resources (e.g. personnel) to accomplish what the program set out to do?
- Was there sufficient time to accomplish the program goals?
- Were there any particular key assumptions upon which the program was based that later presented significant challenges?
- To what extent were regional and national counterparts involved/ consulted in developing the components of the US IOTWS Program? Were national plans and priorities reviewed with counterparts?

### *Program elements*

- Were there any particular challenges with equipment/ material assistance?
- Were there any particular challenges with the provision of technical assistance?
- Were there any particular challenges related to exchanges, workshops or trainings?
- Were there any particular challenges related to implementing the small grants program?
- To what extent was there a logical connection and balance between the program elements?

### *Context/Political will*

- Were there any particular challenges related to the program's understanding of regional, national, and/or local context and needs?
- Did political will present any challenges in implementing (aspects of) the program?
- Did political sensitivities/ context present any challenges to implementing (aspects of) the program?

*Capacity*

- Were there any particular capacity challenges in terms of regional, national or local counterpart's capacity?
- Was there sufficient capacity at the recipient end to absorb assistance?

*Outreach*

- Were there any particular challenges to undertaking public relations and outreach activities in the program? Was outreach adequate, effective?
- Was the program sufficiently visible? Could the general population or counterparts have been better served knowing more about the program?

*Leveraging, Sustainability & Transition*

- To what extent was the program able leverage its activities and achievements in terms of getting partners to commit resources?
- To what extent can partners be expected to provide matching or other resources in a regional program?
- To what extent was the sustainability of activities and the concept of transitioning to partners incorporated into the planning and implementation process? Were there any key assumptions?
- What are the challenges to sustainability of activities and transition to partners?
- To what extent was the concept of scaling up or replication incorporated in the program planning process?

## Impact

- Were there any particular challenges you experienced in terms of monitoring and evaluation of US IOTWS Program activities?
- How would you measure impact in the program? What is success?
- To what types of programs/ activities can the US IOTWS Program experience contribute to through its lessons learned?
- How has your country/ agency been affected by US IOTWS Program assistance?
- Is there anything else we forgot to ask or you would like to point out?

## Questionnaire: Part II – Program Management/Administration

### Interview information

Date & time:                                                    Location:

Name:                                                              Agency:

Position:

Duration in this position:

### Program Design

- Was the structure of the program including the use of a contractor, management by USAID and the use of IAs with USG partners the best configuration for this type of initiative?

- Was funding sufficient for the task?

- Was the timeframe adequate to accomplish the scope?

- Was the scope of the end-to-end program the best approach for the needs in the region?

- Given the funding, time-frame and needs, should the program have focused its efforts in another way?

- Was the program sufficiently flexible to meet changing needs?

- Did the "adaptive management" format adequately anticipate the program's needs and was it adequately applied?

- Did the program consider transition, sustainability and handover adequately?

### Staffing

1. Was there sufficient staff for program requirements?
2. Were there any significant recruiting issues?
3. Was capacity of staff sufficient? How important were country coordinators.
4. Did staff turnover impact the program? Were there any issues with continuity?
5. Was the mix of technical vs. support staff adequate?
6. Was there sufficient sense of team unity?
7. Did the location of staff across the region and in the US present issues?
8. Did the geographic coverage of the program present any challenge?
9. Were there any cultural, gender, other issues that affected the program?

*Management*

10. Were there any particular challenges associated with the work plan process?

11. Were there any particular challenges associated with the Performance Management Plan process?

12. Did the program present any particular challenges in terms of management, administration and coordination between your agency and USAID RDM/A?

13. Did the program present any particular challenges in terms of management, administration and coordination between your agency and other USG entities (i.e. USAID Washington; USAID Missions in the region; other USAID offices; US State Dept.; DoD, etc.)?

14. Did the program present any particular challenges in terms of management, administration and coordination within your agency?

15. Did the program present any particular challenges in terms of management, administration and coordination with your sub-contractors or grantees?

16. Was the PI's role adequate to address the program's needs? If not, what should have been different?

17. Were there any particular mechanisms that facilitated coordination (i.e. PCG calls, TDYs, US IOTWS Program Workshops) or could have better facilitated coordination?

*Program Monitoring and Evaluation*

18. What have the biggest M&E challenges been for this program? Are there sufficient checks and balances within the program to ensure adequate monitoring? Are there any gaps?

19. Were the M&E mechanisms adequate (i.e. Monthly Technical Report template; Source documentation database; training database, etc.)?

20. What should the M&E requirements for a program of this scope be?

21. What were the biggest lessons learned from the Audit?

22. Should the program have planned for a mid-term or final evaluation? If so, what would this look like?

*Outreach*

23. Who were the primary targets of the program's outreach efforts? Were there other audiences the program should/could have reached out to?

24. Were reporting requirement adequately addressed?

25. Were reporting and outreach mechanisms adequate (i.e. Fact sheet templates, distribution lists, US IOTWS Program website, etc.)

26. Were there any particular challenges associated with reporting for the US IOTWS Program?

27. Did the technical and programmatic complexity of the program present challenges for in explaining the broader program or capturing achievements?

28. Were there any particular challenges associated with reporting with/for the different USG Implementing Agencies?

29. Were there any particular challenges associated within the context of other USG and international efforts in the region?

30. Were the achievements of the US IOTWS Program sufficiently leveraged in terms of other US foreign policy objectives?

### *Logistics/ IT*

31. Were there any particular challenges related to IT?

32. Were there any particular challenges related to participant training and TraiNet?

33. Were there any particular challenges related to program logistics i.e. receiving clearances, coordinating staff travel, etc.

34. Were there any particular challenges to coordinating workshops, trainings, exchanges and other program events?

### *Administration and Finances*

35. Were there any particular challenges with procurement?

36. Were there any particular challenges associated with program finance?

37. Was there sufficient audit and oversight of program funds?

38. Were there any particular challenges associated with USG Inter-Agency partner coordination of finance or logistics issues?

39. Were there any particular challenges associated with program sub-contractors or grantees?

40. Were there any particular challenges with navigating USG regulations?

### *Offices Start Up and Closeout*

41. Were there any particular operational challenges related to office start-up? (i.e. establishing bank accounts, registration, tax issues, benefits, visas, etc.)?

42. Were there any particular challenges to opening satellite offices?

43. Were there any particular challenges related to the no-cost extension process?

44. Where there any particular operational challenges related to office closeout?

45. Is there anything else we forgot to ask or you would like to point out?

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# ANNEX 4: LIST OF DOCUMENTS AND MATERIALS REVIEWED

***US IOTWS Program Generated Materials***

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